

KRISHNA WATER DISPUTES TRIBUNAL

THE REPORT

OF

THE KRISHNA WATER DISPUTES TRIBUNAL

WITH THE DECISION

IN THE MATTER OF WATER DISPUTES REGARDING THE
INTER- STATE RIVER KRISHNA AND THE RIVER VALLEY
THEREOF

BETWEEN

REPORT/ DECISION

1. The State of Maharashtra
2. The State of Karnataka
3. The State of Andhra Pradesh

VOLUME I
(Pages 1 – 213)

NEW DELHI

2010

COMPOSITION OF
THE KRISHNA WATER DISPUTES TRIBUNAL

CHAIRMAN

Shri Justice Brijesh Kumar,
(Former Judge, Supreme Court of India)

MEMBERS

Shri Justice S.P.Srivastava,
(Former Judge, Allahabad High Court, Uttar Pradesh)

REPORT/ DECISION

Shri Justice D. K. Seth,
(Former Judge, Calcutta High Court, Kolkata)

ASSESSORS;

1. Shri R.S. Prasad
(Former Chairman C.W.C.).
2. Shri Suresh Chandra
(Former Chairman C.W.C.)

Representatives of the State Governments before
the Krishna Water Disputes Tribunal

1. For the State of Karnataka

Advocates

Shri F.S. Nariman, Sr. Advocate
 Shri Anil B. Divan, Sr. Advocate
 Shri S.S. Javali, Sr. Advocate
 Shri Uday Holla, Advocate General
 Shri Ashok Harnahalli, Advocate General
 Shri Basava Prabhu S. Patil, Advocate
 Shri Mohan V. Katarki, Advocate
 Shri Brijesh Kalappa, Advocate on record
 Shri R.S. Ravi, Advocate
 Shri S.C. Sharma, Advocate
 Shri R.S. Pappu, Advocate
 Shri Ranvir Singh, Advocate
 Shri Gurudatt Ankolekar, Advocate

Assisted by the following officials and consultants
as informed by Shri Brijesh Kalappa, Advocate on
Record through his letter dated 20.12.2010 (received on
21.12.2010):

Shri A.K.M. Nayak, Principal Secy., Water Resources Deptt.
 Shri L.V. Nagarajan, Principal Secy., Water Resources Deptt.

Shri D.Satyamurthy, Principal Secy., Water Resources Deptt.
 Shri K.G.V.Murthy, Addl.Secy., Law Deptt.
 Shri N. Vijayaraghavan, Chief Engineer (Inter-state Waters), WRDO
 Shri M.Bangaraswamy, Chief Engineer (Inter-state Waters), DRDO
 Shri D.N.Desai, Principal Advisor
 Shri Sriramaiah, Technical Advisor
 Shri T.S.Narayana Swamy, Dy. Advisor
 Shri H.Seshadri, Dy. Advisor
 Shri B.R.Vijaya Kumar, Superintending Engineer (ISW)
 Shri A.B.G.Hiremath, Asstt.Executive Engineer
 Shri K.Vijaya Kumar, Asstt.Executive Engineer
 Smt.M. Shamala Devi, Asstt.Executive Engineer

2. For the State of Maharashtra

Advocates

Shri T.R.Andhyarujina, Sr.Advocate
 Shri U.U.Lalit, Sr.Advocate
 Shri D.M.Nargolkar, Advocate on record
 Shri Ashish Chugh, Advocate
 Shri Shoumik Ghosal, Advocate

Assisted by the following officials and consultants as
 informed by Shri Deepak M. Nargolkar, Advocate on
 Record through his letter dated 23.12.2010:

Shri V.V. Gaikwad, Secretary, Water Resources Department
 Shsri E.B. Patil, Secretary, Water Resources Department

Shri H.K. Tonpe, Chief Engineer & Joint Secretary
Shri N.L. Gawale, Chief Engineer & Joint Secretary
Shri A.R. Kore, Chief Engineer & Joint Secretary
Shri S.K. Ghanekar, Superintending Engineer
Shri S.V. Awati, Executive Engineer
Shri K.G. Devali, Executive Engineer
Shri D.G. Mogane, Executive Engineer
Shri S.G. Joshi, Executive Engineer
Shri C.N. Hangekar, Executive Engineer
Late Shri S.T. Deokule, Advisor and Consultant
Shri S.N. Huddar, Advisor and Consultant
Shri K.S. Shankar Rao, Advisor and Consultant

3. For the State of Andhra Pradesh

Shri Dipankar P. Gupta, Sr. Advocate
Shri D. Sudershan Reddy, Sr. Advocate
Shri Rakesh Dwivedi, Sr. Advocate
Shri G. Veera Reddy, Advocate
Shri E. Raveendra Rao, Advocate
Shri M.R.S. Srinivas, Advocate
Shri T.N. Rao, Advocate on record
Shri S. Santosh Kumar, Advocate
Shri M. Ramulu Reddy, Advocate
Ms. Preetika Dwivedi, Advocate
Shri Anant Prakash, Advocate

Assisted by the following officials and consultants
as informed by Shri T.N. Rao, Advocate on Record
through his letter dated 22.12.2010:

Shri S.K.Joshi, IAS, Principal Secy. to Govt., I & CAD Deptt.
Dr.P. Rama Raju, Ph.D, Chief Engineer, Inter State & Water Resources
Dr. M.S.Reddy, Principal Advisor to Govt.
Shri N.Gopal Reddy, Chairman, Technical Advisory Committee
Shri B.P.Venkateswarlu, Member Technical Advisory Committee
Shri K.V.Ram Mohan, Member, Technical Advisory Committee
Prof. Subhash Chander, Sr.Consultant
Shri V.V.S. Rama Murthy, Consultant
Shri M.A.Raoof, Supdtg. Engineer, IS&WR
Shri M.Visveswra Rao, Ex. Engineer (Hydrology)
Shri P. Rama Krishna Murthy, Dy.Director (Krishna)
Shri N.Satyanarayana, Dy.Director (Krishna Tribunal)
Shri C.R.K. Reddy, Ex.Engineer (New Delhi)

I N D E X

(Important Issues and Points)

<u>Sl.No</u>	<u>Particulars</u>	<u>Page No.</u>
1.	Introduction	1
2.	History of the case – Decision and Findings of the previous Tribunal	6
3.	Review Proceedings – References and Clarifications	69
4.	Proceedings before the Supreme Court in the original suits	107
5.	Complaints of the States in the present Proceedings and Preliminaries of the present Proceedings and the Issues	136
6.	Co-operation amongst riparian States – An essential element	160
7.	Question Re.- The Proviso to Section 4(1) of the Act against reopening of the settled disputes	169
8.	Question raised relating to implications arising from Section 6(1) of the Act	205
9.	Findings on the Issues	211
10.	Availability of Flows & availability of Water – Exercises before this Tribunal	214
11.	Series of 47 Water Years 1961-62 to 2007-08	260
12.	Percentage factor of Dependability	305
13.	Inevitable Wastage	331

14.	Success Rate	390
15.	Re. – Scheme-B – Issue No. 5	434
16.	Diversion Outsides the Basin – Issue No. 6	473
17.	Tungabhadra sub-basin and related disputes	488
17(a)	Projects of Karnataka – Upper Tunga Singatlur, Upper Bhadra and others – Issue No. 27	515
17(b)	Control of Head Regulator and Canal system of Left and Right Sides of Tungabhadra Dam – Issue No. 21(A)	549
17(c)	Mini Hydel Project – Issue No. 22A	561
17(d)	Administrative control over Rajolibunda Diversion Scheme – Issue No. 22	572
17(e)	Parallel High Level Canal – Issue No. 24	581
18.	Height of Almatti Dam – Issue No. 14	597
18(a)	Conditions – If violated by Karnataka in raising the height of Almatti Dam – Issue No. 15	663
19.	Supply of Drinking Water for Chennai City	705
20.	Minimum in-stream flow and flow required for environment and ecology	723
21.	Distribution and apportionment of available waters	743
22.	Machinery for implementation of the Decision of Tribunal – Issue No. 21	792
23.	Decision and Order of the Tribunal	800

A P P E N D I X

Particulars

Pages

Appendix-I	Krishna Waters Decision – Implementation Board	1- 23
Appendix-II	The Map of the Krishna Basin	24



INTRODUCTION

The matter in hand before this Tribunal, constituted by Notification dated April 2, 2004 issued under Section 3 of the Inter State River Water Disputes Act 1956 (effective date of constitution of the Tribunal being 1st February, 2006), relates to waters of the river Krishna; an inter-state river; flowing through three States Viz. the States of Maharashtra, Karnataka and Andhra Pradesh.

A river is not an amenity but a treasure. It needs to be preserved. It flows for the good of people of the surrounding area and in the larger interest to the extent of reach of its benefits, even to far off areas too. It is a bare necessity for human existence, for existence of living beings, and necessary for agriculture for flora and fauna, environment, ecology and so on and so forth. It is also used for generation of power for industrialization and for better quality of life, comfort and luxuries of life also. All people feel entitled to the highest quantity of water so as to derive maximum benefit and there arises unfortunately, a clash of interest inter se amongst the people of the area, the river winds its way through.

It is universally accepted that the quantity of water remains the same though in different places, forms or stages. Water gets into scarcity where its needs have gone too high. It is well described¹ about the forms and use of the water “Water is the only substance on earth that is naturally present in all three forms of liquid, solid (ice), and gas (water vapor). The same amount of water is present on earth today as when the dinosaurs inhabited the planet millions of years ago. Water is reused over and over again. Every glass of water you drink consists of billions of H₂O molecules that have been used countless times before”.

While emphasizing the importance of water it was further observed^{1a} “Since ancient times, civilizations have risen and prospered where water supplies were plentiful and have fallen when these supplies failed in quantity and/or quality. People have killed each other in fights between neighbors and wars of nations over access to water. Floods and droughts have devastated human population throughout the history. Dramatic population growth during the 20th Century has made effective water management

¹ Ralph and A Wurbs -Wesley P James –Water Resources Engineering page 40 Indian Re Print 2002 by Prentice Hall of India Private Limited
1a. Ibid

even more crucial for human survival and prosperity and environmental vitality in the 21st Century”.

While commenting on hydrological cycle^{2b} Ecclesiastes Chapter I is quoted “All rivers flow into the sea, yet the sea is never full. To the place the streams come from, there they return again.”

The three quarters of the planet earth is covered under water and 2/3 contents of a human body is water.

Indeed it is also a matter of fact that in India, the number of consumers of the water has enormously increased and rapidly, requiring more water for different purposes including irrigation to grow more food, for generation of more power and other industrial purposes which in turn cater to the necessities of life and also for ever increasing material needs of the people for easy way of life and amenities. In this background sometimes, need of water all along the riparian areas of an inter state river, results in larger and complex problems amongst the people, who are supposed to be beneficiary of the river water. The ultimate aim of

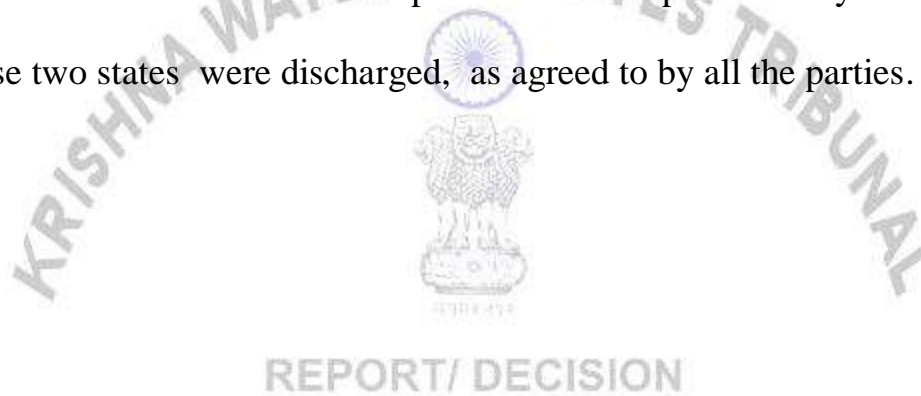
2 b. Ibid Page 42

resolution of such disputes lies in an effort to evolve a solution which may provide for maximum sustainable utilization of the available water for deriving maximum benefit for the maximum number of people along the area to cater their needs of various nature, while still preserving the source namely the river and its flow. It needs mutual regard for each others' needs and an attitude for adjustment inter se, which is generally speaking absent but its compelling desirability cannot be undermined. It needs a broader outlook to view the whole problem. Alas! States contesting the matter could realize it and put it into practice.

The river Krishna emerging from the western Ghat of Mahadeva Range of Mahabaleshwar in Maharashtra, flows through the states of Maharashtra, Karnataka and Andhra Pradesh, ultimately, merges into the Bay of Bengal. It travels a distance of 870 miles, or say 1392 kms. It is fed by the heavy rainfalls of the western Ghats, and normal and below normal rains along its route to the Bay of Bengal. It is also joined by many tributaries and sub tributaries contributing a large quantity of water. The major tributaries are Bhima in Maharashtra and Tungabhadra in Karnataka. Some other

important tributaries are Ghatprabha and Malprabha, in Karnataka Doodhganga, Panchganga etc. in Maharashtra and Musi, Palleru and Munneru in Andhra Pradesh.

A dispute amongst these riparian States namely, Maharashtra, Karnataka and Andhra Pradesh (erstwhile States of Mysore and Hyderabad, respectively) had arisen earlier also. A Tribunal was constituted for adjudication of the dispute. The States of Madhya Pradesh and Orissa were also parties to the dispute initially but later these two states were discharged, as agreed to by all the parties.



History of the Case:**KRISHNA WATER DISPUTES TRIBUNAL OF 1969 – ITS FINDINGS AND FINAL REPORT WITH DECISION**

For properly appreciating the nature of the present dispute, it is inevitably important to mention about the Krishna Water Disputes Tribunal constituted earlier i.e. on 10th April, 1969 (hereinafter it may also be referred to as KWDT-I, Tribunal-I or the previous Tribunal), by the Government of India under the provisions of Inter State Water Disputes Act. Its Report with decision was delivered in December, 1973 and the Further Report with decision in May, 1976. The previous Tribunal is commonly known as Bachawat Tribunal. However, quite a number of points which have been dealt with in the previous and the Further Report with decision, have been raised for consideration before this Tribunal as well, besides some new questions which have arisen in the meantime.

The State of Mysore (now Karnataka) had claimed equitable distribution of waters of river Krishna and had objected to the implementation of some projects of Andhra Pradesh including Srisailem project and Nagarjunasagar Stage II and Maharashtra's westward diversion of Krishna Waters in excess of 67.5 TMC. The case of Maharashtra was for assessment of dependable flow of the Krishna river and for equitable apportionment thereof. It had also objected to erection of Nagarjunasagar crest gates and Srisailem project. Andhra Pradesh, amongst other points, also raised the question of westward diversion of water by Maharashtra for Koyna project, and also claimed that projects of upper states could not be cleared without its prior consent. It had also claimed that supplies to its projects be ensured in all years, sharing of excess flows over and above dependable yield, directions about working of Left Bank Canal (LBC) of Tungabhadra Dam etc. The three contesting States placed their requirements before the previous Tribunal, for the purposes of their, then existing and future projects, Maharashtra to the tune of gross utilization of 828.70 TMC, Mysore 1430 TMC and Andhra Pradesh 1888.10 TMC total of which comes to 4146.80 TMC.

The previous Tribunal has given detailed description of the Krishna river and its basin in Chapter (III) of the Report indicating therein, the altitude of the river at the Western Ghats as 4385 ft. and detailing the places through which it passes collecting water from different tributaries at different altitude and at different distances from the point of emergence of the river with the length of its flow in any particular state. The Krishna basin has been divided into 12 sub basins by the Krishna Godavari Commission namely K1 Upper Krishna Ghat Area, K2 Middle Krishna, K3 Ghatprabha Ghat area, K4 Malaprabha Ghat area, K5 Upper Bhima Ghat Area, K6 Lower Bhima, K7 Lower Krishna Western Part Eastern Ghats Delta, K8 Tungabhadra Ghat area, K9 Vedavathi, K10 Musi, K11 Palleru and K12 Muneru. The sub basins range between an elevation of 4500 ft. to 100 ft. in K12 . It then gives the details about the distribution of area of different sub basins. The district wise distribution of the sub basins in different riparian States, population in Krishna basin State wise and noting the fact that 75.8% population in the Krishna basin lived in rural areas. The rainfall in the area as then, has been discussed including sub basin wise seasonal and annual weighted average rainfall. In a chart form, variability of rainfall, climate,

temperature of the area including potential evaporation has been indicated with some arid and semi arid regions. It also mentioned about the various projects of the states and the cultureable area in different States etc. Such charts statistics and figures can well be taken note of to the extent there is no change asserted before us or reported.

It was observed that the scarcity areas were areas of low and uncertain rainfall, which frequently suffer from droughts causing partial or complete failure of crops, consequently distress and scarcity conditions prevail at frequent intervals.

In Krishna basin such areas are noticeable particularly in the districts of Pune, Sholapur, Satara, Sangli, Ahmednagar, Osmanabad and Bhir in the State of Maharashtra and in the districts of Bijapur, Bellary, Raichur, Dharwar, Gulbarga, Chitradurga and Tumkur of Mysore (Karnataka) and the districts of Mahboobnagar, Nalgonda, Hyderabad, Kurnool and Anantpur of the State of Andhra Pradesh.

The Tribunal also found that all the rivers of the Krishna river system have one common feature. During the monsoon, they pass enormous volumes of water part of which runs waste into the sea.

After the monsoon, their flow was too meager for planned agriculture. Such being the pattern of inflows, provision of regulating storages to even out the wide seasonal fluctuation becomes the key technique of development of river resources. The water stored during the rains is let out from time to time according to the requirements of irrigation and other beneficial uses.

The Tribunal also noticed that in the State of Maharashtra, all the canals in the Krishna basin, except the first 12 miles of Khadakwasla Project, were unlined. In Andhra Pradesh, except some portions of the canals, all canals were unlined. Further, in Andhra Pradesh and Mysore (Karnataka), irrigation from storage tanks had been practised from the earliest times down to this day. There were tanks in Maharashtra also.

So far as the navigation is concerned, it was observed that Krishna river was navigable from sea to 22 miles upstream of Prakasham barrage throughout the year and about 60 miles upstream of the barrage during the monsoon months. Further, there were navigation facilities in the delta canals below Vijayawada where the canals were open to navigation for nine to ten months in a year.

The previous Tribunal in all framed 7 issues, first issue related to the agreement entered into amongst the four States in July 1951, as to whether it was a concluded agreement and in conformity with Article 299 of the Constitution or not. This question, is no more relevant for the present dispute. It was, however, found that it was not a concluded agreement. Issue No. II was as to what direction, if any, should be given for the equitable apportionment of the beneficial use of water of river Krishna and the river valley. It was divided in 8 sub-issues as follows:-

Sub-Issues

- (1) On what basis should the available waters be determined?
- (2) How and on what basis should the equitable apportionment be made?
- (3) What projects and works in operation or under construction if any, should be protected and/or permitted? If so, to what extent?

- (4) Should diversion or further diversion of the waters outside the Krishna drainage basin be protected and/ permitted? If so, to what extent and with what safe guards? How is the drainage basin to be defined?
- (5) Should any preference or priority be given to irrigation over production of power?
- (6) Has any State any alternative means of satisfying its needs? If so, with what effect?
- (7) Is the legitimate interest of any State affected or likely to be affected prejudicially by the aggregate utilization and requirement of any other State?
- (8) What machinery, if any, should be set to make available and regulate the allocations of waters, if any, to the States concerned or otherwise to implement the decision of the Tribunal.

Issues Nos. III, IV and IVA pertain to the agreements of the years 1944, 1892 and 1933 and June 1944 amongst the three States as existed during pre independence days and related to the demand of water of Tungbhadra and about its management.

Issue No. IVB is to the effect :

(a) Should any direction be given for the release of waters from Tungabhadra Dam -- It has been sub-divided into further sub issues as follows:-

- (i) for the benefit of the Kurnool Cuddapah canal;
- (ii) for the benefit of the Rajolibunda Diversion Scheme;
- and
- (iii) by way of contribution to the Krishna river?

(b) Should any directions be given for the vesting of the control and administration in Tungabhadra Board of –

- (i) the Tungabhadra Dam and the Reservoir and the main canal on the left side;
- (ii) the Rajolibunda Headworks and the common canals within Mysore State limits; and
- (iii) the Power House at Munirabad?

Has the Tribunal any power to give such directions?

(c) Is Andhra Pradesh entitled to a share in the power generated at the Power House at Munirabad?

(d) Is the claim of Andhra Pradesh for a share in the benefits of the power generated at Munirabad Power House and/or for the

vesting of the control and administration of the said Power House in the Tungabhadra Board a water dispute within the meaning of the Inter State Water Disputes Act?

Issues Nos. V, VI and VII are also quoted below:-

V. Should any directions be given for release of waters –

- (a) by Maharashtra for the benefit of Mysore from (i) storage dam at Ajra and (ii) Koyna Valley Irrigation-cum-Hydro Electric Project;
- (b) by Mysore for the benefit of Andhra Pradesh from (i) Upper Krishna Project; (ii) Tungabhadra Left Bank Canal and (iii) Bhima Project.

VI. Is it possible to divert waters from the river Godavari to the river Krishna? Should such diversion be made and, if so, when by whom, in what manner and at whose cost? Is the Tribunal competent to adjudicate on these questions?

VII To what relief are the parties entitled?

Before the Tribunal-I, a large number of documents were filed by the parties and their witnesses were also examined. The Tribunal-I

has gone into the detailed facts and figures it had before it as well as charts on different aspects of the matter, for example the area of catchment of the river Krishna and its break up, the contribution of the three States in the flow of the river Krishna, population, water year series etc.

In Chapter V, the Report of the previous Tribunal deals with dispute concerning river Tungabhadra, as before 1947 Tungabhadra evolved its catchment area in the States of Mysore and Hyderabad, Madras and Bombay, in different proportion which changed after the reorganization of the States. The question has been dealt with, in the light of the agreements between the States of Madras and Mysore, Madras and Hyderabad, Madras and Mysore in supplement agreement, thereafter before independence amongst the States of Madras, Mysore and Hyderabad. Issue No. IV is in respect of these agreements of 1892 and 1933, as to whether they subsist after merger of princely States and the Reorganisation of the States.

However, in view of an agreed statement regarding Issue No. IV and protection to irrigation works in their respective territories in the Vedavathi sub basin and further agreement between Andhra Pradesh and Mysore, the parties had conceded and had agreed that

Tribunal was not required to decide Issue No. IV. It was also agreed by the States of Andhra Pradesh and Mysore that they do not rely on the agreement of 1892 for any relief in the proceedings relating to the allocation of Krishna waters. Again by means of an agreed statement dated October 23, 1972 the States of Mysore and Andhra Pradesh prayed that the Tribunal need not answer issue Nos. III and IVA also, in view of the fact that the Tribunal had general jurisdiction in the matter of equitable distribution of waters of river Krishna (including waters of Tungabhadra river), the States of Bombay (Maharashtra) had not opposed the request, hence the Tribunal opined “accordingly we have to make equitable distribution of the waters of the river Krishna including the waters of the Tungabhadra in exercise of our general jurisdiction and we are not called upon to decide Issues III and IVA”. The agreements of 1892, 1933, 1944 and 1946 amongst the States of Mysore, Madras and Hyderabad held to have been superseded by virtue of the order of the Tribunal-I.

The Tribunal-I then dealt with Tungabhadra Dam, indicating that by virtue of agreement of June 1944, Madras and Hyderabad Governments started construction of Tungabhadra project which came under the purview of three successive Five Year Plans. It was

intended to irrigate areas on the left side which fell within the dominion of the Nizam of Hyderabad and on right side in the Province of Madras. The respective States continued to be in charge of the left and right sides of the project even after 1950. It then also said that upon coming into force of the States Reorganisation Act, 1956, as from 1st November, 1956. the control of the left side of the project came to be vested in the State of Mysore. However, Tungabhadra Board was established by means of a Notification dated September 29, 1953 issued by the President of India under sub-section 4 of Section 66 of Andhra Pradesh State Act, the Notification provided as under:-

“The board shall take charge of and deal with all matters relating to works on or connected with the Tungabhadra Project which are common to both the States of Andhra and Mysore, but nothing in this sub paragraph shall be deemed to authorize the Board to deal with any matter in respect of works which relate to only one of the States or in which only one State is interested.”

The issue was answered thus “in our opinion, it is desirable that the Tungabhadra Board should continue to retain charge of the

works on or connected with the Tungabhadra project which are common to the two States until another control body, as mentioned above, is established.”

It further said “if a control body for the entire Krishna valley is established, the Tungabhadra Board may be abolished and all powers of Tungabhadra Board may be vested in such control body. It answered Issue IV B (b)(i) as above.

Regarding Issue IVB (b)(ii) – Vesting of Control of the Rajolibunda headworks and common portion of the canal within Mysore State limits, in the Tungabhadra Board, Tribunal expressed its opinion in negative but gave the following direction: -

“The benefits of utilizations under the Rajolibunda Diversion Scheme be shared between the States of Karnataka and Andhra Pradesh as mentioned herein below:-

Karnataka	1.2 TMC
Andhra Pradesh	15.9 TMC”

The previous Tribunal then took into consideration the effect of States Reorganisation Act 1956 and the claims raised by the parties (Andhra Pradesh) on the basis of the provisions thereof, all of

which were negated discussing Sections 107 and 108 of the State Reorganisation Act. These claims pertained to:-

1. release of water from the Koyna Projects,
Issue V(a)(ii) ;
2. release of water from a storage dam Ajra,
Issue V(a)(i) ;
3. extension of the Tungabhadra Left Bank Low
Level Canal to Andhra Pradesh, Issue V(b)(ii);
4. extension of a project on the Bhima in Mysore to
Andhra Pradesh, Issue V(b)(iii) ;
5. extension of the Upper Krishna Project to Andhra
Pradesh, Issue V(b)(i); and
6. sharing of power generated at the Munirabad
Power House, Issue IV(B).

The Tribunal then in Chapter VII of the Report with decision dealt with the question of diversion of Godavari Water to the Krishna

which was Issue No. VI. According to the Maharashtra diversion was needed since shortage of water in Krishna was created by over appropriations by Andhra Pradesh and according to the Karnataka (Mysore) if the Andhra Pradesh needed excess water to irrigate its vast area to raise 2nd or 3rd crop then Godavari waters may be diverted to Krishna. An order was passed on July 27, 1971 to the effect that “parties have agreed that each of the States concerned will be at liberty to divert any part of the share of Godavari water which may be allocated to it by the Godavari Tribunal from the Godavari Basin to any other basin.” The parties included States of Madhya Pradesh and Orissa. The Tribunal observed that whether the States of Maharashtra and Karnataka (Mysore) should be given any share in the diverted waters will be a question to be examined if and when water of river Godavari or waters of any other river is diverted into river Krishna. It was also observed that in the event of augmentation of the waters of the river Krishna by the diversion of the waters of

any other river, no State shall be debarred from claiming before the reviewing authority or Tribunal as may be constituted after May 31, 2000 that it is entitled to greater share in the waters of the river Krishna on account of such augmentation nor shall any State be debarred from disputing such claims.

About ground water it was observed that for equitable apportionment of waters of an inter State river system, the ground water resources of a State is a relevant factor. It may furnish alternative means for satisfying the State's irrigation needs and there may also be a close connection between the surface and ground water resources of a river basin which may require to limit the use of ground water. But it was found that in Krishna basin no systematic ground water survey had been made nor any sufficient data in that connection was available.

On September 25, 1972 on the basis of agreement amongst the parties before the Tribunal, the Tribunal passed the following order:-

“The Tribunal hereby declares that the State of Maharashtra, Karnataka and Andhra Pradesh will be free to make use of underground water within their respective State territories in the Krishna river basin.”

Use of underground water by any State was not to be reckoned as use of water of the river Krishna.

Determination of dependable flow:-

The Tribunal then proceeded to determine dependable flow in the river. The Tribunal observed that “ It is generally agreed that the volume of water which passes over and through Vijayawada Weir would give us a fair idea of the volume of flow in the river after the upstream utilization are added to it.”

The Tribunal observed that broadly speaking the case of Maharashtra and Mysore was that for the purposes of irrigation the volume of available water should be computed at 75% dependability.

The contention of Andhra Pradesh to stick to 86% dependability was not accepted. The Tribunal preferred to apply simple statistical method for determining the percentage of dependability of the flow at a particular point. The Tribunal then found “for ascertaining the percentage dependability of the flow at a given point of a stream where a continuous record of flow for a number of N years is available, the flow discharge data is arrayed in descending order. Each year’s flow so arrayed is assigned the serial number from the top and if M be the serial number of the flow in any year, the percentage dependability for the flow of that year is calculated by applying the formula $M/N \times 100$. Some authorities say that the percentage dependability should be arrived at by applying the formula $M/N+1 \times 100$ but all the parties in this case have adopted the formula $M/N \times 100$ ”.

Regarding other methods the Tribunal-I found that measuring water accurately in the Krishna basin, by establishing rainfall runoff

relationship was a difficult problem and it also considered 3 D. Model Experiments for that too was not considered to be such that can be acted upon.

The Tribunal-I noticed that there was breach in the Krishna Anicut in the year 1952 and in its place construction of the Krishna (Prakasam) Barrage was sanctioned. The construction of the Krishna (Prakasam) Barrage started in the year 1953 and was completed in the year 1962. There was a serious controversy between the parties with respect to the dimensions of the Krishna Anicut which was no more in existence and the formulae employed in calculating the discharges of the water flow over the Anicut and the gauge or gauges with reference to which calculations were made.

Finally, the Tribunal took into consideration the flow series at Vijayawada for the years 1894-95 to 1971-72, it was also observed that parties were broadly in agreement regarding the utilizations made by each State every year from 1901-02 to 1968-69. The three States submitted separately annual flow series from which 75% dependable flow was worked out by each and an agreed statement was also

submitted stating 2060 TMC at 75% dependable flow of Krishna river at Vijayawada for the purposes of the case. The same dependability at 75% has been determined by the Tribunal as indicated above.

The Return flow has been described as that portion of diverted water which finds its way to the river from which it is diverted. After the field is irrigated and water is absorbed by the soil to sub-soil, it gets saturated, hence the percolation of water underground result in rise of the water level which flows back to the stream as invisible return flow. According to Maharashtra the return flow from new irrigation projects in Krishna basin will be 30 to 40 per cent which would appear within a short time. Therefore, they should be taken into account in determining the dependable flow. The case of Karnataka (Mysore) has been that it was difficult to determine the amount of return flow and the time of its return in the main stream. Hence on account of uncertainty some method be devised which may automatically account for and each state may get its due share in it. The State of Andhra Pradesh took up the position that in view of the uncertainty factor involved in return flow, it should not be taken into account at all. The Tribunal considering the studies relating to return

flow in USA and the views of the Indus Commission and other relevant material including the oral evidence of expert witness produced on behalf of State of Maharashtra Mr. Framji, adopted a formula which will be indicated a little later.

The Tribunal observed:-

“It is common case before us that the use of water for irrigation should be measured by the quantity of water diverted from the river without deducting the water that may return after such use to the river, because on such diversion there is immediate depletion of the river supply to the extent of the water diverted.”

The Tribunal further observed that the record of utilization of upstream was available upto 1968-69 and the same was assumed for the years 1969-70, 1970-71 in absence of record for these years. It is found that after 1968-69 there would be gradual increase in utilization by the States for irrigation and excess utilization of water after 1968-69 will yield substantial return flow. Return flow is not reflected in dependable flow of 2060 TMC.

The Tribunal held:

“We hold that additional 75% dependable flow on account of return flows available in distribution as from the water year 1983-84 should be computed on the basis of excess of average of the annual utilizations during the water years 1975-76, 1976-77 and 1977-78 over the utilizations in the water year 1968-69”.

The Tribunal distributed the return flow to the States in the following manner as contained in Clause V (A) of the Award in respect of State of Maharashtra:

- (i) as from the water year commencing on the 1st June next after the date of the publication of the decision of the Tribunal in the official Gazette the water year 1982-83 - 565 TMC
- (ii) as from the water year 1983-84 up to the water Year 1989-90 - 565 TMC plus

A quantity of water equivalent to 7½ per cent of the excess of the average of the annual utilizations for irrigation in the Krishna river basin during the water years 1975-76, 1976-77 and 1977-78 from its own projects using 3 TMC or more annually over the utilization for such irrigation in the water year 1968-69 from such projects.

- (iii) as from the water year 1990-91 upto the water Year 1997-98 565 TMC a quantity of water equivalent to $7\frac{1}{2}$ per cent of the excess of the average of the annual utilizations for irrigation in the Krishna river basin during the water years 1982-83, 1983-84 and 1984-85 from its own projects using 3 T.M.C. or more annually over the utilization for such irrigation in the water year 1968-69 from such projects.
- (iv) as from the water year 1998-99 onwards 565 TMC plus a quantity of water equivalent to $7\frac{1}{2}$ per cent of the excess of the average of the annual utilizations for irrigation in the Krishna river basin during the water years 1990-91, 1991-92 and 1992-93 from its own projects using 3 T.M.C. or more annually over the utilization for such irrigation in the water year 1968-69 from such projects.

(Note $7\frac{1}{2}$ % has been revised to 10% in the Further Report)

The State of Karnataka and Andhra Pradesh were also to get the share in the return flow in the same manner as indicated above. The Andhra Pradesh was, however, given liberty by way of temporary arrangement to use the remaining water that may be flowing in the river Krishna but without acquiring any right whatsoever in it nor it would be deemed to have been allocated to Andhra Pradesh.

So far as the measurement for the other uses is concerned, Tribunal has mentioned about a joint statement made by the parties on August 17, 1973 and held that for domestic and municipal water supply, the use shall be measured as 20% of the quantity of water diverted and by 2.5% of the diverted quantity of water for industrial use.

While considering the law relating to equitable apportionment of benefit of Inter State River, in the background of the Inter State Water Disputes Act 1956 and a number of decisions mostly American decisions and textbooks on the subject and reports, the Tribunal-I made some important observations which may be briefly quoted usefully e.g. “the river basin is necessarily completely bounded by the water shed or divide which separates it from other adjacent basins. The waters of the river basin can be diverted and beneficially applied to areas in adjacent watersheds but those areas cannot be regarded as parts of the river basin”. It was also observed that a river is an indivisible physical unit though utilization of water within territory of one State influences the conditions of water utilization in other States. It went on to observe in the background of relevant Entries in List I and II of the 7th Schedule, “Thus the equal

right of each State over the waters of the Inter State river and river valley must be respected by all and none is free to do what it likes with the waters within its boundaries without respecting the interests of others". Referring to certain decisions the Tribunal-I observed that the effort is to secure an equitable apportionment without quibbling over formulas. What matters is the river system and the requirement of different States which may differ from place to place and situation to situation. It may also be relevant to take into account peculiar physical, hydrological, economic, political and legal characteristics of the States and the river system and the solution of the dispute may be shaped accordingly, it observed. The States contribution to the available river flow was not crucial factor in apportionment of river waters. A reference was made of an American decision where only 3% of river flow was allotted to a State contributing the 21% to the river flow. It is observed that no State has the proprietary interests in a particular volume of water on Inter State River on the basis of its contribution or irrigable area. It would be reasonable to take into account prospective uses as are reasonable having regard to the available supply and the needs of other States.

It was further observed that scarcity areas were heavily dependent on river water for irrigation and the needs of such areas should receive special consideration.

The Tribunal then dealt with the subject of protection of existing uses in Chapter XII of its Report. The issue as framed was “Issue II (3): What projects and works in operation or under construction, if any, should be protected and/or permitted? If so, to what extent”? The term protected uses, as observed, should be understood to mean that certain existing uses for which protection is claimed and granted, should be preferred to contemplated uses but at the same time it was not intended that the existing uses must continue or they should not be changed in future nor it obliged that it would always get the full and timely supplies in priority to other projects. The Tribunal referred to the findings of Indus (Rau) Commission. It also considered the American Law on the subject that while priority of appropriation is the guiding rule, it is not conclusive in equitable allocation and further that the junior uses were allowed to prevail over the senior uses having regard to countervailing equities in favour of the claimant State based on existing uses of the water.

The Tribunal noticed the fact that some uses of Krishna waters were lawfully established before 1951 as cleared by the Planning Commission and no objection was raised to the implementation of the projects sanctioned by the Planning Commission until September 1960. An inter-State conference was held in September, 1960 to consider re-allocation of Krishna waters in view of the reorganization of the States. Considering all the materials the Tribunal recorded a finding thus “we find that all commitments made in September, 1960 were made without any protest from any co-riparian State under the bonafide belief that the committed utilization will be allowed to continue. At the meeting in September, 1960 Maharashtra was prepared to honour all physical commitments upto September, 1960. Before us both Maharashtra and Mysore wanted protection for all their projects committed upto September, 1960.” It was also found that the projects in operation or under construction as on September, 1960 should be preferred to contemplated uses and should be protected. However, utilizations made after September, 1960 should be regarded as new appropriation and except those saved by any special agreement or concession of the parties, such projects would not be entitled for any priority. An agreement was entered into amongst

the parties on 7th May, 1971 which contained a list of fifty projects falling in different sub basins which all the parties agreed that they should be protected. The list of such projects is at pages 101 to 103 of the Report.

Another list indicated 11 disputed projects. The Tribunal considered each disputed project and found that:

Krishna Project at Sl. No. 1 in K-1 sub-basin is an irrigation project in Satara and Sangli districts of Maharashtra which has been under construction. A joint statement was made as quoted in the Report by the parties on June 25, 1973 to the effect “all the parties are agreed that the annual utilization of 33.00 TMC and evaporation loss of 3.3 TMC under the Krishna Project of Maharashtra should be protected”. Hence, it was preferred to the contemplated uses.

Gokak Canal Sl. No. 2, for which Karnataka (Mysore) had claimed an allowance of 1.4 TMC but disputed by Andhra Pradesh, the Tribunal found that Ayacut under the Gokak canal has since merged in Ghataprabha Left Bank canal so no separate provision for Gokak canal was necessary.

Regarding S.No. 3 it was found that the annual evaporation loss of 33 TMC under Srisailem Hydro Electric Project, Andhra Pradesh was not entitled to any priority over contemplated use, as to any water should be allowed on any other ground would be considered elsewhere.

About S. No. 4 Nagarjunasagar Project, the Tribunal held that Andhra Pradesh should have carryover storage in the Nagarjunasagar Dam and be permitted storage capacity as on installation of crest gates. Ultimately it concluded that in allocating the waters of the Krishna river, the annual utilization of 264 TMC and evaporation loss of 17 TMC under the Nagarjunasagar Projects of Andhra Pradesh should be preferred to contemplated uses.

S.No. 5 Krishna Delta Canal System: The State of Andhra Pradesh claims protection for annual utilization of 214 TMC and evaporation loss of 4 TMC. The other two States contested the claim and asserted that annual utilization in Krishna Delta Canal system should be allowed only to the extent of 161 TMC. The Tribunal noticed that Krishna Delta Canal system has been in operation since 1855 with alterations and additions from time to time including quite a number of them in the year 1951-52. It also noticed that

pursuant to an arrangement with the Mysore Government, waters were released from the Tungabhadra dam since 1953-54 for the second crop cultivation in the delta for irrigation of lakhs of acres. Considering all the factors in details, the Tribunal allowed 15.3 TMC annually for the purposes of second crop, green manure, navigation, water supply and washing of salinity etc. in addition to 161.9 TMC for first crop irrigation making it a total of 177.20 TMC on account of committed utilization of the Krishna Delta canals as on September, 1960 besides evaporation loss of 4 TMC out of free supply.

S.No. 6 Bhadra Reservoir Project: Karnataka (Mysore) claims that annual utilization of 56.8 TMC under the Bhadra Reservoir Project which was agreed to by agreement of 1944 between Mysore and Madras it should be protected. Maharashtra supported the claim whereas Andhra Pradesh contested that only 46.6 TMC should be permitted. All the three States agreed for 4.9 TMC as evaporation loss. It is a multi purpose reservoir scheme comprising of a storage reservoir across the river Bhadra a left and right bank canal and power houses. The project had commenced its operation in 1957; the Tribunal concluded that a use of 56.8 TMC was committed in the project by the Mysore Government as on September, 1960 hence an

allocation of 56.80 TMC and 4.90 TMC as an evaporation loss was held to be preferable to contemplated uses.

S.No. 11 Minor Irrigation using less than 1 TMC annually: -

The parties filed an agreed statement giving minor irrigation particulars for areas irrigated in Krishna Basin on the basis of average irrigated areas and agreed average duties for the periods 1941-42 to 1950-51, 1951-52 to 1960-61 and 1960-61 to 1966-67.

The Tribunal observed that a common case of the parties was that the average utilization under minor irrigation works for the decade 1951-52 to 1960-61 should be taken to be utilization under those works as on September, 1960. Accordingly, sub-basinwise, annual utilization under minor irrigation works using less than one TMC annually and committed as on September, 1960 was preferred to the contemplated uses, showing sub-basinwise utilization. Maharashtra was allowed protection on account of minor irrigation to the extent of 11.13 TMC in K-1 sub basin, 0.13 TMC in K-2 sub basin, 1.03 TMC in K-3 sub basin, 4.8 TMC in K-5 sub basin and 0.11 TMC in K-6 sub basin.

Karnataka was allowed protection on account of minor irrigation of 0.18 TMC in K-1 sub basin, 2.47 in K-2 sub basin, 1.3 in K-3 sub basin 4.57 in K-4 sub basin , 0.02 in K-5 sub basin , 6.47 in K-6 sub basin , 0.69 in K-7 sub basin, 49.04 in K-8 sub basin and 29.87 TMC in K-9 sub basin.

Andhra Pradesh was allowed protection for minor irrigation to the extent of 3.51 TMC in K-6 sub basin, 45.02 TMC in K-7 sub basin, 6.46 TMC in K-8 sub basin, 7.57 in K-9 sub basin, 20.84 TMC in K-10 sub basin, 7.15 TMC in K-11 sub basin and 25.71 in K-12 sub basin.

The Tribunal thus found total protected uses of the Krishna Waters of the three States viz. Maharashtra as 439.65 TMC, Karnataka as 504.55 TMC and Andhra Pradesh as 749.16 TMC totaling to 1693.36 TMC.

The Tribunal then considered the question of diversion of Krishna waters outside the Krishna basin in Chapter XIII of the Report. It is indicated that State of Karnataka (Mysore) had no project nor contemplated any for future diversion of Krishna Waters outside the basin. Maharashtra diverts and also proposes to divert

large quantities of Krishna water outside the basin for generation of hydro power and wherever possible for irrigation from the Tail Race Waters. So far as the Andhra Pradesh is concerned, it diverts and proposes to divert large quantities of water outside the basin for the purposes of irrigating lands in other basins. According to the State of Karnataka (Mysore), diversion outside basin is illegal whereas Maharashtra considers it lawful to do so for generation of power as well as for irrigation. The case of Andhra Pradesh is that diversion outside the basin for irrigation needs only should be permitted. The issue as framed by the previous Tribunal on this aspect was:

“Issue II (4) “should diversion or further diversion of the waters outside the Krishna drainage basin be protected and/or permitted? If so, to what extent and with what safeguards?”

The Tribunal considered a number of decisions on the point rendered by the American Courts also, to show that there have been instances of such diversions in a number of countries including India where waters of Ravi, Beas, the Jhelum, the Sutlej, the Chenab, the Krishna, the Mula Mutha and a few others have been diverted to other watersheds and found: “for all these reasons we hold that

diversion of water of an inter state river outside the river basin is legal”.

“We express no opinion on the question whether the Krishna waters can be lawfully diverted to areas situated in the territories of a non-riparian State” it was observed.

It may be noticed that before returning the aforesaid findings, the Tribunal had observed that for optimum utilization of water resources, it may be necessary to divert surplus waters for irrigating lands in scarcity areas outside the basin. It was also noticed that one river basin may have surplus of excellent land capable of being irrigated while another may have surplus of waters but a shortage of arable land and such a situation may be rectified by moving surplus water to areas where it is needed and can be used beneficially.

Referring to Section 3 of the Inter State Water Disputes Act, 1956, the Tribunal observed: “the crucial question is whether the interest of the State or of any of its inhabitants in the water of the inter- State river and river valley is prejudicially affected by the action of another State”. The Tribunal laid down three propositions to the following effect:

- (1) Diversion of water of the inter-State river Krishna outside the river basin is legal.
- (2) In equitable allocation, future uses requiring diversion of water outside the basin are relevant, but more weight may be given to uses requiring diversion of water inside the basin.
- (3) All existing uses based on diversion of water outside the basin should receive the same protection that may be given to existing uses based on diversion of water inside the basin.

It was found that waters of Krishna were diverted outside the basin for irrigation from the projects namely, (1) Krishna Delta Canal (2) Kurnool Cuddapah Canal, (3) Nagarjunasagar Project (Right Bank Canal), (4) Tungabhadra Project (Right Bank High Level Canal) Stages I and II (Andhra Pradesh's share) and (5) Guntur Channel. It is then observed "it is conceded by all parties that all these projects should be protected." However, the extent of protection would be examined. The contention of Maharashtra and Mysore about restrictions on Andhra Pradesh regarding the quantity of water which

may be diverted did not find favour with the Tribunal and no specific restrictions were placed on Andhra Pradesh for diversion of water outside the basin.

The Tribunal then considered westward diversion by Maharashtra and conflict between uses for irrigation and power. Water is diverted for the Koyna Hydel Project to the extent of 67.5 TMC and Tata Hydel Project 42.6 TMC + 7.3 TMC and 2.4 TMC on account of evaporation losses totaling to 119.8 TMC, which it is observed that all the parties have conceded should be protected. Demand was also made for new multi- purpose westward diversion schemes namely, Hiranyakeshi, Vedganga, Kasari, Kumbhi, Kadvi and Phonda. Total diversion including evaporation losses comes to 131.6 TMC. The previous Tribunal finally restrained the State of Maharashtra from diverting more than 260 TMC of water westward for power generation only and not for purposes for irrigation.

It was noticed by the Tribunal that enormous water potential of the west flowing streams was being wasted into the sea. It was observed that suitable projects on the west flowing streams can be constructed for storing and using this water for purposes of irrigation and other uses in Ratnagiri which was not a scarcity area.

The Tribunal considered the conflicting claims of power generation and irrigation of basin areas adverting to Issue No. II(5) which is quoted here - “should any preference or priority be given to irrigation over production of power? The Tribunal observed: “it is necessary to assess such interests classifying them in order of importance and to decide which of them should come first.” The contention of Maharashtra that in absence of any legislation, one use cannot be preferred to another, was negated and it was quoted as follows: “instead of laying down a rigid order of priority, a pragmatic and flexible solution is more appropriate. The question whether one use should prevail over another should be decided on consideration of all relevant factors in each particular case”.³ It was also observed that conflict of interest between hydro electric and irrigation uses should be reconciled as far as possible by integrated development of the river basin, so that water released from the power plant may be used for irrigation. Ultimately the Tribunal recorded a finding “in view of overall scarcity of the Krishna waters, preference should be given to irrigation use over power production by westward diversion of water.” It is further provided as follows : “we have

³ A.H. Garretson and Ors.- The law of International Drainage Basin (1967)

protected annual westward diversion of 67.5 TMC by the Koyna Hydel Project and 42.6 TMC of water by the Tata Hydel Works. This represents more than 5 per cent of the 75 per cent dependable flow of the Krishna river". It is further observed that beyond what has been allowed, no westward diversion should be permitted in the Krishna Basin. The water for Koyna Hydel Project is to be supplied from upper Krishna (K-1) sub basin that is only to the extent of 67.5 TMC. For projects collectively known as Tata Hydel Works, the supply would be from Upper Bhima K-5 sub basin.

It was found that there has been fluctuating diversion since 1952-53 to 1967-68 the maximum annually being 54.47 TMC. The protected annual westward diversion from this basin is 42.6 TMC. It is then provided that State of Maharashtra should not have been permitted to divert from the Krishna river basin for the said projects or any other project more than 54.5 TMC of water in any one water year and more than 212 TMC in any period of 5 consecutive water years commencing on June 1, 1974.

As transitional provisions, Maharashtra was allowed to divert westward for Koyna Hydel Project 97 TMC annually for a period of

10 years commencing on June 1, 1974 and 87 TMC during the next 5 years and 78 TMC during the next succeeding period of five years.

The Tribunal then considered the question of apportionment of the waters of the river Krishna to decide 8 sub issues of Issue No. II as framed on the subject alongwith Issue No. IV(B)(a) relating to a release of water from Tungabhadra Dam for benefit of the Kurnool Cuddapah Canal, Rajolibunda Diversion Scheme by way of contribution to the Krishna river.

The Tribunal noted the demands put forward by the States. According to Maharashtra taking dependable flow at 75% as 2060 TMC, the distribution should be worked out, considering the factors in respect of each State viz. (1) drainage contribution to the basin (2) scarcity area in the basin (3) culturable area in the basin and percentage share based on weighted culturable area and (4) population in the basin. And on the above criteria Maharashtra claimed 908 TMC, for Karnataka (Mysore) it should be 865 TMC and Andhra Pradesh 427 TMC.

Maharashtra also claimed share in additional flow exceeding 75% dependable supplies in the same proportion as above with liberty

to build storage of large capacities for utilizing additional supplies upto 50% dependable flows or any other lower percentage of dependable flows than 75%. The break up of the demand was also given.

So far as the State of Mysore (Karnataka) is concerned, its case was that it has (a) Largest drainage area (b) largest culturable area (c) largest net sown area and (d) largest population in the Krishna basin. It has furnished the detailed in chart form relating to three States. Its requirement for completed or under construction projects in Krishna main stream was to the extent of 451.84 TMC and 87.34 TMC for proposed projects alongwith requirements in Ghataprabha valley, Malaprabha valley, Bhima valley and Tungabhadra valley altogether it came to 1430.00 TMC.

According to Andhra Pradesh the requirement should be considered in 3 categories first being the existing utilization upto 1951, the second category relating to committed utilization between 1951 and 1960 and third category is for projects for which water was claimed from the balance quantity of water available after meeting the needs of first and second categories totalling its demand to 2008 or 2000 TMC.

The Tribunal observed that the States have placed their demands as high as possible, however, the utilization of 1684.11 TMC had been protected and observed that the genuine demands for irrigation in Krishna basin are more than the supplies, therefore, serious attempt should be made to use the entire available water in the basin by constructing carryover storages wherever possible.

While considering the report of the Irrigation Commission 1972 Volume I, the Tribunal-1 took note of the observation made therein “the more precious the water in an area, as in drought areas, the greater is the justification for providing a carryover” and it was also observed that the farmer should be assured of getting the designed supply in 75% of the years.

About utilization of water on annual average or at 50% of the dependability, the Tribunal observed that the river Krishna is, of course, much more dependable river than many rivers in India, yet without further study it would be too much to say that the water should be impounded in the Krishna basin to such an extent that it may make 50% dependability as basis for division.

The Tribunal then considered the reviewability of the division of water as to whether it would be an endeavour forever or the scheme may require review. The Tribunal observed that many water resources development projects are designed to be effective for 50 to 100 years or longer it being generally assumed that a period of available hydrological and meteorological records permit prediction of floods, droughts and water supplies for the coming 50 – 100 years without taking into account any climatic trends or fluctuations.⁴ However, it is uncertain and not exactly predictable. Activities of men may influence the hydrologic cycle. Changes in vegetation, induced precipitation, evaporation control, effects of urbanization, etc. have their own effect on the river flow. Even the course of the river or pattern of the flow may change. Therefore, a scope of review after lapse of some time is desirable. There may be increase in dependable flow also on account of return flows and carryover storages.

After careful consideration of the facts and circumstances, the Tribunal opined that its order may be reviewed at any time after 31st May, 2000. During this period, the tribunal thought demands of the

⁴ Introduction to Hydrometeorology by Bruce and Clark page 293

three States would take much more realistic shape. It also observed “we have, however, provided that the authority or the Tribunal which will be reviewing the order of this Tribunal shall not as far as practicable, disturb any utilization that may be undertaken by any State within the limits of the allocation made to it by the Tribunal.”

The Tribunal then observed that water was being allocated for beneficial use which may be construed in a wide sense and may include any activity conducive to the physical and material well being of the inhabitants of the State or of the country as a whole without wastage of water.

It was observed that increased efficiency in agriculture, use of underground water, reducing evaporation losses, reclamation of waste water and lining of the canals are some of the matters which demand urgent and energetic steps to be taken so that there may be increase in supply and economy in utilizations. Some of the demands of States can be met not by clamoring for more water but by tightening belt in the use of water.

On May 4, 1973 the parties submitted a proposal which provided that (1) there will be mass allocation of utilizable dependable

flow at 75% (2) there will be allocation on percentage basis of water in surplus as well as deficit years of flow (3) there will be restrictions with regard to use as may be decided by the Tribunal (4) there will be a joint control body to give effect to the decision of the Tribunal and then provided its Constitution. Andhra Pradesh wanted that some quantity may be deducted from dependable flow towards inevitable waste to the sea before dividing the water.

On the question relating to joint control body, Maharashtra conveyed to the Tribunal on August 17, 1973 that it was in agreement for setting up of Krishna Valley Authority and with the Constitution and powers as mentioned in Part II of the proposed schemes. Mysore also expressed its agreement with certain modification but the State of Andhra Pradesh expressed its inability to give its formal consent to set up the Krishna Valley Authority. So the Tribunal observed “ it will not be proper to set up any authority without consent of parties. Propriety of the matter rather than legality is playing a decisive part in our decision on this point”. Nonetheless, the Tribunal expressed the view that by setting up of controlling authority there will be better utilization of the waters with expert administration and continuous processes to control the with-

drawls and diversions and to take into account the changing situation from time to time. Ultimately the Tribunal thought it appropriate to draw two schemes called Scheme A and B for division of waters of the River Krishna. Scheme A was to be operative on the date of publication of the decision of the Tribunal in the Official Gazette and Scheme B was to be brought into operation in case the three States constituted an inter-State Administrative Authority to be called Krishna Valley Authority by agreement between them or by a legislation made by the Parliament.

As per Scheme A, the water as available at 75% dependability is to be distributed amongst the three States, as well as the return flows, in the manner details of which are given in the order. Maharashtra and Mysore (Karnataka) have been restrained for using more water than allocated to each of them. The remaining water was permitted to be used by State of Andhra Pradesh but without getting any right in the waters except to the extent of allocation made to it by the Tribunal. There was no provision for sharing of the deficit. The Tribunal, however, took note of the fact that out of 100 years, deficiencies may occur in 25 years in which Andhra Pradesh was likely to suffer more than other States. It then mentioned about carry

over capacities of Nagarjunsagar Dam and Srisaïlam Dam and permitted the State of Andhra Pradesh to utilize the carryover capacities available in these reservoir.

Under Scheme B, the parties were to be entitled to use water in every water year in certain proportion. If the dependable flow is more than the surplus was to be shared by the States in certain proportions. The surplus or deficiency as the case may be, each year, was to be shared by the three States.

As for the actual division of the dependable waters amongst the three States, the Tribunal took note of what has been observed in the recommendation of the Indian Irrigation Commission 1972 and the norm as adopted by the Indian Standard Institute on 9th December, 1969 which has been quoted in the Report with decision as follows:-

“ 3.3 The storage provided in an irrigation project should be able to meet the demand of 75% of the time whereas in power and water supply projects the storage should meet the demand for 90% and 100 per cent of the time respectively”.

In connection with the point raised by the State of Andhra Pradesh that the amount of water which may flow into the sea, as inevitable waste, remaining unutilized water between Nagarjunasagar Dam and Vijayawada be reduced from the dependable flow. The Tribunal considered the carryover capacities of Nagarjunasagar Dam and Srisailem Dam and found that even with the reduced MDDL at Srisailem it would function efficiently and a carryover ranging from 45 to 60 TMC would be available. Regarding Nagarjunasagar Dam, the Tribunal held that there would be an extra storage capacity of about 90 TMC, if the crest gates were allowed to be put up, so as to find a solution for the State of Andhra Pradesh during the deficient years. Looking at the uncertainties on different counts, the Tribunal opined that till its decision was reviewed, the State of Andhra Pradesh be permitted to install the crest gates in the Nagarjunasagar Dam and also in the Srisailem Dam as it may be feasible and to utilize the water so impounded in the said storages in any manner it deems proper and in lieu thereof no deduction be made in the dependable flow on account of the fact that some water between Nagarjunasagar Dam and Vijayawada will be going waste unutilised to the sea thus reducing the dependable flow.

The Tribunal then proceeded to divide dependable flow, namely 2060 TMC, amongst the States. According to the States of Maharashtra and Karnataka no more water was to be allowed to Andhra Pradesh over and above 749.16 TMC, rather the remaining water, apart from which has been found as protected use of the three States, should be distributed only between Maharashtra and Karnataka. It was also their case that the needs of the water for the areas outside the basin should not be taken into consideration otherwise resources available in those areas should also be taken into account. The Tribunal considering all the arguments came to the conclusion that there is no mechanical formula for equitable apportionment of water nor it was possible to divide the water in the manner indicated by the States of Maharashtra and Mysore. However, finding some force in the arguments of the States Mysore and Maharashtra observed “from the point of irrigable area, population or contribution to the total flow, the State of Andhra Pradesh, for historical reasons, is enjoying benefit of the river Krishna to an extent which may appear to be disproportionate”. But the schemes of Andhra Pradesh, for further allocation, could not be absolutely shut out and merit of the claim, for some special circumstances, for any

project could be considered. Hence it proceeded to consider the demands of Andhra Pradesh Project wise. Andhra Pradesh out of the dependable flow made demands for (I) minor irrigation to the extent of 36.88 TMC (II) Srisailem Hydro Electric Project 33.00 TMC (III) Kurnool Cuddapah Canal 20.87 TMC and (IV) Krishna Delta 23.01 TMC. The Tribunal, however, found that 116.25 TMC had already been protected for minor irrigation, the average use upto 1960 and no further allocation could be made to make it 153.14 TMC which was being utilized on an average during 1966-67, and for more water Andhra Pradesh must effect economy elsewhere.

The next demand for Srisailem Hydro Electric project, to the extent of 33 TMC was allowed, considering the fact that it was to be used as carryover reservoir which entails evaporation losses also. But the Tribunal declined to accept the further demand of 20.87 TMC for Kurnool Cuddapah Canal looking to the fact that average utilization to the extent of 39.9 TMC was considered sufficient in the year 1960, increased utilization of 66.68 TMC in the year 1968-69 could not be taken into consideration.

The next demand relates to Krishna Delta to the extent of 23.01 TMC, which has been rejected, considering the fact that

Nagarjunasagar Project and Krishna Delta Project have already been allowed 264 TMC and 181.20 TMC respectively as protected use which adds 445.20 TMC. For irrigating additional area of 1.5 lac acres in the Delta, it was also observed that Andhra Pradesh could economise the use in respect of areas under Nagarjunasagar Canals in Krishna Delta.

Yet another demand for minor irrigation to the extent of 5.3 TMC in the project under construction has been refused on the same consideration as for rejected the demand for minor irrigation demanding 36.88 TMC.

The next item was Jurala Irrigation Scheme Stage I. This scheme was for scarcity area in Taluks of Gadwal, Alampur and Wanaparthy in Mahboobnagar District. The erstwhile State of Hyderabad, had started investigation for irrigation in the Mehboob Nagar District in the year 1930 with the head reaches merged with the State of Mysore. Andhra Pradesh had also included this item in the conference held in the year 1951. In view of the above background and the fact that the Talengana region needs irrigation, the Tribunal allowed 17.84 TMC to Jurala Irrigation scheme. It was also provided that in case Jurala Irrigation Project may not be a practical

proposition, the water could be utilized by the Andhra Pradesh elsewhere in Talengana Region.

Yet further demands for “Proposed minor irrigation” needing 14.09 TMC as well as another item of demand for new project to the extent of 6 TMC were both rejected by the Tribunal observing that Andhra Pradesh should try to meet the demands by economising in the use of water at other places.

In this way, Andhra Pradesh was allocated 749.16 TMC for protected uses, 33.00 TMC for Srisaïlam project and 17.84 TMC for Jurala Irrigation project Stage I totaling to 800 TMC only and not acceding to the rest of the demands.

REPORT/ DECISION

DIVISION OF SHARE OF MYSORE (KARNATAKA)

The Tribunal observed that before allocating any water, it would have to consider as to whether a project is “worth consideration or not” in the sense that it meets or not the requirements of the area in the State concerned. However, the Tribunal clarified that project worth consideration does not mean that it should be adopted nor that “not worth considering” would mean that no water should be allowed to it forever. Many factors were to be taken into account e.g. physical characteristic of the area like rainfall etc, the catchment area, the command area, the Ayacut of the project and the fact as to whether it is to serve the scarcity area or for any other area. The Tribunal then taking note of the fact that river Bhima, in the State of Maharashtra and Tungabhadra in the State of Karnataka, make substantial contribution to the river Krishna and with a view to safeguard the interest of Andhra Pradesh, it is necessary that main stream of the river Krishna should continue to receive sufficient water from Bhima and Tungabhadra. Therefore there should be no over crowding of projects in sub basins K-5, K-6 and K-8.

The claims of Karnataka (Mysore) were (i) that 75% dependable flow of Tungabhadra Dam was 456 TMC

as against which committed use upstream was 319 TMC. It claimed further 58 TMC upto Tungabhadra Dam. It calculated 75% dependable flow of Tungabhadra at Sunkensula as 565 TMC. Andhra Pradesh opposed the claim of Mysore and according to its calculation, the 75% dependable yield in Tungabhadra after taking into account (protected) utilization remained only 31.45 TMC.

The State of Mysore made sub-basinwise demands. The Tribunal, considering the project reports, held 15 projects worth consideration and allocated different quantities of water indicating against each projects viz Dhudganga project, Upper Krishna project, Ghataprabha Project, Malprabha Project, Ramthal Lift Irrigation Scheme, Bhima Irrigation Project, Diksanga project, Amarja Project, Bennithora Project, Gandhorinala project, Upper Mullamari project, Lower Mullamari project, Kangna project, Vijayanagar Channels and Minor Irrigation totaling to utilization of 190.45 TMC. Major allocation out of the above named projects are for Upper Krishna Project 52 TMC, Ghataprabha Project 55 TMC and 30 TMC for the Minor irrigation and 11 TMC for Bhima Irrigation Project and the remaining projects are below 10 TMC.

Maharashtra made demands as per its Master Plan. The demand relating to irrigation in sub-basins K-1, K-2, K-3, K-5 and K-6 is for 860 TMC out of which 439.6 TMC is protected use. But later Maharashtra confined its demand to 280.3 TMC. Some demands have also been made in respect of schemes like Bhandhani Weir and Lift Irrigation schemes which are not shown in the Master Plan and such schemes needed water amounting to 19.06 TMC. Considering these projects and demands, the Tribunal found 12 projects worth consideration namely Krishna Canal Ex Khodshi weir, Koyna Hydel and Koyna Krishna Lift Scheme, Dudhganga, Gudavate Lift Scheme, Mutha System ex. Khadakwasla, Kukadi Project, Bharhanpur Project, Sina at Nimgaon, Sina at Kolegaon, Hingni Pangaon, Bhandaras etc. and Minor Irrigation. Highest allocation is for minor irrigation clubbed together, amounting to 26.47 TMC, Koyna Hydel and Koyna Krishna Lift Scheme 23.40 TMC and Kukadi project 18.80 TMC, Dudhganga 14.00 TMC and Bhandaras 17.80 TMC. The remaining projects have been allocated less than 10 TMC. The total allocation comes to 125.35 TMC.

The allocation, thus over and above the protected uses of 1693.36 TMC out of 2060 TMC, is 125.35 TMC for Maharashtra,

190.45 TMC for Mysore and 50.84 TMC for Andhra Pradesh totalling to 366.64 TMC and the total allocation finally arrived at for each State comes to 565 TMC for State of Maharashtra, 695 TMC for State of Karnataka (Mysore) and 800 TMC for State of Andhra Pradesh out of total 2060 TMC dependable flow at 75% dependability. There are certain conditions which have been placed in Chapter XVI of the final order.

Chapter XVI is final culmination of the findings arrived at by the previous Tribunal in the shape of its order compartmentalized in different clauses some of which may need a mention e.g. Clause IV provides for allocation of water to the three States as provided in sub clauses (A),(B) and (C) of Clause V including the distribution of return flows, to the extent and in the manner mentioned therein and that it shall be added to 75% dependable flow of river Krishna available for distribution. Clause V (A) places a restriction on the State of Maharashtra that it shall not use in any water year more than 565 TMC upto the water year 1982-83 whereafter on expiry of different periods indicated, there will be graded increase, indicated therein, after a gap of 6-7 years on account of return flows. A similar provision is for the State of Karnataka in Clause V (B) that

it shall not utilize water more than 695 TMC upto the water year 1982-83 thereafter increase in use of the water in the same percentages and manner as provided in the case of Maharashtra. Clause V(C) relates to State of Andhra Pradesh and also allowing it to utilize remaining water without acquiring any right thereto whatsoever to use the same in any water year. Besides the above, it was allowed to utilize 800 TMC upto the 1982-83 and thereafter increase in utilization of water in the given percentage and period of time as provided in respect of other two States. It may be indicated here that instead of an increase of 7 ½ per cent of excess of the average of the annual utilization for irrigation, the percentage has been raised to 10 per cent in the revised final order.

REPORT/ DECISION

Clause VI defines beneficial uses and VII (A) provides that water stored in any reservoir across any stream shall not by itself be reckoned as use of the water of the stream except to the extent of evaporation losses or due to other natural causes. However, diversion from the reservoir for its own use by any State shall be reckoned as use by that State in that water year.

Clause B of Clause VIII provides that failure of any State to make use of any portion of the water allocated to it during water year

shall not constitute forfeiture or abandonment of its share in any subsequent water year.

In Clause IX (A) it is provided that State of Maharashtra shall not use in any water year more than 7 TMC from the Ghatprabha K-3 sub basin and not more than 90 TMC from the main Bhima stream. Similarly, Clause IX (B) provides that Karnataka would not use in any water year more than 295 TMC from Tungabhadra K-8 sub basin and 42 TMC from Vedavathi K-9 sub basin and not more than 15 TMC from main stream of river Bhima. In Clause C of Clause IX, restriction has been placed upon the State of Andhra Pradesh that it shall not use in any water year more than 127.5 TMC from Tungabhadra K-8 sub basin and more than 12.5 TMC from Vedavathi K-9 sub basin or more than 6 TMC from the catchment of River Kangna in the State of Andhra Pradesh.

Clause X provides that State of Maharashtra shall not divert more than 67.5 TMC outside Krishna river basin from river supplies in the Upper Krishna K-1 sub basin or Koyna Hydel Project or any other project. However, it has been allowed to divert 97 TMC outside Krishna basin for Koyna Hydel project annually for a period of 10 years with effect from 1.6.1974 and 87 TMC annually during

the next five years w.e.f. 1.6.1984 and thereafter 78 TMC for succeeding five years commencing from 1st June, 1989. Yet another restriction was placed in item 2 of Clause X that State of Maharashtra shall not divert from upper Bhima K-5 sub basin for the Tata Hydel Works (collectively) or any other project more than 54.5 TMC in any one year and more than 212 TMC in any period of five consecutive water years commencing on 1st June, 1974. Clause XI provides for supersession of six agreements between the parties from 1892 to 1946 and Clause D provides that loss of Tungabhadra reservoir shall be shared between States of Karnataka and Andhra Pradesh in the ratio of 3.5 and 5.5 TMC respectively.

Clause XII sets forth regulations regarding gauging and gauging sites in Krishna river system and Clause XIII provides that each State shall prepare and maintain annually complete and accurate recordings of diversions of water outside Krishna Basin, use for irrigation purposes, domestic use, municipal use and evaporation losses etc. and so on. Each State is required to exchange amongst them the said records which could be inspected by each other.

Clause XVI (A) provides that at any time after 31st May, 2000 the order of the Tribunal could be reviewed by any competent

authority or Tribunal but revision shall not, as far as possible, disturb any utilization that may have been undertaken by any State within the limits of allocation made to it. The Annexure A to the final order provides for regulations regarding protection to irrigation works in the respective territories of States of Karnataka and Andhra Pradesh in Vedavathi sub basin, Schedule I contains list of streams on which no new construction should be undertaken by the State of Karnataka without the previous consent of Andhra Pradesh, vice a versa, Schedule II provides list of streams where no new construction could be undertaken by Andhra Pradesh without previous consent of Karnataka. Annexure B is about regulations for gauging and gauging sites.

REPORT/ DECISION

The Tribunal thereafter makes provisions for Scheme B which according to it would enable to make fuller use of the available water. There would be sharing in deficiency at 75% dependability, as well as the surplus would also be shared by all the three States. It envisages establishment of Krishna Valley Authority by agreement between the parties failing which by any law made by Parliament. Its function would be to supervise and regulate, if necessary, that the water available each year is shared by the three States according to

Clause A. Three States would utilize their respective shares as apportioned in the earlier part of the award namely, 565 TMC by Maharashtra, 695 TMC by Karnataka and 800 TMC by Andhra Pradesh. If more water is available, it was to be shared equally by three States. Apart from other duties, Krishna Valley Authority was to ensure proper distribution, storage and utilization of water by the three States under Clause 8 of Scheme B. The authority was required, in every water year in the second week of October, last week of December and last week of May, to determine tentatively quantity of water likely to fall in the share of each State and adjust the same in accordance with the other provisions of the Scheme B. It could also, from time to time, direct diversion of water from the project of an upper State to the project of lower State but not during the period from 1st May to 30th of September of any water year. The scheme also provides that the States in question may construct such storages at such places and as determined by the Krishna Valley Authority for Krishna water which could otherwise go waste into the sea. It also provided that provisions contained in Clauses II, IV, VII, IX, X, XI, XIV, XV, XVI and XVII of Scheme A would also become part of the Scheme B with modification as deemed necessary. Some other details

have also been enumerated in Scheme B but it may be pointed out that though agreed to earlier, Andhra Pradesh withdrew its consent for constitution of such an authority and with no law made by the Parliament, it only remained on papers and could not fructify into actuality. Resultantly, Scheme A which was initially to be operative till the Constitution of Krishna Valley Authority for the purposes coming into force of the Scheme B, continued to be in force during all this time.

In Chapter XIV the Tribunal considered the demands of the party-States project wise. The projects of Maharashtra which were considered “not worth consideration” then, are:- Urmodi Project, Tarali project, Wang project, Warna Project, Kadavi Irrigation Project, Kasari Hydro Electric Project and Kaljewadi Lift Irrigation Scheme, Kumbhi Multipurpose Project, Phonda Irrigation Project, Vedganga Irrigation Project, Morna Project, Phaye Project, Hiranyakeshi Irrigation Project, Chaskaman Irrigation Project, Nira System Ex-Vir (additional), Begumpur Lift Irrigation Scheme, Sina Lift Scheme, for one or the other reason e.g. sufficient rainfall in the area itself or east or westward diversion or for such other similar reasons. The projects which have been considered to be worth

consideration are Krishna Canal Ex-Khodshi Weir for 3 TMC, Koyna Lift Irrigation Scheme for 23.4 TMC being scarcity area, Dudhganga Project to the extent of 14 TMC, Gudavale Lift Scheme for 3.1 TMC Mutha system Ex. Khadakwasla for additional demand of 9.6 TMC, Kukadi Project for 18.80 TMC being a scarcity area, Barahanpur project for 1.48 TMC, Sina at Nimgaon Gangurda Project for 1.7 TMC, Sina at Kolegaon Project 4.5 TMC and Hingani Pangaon Project for 1.5 TMC. Water requirement of Bandharas and Lift Irrigation Schemes were considered to be worth consideration to the extent of 17.8 TMC which may be in operation or under construction. For minor irrigation schemes to the total extent of 26.4 TMC had been considered 'worth consideration'. Some other irrigation schemes were also considered worth consideration but only partly, to the total extent of 125.35 TMC.

The Tribunal then proceeded to consider the demands made by the State of Karnataka (Mysore) sub basin wise and the demands over and above the protected use in the projects. The projects which have been considered and held then to be not worth consideration are : Gokak Canal since its demand was already included in Ghatprabha Project, Markandeya Project for the present i.e. as then, Bhima Lift

Irrigation project, Tungabhadra Left Bank Low Level Canal for its additional demand, Upper Tunga Project demand to the extent of 20 TMC was not considered to be worth consideration as then demand for Upper Bhadra Project was deferred. Feeder Channel to Ranikere for 1 TMC was considered not worth consideration so also Jinigehalla Project.

The Projects which were considered to be worth consideration are Dudhganga Project for 4 TMC, Upper Krishna Project to the extent of 52 TMC, Ghataprabha Project for additional demand of 55 TMC, Malaprabha Project was found with consideration for 9 TMC for its integrated operation, Ramthal Lift Irrigation Project for its demand of 4.5 TMC, Bhima Irrigation Project (MYDK-19) to the extent of 11 TMC, Biksanga Project for demand of 1 TMC, Amarja Project for 2.27 TMC, Bennnithora Project to the extent of 5.43 TMC, Gandhigrinala Project for its demand for 2.20 TMC, Upper Mullamari Project, Lower Mullamari Project and Kanga Project.

The Tribunal then considered the demand in respect of Vijayangar Channels numbering 18 which were considered to be worth consideration to the extent of 6.35 TMC. Whereas Gondi Left Bank Canal Extension project was held to be not worth consideration.

For minor irrigation in its sub basins, project works for 30 TMC was considered to be worth consideration but not the projects for 34.60 TMC for future minor irrigation works.

So far as Andhra Pradesh is concerned, its demand in respect of 37 projects as indicated in table No.1 were considered and the Tribunal allowed to the extent of 749.16 TMC under the protected uses, 33 TMC was allowed for Srisailem Project for evaporation loss and 17.84 TMC for Jurala Irrigation Project making a total of 800 TMC. No further demand on any account was considered to be acceptable.

Review Proceedings

The Tribunal sent its report and the decision taken by it to the Central Government as provided under Section 5 (2) of the Inter State Water Disputes Act in December, 1973. The Government of India as well as the three contesting States filed in all four separate references under Sub section 3 of Section 5 of the Act to seek explanation and guidance on the matters raised in the references.

In the Reference preferred by the Government of India viz. Reference No. 1 of 1974, Tribunal gave clarification as follows:-

Clarification No. 1(a), the Tribunal expressed its opinion that water required for cooling and other purposes in Thermal Power Plants would be covered under expression “industrial use”. The other part relating to quantity of water for cooling and other purposes in Nuclear Power Plants was not pressed.

Clarification No. 1(b), it was observed that “all beneficial uses of water including uses for production of hydro-power are permitted to the extent specified in Clause V and subject to the conditions and restrictions mentioned in the final order.” No State was allowed to extend the limits as provided, hence it was observed that there was no occasion to give any clarification on the ground.

The Andhra Pradesh Reference Notes Nos. 9 and 10 and M.R. reference Note No.9, about limiting storages, were withdrawn by the States of Andhra Pradesh and Maharashtra and the State of Karnataka also, as observed, did not want clarification on the subject of storages.

Clarification No. 2(a) relates to Clause V (A) of the Final Order relating to computation of $7\frac{1}{2}$ per cent of average annual utilization, as to should it include, evaporation losses or not. It was

indicated that all the three States agreed that for the limited purposes of Clause V, evaporation losses of reservoirs of projects using 3 TMC or more, shall be excluded in computing 7½ per cent as indicated in different sub clauses of Clause V. Hence, Clause V (D)(iii) was added.

Clarification 2(b), it was indicated, has been dealt with while disposing of clarifications Nos. XIV, XVI, XVII, XXI of reference No. 3 of 1974 which relates to effect of the return flows on the restrictions placed on use of waters in particular sub basins in rivers.

By clarification 2 (c) the Government of India sought the break up and details of the utilizations for irrigation in the water year 1968-69 in the projects using 3 TMC or more as indicated in Clause V(D)(i) of the final order. The Tribunal indicated that since the figures mentioned in the above noted sub clause are on the basis of the agreement and no details have been submitted, hence it was not possible to give details or break up of all those figures.

Clarification 2(d) pertains to the realization of water for the irrigation in the areas, some of which may lie outside the basin and how the regeneration of such water is to be made namely taking into

account only the utilization made in the areas lying within the Krishna Basin or the total use of the water should be taken into account irrespective of its use even outside the basin. The Tribunal observed that Clause V of the Final order clearly provided that annual utilization for irrigation within the basin from the projects using 3 TMC or more annually, would be taken into account while computing 7 ½ per cent figure. No further clarification was, therefore, needed.

Clarification No. 3 pertains to control, maintenance and operation of Tungabhadra Dam and Reservoir, as to whether Tungabhadra Board would be assigned the task of regulating all canals left and right side. It was observed by the Tribunal that there was no reason or ground to vest the administration and control of Tungabhadra left bank canal and their headworks in Tungabhadra Board, taking it over from the Karnataka in which it vests presently. It was further observed that the position may continue so long any other control body is established.

Clarification No. 4 pertaining to restrictions placed on use of water in Tungabhadra basin by Karnataka and Andhra Pradesh, it has

been considered and disposed of under Clarification No. XV, XVI, XVII and XIX of reference No. II of 1974.

Clarification No. 5 sought by the Government of India was in respect of diversion schemes below Tungabhadra Reservoir e.g. Vijaynagar Channels, Rajolibunda Diversion Scheme and Kurnool-Cuddapah Canal, that regulated releases should be made from Tungabhadra Reservoir for irrigation in Khariff and Rabi in the absence of headworks of the aforesaid schemes. It was indicated, as the requirements were being met from the releases into the river from the reservoir, the Tribunal referred to its observation made in regard to issue No. IV (B) (a) in the Report saying that the Tribunal had only divided the dependable flow and had placed no restrictions on the use of water of Tungabhadra sub basins K-8, hence no further direction was necessary for release of water from Tungabhadra Dam for the aforesaid schemes. In so far the observations made at page 371 of the Report saying that whenever necessary water from Tungabhadra Reservoir for the diversion work to supplement the intermediate flows, table should be prepared to supplement the intermediate flows from Tungabhadra Reservoir or diversion works. This was, however,

indicated to be considered and clarified in Clarification No.XV, XVI, XVII and XIX of reference No. II of 1974.

Clarification 6 - the Central Government sought a clarification as to how, under Scheme A, the deficiency would be shared in the lean years. In this connection, it was observed that Scheme B, which provides for it, could not be implemented on account of opposition by Andhra Pradesh. Since Andhra Pradesh would be at liberty to use excess flow in surplus years, the burden of deficiency in the lean years will also have to be borne by Andhra Pradesh and no clarification was required for sharing of deficiency

On the question of providing adequate river sluices in the dams of upper States, as mooted in the supplementary pleadings of the parties, so that regulated releases may be possible through the sluices for Andhra Pradesh, such a request was not found acceptable in the absence of particulars regarding cost factor, safety of dam and whether sluices would secure any reasonable or substantial benefit or not, hence this request was rejected. The Tribunal, however, observed that there was necessity of providing river sluices and arrangement for release of water from dams, but for that, technical opinion of

expert bodies could be required and attention was required to be given to this aspect of the matter.

State of Andhra's Reference No. II of 1974.

The clarification No. 1 of the State of Andhra Pradesh regarding liberty to use remaining water in any water year, after specific allocations to Maharashtra and Karnataka were met, held would not apply for allocation made under the Tungabhadra basin for the reasons indicated therein. The Tribunal observed that this clarification is considered and disposed of with Clarification No. XV, XVI, XVII and XIX of reference No. III of 1974.

Clarification No. 2 about the releases to be made for the schemes namely Vijaynagar Channels, Rajolibunda Diversion Scheme and Kurnool Kuddapah canal below Tungabhadra Dam, the Tribunal considered and disposed of it under Clarification No. XV, XVI, XVII and XIX of reference No. III of 1974.

Clarification Nos. 3, 4, 5 and 6 have not been pressed by the State of Andhra Pradesh.

Clarification No. 7 only pertained to certain corrections and clerical errors, which was allowed.

The State of Karnataka preferred Review Petition viz Reference No. III of 1974 - While dealing with clarification No.1, the Tribunal-1 agreed that with the passage of time, more and more water would be utilized for irrigation, yielding more return flows. It was also observed that some of the increased irrigation before 1968-89 was omitted to be taken into account, hence came to the conclusion that in place of 7½ per cent return flow, it may be taken at the rate of 10 per cent. Accordingly changes were directed to be made at the relevant place in the Report. The Tribunal also expressed the opinion that by the water year 1988-89, if full utilization for irrigation takes place within the Krishna Basin, the return flow from the utilization within the basin by Maharashtra, Karnataka and Andhra Pradesh would be near about 25 TMC, 34 TMC and 11 TMC respectively and their total allocations would then be near about 585 (560+25) TMC, 734 (700+34)TMC and 811 (800+11) TMC respectively under Clause V of the Final order which was accordingly modified under Clarification No. 2.

The Tribunal-1 considered the request of the State of Karnataka for direction for implementation of Scheme B irrespective of the consent of parties. The request was declined observing that unless

Krishna Valley Authority was constituted, Scheme B could not be implemented.

Another argument that the Tribunal should also have distributed the excess supplies in surplus years was not accepted observing that without further study it was not possible to say that water can be stored to such an extent that river flow of 50 per cent dependability can or should be distributed. It is further observed that until chain of reservoir having sufficient carryover storages is constructed in Krishna basin it is not possible to utilize or distribute the river flow to the full extent nor share of surplus or deficiency.

By Clarification IV, Karnataka sought explanation on the point that allocation of 50.84 TMC allotted to Andhra Pradesh towards contemplated uses is not consistent with the findings of the Tribunal and the said quantity should be deducted from the share of Andhra Pradesh and be allotted to Karnataka. The Tribunal observed that large amount of water namely 749.16 TMC has been earmarked for protected uses of Andhra Pradesh but that would not automatically shut any further consideration. Hence allocations were made for Srisailem hydro electric project and Jurala Project, this point was further considered under clarifications No. XIV and XXII.

Clarification No. V. The case of the Karnataka was that return flow out of the water used for irrigation outside the basin by Andhra Pradesh and Maharashtra's westward diversion, is liable to be deducted out of the allocation made to these states, being a permanent loss to the river system. Further that Andhra Pradesh is not entitled to acquire any right to the return flows arising out of the utilization of other remaining water in excess of allocated share.

The Tribunal-1 pointed out that parties had agreed to westward diversion of 119.6 TMC for Koyna Project and Tata Hydel works, without any stipulation for Maharashtra bearing the loss of return flow hence, it was not liable to be deducted. Maharashtra was, however, agreeable for debit of the regenerated water loss due to westward diversion for use of water in excess of 119.6 TMC.

In so far certain uses of water by State of Andhra Pradesh outside Krishna basin, it is observed all parties had agreed about certain utilization from Guntoor Channel and Tungbhadra project right bank High Level Canal Stages I and II to be protected without any stipulation with Andhra Pradesh for debiting return flow from out of basin diversion from these projects. But there may be diversion outside basin from Krishna Delta Canals, Nagarjunsagar Right Bank

Canal and Kurnool Cuddapah Canal but such diversion will result in return flow out of the basin and Clause V of the Final Order clearly indicates that return flows are to be distributed only for utilization within the Krishna Basin . Hence no clarification is needed for paragraph (I and II of Clarification No.V).

Clarification No.XI - It relates to the augmentation of waters of river Krishna, that review of the allocation may be made immediately after the augmentation of waters. The Tribunal considered the submissions and substituted Clause IX (B) providing that in the event of augmentation of water no State shall be debarred from claiming share in it even before 31.5.2000.

Clarification No. VII - The State of Karnataka sought a clarification that use of remaining water by Andhra Pradesh be limited to the existing carry over capacity to meet any deficiency in the deficit years and that surplus water be utilized only within the basin. Further, that new construction should not be raised except by prior consent of the upper riparian State. The Tribunal clarified that there was no ground to limit the use of remaining water by Andhra Pradesh to its existing carryover capacities nor there was any reason to impose any restriction upon Andhra Pradesh against using water outside Krishna

basin as otherwise water will go a waste into the sea. Hence, no need was felt to further clarify the matter.

Clarification No. VIII – Karnataka wanted the liberty to utilize the water flowing down from the upper State unutilized as was made admissible to Andhra Pradesh. The Tribunal found no ground to make any such clarification or to make any additional allocation. It has been clarified that use of excess water will not give any right or entitlement to Andhra Pradesh to the same on any ground whatsoever.

Clarification No. IX – The Karnataka sought a clarification that certain quantity allocated to State of Maharashtra in connection with bandharas, weirs and lift irrigation schemes should be deducted from 19.8 TMC and allocated to Karnataka since in some cases there has been duplicate or triplicate allocation in respect of the same project or same such projects were covered under other projects as well. After examining the claim of the Karnataka under Clarification No. IX(a), the Tribunal found that there has been an excessive allocation of 1.85 TMC to Maharashtra in respect of Bandharas, weirs and lift irrigation schemes.

In connection with sub clause (b) of Clarification IX, Tribunal rejected the claim of Karnataka that demand for 720 Mcft had merged in allocation of 3 TMC for the cleared portion of the Krishna canal nor it felt satisfied that there was any triplicate allocation of 720 Mcft in Koyna Krishna Lift Scheme. Hence the same was held to be not acceptable. Regarding Clarification IX (c), (d), and (e). the Tribunal found that there has been excessive allocation to the extent of 3.57 TMC to Maharashtra in respect of minor irrigation.

Clarification IX(f) - The allegation of Karnataka has been that sub basins K-1, K-5 and K-6 have six projects namely, Nehr Tank, Budihal Tank, Mehekari Project, Kada Project, Chandani Project and Harni Project and there has been triplicate allocation but the said case as projected by Karnataka was not accepted.

Ultimately, in all the Tribunal found excessive allocation to Maharashtra to the extent of $1.85 + 3.57 \text{ TMC} = 5.42 \text{ TMC}$, by inadvertence, hence, 5 TMC was deducted from the share of Maharashtra and added to Karnataka's share and 0.42 TMC was allowed as additional demand of Maharashtra in respect of Dudhganga Project. In the result, allocation of Karnataka was increased to 700 TMC from 695 TMC and that of Maharashtra

decreased to 560 TMC from 565 TMC. Consequential corrections were also ordered to be made.

The clarification No. X sought by the State of Karnataka was that extra quantity of 37.09 TMC allocated to Andhra Pradesh should be adjusted against the surplus flows made available to it and after deducting the said quantity from share of Andhra Pradesh, it may be allocated to Karnataka so as to compensate it for its just share in the dependable flows. Further that the Tribunal should allow only 79.164 TMC to Andhra Pradesh on account of minor irrigation instead of 116.25 TMC. This request has not been accepted.

Clarification NO. XI – Karnataka sought a clarification to the effect that 17 TMC is liable to be deducted from the allocation made to Andhra Pradesh for Nagarjunsagar Project and Krishna Delta and be allocated to Karnataka. This objection was not pressed. However, some other clerical mistake at page 578 of vol. II of the Report were ordered to be corrected e.g. in place of 281 TMC the figure and words 264 TMC was corrected in lines 3 and 10 where figure 264 was substituted by 445.20.

Clarification No. XII - State of Karnataka sought clarification to the effect that 4 TMC of water made admissible to State of Andhra Pradesh in the Krishna Delta on account of evaporation losses, was not established and the same was liable to be deducted and added to the allocation made to the Karnataka. The case of Karnataka was that no water was claimed or allowed for weirs or anicuts at Krishna Canal ex-Khodshi Weir, Tunga Anicut, Bhadra Anicut and Rajolibunda Diversion Scheme. Therefore, evaporation losses could not be made admissible to Andhra Pradesh in respect of Krishna Delta. The Tribunal clarified that Pond loss of 4 TMC at Krishna Barrage at Vijayawada claimed by Andhra Pradesh was allowed. No claims were extended to Pond loss at Krishna Canal Ex-Khoshi weirs. Krishna Barrage was constructed at Vijaywada to maintain higher level in the canals so as to facilitate supply of water to the high level lands. Raising of level of pond resulted in substantial water spread area, therefore evaporation losses were allowed. The contention of the Karnataka that allowing 4 TMC for evaporation loss would increase the 75 per cent dependable flow yield to 2064 TMC was also rejected.

Clarification No. XIII – The first objection is that Andhra Pradesh is not entitled to allocation of more than 14 TMC towards evaporation loss at Nagarjunsagar and further an allocation of 3 TMC out of 75 per cent dependable flows for evaporation losses in reference to carry over storages between FRL+546 and FRL+590 in respect whereof no right had been conferred on Andhra Pradesh, is not justified and is liable to be deducted from the allocation made to Andhra Pradesh and be allowed to Karnataka.

The Tribunal found that FRL at Nagarjunsagar Reservoir is +590 and annual evaporation loss is about 17 TMC which had been allowed as Andhra Pradesh was permitted to raise the reservoir to that height by installing crest gates so as to utilize the water so impounded and no deduction was made from dependable flow on account of inevitable waste to the sea. The Tribunal further clarified that its observations at page 560 of Vol. II of the Report that the permission is “till our decision is reviewed” was only to indicate that the decision was liable to be reviewed at the appropriate time but it was not to be taken that the crest gates allowed to be installed in the Nagarjunsagar Dam are temporary structures. Clarification of State of Karnataka claiming 3 TMC was rejected.

Clarification XIV – The first part of the clarification was that the evaporation losses at Srisaillam project is liable to be adjusted as against the liberty granted to Andhra Pradesh to utilize surplus waters; secondly allocation of 33 TMC is liable to be deducted from allocation made to Andhra Pradesh, and thirdly the said quantity of 33 TMC should be allocated to Karnataka to compensate it, atleast, partly against the denial of just share in 75 per cent dependable flow of Krishna.

About Srisaillam project it was found there was no substantial conflict of interest between irrigation use and hydel electric use as from Srisaillam project water would be released downstream for irrigation and other uses. It also provides valuable carry over storage and conserve water which would otherwise be wasted to the sea. For all these reasons, full evaporation loss was made admissible to Andhra Pradesh. The Tribunal also took into account question of the inevitable waste of water. The other contention that sanction of Srisaillam project was contingent on the diversion of Godavari waters into river Krishna was also negated.

Yet another argument that the evaporation losses would not be more than 23 TMC at Srisaillam project was also not accepted. As to

the next contention of Karnataka that there may be less wind velocity and less evaporation loss from the water spread at Srisailem which was inside the gorge, the Tribunal observed there may be some force in the argument and accurate observations in regard to evaporation loss at Srisailem may be made so that the fresh data may be available to the reviewing authority. The state of Maharashtra at a later stage on August 8, 1974 withdrew the objection to allocation of 33 TMC to Andhra Pradesh on account of evaporation loss at Srisailem .

Clarification Nos. XV, XVI, XVII and XIX of reference No. III of 1974 have been considered together which are also connected with clarification No. 1(b), 4 and 5 of Reference No. I of 1974 by Government of India and Clarification No.1 and 2 of Reference II of 1974 by State of Andhra Pradesh.

Clarification No. XV – Firstly Karnataka seeks Clarification by the Tribunal to determine the yield of river Tungabhadra according to estimates given by Andhra Pradesh on the one hand and Maharashtra and Karnataka on the other and secondly whether Clause IX be amended accordingly to provide further allocation to Karnataka.

Clarification No. XVI, it has been sought to be clarified as to whether Tribunal would prescribe an authority for making further studies of the available water in Tungabhadra and Vedavathi sub basins and in the second part of the same clarification as to whether Clause V(B) would be made subject to allocation of additional water as determined by the prescribed authority.

Clarification No. XVII is in respect of providing additional allocation to the Tungabhadra sub basin of Karnataka and to modify restrictions for the use of water therefrom.

Clarification XIX - The Tribunal-1 was requested to reconsider the finding that all the three sources should “remain open” to satisfy the allocations made to Andhra Pradesh and the restrictions imposed on utilizations by Karnataka from Tungabhadra and Vedavathi sub basins under Clause IX of the final order are liable to be modified. All the above clarifications are with a view to get more water for projects of Karnataka in Tungabhadra K-8, and Vedavathi K-9, sub basins on various grounds one of them is that enough water is available in the Rivers Tungabhadra and Vedavathi.

The Clarification No. II (b) of Reference No. I by Government of India and Clarification No. 1 of Reference II also relate to the similar matter pertaining to the ceiling specified by the Tribunal with regard to use of water in particular sub basins after adding of return flows and whether the restrictions as provided in Clause IX would require revision or not. The Advocate General of Andhra Pradesh on May 1, 1975 confined the matter under Clarification No. 1 to the Joint projects in Tungabhadra K-8 sub basins only.

Clarification No. IV of reference No. I of Government of India sought it to be clarified as to whether States concerned, in Tungabhadra Project, would be entitled to proportionate share of water during each crop season as per requirement and availability of water in Tungabhadra reservoir which is to be operated by Tungabhadra Board or could any State exclusively use the water of the reservoir for its own irrigation during a particular period or for building up the storage claiming still to be within the limits set by the Tribunal in respect of Krishna River system and Tungabhadra sub basin.

Under Clarification No. II of Reference No. II of 1974, State of Andhra Pradesh submits that it may be clarified that the finding given

on Issue No. IV B (a) would not mean denial of right to regulate uses for Kurnool-Cuddapah Canal and Rajolibunda Diversion Scheme on Tungabhadra reservoir to supplement the intermediate flows for ensuring the utilizations thereunder with the quantities sanctioned for the said projects by the Tribunal. Related to this question Clarification No. V of Reference No. I by Government of India sought explanation and guidance whether Tungabhadra Reservoir working tables should be prepared by the Tungabhadra Board to release water from the reservoir to supplement the intermediate flows whenever necessary in view of the findings at page 371 of the Report.

The Tribunal-1 took up all these related clarifications together. The Tribunal negated the plea raised by the State of Karnataka that Tribunal had determined the average yield of Vedavathi K-9 sub basin by taking the average of the estimates of yield submitted by Karnataka and as given in the Report of Krishna Godavari Commission or that any different principle was applied which was not made applicable to Tungabhadra K-8 sub basin. As to the alternative suggestion that the Tribunal may prescribe an authority for making further studies of the available water in Tungabhadra and Vedavathi sub basins, the

Tribunal held that it was not competent to constitute any such authority.

The next point taken up by the Tribunal was relating to restrictions imposed by Clause IX (B) of the Final Order. It is also subject matter of clarification No. XVII and XIX of Reference No. III. The case is that in view of the return flows, there would be increase in dependable flows which were though allocated to the parties but the Tribunal missed to provide for upward revision of ceilings on uses. Clarification II (b) of Reference No. I of 1974 by Government of India is also in respect to the same point. The Tribunal held it to be an obvious lacuna in the Report which had to be rectified. Whereas the States of Karnataka and Maharashtra have been for upward revision of the restrictions imposed by Clause IX, the State of Andhra Pradesh opposed the same. By Clause IX (B), a restriction was placed on Karnataka that it shall not use more than 295 TMC from Tungabhadra K-8 sub basin and more than 42 TMC from Vedavathi K-9 sub basin and secondly not more than 15 TMC from the stream of River Bhima. However, the Tribunal declined to raise the upward limits placed on utilisation of water from the main stream of River Bhima looking to the respective needs of the States. So far it concerned Vedavathi K-

9 sub basin, Tribunal adhered to its earlier view and did not review the restriction placed at 42 TMC. It observed that there was protected use to the extent of 50.54 TMC in the said sub basin for the utilization of the States of Karnataka and Andhra Pradesh and further observed that Karnataka can minimize the use of water elsewhere in K-9 sub basin for use for feeder channel to Renikere and Jinigehalla.

The Tribunal then proceeded to consider about the restriction placed in K-8 Tungabhadra sub basin. Karnataka requires 36 TMC for Upper Bhadra project to provide irrigation to drought affected areas of Chitradurga and Bellary and a dam proposed to be constructed near Mahagundi Village. Karnataka also required 40 TMC for upper Tunga Project for providing irrigation facilities for Ranebennur, Haveri, Shrihatti and Mundargi Taluks of Dharward District of Ex- Bombay State and Koppal Taluk of Raichur District which was identified as drought affected by Irrigation Commission. The demand was held to be not worth consideration unless further study was made about the available water in River Tungabhadra. There was another demand of 101.3 TMC of Tungabhadra Left Bank Low Level Canal which was protected to the extent of 92 TMC. The main reason for not acceding to these demands was that Tungabhadra

should continue to make significant contribution to the River Krishna, the Tribunal observed that, however, the picture changes on account of return flows. Andhra Pradesh opposed on the ground that ceilings were placed taking into consideration the additional quantity of water as would be available by way of regeneration. The Tribunal, however, found that while fixing the ceiling it had not taken into account the additional dependable flow that would be available on account of return flows and a limit of a little higher than the actual requirements of the projects, was provided to give some flexibility to the States.

Considering all the arguments the Tribunal gave its specific direction in that regard. Accordingly, Clause IX B of the Final Order had been deleted and a new provision as Clause IX(B) was substituted. Out of the water allocated to it the State of Karnataka shall not use in any water year - (i) more than the quantity of water specified hereunder from Tungabhadra sub basin.

(a) as from the water year commencing on the first June next after the date of publication of the decision of the Tribunal in the official gazette upto the year 1982-83 - 295 TMC

(b) as from the water year 1983-84 upto the year 1989-90 – 295 TMC plus.

A quantity of water equivalent to 7½ per cent of the excess of average of the annual utilizations for irrigation in Krishna river basin during the water years 1975-76, 1976-77 and 1977-78 from its own project using 3 TMC or more annually over the utilizations from such irrigation in the water year 1968-69 from such projects.

In the same manner in Clause (c) and (d) provisions were made, indicating 295 TMC plus the average uses in respect of the period of 1998-99. It further provided that for a limited purposes, it was declared that utilization for irrigation in Krishna River basin in the water year 1968-69 shall be taken 176.05 TMC.

The contentions of Maharashtra that utilization of water in Ghataprabha K-3 sub basin will generate 0.52 TMC of return flow and by cutting down excess allocation of Karnataka by 1.7 TMC for Gokak Canal, the limit of restriction for utilization of water by Maharashtra in K-3 sub basin Ghataprabha may be raised to 9 TMC from 7 TMC or in any case to 7.5 TMC. This request was rejected holding that no excess allocation was made for Gokak Canal and

return flow as well in K-3 sub basin, would be very meager. Hence, the restriction as placed remained unchanged.

The State of Maharashtra calculated return flow to the extent of 11 TMC on utilization of 195.6 TMC in seven of its projects namely, Mutha System, Godh Dam, Kukadi, Bhima, Nira System, Vir Dam, Sina at Kolegaon in Bhima sub basin. Therefore it was contended that the limit of restrictions for use of water in Bhima sub basin may be revised to 101 TMC, so as to enable Maharashtra to undertake Chaskaman Project which requires 10 TMC for scarcity areas. The Tribunal observed that Maharashtra had been given a margin of 5 TMC by fixing the restrictions limit at 90 TMC in Bhima sub basin. It was also observed that for the purposes of Chaskaman project the restriction limit may be revised to 95 TMC as from the water year 1990-91 more than 5 TMC is likely to be added as return flow in Upper Bhima K-5 sub basin. River Bhima would still continue to make same contribution to river Krishna and States of Karnataka and Andhra Pradesh will not suffer any injury. Hence, Clause IX (A) of the Final Order was directed to be deleted and it was substituted as follows:-

“Providing for restriction limit upto 95 TMC from the water year 1990-91 which for the period earlier to that remain as 90 TMC .”

The Tribunal then dealt with Clarification No. 1 and 2 of Reference No. II of 1974 of the State of Andhra Pradesh and Clarifications Nos. 4 and 5 of Reference No. I by Government of India. Under Clarification No. 1 Andhra Pradesh submitted that under sub clause (c) of Clause V of the Final Order it had liberty to use remaining water after meeting the specific allocations made to Maharashtra and Karnataka under sub clause (A) and (B) of Clause V but it may not apply to the joint projects since benefits to Tungabhadra Right Bank High Level and Low Level Canals and Rajolibunda diversion scheme are to be shared in the agreed proportion between Andhra Pradesh and Karnataka as per Clause XI (C) of Final Order. Karnataka opposed seeking of the above clarification saying that in the agreement no particular proportion for sharing the water was provided for. Therefore, no order was passed as requested by Andhra Pradesh.

By Clarification No. 2 - Andhra Pradesh raised the question of regulated releases from Tungabhadra Dam for assistance of protected utilizations under Rajolibanda Diversion Scheme jointly

with Karnataka and Andhra Pradesh and Kurnool Cuddapah canal of Andhra Pradesh below Tungabhadra Dam.

Considering the rival contentions of the parties the Tribunal noted the projects which draw water from Tungabhadra Dam namely Tungabhadra Project Left Bank Low Level Canal and High Level Canal for irrigation in Karnataka to the extent of 92 TMC which is protected use . Karnataka seeks around 10 TMC more under its projects. Secondly, water is drawn from Tungabhadra project Right Bank Low Level Canal for irrigation both in Karnataka and Andhra Pradesh to the extent of 22.50 TMC and 29.50 TMC respectively totalling into 52 TMC. Thirdly, water is drawn from Tungabhadra project Right Bank High Level Canal Stages I and II, for irrigation in Karnataka and Andhra both to the extent of 17.50 TMC for Karnataka and 32.50 TMC for Andhra Pradesh respectively totalling to 50 TMC. The fourth project is Raya Channel and Basavana Channel for which water is taken directly from Tungabhadra dam on the Right Side to the extent of 12.06 TMC some of which has been protected and allocated to Vijaynagar Channels of Karnataka including Raya and Basavana Channels.

The dispute is for giving assistance to (1) Vijayanagar Channels of Karnataka excluding Raya and Basavana Channels and Rajolibunda Diversion Scheme the benefits of which are shared by Karnataka and Andhra Pradesh in the proportion of 1.2 TMC and 15.9 TMC respectively and the third objection is regarding providing assistance for Kurnool Cuddapah Canal project of Andhra Pradesh which was given protection to the extent of 30.9 TMC and month wise demands have also been taken note of by the Tribunal.

The Tribunal ultimately found that admittedly as per the table submitted by the Karnataka some assistance was necessary for RD Scheme during the months of January to May. It also found that sufficient assistance should be granted for the months of November to May for its Rabi crops and some assistance for other months which was ultimately granted to the extent of 7 TMC by way of regulated discharges from Tungabhadra Dam in a water year for the benefit of Rajolibunda Diversion Scheme of both the States.

So far Kurnool Cuddapah canal is concerned the Tribunal ordered for assistance to the extent of 8 TMC during the months of November to May and assistance of another 2 TMC should be given

in other months totalling to 10 TMC by way of regulated discharges from the Tungabhadra Dam for Kurnool Cuddapah Canal.

The Tribunal took no exception to the grievance made that Karnataka had started utilizations of about 7 TMC in the Raya and Basavana channels directly from Tungabhadra Dam so long limit is imposed on Tungabhadra K-8 sub basin.

The Tribunal then considered the question of dividing the waters of Tungabhadra Dam between the States of Karnataka and Andhra Pradesh. Projects of the two States have common source of supply namely Tungabhadra Dam Headworks of the Project on the right side are common to both States. It was thought necessary to give specific direction instead of leaving it to the States free to compete with each other in the matter of utilization of water of Tungabhadra.

The Tribunal-1 ordered in sub clause (E) to Clause IX of the Final Order for use of available water in Tungabhadra Dam in a water year, so that demands of following projects may be met to the extent given below:-

(E)(1) (a)(i) Tungabhadra Right Bank Low Level Canal water shall be shared by Karnataka and Andhra Pradesh in the proportion to the extent of 22.50 TMC and 29.50 TMC by Karnataka and Andhra Pradesh totalling to 52.00 TMC.

(ii) The waters of Right Bank High Level Canal stages I and II to be shared as 17.5 TMC and 32.50 TMC by States of Karnataka and Andhra Pradesh respectively totalling to 50 TMC.

(iii) Tungabhadra Left Bank Low Level and High Level Canals 102 TMC.

(v) Raya and Basavaanna Channels in the State of Karnataka - 7 TMC

(vi) Assistance by way of regulated discharges to Vijayanagar Channels other than above - 2 TMC.

(vii) Assistance by way of regulated discharges to Rajolibunda Diversion Scheme for use of Karnataka and Andhra Pradesh in the given proportion to the extent of 7 TMC; and

(viii) Assistance by way of regulated discharges to Kurnool Cuddapah canal of Andhra Pradesh to the extent of 10 TMC in all totalling to 230 TMC.

One of the clause also provides that in case in any water year availability is less than the total quantity of water required for all the projects, deficiency shall be shared by all the projects proportionately after excluding evaporation losses. Whereas, in case of there being more water than required for the month of June in succeeding water year, it shall be kept in reserve and Karnataka will have right to utilize the remaining water for its projects mentioned in Sub- clauses (a)(i), (ii) and (iii) of Sub clause E of Clause IX. Even though it may cross the limit of utilization from K-8 sub basin but in no case such utilization shall exceed 320 TMC. The balance, if any, shall be kept in reserve. Suitable directions have also been given for preparing working table for operating Tungabhadra Dam.

In the manner, as briefly indicated above, the Tribunal disposed of Clarification Nos. XV, XVI, XVII and XIX of Reference No. III of 1974, Clarification No. 1 and 2 of Reference No. II of 1974 and Clarification No. 2 (b), 4 and 5 of Reference No. I of 1974.

Clarification No. XVIII - Karnataka sought a clarification for sharing of evaporation loss in Tungabhadra Reservoir as same was liable to be modified to be in proportion to the utilization on either side. The Tribunal refused to interfere with the same due to lack of any ground to do so.

Under Clarification No. XX - State of Karnataka sought clarification regarding reallocation of the balance waters to Maharashtra and Karnataka on the basis of areas to be irrigated under future projects applying a common equitable yardstick. The Tribunal while negating the plea of the State of Karnataka and not agreeing with observation of Anderson Committee Vol. I page 42 relied by Karnataka, observed that no State has proprietary interest in any particular volume of water of an inter-state river on the basis of its irrigable area or contribution and that allocation has been made by the Tribunal after balancing the conflicting demands of the State.

Clarification No. XXI – Karnataka claimed that Upper Krishna Project of Karnataka was entitled to allocation of more water for Narayanpur intensification of crops on the Narayanpur Left Bank Canal Stage I for Lift Irrigation of 5.24 lakh acres including Hippargi

Barrage Scheme and further for irrigation of 1.20 lakh acres under the Right and Left Bank Canals from Almatti Reservoir. It also demanded that Bhima Lift Irrigation project of Karnataka and other such projects were entitled to more allocation on the same principle as applied to Gudavale Lift and Koyna-Krishna Lift in Maharashtra. Hence, re-adjustments were to be made accordingly.

The Tribunal-1 observed that allocations were made after considering the revised claims of the States of Maharashtra, Karnataka and Andhra Pradesh and there were no good grounds to make any further clarification. However, in future if more water is available, the claim of Karnataka for allocating more water for the project may be considered favourably by the Reviewing Authority or Tribunal. It also observed that Aalmatti Dam which was under construction may serve as carryover reservoir.

By means of Clarification No. XXII, a clarification and explanation was sought in regard to 17.84 TMC allocated to Andhra Pradesh, that it may be deducted from their allocation, in case Andhra Pradesh failed to put up any project for irrigation in Gadwal and Alampur Taluka and further that scarcity area in Bijapur District of Karnataka may also be held entitled for allocation for similar

“special considerations” applied to Gadwal and Aalampur in Andhra Pradesh.

The Tribunal observed that it had provided full reasons for allowing the demand for 17.84 TMC for Jurala Project so as to correct the balance for irrigation between Andhra and Telangana regions and it also provided that in case Jurala Irrigation project could not be practical that amount of water could be utilized elsewhere in Telangana area. So far as Bijapur District is concerned, it had been indicated that it could be irrigated from Ghatprabha Project, Malprabha Project, Ramthal Lift Irrigation Scheme, Upper Krishna Project and Minor Irrigation works, hence no clarification is needed.

Under Clarification No. XXIII, certain observations about Karnataka not being co-operative etc had been deleted.

Clarification No. XXIV sought by Karnataka was that the existing utilization is to the extent of 101.3 TMC including evaporation losses of 9 TMC under Tungabhadra Left Bank Low Level Canal. Hence it should be allocated 9.03 TMC more. The Tribunal has gone into the details referring number of documents and exchange of correspondence between Hyderabad and Mysore and it

has been observed that lastly in March 1955, Hyderabad had finally approved a cropping scheme for 5,80,000 acres in Karnataka region mile 141. However, no demand table regarding the said approved cropping scheme was prepared though indicated later with some more demands. Considering all the relevant factors the Tribunal came to the conclusion that 82 TMC was a reasonable volume of water as was estimated earlier for Tungabhadra Left Bank Low Level Canal with 9 TMC on account of evaporation loss. The clarification sought by means of Clarification No. XXIV was not accepted.

According to Karnataka, there was an excessive allocation of 4 TMC in respect of Mutha System, the project proposed was to utilize 33.1 TMC out of which 25.9 TMC was for irrigation of 1,28,000 acres and 5 TMC for water supply requirement and 2.2 TMC represents losses. Considering all the relevant facts and details, the request made on behalf of the Karnataka regarding Mutha system Ex-Khadakwasla was rejected.

State of Maharashtra pointed out that 1.4 TMC was allocated in excess to Karnataka in respect of Gokak Canal though on this count no modification was sought by it. This contention however, was not accepted and the Tribunal held that 1.4 TMC was allowed for Gokak

Canal as a requirement of entire Ghatprabha project Stages I, II, III and IV including Gokak Canal to the extent of 55 TMC in all.

UPPER KRISHNA PROJECT

In connection with Upper Krishna Project the State of Maharashtra took up the case that for irrigation of 4.3 lakh acres from Narayanpur Right Bank Canal, only 47.69 TMC was required whereas allocation of 52 TMC was in excess. This contention was also not accepted by the Tribunal. It was pointed out that utilization for Right Bank Canal including evaporation losses as envisaged by sanctioned project as modified was 52 TMC. However, to clear any confusion one line was deleted from the Report “as contemplated under the sanctioned Project”. Again submission on behalf of the State of Maharashtra that it is mentioned in the Report that Left and Right Bank Canals from Almatti Reservoir were to irrigate 1.20 lakh acres is incorrect. The Tribunal-1 rejected this contention observing that no demand was allowed for water in respect of Almatti Canals.

KOLCHI WEIR AND MALAPRABHA PROJECT

It was pointed out on behalf of the State of Maharashtra that there was excessive allocation to the extent of 0.53 TMC to Karnataka in respect of Kolchi Weir. This utilization was included in the demand for 37.20 TMC in respect of Malaprabha Project. In this connection, the Tribunal pointed out that the demand of 37.20 TMC included demand of 1.95 TMC for Kolchi Weir extension to irrigate 20,000 acres. But 37.20 TMC did not include any allocation for existing Kolchi Weir which was separately demanded by Karnataka which was allowed to the extent of 0.53 TMC which is not included in 37.20 TMC. Another complaint about excessive allocation of 0.2 TMC raised by Maharashtra for Malprabha project was also not accepted.

Reference IV of 1974 by the State of Maharashtra

Clarification No. (a), it was pointed out that in the protected annual westward diversion for the Tata Hydel Projects 42.6 TMC excluded evaporation losses, was included 5 times which comes to 213 TMC and not 212 TMC in any period of 5 consecutive years. This error was found to be correct. Consequently, figure 213 was

substituted in place of 212 appearing at page 786 line 19 of the Final Order.

Clarification No. (b) on the request of State of Maharashtra, it was clarified that maintaining records of “estimated annual evaporation losses from reservoirs and storages” is not applicable to storages utilizing less than 1 TMC of water annually. Consequently, using 1 TMC or more annually was added in the end of sub clause (h) at page 789 of Vol. II of the Report.

MATTER IN SUPREME COURT IN ORIGINAL SUITS

This dispute has a little more history before its culmination into reference to this Tribunal. Before May, 2000, the State of Karnataka filed a suit, Original Suit No. 1 of 1997 (State of Karnataka Vs. State of Andhra Pradesh and Ors.), while Original Suit No. 2 of 1997 State of Andhra Pradesh Vs. State of Karnataka and Ors. was filed by State of Andhra Pradesh in the Supreme Court, invoking its original jurisdiction under Article 131 of the Constitution. The matter came to be considered before a full Bench of five Hon'ble Judges.

The case of State of Karnataka in its suit O.S. No. 1 of 1997 was that Scheme B formed part of decision of the Tribunal, therefore,

it was also required to be notified by the Central Government under Section 6 of the Inter State Water Disputes Act, 1956 so as to make it binding upon the parties. A prayer was made for grant of mandatory injunction to the Union of India to notify Scheme B as framed by the Tribunal and to make provisions for establishment of Krishna Valley Authority and further, so long Scheme B was not fully implemented, State of Andhra Pradesh may be held to be not entitled to use surplus water in excess of the allocated share out of 2060 TMC at 75% dependability. A prayer for injunction was also made for restraining State of Andhra Pradesh from continuing to execute certain projects namely Telugu Ganga, Srisailem Right Bank Canal, Srisailem Left Bank Canal, Bheema Lift Irrigation and Pulichintala Project. It also raised the question relating to scope and extent of Clause V (C) of the Final Order which relates to limits of utilization of water by three respective States as per their shares allocated by the Tribunal.

State of Andhra Pradesh took objection relating to maintainability of the suit under Article 131 of the Constitution, being barred under Section 11 of the Inter State Water Dispute Act, 1956 (hereinafter referred to as the “Act”) in view of the mandate under Article 262 of the Constitution. It is also its case that Scheme

A alone is decision of the Tribunal which came into operation on the date of publication of the decision and Scheme B not being a part of the decision is unenforceable. It also took up the case that in view of Clause V (C) of the Final Order, State of Andhra Pradesh was entitled to use the remaining water flowing in the River, so as to avoid its wastage by entering into the sea. It also took a plea that Scheme A having already come into operation and review also having been provided after 31.5.2000, question of implementation of Scheme B at this stage would be inequitable and wholly uncalled for.

State of Maharashtra also took the same stand regarding prayer for implementation of Scheme B as taken by Andhra Pradesh. It, however, agreed with the case of State of Karnataka regarding the remaining water of river Krishna and for restraining Andhra Pradesh from executing projects like Telugu Ganga, Srisailem RBC, etc. It has also been its case that unless a chain of carryover reservoirs in the entire Krishna basin is erected, Scheme B could not be implemented and the prayer to that effect is premature.

So far as Union of India Defendant No. 3 is concerned, it also raised that question of maintainability of the suit in view of Section

11 of the Act read with Article 262 of the Constitution and that the liberty granted to Andhra Pradesh to use the surplus water would not confer or create any right in its favour .

On the pleadings of the parties the following issues were framed.:

1. Whether the suit is barred by Article 262(2) of the Constitution read with Section 11 of the Inter-State Water Disputes Act, 1956? (A.P.).
2. Whether the suit is liable to be dismissed as not disclosing cause of the Action? (A.P.)
3. Whether the suit is liable to be dismissed seeking relief which are contrary to the Report and Decision of the KWDT? (A.P.)
4. What is the “decision” of the KWDT binding on the parties under Section 6 of the Act in relation to:
 - i. Scheme ‘B’
 - ii. Use of surplus water is contemplated in Clause (V) (c) read with Clause XIV(A) of the Award.

5. Whether reference to Scheme 'B' in the 1st and the further report of the KWDT, disclose a complete scheme, and whether such scheme is capable of implementation at this stage, in view of circumstances referred to in para 11 of the preliminary objections and para 1 of the parawise reply in the written statement of Andhra Pradesh? (A.P.)
6. It is just, fair and equitable to implement Scheme 'B' at this stage? (MAH)
7. Whether in view of the fact that Scheme 'B' does not form part of the "Final Order" of KWDT in the original report under Section 5(2) and the Further Report under Section 5(3) of the Act, the suit seeking the implementation of Scheme "B" is maintainable? (A.P.)
8. Whether insertion of Section 6A in 1980 in the ISWD Act, 1956 ipso facto entitles Karnataka to seek implementation of Scheme 'B' as referred to

in the reports of the Tribunal by framing a scheme? (KAR – as modified by A.P.)

9. Whether the right of Andhra Pradesh to utilize surplus waters in terms of the liberty granted by the decisions of the Tribunal, is reviewable in the present proceedings? (A..P.)
10. Whether the liberty to use surplus water under the decision of the KWDT precludes utilization of surplus water by A.P. by means of projects of permanent nature? (KAR as modified by A.P.)
11. Whether the decision of the KWDT entitles the State of Andhra Pradesh to execute the following projects: (KAR – as modified by A.P.)
 - (a) Telugu Ganga Project
 - (b) Srisailam Right Bank Canal
 - (c) Srisailam Left Bank Canal
 - (d) Bhima Lift Irrigation
 - (e) Pulichintala Diversion

12. Is not the suit of the Plaintiff unnecessary and premature as there can be review of the orders of the Tribunal after A..D. 2000? (MAH)
13. To what reliefs, if any, the Plaintiff is entitled to? (A.P.)

The Supreme Court took up issues Nos. 4, 5 and 7 first.

After a detailed discussion it is held that Scheme B evolved by the Tribunal is not part of the decision of the Tribunal under Section 5(2) of the Act and it was not required to be notified under Section 6. Consequently, it could not be enforced at the behest of the plaintiff. However, the Court observed that it had least hesitation to agree with the findings of the Tribunal that Scheme B provided for fuller and better utilization of water resources in River Krishna and in future if question of allocation of waters of river Krishna is gone into by any authority, it may certainly look into Scheme B and its acceptability may be duly considered. The Court hastened to add that the appropriate authority to be entrusted with the task of resolving the dispute has to come to its own decision on the basis of the data placed before it by the contesting States. Scheme B only serves as a useful

blueprint for the authority though it may not “strictly be binding on it.”

The Supreme Court considered Issue No. I relating to maintainability of the suit in view of the provisions contained under Section 11 of the Inter State Water Disputes Act in the background of Article 262 (2) of the Constitution. This objection was raised on behalf of the Union of India and supported by the State of Andhra Pradesh as well. The main contention was that plaintiff actually accepted allocation already made under Scheme A and the sharing of surplus as evolved under Scheme B, would amount to having a new Scheme altogether hence a fresh dispute which cannot be entertained by the Supreme Court under Article 131 of the Constitution. The terms of Section 2 (C) read with Section 3 of Inter State Water Dispute Act makes the scope wide enough to cover a dispute as water dispute which may arise in the matter relating to implementation of decision of the Tribunal. The Apex Court observed that Article 131 being subject to other provisions of the Constitution including Article 262, and a law having been made by the Parliament accordingly, in matters relating to disputes about distribution or control of water in any inter state river or river valley, such a dispute cannot be raised

before the Supreme Court. Section 11 of the Inter State Water Disputes Act has been held to be valid. Therefore, the Court observed, it was necessary to find out whether the assertions made in the plaint and the relief sought can be held to be a water dispute or not as may be referable to a Tribunal ousting the jurisdiction of the Supreme Court under Article 131 of the Constitution. Considering the averments made in the plaint, the court observed “..... in the considered opinion that what really the State of Karnataka wants is a direction from the Supreme Court to the Union Government to notify Scheme B evolved by the Tribunal and for a direction to the Union Government to constitute an authority under Section 6(A) of the Act.”

REPORT/ DECISION

The Court by considering the assertions made in the plaint and the relief sought found that it was a claim raised on the basis of an adjudicated dispute, the enforcement whereof is sought for by filing a suit under Article 131 of the Constitution. It is held to be not barred under Article 262 of the Constitution read with Section 11 of the Act. The Court held that this kind of a dispute is not covered under Section 2 (C) of the Act.. Therefore, jurisdiction of the Supreme Court was not barred and the suit was held to be maintainable.

The next issue considered by the Court is Issue No. VI based on the pleadings of the State of Maharashtra to the effect that it was not a stage to consider implementation of Scheme B, 31 years had lapsed after the award was given, it would be pre judicial to the State of Maharashtra since parties have worked their equities on the basis of Scheme A. Similar case was taken up by Andhra Pradesh.

On behalf of the State of Karnataka, however, it was pointed out that Karnataka had throughout been asking for implementation of Scheme B even without there being any Krishna Valley Authority and mere lapse of time would not negative their case. The Court, however, observed that since Scheme B is held not to be a part of the decision of the Tribunal on that ground itself there was no justification to issue any direction for implementation of Scheme B.

The next two issues Nos. 10 and 11 dealt with by the Supreme Court are as to whether liberty given to Andhra Pradesh for utilization of surplus water includes right to raise projects of permanent nature like Telugu Ganga Project, Srisaïlam Right Bank Canal, Srisaïlam Left Bank Canal, Bhima Lift Irrigation, Pulichintala Diversion. Considering the respective arguments of the parties, the Supreme Court observed that the Tribunal had not indicated the manner of the

use of the surplus water but the same must be read as such use of water will neither confer any right nor deem to have been allocated in favour of lowest riparian State. That being the position, it would be appropriate for the Central Government to exercise the discretion while granting any Scheme or project of the lowest riparian State. It may bear in mind, really what is meant by the liberty granted is that the lowest riparian State is not allowed to proceed with large scale water projects for utilization of surplus water, in excess of the allocated quantity, over which the State of Andhra Pradesh has no right. The Court observed that issue No. 9 also does not survive any more in view of the above finding.

The plea relating to dismissal of the suit for non disclosure of cause of action as raised by Andhra Pradesh, as also the plea on the basis of which issue No. 3 was framed that suit was liable to be dismissed for seeking a relief which was contrary to the report and decision of the Tribunal were both rejected since Scheme B, though not held to be the decision of the Tribunal yet it is mentioned in the Report. The issue No. 8 which was to the effect as to whether insertion of Section 6 (A) in the year 1980, in the Inter State River Water Disputes Act 1956, State of Karnataka was ipso facto

entitled to seek implementation of Scheme B, was left open. The Court however took note of the fact that Section 6 (A) was not in existence when the report and the final report were submitted by the Tribunal, and that the question of constituting an authority like Krishna Valley Authority would arise if the Scheme B evolved by the Tribunal was held to be a part of the decision of the Tribunal. The next question which led to framing of Issue No. 12 raised by the State of Maharashtra that the suit was premature, since Tribunal itself had provided that the decision could be reviewed any time after 31.5.2000 in the light of the fresh data that may be available. But the Court did not agree with the contention observing that the review as provided in the order was relating to allocation made under Scheme A and it has nothing to do with the Scheme B. In relation to the grant of relief sought for, the Court observed that in view of the findings on Issue Nos. 3,4, and 7, there was no occasion to grant any relief but observed that looking at the nature of the dispute, it would be appropriate, in case any party approaches the Central Government, it would do well in constituting the Tribunal which can go into the entire gamut of the dispute during the proceedings of which, parties can place the data and material on the basis of which

Bachawat Tribunal had evolved two Schemes as well as to place fresh data before the Tribunal.

The suit No. 1 filed by the State of Karnataka was dismissed with above observations.

The Supreme Court then took up suit No. 2 of 1997 filed under Article 131 of the Constitution by the State of Andhra Pradesh impleading the State of Karnataka, the Union of India and the State of Maharashtra as defendants.

The Supreme Court observed that though in all 14 reliefs have been claimed but essentially the reliefs relate to the construction of Almatti Dam to a height of 524.256 m. Main grievance in the suit as noted by the Court, was that the Tribunal had allocated only 160 TMC for Almatti Dam in Upper Krishna Project, hence raising of the height of the Dam upto 524 meters would on the face of it, be in violation of the decision of the Tribunal. It was also the case of State of Andhra Pradesh that there is mass allocation of water amongst the three States out of 2060 TMC at 75 % dependability but the allocation has actually been made in respect of different sub basins on the basis of projects undertaken in those sub basins. If Karnataka is allowed to

raise the height of Almatti Dam upto 524 meters, State of Andhra Pradesh, would go dry in the months of July to September and the entire crop in the State would get destroyed due to paucity of water. It was also indicated that a committee of Ministers, appointed by the Union Government, in consultation with an expert committee, found that FRL upto the top of the shutter be fixed, for the present, at 519.6 meters and the gates be manufactured and erected accordingly to take adequate care of requirement of 173 TMC. The State of Andhra Pradesh, however, disputes the entitlement of the State of Karnataka to use 173 TMC under UKP and the height of the Dam at 519.6 meters.

According to Karnataka, allocation by the Tribunal is enbloc not projectwise or sub basinwise. There is no restriction of use of water in any particular sub basin. It also took up the case that the State of Karnataka had contemplated the height of Almatti Dam as 524.256 m in the project Report of 1970 itself which was before the Tribunal. No objection was raised to the same by any of the two States. It is also the case of State of Karnataka that the committee had considered FRL at 519.6 meters so as to be sufficient for storage capacity of 173 TMC. But raising the height of Almatti Dam from

519.6 meters to 524.256 meters is only for the purposes of storage of water for power generation which is a non consumptive use, hence the same was not considered to be nor there arises question of any violation of the decision of the Tribunal, particularly in view of Clause XV of the Award which gives liberty to the States to regulate use of water within the State in any manner not inconsistent with the order of the Tribunal. The utilization of water would be within the allocated quantity of water, and the storage between the height of 519.6 meters to 524.256 meters would only return to the river after generation of power. It was also the contention that there was no requirement to consult another State in the matter of planning of projects for utilization of its water. The modified proposal dated 21st April, 1996 for upper Krishna Project Stage II, as multi purpose project, proposes FRL of 524.256 meters.

REPORT/ DECISION

Union of India also filed a written statement raising the preliminary objection about the maintainability of this suit also in view of Article 262 of the Constitution and Section 11 of the Inter State River Water Disputes Act 1956 and also as to the height of Almatti Dam from 519.6 m to 524.256 m. It was gross allocation of water by the Tribunal, not project wise. There was no violation of

the Tribunal award by the Karnataka and that stage I of UKP had been approved whereas Stage II was under consideration. It also contended that while clearing the projects of other party State within the framework of KWDT award, there was no obligation to consult the State of Andhra Pradesh. A separate statement was filed on behalf of Ministry of Power stating that the expression “in principle clearance given by the Central Electricity Authority to upper Krishna Project at Almatti” does not tantamount to sanction of the project by the competent authority.

The State of Maharashtra filed its written statement fully supporting the case of Karnataka that allocation is on enbloc and not project wise. Later on, however, an additional written statement was filed by the State of Maharashtra on 9th April, 1999, taking up a new stand about height of Almatti Dam FRL at 524.56 meters. According to the State of Maharashtra, on raising the height of Almatti Dam upto 524.16 meters, there would be large scale submergence of area in the State of Maharashtra adversely affecting the interest of State and the individuals. It also indicated that State of Karnataka had not obtained relevant clearance of different authorities viz environment authorities, forest authorities and even Central Water

Commission. Therefore they should be enjoined from raising dam height from 519.00 to 524.256 meters, until and unless actual area to be submerged is made known after due survey.

In all 22 issues were framed and an additional issue No. 9 (C) on the basis of the additional written statement filed on behalf of the State of Maharashtra. Before dealing with issues, the Supreme Court recorded the statements of the learned counsel for the States of Karnataka and Maharashtra to the effect that they accept the claim of the State of Andhra Pradesh that the reports of the Tribunal are binding upon the three riparian States, and that relief to that effect may be granted.

The Supreme Court then took up Issue Nos. 1,3 and 5 together for disposal, raising the question as to whether the allocation made by the Tribunal was enbloc or project wise. The Supreme Court recorded a clear finding that allocation made by the Tribunal is enbloc and not project-wise. It was also the contention of Andhra Pradesh that since only 160 TMC was allocated for Almatti Dam its construction height of 524.256 m itself amounts to violation of the decision of the Tribunal. Therefore, an injunction was liable to be issued by the Court enjoining the State of Karnataka from

constructing Almatti Dam upto the height 524.256 m. For the said relief, the Court held that the plaintiff must establish that there has been project-wise allocation in respect of Upper Krishna Project which fact was though found otherwise. Hence there was no restriction for any State to utilize water in any project to any limited extent except for those restrictions contained in Clause IX of the decision. It is also held that a reading of Clause V(A) of the Award, by no stretch of imagination, can be said to have put any restriction on any State to utilize any amount of water, so long as they do not use more than the quantity awarded in their favour in any water year. The Court also, while dealing with the question raised that no allocation was made for Almatti Dam, observed that there was irresistible conclusion that for Upper Krishna Projects in Almatti and Narayanpur, a total quantity of 160 TMC was allocated as same must be read into the Final Order in Clause (V) though not specifically mentioned therein. Finally, it was held that there was no restriction or conditions, which can even be inferred in respect of utilization of a specific quantity of water out of the total allocated for UKP. It was held that it could not be said that decision of the Tribunal was being violated infringing the rights of Andhra Pradesh,

as no restriction could be read to have been placed as use of any quantity of water in UKP, so long as total user does not exceed mass allocation. The above three issues were thus decided against the plaintiff and in favour of the defendants.

As to Issue No. 2, relating to the jurisdiction of the Court and maintainability of the suit, as raised by the State of Maharashtra, it was held that the suit was maintainable.

The Court then took up issue Nos. 4,6, 7 and 8 together. The main contention of the State of Andhra Pradesh, under these issues was that while a project of any State is under construction, the other riparian States should also be made aware of the same and their consent should also be taken. The contestant States resisted this plea and the Court also negated it. It was also observed that these issues are rather academic in as much as UKP and Almatti Dam project are concerned. Before the Tribunal, the State of Karnataka submitted report of UKP in July 1970 in which height of FRL of Almatti Dam was shown as 524.256 m. and the top of the Dam as 528.786 m. The entire project itself was before the Tribunal and it was not necessary to discuss it in particular in view of enbloc allocations. The court further observed that the grievance of Andhra Pradesh that the

project was being surreptitiously constructed was devoid of any substance. The issues were thus decided against the plaintiff.

The Court then passed on to discuss Issue No. 9(a)(b). The question involved under these issues was as to whether there is any prohibition in the decision of the Tribunal restricting construction of Almatti Dam FRL at 524.256 m or from storing any particular quantity of water therein since injunction was sought in that regard by the State of Andhra Pradesh. The Court found nothing in the decision of the Tribunal to indicate any such restrictions, so prayer to injunct the State of Karnataka from constructing the dam FRL 524.256 meter could not be granted. It is also observed that the whole project was before the Tribunal, no question regarding height of Almatti Dam was raised not even at the stage of review namely at the stage of Section 5 (3) of the Act. There being no decision of the Tribunal on the above point, it was held to amount to water dispute within the meaning of Section 2 (C) of the Act, therefore, this question was not liable to be adjudicated under Article 131 of the Constitution. The Court also referred to Paragraph 51 of the plaint of Andhra Pradesh making averment to the effect that for required utilization of 173 TMC in UKP, the height of the dam at FRL 519.6 m

would be adequate. The UKP Stage II with FRL 524.256 m at Almatti, was under consideration with the Government of India and had yet not been approved till then. The Court observed “reading the plaint as a whole it appears to us that plaintiff State had not made any grievance for having a Dam at Almatti upto a height of FRL 519.6 m” rather Karnataka wanted to have the height at 524.256 m. Further referring to the Report of the Experts Committee the Court observed “ the said report further reveals that State of Karnataka is desirous of having the Dam height at FRL 524.256 m. so that it can store its share of water available to it under Scheme B when it comes into operation.

The Hon’ble Supreme Court had noticed that the entire basis of the State of Karnataka to have the height of the Almatti Dam at 524.256 m was contingent upon implementation of Scheme ‘B’. In a concurring judgment, it was observed that there was no real dispute among the three States about the height of 519 m of Almatti Dam. According to the Court, even if the height is not allowed upto 524.256 m. it can be allowed later only when necessity arises and technically it may be feasible. The Report also records that for utilization of 173 TMC at Almatti and Naryanpur the required height

of the Dam would be 519 m. The Supreme Court ultimately held that “ We are of the considered opinion that there should not be any bar against the State of Karnataka to construct dam at Almatti upto height of 519.6 m. and the question of further raising its height to 524.256 m should be gone into by the Tribunal” . In so far as, the other part of the question raised about the consent of the other States while constructing a project by any particular State, the Court negated this plea of State of Andhra Pradesh.

On the basis of the additional written statement filed on behalf of the State of Maharashtra, Issue No. 9 (C) was framed relating to its grievance of submergence of large area in the State, if Karnataka is permitted to raise the height of Almatti Dam upto 524.256 m. According to Maharashtra, there was delay in mentioning about this grievance since earlier the State of Karnataka had itself suggested to sort out this grievance which fact is found in the correspondence between the two States in the year 1988-89. Actual field surveys to determine the extent of submergence, under the directions of Central Water Commission, had been agreed upon but such studies were still under progress. Further the State of Karnataka having obtained the liberty by Order dated 4.11.1998 passed by

the Supreme Court, to proceed with the installation and assembly of the gates, refused to give an undertaking to Maharashtra for not raising the height beyond 509 meters. State of Maharashtra was thus compelled to raise this grievance and to pray for grant of injunction. It was also indicated on behalf of the State of Maharashtra that the extent of area which may submerge, if the height is raised to 524.256 m, is not yet ascertained in the surveys which were still on, but large scale of submergence would undoubtedly occur.

According to the State of Karnataka such grievance having not been raised before the Tribunal it could not be made subject matter of dispute in a suit under Article 131 of the Constitution. The Supreme Court considering the rival contentions, held that it is fresh dispute therefore it will not be appropriate for the Court to examine the same. It was also observed that the Court did not find sufficient material on the record to enable it to come to a positive conclusion as to what would be the effect on the submergence of area in Maharashtra, if the height of Almatti Dam is raised upto 524.256 m.

Yet another argument was advanced on behalf of the State of Maharashtra that by use of water as per allocation by a State within its boundary, if any part of the territory of another State gets

submerged, that would amount to violation of Clause XV of the decision of the Tribunal, hence an injunction should be issued. The Court found that Clause XV of the Award does not, in any way interfere with the rights of a State in using the water allocated to it within its boundaries, nor that if by such user submergence takes place in any other State, the same would be inconsistent with the said Clause. The question relating to submergence could be gone into by the Tribunal if such a matter was referred to it. The issue No. 9 (C) was decided against the State of Maharashtra.

Issue No. 10, is in relation to grievance raised by the State of Andhra Pradesh in para 68 of the plaint that the land in terms of acreage planned to be irrigated under different projects, the utilization is far too in excess of the water allocated by the Tribunal for the projects. The Supreme Court observed that this plea has been raised due to misconception that allocation is project wise, instead it is enbloc, as such the question that construction of oversized reservoir at Almatti is contrary to the award, does not arise. Even assuming the potentiality of Karnataka for storage of water in Almatti, in absence of any material to show any diversion from such reservoir, it was not possible to come to any conclusion that

there has been violation of the decision of the Tribunal by having potentiality of storage. The Clause VII of the decision shows as to how the use of water in a year is to be measured. Mere storage is not to be reckoned as depletion of water.

The Government of India filed an application for clarification in its Reference No. 1 of 1974. In connection with the said clarification application, the State of Andhra Pradesh also submitted two notes for clarification specifically requiring the Tribunal to clarify that the upper States have no right to store water in excess of share allocated to them and in a manner which will affect the rights of the State of Andhra Pradesh in the dependable flows. Such clarification was sought amongst others, more particularly on the ground that under Scheme A, there was no express provision for sharing of deficiency. However, at a later stage, the State of Andhra Pradesh withdrew its notes of clarification. The Supreme Court, therefore observed that there remained no such grievances that construction of large sized dam at Almatti by Karnataka would adversely affect the State of Andhra Pradesh and that its contention that its right could be infringed, was devoid of any substance. Ultimately, issue No. 10 was answered against the plaintiff.

Issues Nos. 11 and 12 are as to whether any specific allocation or utilization at UKP providing for irrigation under Almatti is contrary to the award since allocation for irrigation had not been made thereunder. The Supreme Court observed that this question has been dealt with earlier holding that there was nothing to establish that there was any specific allocation by Tribunal in respect of UKP or Almatti Reservoir and the allocation was enbloc. The issues were, therefore, answered against the plaintiff.

Issue No. 13 was also decided against the plaintiff observing that there is no basis to say that concurrence of other riparian States was required for using water of an inter state river. While dealing with Issue No. 14, the Court observed that the matter was raised on the hypothesis that Union of India was going to sanction certain projects in Karnataka in violation of the award when the matter was still under consideration and no final decision was taken. The issue was decided against the plaintiff. Issue No. 15 raised to say that Karnataka is likely to execute the UKP Stage II multipurpose project without getting the environmental clearance and the Notification issued by the Central Government, it has been held that the issue was premature. But it has been observed that all the projects of different

States must be duly sanctioned by the appropriate authorities after their proper scanning. It is only then the State would be entitled to carry out the same.

While dealing with Issue No. 16, the Supreme Court observed that there exists no material on the basis of which it is possible to hold that due to construction of Almatti Dam the State of Andhra Pradesh had been adversely affected or likely to be affected. The grievance was rather imaginary than real. On behalf of the State of Andhra Pradesh, it was pointed out that a memorandum was furnished by the State of Karnataka itself to the Committee admitting that additional storage in Almatti will cause a temporary reduction in quantum of flows to Andhra Pradesh in the months of August to October which is better period for the crops in Andhra Pradesh. To this, Hon. Supreme Court observed that it found no admission of the State of Karnataka as indicated in Clause XV of Scheme B as referred to by the State of Andhra Pradesh to make out its point and it related to Scheme B which could not materialize. The issue was answered against the plaintiff.

In regard to Issue No. 17 as to whether as per the award only 5 TMC was awarded for Hippargi, the Supreme Court observed that

the allocation was enbloc and not specific for any project except those in respect of which such a provision was made. This issue was also decided against the plaintiff. Issue No. 18 was also answered against the plaintiff, in absence of any material placed before it in support thereof, as it was based on some Newspaper Report. Relating to issue No. 19, Supreme Court observed that the plaintiff failed to establish that cumulative utilization in K-2 sub basin would be to the tune of 428.75 TMC and again it was observed that the allocation was enbloc. About the alleged violation in sub basins K-2, K-8, K-9 under issue No. 20, it has been found that the plaintiff failed to establish the same. In so far as Issue No. 21 is concerned relating to utilization of storage under Almatti, Supreme Court reiterated that the allocation is enbloc.

In the end some apprehension was raised on behalf of the State of Andhra Pradesh in regard to Krishna Bhagya Jal Nigam Ltd. having been constituted to avoid any order, decree or injunction, has not been accepted by the Supreme Court holding that the objection was devoid of any substance.

The suit was disposed of observing that in view of the conclusion drawn on different issues it was not possible to grant relief

of permanent mandatory injunction as prayed by the State of Andhra Pradesh regarding construction of dam at Almatti and some other reliefs. But it has been clarified that there was no bar for raising the height of the dam at Almatti upto 524.256 m subject to clearance from the Appropriate Authority of Central Government and any other statutory authority required under the law. The other questions relating to raising the height upto 524.256 m of the Almatti Dam and submergence in the territory of Maharashtra it was held that such questions may be gone into by the Tribunal. The Tribunal would also be entitled to consider the question of reallocation of water, if new data is produced before it on the basis of improved method of gauging.

**COMPLAINTS OF THE STATES IN THE PRESENT
PROCEEDINGS**

In the background, as indicated above, State of Karnataka invoked the provisions of the Inter State River Water Disputes Act, 1956 read with Inter State Water Disputes Rules, 1959 and wrote a letter of complaint under Section 3 of the Act dated September 25, 2002 addressed to the Secretary, Government of India, Ministry of Water Resource. The letter of complaint makes a mention about the efforts made to initiate and settle the dispute relating to sharing of surplus water of river Krishna and later the decision of the Supreme Court in the suits Nos. 1 and 2 of 1997 filed by the States of Karnataka and Andhra Pradesh respectively. But as averred in the application all these efforts brought no results.

The main grievances which have been indicated, amongst others, are to the effect that the State of Andhra Pradesh has been utilizing ever since before the allocation the surplus waters by constructing permanent large scale projects and also refusing to share the surplus waters namely, water in excess of 2130 TMC. The other grievance is that States of Andhra Pradesh and Maharashtra will have no right to object the raising of height FRL of Almatti

Dam from 519.6 m to 524.256 m as planned by the State of Karnataka. The action of the State of Maharashtra complained of is in creating a live storage capacity of 560 TMC in Krishna basin which may give rise to use of water beyond its share. Yet another grievance is that Maharashtra failed in maintaining adequate summer flows into Bhima river in Krishna Valley at the Inter-state border during the period from November to May. According to the State of Karnataka, the surplus water as available in Krishna River would not be less than 517 TMC and the same should be shared in the proportion of 25 per cent, 50 per cent and 25 per cent by the States for Maharashtra, Karnataka and Andhra Pradesh respectively. These are the major areas of disputes as indicated by the State of Karnataka against the States of Maharashtra and Andhra Pradesh besides other related matters, for which a request was made to the Central Government for constituting a Tribunal under Section 4(1) of Inter State Water Disputes Act, and to refer to the Tribunal, the water dispute and matters connected therewith for adjudication, as emerging from the letter of complaint and Annexure A therewith. Annexure A also makes a mention about the Schemes A and B as formulated by the KWDT-1. Some observations made in the further

report of 1976 by the previous Tribunal have also been quoted in Annexure A where it was observed that Scheme B is a better and easier scheme and it provides for fuller and better utilization of water of river Krishna. Some of the findings recorded by the Supreme Court on certain issues in the suit have also been quoted in Annexure A. The complaint of the Karnataka has been marked as document C-I by this Tribunal.

The Government of Maharashtra, by its letter of complaint dated November 27, 2002 addressed to the Secretary, Ministry of Water Resources, Government of India raised its grievances under Section 3 of the Act. The main grievances are to the effect that the State of Andhra Pradesh has been utilizing water of river Krishna in excess of its share of 800 TMC, which was permitted only temporarily but State of Andhra Pradesh had been constructing and planning large scale projects and water storages for the use of surplus water. As against the State of Karnataka, the grievance was against its planning to raise the height of Almatti Dam which would result in further submergence of territory of Maharashtra. The construction of Hippargi Barrage was without consent of the State of Maharashtra, and construction of Bhima Barrage on the river Bhima

by the State of Karnataka unilaterally, was also objected to since it may also result in submergence of the territory of Maharashtra. It was also averred that there should be review and reassessment of available waters after 31.5.2000 as decided by the KWDT-1 and it should be redistributed equitably amongst the three riparian states. These are broadly the grievances raised by the State of Maharashtra besides some other related grievances for example that the State of Andhra Pradesh is not entitled to construct large scale projects like Telugu Ganga project, Srisailem RBC, Srisailem LBC and Bhima Lift and also that on construction of Pulichintala storage. 44.3 TMC, water saved from inevitable wastage should also be now available for equitable distribution between Maharashtra and Karnataka.

According to Maharashtra, the FRL at Almatti should be maintained at 518 m otherwise it would result in submergence in territory of Maharashtra. The complaint also mentioned about the conditions placed by the Supreme Court of India in allowing Karnataka to raise the height of Almatti Dam upto 519.6 m. It also projected necessity of more hydro electric power in the State of Maharashtra in the present scenario. The State of Maharashtra made

request for constitution of a Tribunal and reference of the dispute for decision of the Tribunal so constituted.

State of Andhra Pradesh sent its complaint dated January 20, 2003 under Section 3 of the Inter State River Water Disputes Act, 1956 read with Rules framed thereunder addressed to the Secretary to the Government of India, Ministry of Water Resources . A grievance has been made against the height of the Almatti Dam in the State of Karnataka, which is sought to be raised with intention to impound waters of river Krishna far in excess of its entitlement and requirements as per the award of KWDT-1. It is also the case of the State of Andhra Pradesh that the entire project called upper Krishna Projects has been prepared unauthorisedly and in contravention of the award of the KWDT-I. Hence, the State of Andhra Pradesh had to file OS No. 2 of 1997 before the Supreme Court, particularly due to illegal and unauthorized action of the State of Karnataka in respect of Almatti Dam under UKP, construction of canals/Lift Schemes on Almatti Reservoir, UKP in K-2 sub basin, Hippargi Weir/Irrigation Scheme and construction of Indi and Rampur lift schemes on Narayanpur reservoir and the canals. Excerpts from the judgment of the Supreme Court in OS No. 2 of 1997 have been quoted to indicate

that the indulgence granted to the State of Karnataka to construct Almatti Dam upto the height of 519 m. was subject to certain safeguards e.g. clearance by all other competent authorities functioning under different statutes as well as from CWC and that it was subject to any further direction, if any, obtained from any future Water Disputes Tribunal as constituted by the Central Government. It is also averred that the clearance subsequently given by Planning Commission for UKP projects was based on clearance given by CWC which was erroneously given by the above authorities without seeking views of the Andhra Pradesh Government. It is also averred that clearance given by Ministry of Environment and Forest was only upto the level +512.2 m and subject to number of conditions which had not been fulfilled. No Dam Break Analysis has been conducted. The height of Almatti Dam at 519.6 m prejudicially affects the rights of the inhabitants of the State of Andhra Pradesh. In so far as it relates to Tungabhadra Dam, it is stated that the Dam is an inter state project which conceives utilization of 212 TMC excluding lake losses of 80 TMC, out of which 138.99 TMC had been allocated to Karnataka and 73.01 TMC to Andhra Pradesh. Projects under Tungabhadra Dam consisted of Tungabhadra Left Bank Main Canal, Left Bank High

Level Canal, Tungabhadra Right Bank Lift Scheme Stage I and II (HLC), Tungabhadra Left Level Canal (LLC) and Rajolibunda Diversion Scheme (RDS), Tungabhadra Board was established to deal with all matters common to both States of Andhra Pradesh and Karnataka. Left Bank Main Canal is the responsibility of the Government of Karnataka which serves a command area entirely within the State of Karnataka whereas half on the right side of the dam and 33 spillway gates etc and maintenance of Right Bank High Level and Low Level Canals and common distributaries to right Bank Low Level Canal maintenance thereof, is looked after by Tungabhadra Board, while maintenance of RDS was the responsibility of Government of Karnataka. The grievance is that Karnataka operates the system in a way that it draws more than its allocation in the upper reaches of HLC, LLC and RDS system denying Andhra Pradesh of its rightful share of waters of Tungabhadra. This is in violation of the orders of KWDT-1. Certain instances of over drawal by the State of Karnataka have also been averred in the complaint. It is urged that the command and maintenance of left half of the dam, LPLC and RDS systems be also entrusted to Tungabhadra Board. It is also the case of the Andhra

Pradesh that storage capacity of Tungbhadra Dam has been reduced to 111.5 TMC from 133 TMC due to siltation and overall irrigation utilization has come down from on average 212 TMC to 164 TMC which is making it difficult to provide drinking water in drought prone area in the District of Anantapur.

According to the State of Andhra Pradesh, the State of Karnataka has taken up Upper Tunga and Singatlur Projects in Tungabhadra sub-basin in violation of the award of KWDT-1. In so far as Bhima sub-basin is concerned their case is that in all, as per decision of KWDT-1, Maharashtra is permitted to utilize about 300 TMC under various projects in Bhima sub-basin and a maximum of 95 TMC from main river Bhima. A Dam with storage capacity of 60 TMC would be sufficient instead a dam at Ujjani has been constructed by Maharashtra with a storage capacity of 110 TMC. It has reduced the stream flow in River Bhima by 50 TMC every year. Again for utilizing remaining 205 TMC a storage of about 130 TMC would be sufficient, but storages of the capacity of 180 TMC have been illegally constructed by the State of Maharashtra.

The State of Karnataka has an allocation of 41.74 TMC in K-6 Lower Bhima sub-basin, but in its guise Karanatka has taken up

construction of several barrages across the river Bhima as well as lift irrigation schemes to utilize water of Bhima far in excess of its entitlement. Karnataka sought to justify it saying that it is in anticipation of the proposed diversion of water from Godavari to Krishna.

It is also alleged that Karnataka has wrongly claimed its reduced utilization of 230.34 TMC in Bhima sub-basin. It is utilizing much more quantity of water in the sub-basin. It has adversely affected the interest of Andhra Pradesh. The other grievance of the State of Andhra Pradesh is that upper Riparian States are not entitled to build oversized carry over reservoirs as they would create great scarcity in the lowest riparian State even in 75 per cent dependability years. It is also averred that KWDT had expressly rejected the plea of the upper riparian States regarding construction of carryover storages/reservoirs which was allowed to Andhra Pradesh for safeguarding its interests in 25% of the years.

Andhra Pradesh also objects to westward diversion of the water of river Krishna by Maharashtra for hydro electric power station at Koyna in K-1 sub-basin and hydro power station at Bhira, Bhivpuri and Koppol (Tata Hydel projects) in K-5 sub-basin. The

case of Andhra Pradesh is that Maharashtra may stop power production by diverting water westward and may opt for other alternatives for generation of power.

It is alleged that the States of Maharashtra and Karnataka achieve their normal utilization and have considerable storages in their reservoirs which has precariously/worsened the situation in Andhra Pradesh affecting the agricultural operations and there is shortage of drinking water in several municipal areas. Ultimately, Andhra Pradesh pleaded that it has full right to use the remaining water in River Krishna and it is also entitled to construct projects viz Telugu Ganga, Srisailem Left Bank canal etc. which is objected to by the other two States.

It is also complained that the States of Maharashtra and Karnataka are not disclosing nor making data available to the State of Andhra Pradesh except for some period during which Original Suit No. 2 of 1997 was pending before the Supreme Court. It is violative of clause XIII of the Report/decision of KWDT-1.

The State of Andhra Pradesh wants placing of ceiling/restriction on storage capacity in relation to Ujjaini Dam in

K-5 sub-basin in Maharashtra, Almatti and Naryanpur Dams in K-2 sub basin and Middle Krishna sub-basin and Tungabhadra sub basin falling in K-8 sub basin.

A prayer was made for constituting water dispute Tribunal under Section 4(1) of the Inter State River Water Disputes Act, 1956 and referring the matter for adjudication to the said Tribunal.

The Government of India by a Gazette Notification dated April 2, 2004 notified the Constitution of the present Krishna Water Disputes Tribunal.

The Tribunal issued notices to the parties who, in response thereof appeared and filed their affidavits in support of their case to which replies and rejoinder affidavit were exchanged thereafter. The parties have also filed voluminous documents to substantiate their case. As many as nine formats have been prepared after discussion and with the consent of the parties, upon which they were required to furnish the information.

The following formats were prepared -

Statement No. 1

It is a format in relation to major and medium projects including major and medium LI projects in operation indicating the date of commissioning of the projects the area irrigated and showing withdrawals of water as against the designed irrigation capacity . It also indicates utilization of water for the domestic use as well as industrial use, Hydro use and evaporation loss. It thus shows the total utilization of water in major and medium projects and area irrigated.

Statement No. 2

It is monthly reservoir working table indicating the opening balance of the reservoir the inflow and the withdrawal on the LBC and RBC as well as canal withdrawals and for showing lift irrigation in side and outside basin as well as withdrawals for domestic water supply industrial uses power releases evaporation losses and the closing balances. Thus, in the end if total inflow is more than the total withdrawals and issues under different heads, the remaining differential figure is indicated by this statement,

which is one of the components to be taken into account for calculating the total flow of the water during a water year.

Statement No. 3

It indicates the area irrigated under major and medium projects, cropping pattern, khariff, Rabi and seasonal crops. It thus indicates the total area irrigated under different schemes of irrigation, major and medium.

Statement No. 4

It indicates the minor irrigation scheme and other Minor Schemes and area irrigated thereunder and the duty.

Statement No. 5

It shows lift irrigation scheme from rivers/tributary using less than 1 TMC. It also shows the total area irrigated and total capacity of pumps (MW) and energy consumed (MU). It also indicates net and gross irrigated area – area irrigated more than once.

Statement No. 6

It indicates lift irrigation schemes from rivers/tributaries utilizing more than 1 TMC. It also shows capacity of pumps H.P. Total capacity of pumps, discharge (cumecs), Energy (M.U.) and Area Irrigated total.

Statement No. 7

It is in respect of Barrage schemes, the details of barrage, area irrigated is also indicated including the crop pattern. (paddy-non paddy) Storage Capacity , Area Irrigated , Municipal and Industrial use.

Statement No. 8

It indicates the projects under operation under construction for utilizing more than 1 TMC. Utilisation planned, Storage, command area, cultivable land area, Designed , power in MW.

Statement No. 9

It relates to daily water withdrawals for hydro power generation Reservoir. The details of the formula adopted, rated discharge,

efficiency of turbine, efficiency of generator @ out put and head losses in the water conductor system, inflow and drawals.

After hearing the parties at some length, the following issues have been framed.

1. Whether apportionment made by the previous Krishna Water Disputes Tribunal-1 by its notified gazetted decision dated 31st May, 1976 based on 75% dependable yield of 2060 tmc is liable to review or reconsideration? If so, to what extent?
2. What is the available flow of water in the river Krishna and its valley and at what dependability and on what basis it is to be quantified, distributed and apportioned?
3. Whether any surplus flows are available for equitable apportionment among the riparian States, if so, on what basis water can be distributed among the riparian States?
4. Whether any surplus water flows are available after equitable distribution of the water among the riparian States, which may be utilized by the State of Andhra Pradesh alone as claimed by Andhra Pradesh?

5. Whether the complete Scheme B as drawn up in the further Report of KWDT-1, including the shares of States, be adopted as a decision in the present adjudication?
6. Whether the equitable apportionment of surplus waters should include claims for diversion of waters for use outside the Krishna basin?
7. Whether storage in Almatti Dam should be regulated to have timely releases to safeguard the loss of Kharif crops, if any, in the State of Andhra Pradesh without affecting the success rates of Almatti and Narayanpur Dams?
8. Whether on augmentation of water in river Krishna by diversion from any other river would entitle the contesting States to claim greater share in augmented water?
9. Whether the State of Maharashtra should be permitted to transfer any portion of Krishna water to Godavari basin?
10. Whether it is lawful for the State of Karnataka to construct dams or barrages or weirs which may or likely to submerge the territories of Maharashtra without its consent?

11. Whether the construction of 1.Almatti Dam 2.Hippargi Barrage 3.Bhima Barrage has caused or is likely to cause submergence of the territory of Maharashtra? If so, what orders or directions should be made therefor?
12. Whether the State of Andhra Pradesh is entitled to use the surplus waters of river Krishna by way of permanent construction of large scale Projects and Reservoirs?
13. Whether contentions against the storages in Almatti dam upto RL 519.6 m. are barred by constructive res judicata or res judicata?
14. Whether Karnataka is entitled to storage of water upto the level of 524.256 m in the Almatti Dam or the height of the Almatti Dam be restricted at 515 m as claimed by Andhra Pradesh or 512 m as claimed by Maharashtra?
15. Whether State of Karnataka had violated the conditions required for raising the height of Almatti Dam? If so, to what effect?
16. Whether directions should be issued to the State of Karnataka and Maharashtra for enforcing the flood control measures?

17. Whether sub-basinwise and projectwise restrictions should be placed on the storages and utilization as pleaded by respective parties?
18. Whether storages of projects of upper riparian States be determined to meet their allocation?
19. Whether the upper riparian States can construct over the year storages/carry over storages?
20. Whether the Water Disputes raised by Andhra Pradesh in sub-
paras (ix, x, xi and xii of para 34 of the Complaint dated January
20, 2003 are barred by res judicata, constructive res judicata,
issue estoppel and/ or under any other provisions of law?
21. Is any machinery or scheme be set to make available and
regulate allocation of water to the States concerned or otherwise
to implement the decision?
- 21A. Whether Tungabhadra Board be vested with the administrative
control and regulation over the Tungabhadra dam and its
reservoir including head regulators of all the canal systems both
on the left and the right sides and all its gates?

22. Whether Tungabhadra Board be vested with the control and administrative control over the Rajolibunda Diversion Scheme including its Head Works and the common portion of its canal and the mini-Hydel project within the State of Karnataka and issue necessary direction /recommendation to Union of India?
- 22A. Whether the State of Karnataka is entitled to construct mini-hydel project from the common pondage of the Rajolibunda Diversion Scheme without the consent of the State of Andhra Pradesh?
23. Whether the restrictions imposed on the State of Maharashtra by the Bachawat Tribunal by Clause IX (A) and by Clause X be removed as pleaded by Maharashtra?
24. Whether the State of Andhra Pradesh is permitted to construct new Parallel High Level Canal at higher contour from the foreshore of Tungabhadra Reservoir to enable it to fully utilize its allocated share of water in Tungabhadra Project?
25. Which of the projects or works of the riparian States need to be protected or permitted based on their utilization as per Clause XIV (A) of the Final Order or otherwise and whether the

unutilized allocated water of the riparian States be equitably distributed among the riparian States by following the principles of equitable distribution?

26. Whether there should be regulated releases of 5 TMC each by the upper riparian States to enable the State of Andhra Pradesh to supply drinking water to Chennai city?
27. Whether the State of Karnataka has already exceeded its allocation in K-8 Sub-basin, if so, whether the State of Karnataka is entitled to construct Upper Tunga, Singatlur, Basapur, Sasalwad Stage-I and II, Guddad Mallapur Lift Irrigation Scheme, Varada, Bennur Balancing Reservoir, Upper Bhadra Project, Lakya Dam and Lift Irrigation Schemes from foreshore of Tungabhadra reservoir?
28. Whether there should be timely and periodic releases to enable the State of Andhra Pradesh to realize its allocations or designed success rate of its projects, without affecting success rate of the projects/allocation of the upper riparian States?
29. Whether the State of Andhra Pradesh is misusing the Agreement between Andhra Pradesh, Maharashtra and Karnataka dated

October 28, 1977 by expanding the open lined channel from Srisailam to Pennar from 1500 cusecs to 11150 cusecs and by locating the off-take point in such a manner as to use the channel for irrigation contrary to the said agreement, if so, its effect?

30. Whether any scheme may be framed for conservation of water over and above the allocated shares of the States by constructing reservoirs wherever possible which may be regulated by a regulatory authority for the benefit of the three riparian States wherever there may be any shortfall?

In the light of issues framed, parties adduced evidence, documentary as well as oral evidence. It was agreed by all parties during the course of the proceedings that examination-in-chief of the witness may be filed in the form of an affidavit furnishing a copy of the same to the other parties and later the witness be called for his cross examination. A large number of documents have been filed by the parties. It is not necessary to mention about the same at this stage and as and when necessary such documents shall be referred to.

Karnataka led the evidence and filed the affidavit of Dr. S.M. Virmani dated July 9, 2007 which document has been marked as C ID 119 – The subject of deposition of KW 1, Dr. S.M. Virmani, as indicated, is outline, analysis, and update of drought conditions (including agricultural drought conditions) in the Krishna Basin. He was cross examined on behalf of the State of Maharashtra and AP.

The other witness of the State of Karnataka is KW 2, Shri D.N. Desai. His affidavit marked as C I D 118 was also filed on July 9, 2009. The subject of deposition relates to the conditions including meteorological conditions and values of evapo-transpiration, which, according to him, formed the basis of allocations of KWDT-1 (Scheme A) which remains unchanged and the basic parameters of complete Scheme B drawn up by KWDT-1 have not changed nor the in basin needs and their priority over trans basin or outside basin needs. Karnataka was allowed, if necessary, to adduce any further evidence in rebuttal after the evidence of Maharashtra and AP was adduced.

The State of Maharashtra filed affidavits of MW 1 Shri . S.T. Deokule marked as C II D 119 subject of deposition - as shown, being allocation of water over and above the quantity allocated to it, the

affidavit of MW 2 Shri S.N. Huddar, marked as C II D 116 – subject of deposition as shown being water availability in Krishna Basin, affidavit of Shri A. R. Kulkarni C II D 120 subject of deposition and is need to increase Westward Diversion of waters of Krishna to augment Hydro Electric Power Generation and that of MW 4 Shri S.Y. Shukla, marked as C II D 128 and subject of Deposition being submergence in the Territories Maharashtra due to storage of water at Almatti Dam.

The State of Andhra Pradesh filed affidavits of APW 1 Shri B.P. Venkateshwarlu marked as C III D 77 on the issues relating to Tungabhadra (K-8) sub basin, affidavit of APW 2 Shri M.S. Reddy marked as C III D 83 on the issues relating to full reservoir level of Almatti and westward diversion, affidavit of Prof. Subash Chander marked as CIII D 81, 82, subject of deposition by water availability and related matters in Krishna basin and that of APW 4 Shri V.V.S. Rama Murty marked as C III D 98 regarding water needs.

About the documents, it would be pertinent to point out at this stage that complaint of Karnataka has been marked as C-1. The reply and the rejoinder to the complaint have also been numbered as C-1 indicated by whichever number assigned e.g. C-1-2 and C-1-2A and

so on to it. Similarly, complaint of Maharashtra is marked as C -II-1 and that of AP as C-III-1 and their replies and the rejoinders as C-II-2 and so on, C-III-2 and so on respectively.

The other documents filed by the State of Karnataka have been marked as C I D, the documents of Maharashtra as C II D and AP as C III D with respective number assigned to those documents. Some papers have been permitted to be placed on record during the course of the cross- examination of the witnesses which have been marked as C I DP (CID Paper) for the documents placed on record by the State of Karnataka. Those placed on record by State of Maharashtra and AP as C II DP and C III DP respectively with their number assigned to them. Such papers have been placed on record for the purposes of cross examination of the witnesses and they by themselves do not constitute substantive piece of evidence, absence, the full or a part, which the witness admits in his cross examination.

Yet another category of papers is notes on submissions provided by the parties during the course of their arguments. Such notes of Karnataka have been marked as KAD, that of Maharashtra as MHAD and those providing by AP as APAD followed by the number assigned by the respective parties.

NEED OF CO-OPERATION AMONGST THE RIPARIAN STATES

Before we deal with the issues, framed for decision in these proceedings, we would like to highlight one of the factors relevant in settlement of such disputes, namely the feeling of cooperation and good faith amongst the concerned riparian States. Learned counsel for the State of Maharashtra and Karnataka both, while addressing on the question relating to equitable distribution of waters, have referred to Convention on the Law of the Non-navigational uses of International Watercourses 1997. It has been filed by the State of Karnataka and marked as KAD 28. It was adopted by the General Assembly of the United Nations on 21st May 1997. The learned counsel had particularly referred to Article 6 of the Convention which enumerates factors relevant for equitable and reasonable utilization. Apart from that, one of the clauses of the preamble of the Convention is about “affirming the importance of international cooperation and good neighbourliness in this field.” Then in part II titled as General Principles, – Article 5 may be referred to which is in connection with equitable and reasonable utilization and participation, Clause 2 of Article 5 says “Watercourse States shall participate in the use,

development and protection of an international watercourse in an equitable and reasonable manner. Such participation includes both the right to utilize the watercourse and the duty to cooperate in the protection and development thereof (Emphasis supplied by us) . It casts a duty to co-operate.

We also find that Article 8 is under the caption General Obligation to cooperate and it provides that watercourse States shall cooperate for mutual benefit and entertain good faith in order to attain optimal utilization and adequate protection of an international watercourse. It is, thus, clear that feeling of cooperation amongst the riparian states of the river basin is one of the factors, which has been assigned high place in the Convention. Cooperation amongst the States is necessary for the purpose of protection and development of water course and for deriving mutual benefit and optimal uses of the available water. Article 7 provides that while utilizing an international watercourse in their territories, all appropriate measures should be taken to prevent causing of significant harm to other water course States. It is in such spirit that water may be utilized and disputes are to be resolved.

State of Maharashtra also referred to the Law of International water course 2nd Edn. By Stephen C. Mc Caffrey which is the same convention of UN which has been filed as KAD 28 referred to above. The counsel for the State of Maharashtra also placed Article 5 and Article 6 of the convention which relate to factors relevant to equitable and reasonable utilization. We also noticed Clause 2 of Article 6 which reads as under “In the application of Article 5 or Paragraph 1 of this Article water course States concerned shall, when the need arises, enter into consultations in a spirit of cooperation”.

The element of mutual understanding and good faith amongst the users of water of an inter state river appears to be an essential ingredient for smooth and dispute free mechanism of utilization of water. The whole idea behind such provision as mentioned above is that the parties must have mutual regard for each other's needs and jointly make efforts for optimum utilization while taking care and protection of the water course itself.

As a matter of fact, we find that during the previous proceedings held before KWDT-1 , parties perhaps had conducted themselves somewhat in the spirit of cooperation which is evident by the fact that on many points either a State party would be coming

forward for making a statement or on various issues they arrived at an agreement so as to resolve the controversy. One of the best example of the same is about their agreement on the point of flow of the river at 75% dependability. This gesture was duly appreciated by the previous Tribunal too. However, it appears that the times have significantly changed during last about thirty to forty years. In the present proceedings, none of the parties seems to be viewing the matter in the spirit of cooperation and good faith. There is no agreement on any point of whatever nature at all. It is rather a tenor of an adversarial litigation. However, before the start of the arguments, the Tribunal tried to persuade the parties, to avoid controversies on some of the points which they may discuss amongst themselves and explore the possibility of some agreement and in that connection only a passing reference was made in one of the order dated 26.9.2008 to the following effect: “ We have requested the learned counsel for the party States to explore possibility for some agreement on some aspects and areas as may be identified by them. If that may be possible arguments may start on such premises. It is hoped that parties would start working in that direction during this period and may have conference in that regard on

the remaining days of the week after the statement of the witness is over”.

The response of the parties is reflected in the order dated 15.10.2008 as follows:-

“Learned counsel for all the parties have indicated that there is not much possibility of reaching to some agreement on any point at present before the start of the arguments”.

We wonder if such a possibility was ever explored seriously in the spirit of cooperation and good faith . Things did not improve on any later stage as well. It was at the almost fag end of the arguments that Maharashtra through MHAD 48 made certain suggestions in respect to the height of Almatti Dam. The point about sedimentation which had taken place in Almatti Dam was a highly contested question. Looking to the extremely divergent opinions of experts, hydrographic survey was got done by the State of Karnataka under orders of the Tribunal, through Tojo Vikas International Private Limited. It ultimately submitted its final and corrected supplementary report in December, 2009. After receipt of this report

Maharashtra filed no objection to the same and furnished MHAD 48 making some suggestions to which the response of Karnataka has also been positive. It gave a ray of hope that the things have not gone totally irretrievable. Therefore feeling of pessimism need not be there, things may improve. We wish such spirit had been shown by all the States throughout the proceedings, may be then some of the highly contested matters would have been solved amicably and some other useful suggestions could have come forth, for the benefit of the people of the basin in general. We wanted that there may be a fuller understanding on the question of height of Almatti amongst all the three parties. We, therefore, provided time to the parties even after reserving our decision. It was also felt that perhaps with the involvement of learned Senior counsel of all the States, it may facilitate the desired process. An order to that effect was passed on 4th May, 2010:

“It is informed that the talks for finding out some via media on the issue of height of Almatti Dam amongst the party States are going on and the next meeting is fixed for Wednesday, May 05, 2010, i.e. tomorrow. We feel may be some more rounds of talks be necessary. It is

expected that the parties would have some more rounds of talks and may discuss the matter in the spirit of co-operation, good faith and mutual adjustment for each other. For the present we appreciate the gesture shown by the Party States in that direction. We also requested that learned Sr. Counsels, arguing this case may also make it convenient to participate in the talks. It may help in finding out some fruitful solution”.

But ultimately it did not work and that effort had to be dropped as mentioned in our order dated June 29, 2010:

“Learned counsel appearing for the parties inform that they had a meeting yesterday as well to find out a via-media as it was proposed by means of our earlier orders but unfortunately it was not possible to reach any fruitful solution to the problem.

That being the position the exercise which was being undertaken by the parties is dropped”.

So it all met an unceremonious end and the things stand reverted back to MHAD 48 alone with response of Karnataka.

We feel that all those provisions which are contained in the UN Convention, about the factors liable to be considered for equitable distribution and utilization of the water, are in the background of great desirability of feeling of cooperation and good faith amongst the riparian States. On such occasions, perhaps political considerations and boundaries of the States may have to take a back seat and all the riparian States must consider the whole basin of the river as one entity for the optimum utilization and beneficial use of water and for better development of the area. An integrated approach by all the States would serve the purpose best for maximum beneficial use of water instead of adopting, completing and adversarial attitude against each other. Welfare of the users of the water in the basin as a whole requires focus from those who are in the helms of the affairs. Care and share i.e. care for others while sharing should be guiding spirit and that of Live and Let Live.

Just to think aloud we feel that some of the NGOs, involved in this field, may bring awareness and motivate the users of the water of an inter-state river to have an outlook of brotherhood, co-

operation, adjustment and good faith amongst themselves to derive best and optimum benefit by use of the river water. If such an atmosphere is built and the users of the water of the whole basin consider their welfare in unison, it may perhaps bring about better results. They may be able to think about the cropping pattern in different parts of the basin considering the availability of the water and the quality of land etc. They may jointly sort out the ways and means to save water by resorting to newly developed methods of irrigation e.g. micro irrigation, drip irrigation, etc. which would considerably economise the use of water. They may jointly consider about their common good and may request the authorities concerned to help them out in such matters by the concerted efforts of the authorities of all riparian States for which a mechanism may have to be evolved.

Mr. Nariman appearing on behalf of the State of Karnataka **opened the arguments** and placed before us and referred to certain provisions of the Inter-State Water Disputes Act, as amended and modified by amendment Act 14 of 2002, dated August 6, 2002 to give a broad idea about the important features of the provisions of the Inter State River Water Disputes Act 1956 (hereinafter referred as

the “Act”). He has referred to Section 3 of the Act to stress upon the circumstances in which a water dispute may be referred by the Central Government for adjudication by a Tribunal. It is submitted that such a reference can be made where a water dispute has arisen or it is likely to arise between the two States which may prejudicially affect or likely to affect the interests of the State or any of the inhabitant thereof. Much emphasis has been given on the fact that a State must be or likely to be affected pre judicially by any executive action or legislation by another State, then alone Section 3 would be attracted not otherwise.

Learned counsel has then referred to the proviso to sub section (1) of Section 4 of the Act. Section 4 (1) reads as under:

“4(1). When any request under Section 3 is received from any State Government in respect of any water dispute and the Central Government is of opinion that the water dispute cannot be settled by negotiations, the Central Government shall, within a period not exceeding one year from the date of receipt of such request, by notification in the Official Gazette, constitute

a Water Disputes Tribunal for the adjudication of the water dispute

Provided that any dispute settled by a Tribunal before the commencement of Inter State Water Disputes (Amendment) Act, 2002 shall not be re-opened.”

He then refers to sub section 2 of Section 6 of the Act which reads as under:-

“(2) the decision of the Tribunal, after its publication in the Official Gazette by the Central Government under sub section (1) shall have the same force as an order or decree of the Supreme Court”.

On the basis of the provisions quoted above it is submitted that disputes settled by a Tribunal before the Amendment Act 14 of 2002 attained finality by reason of the fact that they cannot be re-opened as per proviso to sub section 1 of the Section 4 of the Act and also for the reason that the decision of the Tribunal after its publication in the Official Gazette, now has the same force as an order or decree of the Supreme Court. Consequently the observations and the provision made for review of decision of KWDT-1, in its own report at pages

158 and 159 Col. II, after 31st May, 2000, loses its effect. The effect of clause XIV (A) of the final order also stands neutralized. Clause XIV (A) reads as under:-

Clause XIV(A) “At any time after 31st May, 2000 this order may be reviewed or revised by competent authority or Tribunal but such review or revision shall not as far as possible disturb any utilization that may have been undertaken by any State within the limits of the allocation made to it under the foregoing clauses”.

The above noted submission is sought to be fortified by referring to Clause XVII of the Final Order which reads as under:-

Clause XVII “Nothing contained herein shall prevent the alteration, amendment or modification of all or any of the foregoing clauses by agreement between the parties or by legislation by Parliament.”

It is submitted that the effect of Clause XIV (A) is taken away by Proviso to sub section (1) of Section 4 read with Clause XVII which permits alteration, modification or amendment of any of the

foregoing clauses of the order by agreement or by legislation by Parliament. The proviso to sub section (1) of section 4 of the Act introduced by Amendment of 2002 by the Parliament brings into operation aforesaid Clause XVII of the Final Order. Thus Clause XIV (A) stands modified or altered and reviewability of the order stands modified in respect of the disputes settled by a Tribunal before amendment of 2002. The order of KWDT-1 was passed before August 2002, the year of amendment of the Act. Therefore, it is submitted that the scope of the present proceedings has much narrowed down.

The learned counsel further submits that proviso to sub section 1 of section 4 of the Act is to be read as a fresh enactment which actually adds to the provision as existing before, rather than to qualify it and in that connection he has cited a decision reported in 1909AC 253 at page 258, the relevant observations are “it is true that Section 51 is framed as a proviso upon preceding sections. But it is also true that the latter half of it, though in the form of a proviso, is in substance a fresh enactment, adding to and not merely qualifying that which goes before.” These observations are said to have been referred to in

AIR 1961 SC 1596 (5J) at page 1600 Shah Bhojraj Kureji Oil Mills Vs. Subhash Chandra.

Some more cases on the point have been cited e.g. AIR 1964 SC 1413 (3J) para 23 at page 1418 State of Orissa Vs. Debaki Debi which holds “we have already set out the reasons for which we think that this provision of limitation though it appears as a proviso in Section 12(6) is in reality an independent legislative provision as its subject matter has nothing whatever to do with the main provision in Section 12(6), the proviso to sub section (6) which precedes it “. It is submitted that it is the same position here too. But that does not seem to be so. The provision i.e. Section 4(1) preceding the proviso deals with the same subject matter as the proviso. It deals with adjudication of water disputes to which an exception has been provided in the proviso.

Yet another decision relied upon is State of Rajasthan Vs. Leela Jain AIR 1965 SC 1296 at page 1300 (3J). In that decision it was held that the proviso was actually not a proviso in the accepted sense but it was a legislative provision by which an alternative was provided to a remedy which was prohibited by the main part of the section. In support of the same proposition another case relied upon

is Commissioner of Income Tax Vs. P. Krishna Warriar (AIR 1965 SC 59 at page 63 (3J). It was held that the proviso was not qualifying clause of the main provision but it was itself a substantive provision. Some other references as furnished to support the above contention are Board of Revenue Madras Vs. R.S. Jhaveri (AIR 1968 SC 59 (5J), I.T. Commissioner Vs. Jagannath (AIR 1969 SC 209 (3J) at para 5), Hiral Lal Rattan Lal Vs. State of U.P. (1973) 1 SCC, 216 para 22 at page 224 (4J), Moti Ram Ghelabhai Vs. Jagan Nagar (1985) 2 SCC 279 para 9 at page 288 (2J).

Relevant excerpts from Principles of Statutory Interpretation by G.P. Singh, 10th Edition 2006 page 197 to 199 and Maxwell Interpretation of Statutes (12th Edition) at page 190 have been referred and quoted as follows:-

“The insertion of a proviso by the draftsman is not always strictly adhered to its legitimate use and at times a section worded as a proviso may wholly or partly be in substance a fresh enactment adding to and not merely excepting something out of or qualifying what goes before” (G.P. Singh) –“If, however, the language of the proviso makes it plain that it was intended to have an

operation more extensive than that of the provision which it immediately follows, it must be given such wider effect”.

As a proposition of Law there cannot be a dispute that in certain situation a proviso may itself amount to a fresh enactment which actually adds to the preceding provision rather to qualify it but all depends upon provisions of the enactment as to how it is to be interpreted. In the case in hand the provisions as they stand namely sub section 1 of Section 4 of the Act and proviso thereto they both relate to the same subject matter, namely adjudication of water disputes. The main provision of sub section 1 is enabling provision for adjudication of water disputes whereas the proviso to it bars adjudication of certain kind of water disputes, which may though have been referred, but such disputes had been settled by a Tribunal prior to coming into force of the Amending Act 14 of 2002. It carves out an exception to the main provision. The language is plain. Therefore there seems to be no such scope of stretching the language to hold that the proviso to sub section 1 of Section 4 amounts to a fresh and substantive enactment rather than a qualifying provision, as to the scope of the main provision to which proviso is attached. It no

doubt, to some limited extent does narrow down the scope of sub section 1 of Section 4 of the Act.

But so far as the extent and the scope of the proviso and the manner in which it is to be construed, it is a different matter altogether. It has nothing to do with the point which was raised by learned counsel for the State of Karnataka dealt with in the preceding part of this order. The scope of the operation of the proviso shall be dealt with later at the appropriate stage.

Learned counsel for the State of Karnataka, to stress upon the point of finality, from another angle, has referred to two American decisions namely, Arizona Vs. State of California 460 US 605, 75 Ed 2d 318, 103 S Ct. 1382, the decision of the Court is to the effect as follows:-

REPORT/ DECISION

“Decision: extent of irrigable acreage on Indian reservation lands used to calculate rights of Indian Tribes to waters of Colorado River, held not relitigable in interest of finality in regard to acreage on reservation lands omitted by United States in making calculations of

Indian Tribes' water rights established in prior Supreme Court decree".

The main question in the case was whether the determination of irrigable acreage within recognized reservation boundaries should be re-opened to consider claims for "omitted" lands for which water rights could have been sought in the litigation preceding the 1964 decree. Initially River Master agreed to modify the 1964 adjudication and the decree, it was however not accepted by the Court holding that prior determination of Indian Waters rights in the 1964 decree precludes relitigation of the irrigable acreage issue. The court though agreed that it had the jurisdiction to modify the previous decree but such circumstances so as to enable exercise of such jurisdiction did not exist to interfere in the matter. In Para (4b) it is observed "recalculating the amount of practicably irrigable acreage runs directly counter to the strong interest in finality in this case". It may further be noticed that in the decree of 1964 there was an article IX providing "any of the parties were applied at the foot of their decree for its amendment or for further relief, the Court retains jurisdiction of the suit for the purpose of any order, direction, or modification of the decree, or any time be deemed proper in relation to the subject

matter in controversy”. The Court held at page 333 “we hold that Article IX must be given a narrower reading and should be subject to the general principles of finality and repose, absent changed circumstances or unforeseen issues not previously litigated”. (Emphasis supplied)

The other decision referred to is US Supreme Court Reports October Term, 1992 Vol. 123 Lawyers’ Edition 2nd series 317 at page 331 . It is submitted that in this case the decision in the case Arizona (supra) has been followed as found mentioned at page 331 Col. I.

The decision in the case of Arizona (supra) is based on precept of common law that an issue once determined finally by competent court is conclusive as observed at page 333 of the judgment para (6b, 7). We feel this principle cannot be disputed and that seems to be a position so well settled under the Indian Law also. Another observation made in the case of Arizona at page 336 “ This court does not reopen an adjudication in an original action to reconsider whether initial factual determinations were correctly made”. At another place it is observed that the prayers which could be made in earlier proceedings were not so made, they cannot adjust afresh by

reopening the decision. This proposition is also quite similar to the provisions under the CPC where a claim though could be raised but was left out could not be raised later as per provisions in Order 2 Rule 2 CPC. In the case of Arizona, in so far it relates to Article IX of the decision which permitted the parties to approach the court again for any amendment or any further relief or for the purpose of any other direction or modification of the decree or supplementary decree the view which has been taken is that it is to be interpreted giving it a narrow scope as it should be subject to general principles of finality and repose except in the case of changed circumstances or unforeseen issues not previously litigated on facts. The Court thus upheld the jurisdiction of the Court to make modifications but only in given circumstances, eg. any changed circumstances or the like which the Court found did not exist in that case hence no interference was made. So exercise of jurisdiction will depend upon the facts and circumstances of the case bearing in mind principle of finality. In the Arizona case change in material facts and circumstances was not the ground. The facts did not change nor the circumstances. Rather certain reserved land was omitted to be taken into account while calculating water rights of Indian Tribes established prior to Supreme

Court decree. But this question was not raised at the proper stage also in the earlier proceedings. Therefore on the principle of finality attached to a decision court refrained from interfering in the matter despite Clause IX of the decree. This case does not apply to the case in hand.

Therefore facts and circumstances of the present case may be examined as well as the reasons given in detail by the Tribunal for adding Clause XIV A

We find that the observations have been made by KWDT-1 at page 158 while considering necessity for review of its order. It considered the question, as to whether the division of water is forever or there should be room for review. It is observed that a scheme of division of water which is prepared looking to the facts and data as then available as well as the needs and future needs as the States envisaged at that time. But long term climatic trends and fluctuations are not predictable. Due to imperfect observed data for any reason, assessment of available flows in the river may go wrong. It is further observed that with the passage of time “man’s activities may influence the hydrologic cycle. Changes in vegetation, induced precipitation, evaporation control, effects of urbanization etc. have

their own effect on river flow”. River course and pattern of flow may change. It is observed “it is evident that our estimate of the dependable flow may need revision in the light of flow data that may be available in future,” which may increase as a result of return flows. “It is also evident that because of construction of carry over storages in all the three States fuller utilization of waters of the river Krishna may be made possible”. It goes on to observe “moreover, in determining the equitable share of the States, all the factors which create equities in favour of one State or the other have to be weighed as at the date when the current controversy is mooted. But population, engineering, economics, irrigation and other conditions constantly change and with changing conditions new demands for water continually arise. A water allocation may become inequitable when the circumstances, conditions and water needs upon which it was based are substantially altered”. (Emphasis supplied). Thus KWDT-1 found it prudent to make a provision for review after a lapse of certain given time i.e. after 31st May, 2000. In the Law of International Water Course, second edition, by Stephen C. McCaffrey at page 388, it is observed “what is an equitable apportionment may change over time.” As a matter of fact doctrine of

equitable and reasonable distribution of water is considered to be a “flexible” doctrine.

KWDT-1 also noticed that in such water disputes US Courts usually retain jurisdiction to modify the decree and reserve liberty to the parties to apply for modification. Changes and modification are made if the circumstances so justify. In this connection, KWDT-1 has made reference to certain American decisions viz. New Jersey Vs. New York 283 US 336 348 Nebraska Vs. Wyoming 325 US 589-671, Arizona Vs. California 376 US 340. New Jersey Vs. New York 347 US 995 R.C. Marrin and Ors. The river Basin Administration and the Delaware and Nebraska Vs. Wyoming 345 US 981.

An Article by Lois G. Forer in Harvard Law Review vol. 75 (1961-62) page 332 has also been relied upon and quoted:

“Despite the quest for certainty in the law and the desire to establish rights in perpetuity, a final decision cannot be rendered in water rights. Changes in demands upon the water supply and technological improvements in control of waters and of pollution demand continued reevaluation of legal rights. This necessary flexibility has been sought in a variety of ways, none altogether

satisfactory. The Supreme Court has issued ‘open end’ decrees permitting the parties to apply for relief in the event of changed conditions...” (Emphasis supplied by us).

It is then observed that Tribunal appointed under Inter-State Water Disputes Act, 1956 is not a permanent body, if any modification of the final decision is necessary a new Tribunal must be appointed and new reference must be made. The KWDT-1 also took note of the observations made by the Nile Commission of 1925 “the Commission foresees that it will be necessary from time to time to review the question discussed in this report. It regards it essential that all established irrigation should be respected in any future review of the question”. (AH Garretson and Ors. “the Law of International Drainage Basins page 283). (Emphasis supplied by us)

It is ultimately observed as follows by the KWDT-1:-

“After a careful consideration we are of the opinion that the order of the Tribunal may be reviewed at any time after the 31st May, 2000. This period is considered reasonable by us in view of the fact that during the intervening period there will be increasing demands for water for irrigation and other purposes in the Krishna basin which

may have to be examined in the light of the fresh data that may be available. It may be mentioned that the demands of the three States will by that time take much more realistic shape. Further in view of the stupendous advance in the technology in the matter of conservation of water and its uses and also for other reasons it may become necessary to examine the subject of apportionment of water after the 31st May, 2000. We have, however, provided that the authority or the tribunal which will be reviewing the order of this Tribunal shall not, as far as practicable disturb any utilization that may be undertaken by any State within the limits of the allocation made to it by the Tribunal”.

(Emphasis supplied by us)

In water disputes circumstances may change for variety of reasons. “Equitable distribution” is the established and well recognized principle of the distribution of water amongst the riparian States of an Inter State river. Equities are also subject to change with passage of time and other reasons e.g. due to availability of more water for distribution. Of course, increasing need for drinking water can be never substituted. Increase in population and the new kind of projects coming up for providing employment to the people

of the area, exodus to the cities, changes in economic conditions, change in local needs all of them materially affect the needs of the people of the basin and sub basins affecting equitable considerations. Availability of carryover storages or new storages constructed later may necessitate a re-look of the equitable distribution made earlier. And with increased needs, more and fuller utilization of water may become necessary leading to make changes in the dependability factor also. It may also minimize flows to the sea. In such circumstances as indicated above, need of each riparian States may perhaps have to be re-assessed and depending upon the availability of water some readjustment, re-allocation or further allocation of share of water may have to be made. Human activities do not remain static. The equitable factors may change, changing inter se comparative needs and preferences of uses of water. In some cases, as in the case in hand as well, more modern methods have become available for gauging of the flows and new sites also. It may also make a difference. Then necessity of more projects may be felt for making water available to the drought prone area which had not been possible earlier. Therefore possibility of significant and material changes in the factors which play an important role in equitable

distribution of waters of riparian States is not ruled out rather it is imminent. The doctrine of 'flexibility' cannot be ignored. However, equitable sharing once made may cease to be equitable in the face of new circumstances. In such circumstances it was well in its wisdom that KWDT-1 had considered and envisaged such changes, and made a provision for review after May 31, 2000. It will not be appropriate to apply straight jacket formula of finality of decisions in perpetuity relating to an Inter State Water Dispute. As a matter of fact water is becoming more and more a scarce commodity, particularly in the changing environmental scenario and in view of population explosion particularly in our country. Some ways and means may have to be found out to maintain a balance between different kinds of ever increasing needs and the resultant comparatively lesser availability of water. It is essential to keep pace with the changes as they take place. At least two parties viz. States of Karnataka and Maharashtra have pleaded for distribution of water at 50% dependability or on average yield which according to them significantly increases the availability of water for distribution. It is also pleaded that available flow may be reassessed. The KWDT-1 has expressed the view that

there may be increase in water availability due to return flows as well besides other reasons.

To us, it appears to be very reasonable to say firmly that Inter State Water Disputes may not be advisably decided in perpetuity except in the circumstances as discussed hereinafter. Need for an open ended decision or decree is a feature peculiar to the settlement of water disputes. Such disputes do not stand on the same footing as the disputes relating to proprietary rights in moveable and immoveable property and disputes of title thereof.

The other contention of State of Karnataka as noted earlier is that the finality sought to be attached to the disputes settled by a Tribunal before Amendment Act of 2002 by virtue of the proviso to sub section 1 of Section 4 of the Act, it is doubly strengthened by introducing sub section 2 to Section 6 of the Act, according to which decision of a Tribunal shall have the same force as an order or decree of the Supreme Court (quoted earlier). The contention is that having the force as an order or the decree of the Supreme Court, it has the effect of finality which is also the intention of the proviso in respect of disputes settled before Amendment Act of 2002. It is further pointed out that both these amendments have been introduced simultaneously.

Therefore, they have to be read together and by doing so there is no doubt about the finality attached to the orders of the Tribunal. However, on behalf of State of Maharashtra it is submitted that Section 6(2) of the Act has nothing to do with the proviso to Section 4(1), it is rather for effective implementation of the order of the Tribunal. Apparently we find no force in the contention raised by Karnataka. Section 6 (2) of the Act hardly lends any support to the provision contained in the Proviso to Section 4(1) of the Act. The Proviso is not on the strength of Section 6 (2) of the Act, rather it derives strength from the fact of a dispute having been settled by a Tribunal prior to a particular date i.e. before coming into force of Amending Act 14 of 2002, which shall not be reopened. More likely, Section 6(2) appears to be relevant for the purposes of implementation of the decision of the Tribunal which was one of the objects sought to be achieved by Act 14 of 2002.

Mr. Nariman, however submits that the whole dispute, as referred to the previous Tribunal, has not been settled. According to him, out of the whole water of river Krishna which was the subject matter of the dispute referred, it has been decided in part i.e. in respect of 2060 TMC only. In respect of the remaining water

available over and above 2060 TMC, that matter has yet to be decided. It is also submitted that the dispute as settled was in respect of Scheme A and Scheme B not being a part of the decision earlier, is also to be decided in these proceedings. Therefore, the proviso to sub-section (1) of Section 4 will have no impact on the prayer of Karnataka to implement Scheme B and in that connection has referred to the finding of the Supreme Court on Issue No. 12 in OS No. 1 at page 612 of the Supreme Court decision reported in 2000 (9) SCC page 572. He also referred to the findings at page 613 of the aforesaid judgment where it has been held by the Supreme Court that any of the riparian States may approach the Central Government in respect of Scheme B and in that event, it has been observed that the Central Government would do well in constituting a Tribunal for that purpose, which may go into the entire gamut of the disputes. Therefore, fresh data can also be placed before the Tribunal including on the point of availability of water.

According to Mr. Nariman, the disputes which travel outside the purview of the Proviso to Section 4(1) of the Act and have not been settled by the previous Tribunal are (i) height of the Almatti Dam (ii) water in excess of 2130 TMC (iii) the effect of the

judgment of the Supreme Court providing that AP may not go ahead with construction of huge and permanent projects (iv) Clause V (c) of the final order by which the State of AP was given only liberty to use remaining water but would not acquire any right whatsoever thereto. It is submitted that the rest of the matters are settled and cannot be reopened by virtue of proviso to sub section 1 of Section 4 including yield at 75% dependability and the allocation made amongst the States on that basis.

Let us see the stand taken by the other States in respect of the aforesaid provision. On behalf of the State of Maharashtra Mr. Andhyarujina submits that since the decision of KWDT-1 itself provided for review of its decision, therefore, proviso to sub-section (1) of section 4 would not be applicable. That there are only a few matters which are settled and the rest are open to review. The settled matters are 75% dependability of Krishna flows at 2060 TMC and the shares which have been allocated to the three States on that basis. It is open to find whether more water is available or not i.e. re assessment of the flows of river Krishna. The other question which is also open is in respect of surplus water and the dependability factor for distributable water. It is submitted that no finality is attached to

the decision of previous Tribunal, if there exists circumstances to review the order after 31.5.2000. The Tribunal by making such a provision for review also took precaution to say that as far as practicable the utilization undertaken by any State may not be disturbed if within the limits of allocation made to it. The matters which are settled would be like Issue No. 1 which is in respect of the agreements amongst the parties as to whether concluded agreement is binding on the parties or not and the findings as recorded at page 37 of the previous award about agreements amongst the States of Bombay, Hyderabad and Madras. It attained finality and will not be reviewable.

On behalf of the State of AP, Mr. Dipankar Gupta submits that effect of the proviso to sub-section (1) of Section 4 is that the disputes settled before the amendment by a Tribunal cannot be reopened but the question of availability of the water and its allocation is reviewable. And as per clause XIV(A) of the Final order, as far as possible the utilization made within the allocation by the State shall not be disturbed. It is further submitted that some of the disputes have been decided but not necessarily finally and if decision is for a specified period in that event proviso will not apply nor it

shall apply to a new dispute and it has to be seen as to what are the disputes which have been decided. Later, it has been enumerated as to what are settled disputes which cannot be reopened. These are:

- (1) Issue No. 2(i) as to on what basis available water is to be determined. It is determined at 75% dependability. It is a settled issue.
- (2) 50% dependability factor was pleaded by Karnataka but the same was rejected which is a settled dispute. (Page 152 KWDT-1 para 4 and also page 156).
- (3) Issue No. 2(ii) an apportionment how to be made is also final.
- (4) Scheme B was rejected is final and cannot be reopened since there was no agreement on the second part of the Scheme amongst the States, in respect of constitution of KVA, this question is not to be reopened.
- (5) Scheme A is final, page 23 of the Final Report. It is a settled issue.
- (6) Surplus water given to AP to compensate it against deficit and hardship is a settled issue.

- (7) Surplus water in respect of which liberty given to AP to use the same is an adjunct of Scheme A (Page 167 to 172 KWDT-1)
- (8) Carryover allowed in Srisaïlam and Nagarjunsagar dams are not temporary. This is a settled dispute. (Clarification page 47 and 59)
- (9) Long term data should be used for water series is an issue which is settled. (page 81 col. 1)
- (10) Diversion outside the basin is permissible is a settled issue (page 126 to 129 KWDT-1)
- (11) Consent of upper riparian states to use water outside the basin out of the water in relation to which liberty was granted is a settled issue since this objection of consent was rejected.
- (12) Restriction placed on utilization on 3 stems of river Krishna is a settled dispute as per paragraph 9,10, 11 (C) page 95 of the final order.
- (13) Issue No. 2(v) westward diversion Clause X (3) page 99 of the Final Order is a settled issue.

Thus the list of settled disputes' as provided by AP is a long list as given above.

So, according to the parties, all matters which have been decided by the previous Tribunal are not necessarily final. There are still matters which can yet be entertained. It also seems to be uncontested position amongst the parties that matters which have been decided in part, the Tribunal can entertain dispute in respect of the rest which remains to be decided as an example, it is submitted that since the dispute as referred to the previous Tribunal was in respect of the whole water of river Krishna out of which decision is confined to 2060 TMC only. The remaining part of the water over and above 2060 TMC can well be subject matter of dispute to be settled by this Tribunal, despite proviso to sub-section (1) of Section 4 of the Act. The reason is that there is no settlement of dispute in respect of the remaining water. The dispute can be said to have been only decided partially or in part vis a vis subject matter of the dispute.

We find that on the same analogy, as indicated above, if previous Tribunal has decided a dispute for a part period of time, it is to be treated as decided partially or in part in reference to the time factor. The former case as referred to in the preceding paragraph is in

respect of the subject matter of the dispute which was decided partially but in the latter case, it is to be seen in the background of period of time. If the dispute has been decided, keeping in view some period of time, and later a dispute is referred beyond that period of time it can be considered on the ground that material changes in the relevant facts and circumstances have taken place due to long lapse of time, which facts and circumstances did not exist when the dispute was earlier decided. Such new developments can be taken into account to have a fresh look on the matter. It may perhaps not be a review but consideration of the relevant facts and situation which developed later making material change in relevant parameters, on the basis of which equitable distribution of water is made. Therefore, where the decision or settlement of the dispute has reference to some period of time, it would amount to decision in part only in the background of time factor beyond which a fresh look would be permissible on the same analogy as it is permissible in respect of decision on a part of subject matter of dispute. The two situations would not be different, one being in respect of subject matter of dispute, the other being in reference to the time factor. The dispute beyond some period of time becomes open for a re-look

due to developments taking place in the meantime, having a material bearing on merits of the matter. After passage of time which was kept in mind while deciding the matter, if material factual position changes, the efficacy of decision/settlement exhausts and it remains no more efficiently effective. The fresh situation arising in the above circumstances would not suffer from the bar of proviso to sub-section (1) of Section 4 of the Act.

It is to be noted that the previous Tribunal has decided the matter dominantly swayed by the time factor namely the arrangement is till the decision of the Tribunal which may be constituted or any other authority after May 31, 2000. On certain occasions, it has been observed that due to lack of proper data or improvised method of gauging etc. it was then not possible to pass a complete order. Quite a number of things have been left to be looked into and properly decided after lapse of certain time. Even while allowing carryover storages to AP in Nagarjunsagar Dam and Srisailem Dam, it was observed that it was made till the next authority or Tribunal is constituted. The whole tenor of the report and the decision of the previous Tribunal is that the settlement/decision was being given till the next authority or Tribunal was constituted. So, not much or

serious thought had been given for the period beyond 31.5.2000. In that sense the settlement/decision is in part or partly decided matter in context with the time factor i.e. a matter which is not fully considered and decided. It is not that the arrangement made by the previous Tribunal had come to an end on 31.5.2000, but it was open to the parties that after the said date namely 31.5.2000, they could approach for constituting of an authority to decide the matter in the light of the developments which may take place. It has already been observed in the earlier part of this order that settlement though may be equitable at the time when it was made but it may render inequitable with the passage of time due to intervening developments and changes which may be capable of changing the facts and circumstances affecting the equitable distribution of the water. It then turns into a new situation altogether, which was not available for consideration in the previous proceedings. In that sense, it cannot be appropriately called 'reopening' of the matter. It may amount to re-opening, if the facts and circumstances remain unchanged still something is being reviewed but where new facts come in, which have not been considered before, it may amount to consideration of fresh material available for the first time. The plain meaning of the word

reopen as per Chambers Dictionary 19th edition is “to open again; to begin again”. Applying this meaning contextually, in the facts and circumstances and the provision contained in proviso to sub section (1) of Section 4 it has a limited scope. If the facts and situation are changed, it may not amount to ‘open again’ or to ‘begin again’. It will be so, if on the same facts and the circumstances, which remain unchanged, the matter may be opened again or to begin again to re-appreciate or to have reappraisal of the same situation which existed at the time when the previous Tribunal had taken decision in the matter. Otherwise, with lapse of considerable time and material change in factual situation having bearing on merits of the case, it would only amount to appreciation of the new set of facts and circumstances which did not exist earlier nor had been considered by the previous Tribunal. It may amount to a dispute based on fresh facts or changed facts so a new dispute. It is though a different matter that the parties may be the same as well as the river water of which is the subject matter of the dispute. But the facts and circumstances are subject to change and such changes if take place as to affect the matter on merit, it may perhaps not be covered by the expression “reopening” as provided in proviso to sub section (1) of

Section 4. For example, if party comes forward raising a dispute requesting for a reduction in the allocated share of another party State or for increase of its own share or for placing other restrictions of capping of utilization etc. without there being any change in the factual situation in that event, no doubt reopening of decision may not be permissible within the meaning of the proviso. But in case despite the new techniques and datas being available, the same situation cannot be forced to be continued in the same manner, as decided upon 3 or 4 decades earlier. It will render the decision inefficacious and inequitable which situation does not appear to have been sought to be perpetuated. Similarly, it had been rightly pointed out on behalf of the State of Maharashtra, that the decision of the Tribunal in respect of agreements/treaties which had been entered into between the Princely States/States as then existing would be final and cannot be reopened. In such matters due to lapse of time no change in the factual situation and circumstances would take place. This position is not till the constitution of the next Tribunal or authority but simply for future unrestricted. One of the contentions raised on behalf of the State of Maharashtra as well as the State of AP is that Clause XIV (A) of the final order of the previous Tribunal,

being a part of the decision of KWDT-1 itself, the proviso will have no application and to take any other view on the question of review ability after 31.5.2000 may itself amount to reopening of a matter already settled with certain terms and condition one of them being Clause XIV(A). Apparently, no doubt there seems to be some force in the submission that the whole decision as rendered by the previous Tribunal should be given effect to including the Clause XIV(A) which provides for a review after 31.5.2000. However, in that connection Clause XVII of the Final Order has been rightly pointed out by Mr. Nariman, which reads as under:-

Clause XVII “Nothing contained herein shall prevent the alteration, amendment or modification of all or any of the foregoing clauses by agreement between the parties or by legislation by Parliament”.

It is submitted that any or all of the clauses of the final order could be altered, amended, or modified by legislation by Parliament. Proviso to sub section (1) of Section 4 is a legislation by Parliament introduced by amendment in Inter State River Water Dispute Act 1956. Therefore, the provision as contained in clause XIV (A) of the

Final Order stands altered or amended by virtue of Amending Act 14 of 2002.

True, the provision of review as contained in Clause XIV (A) would be subject to newly added proviso to sub-section (1) of Section 4 of the Act by means of legislative Act of the Parliament and Clause XIV (A) would stand partly modified as the Clause XVII is also as much a part of the Final Order of the KWDT-1 as Clause XIVA. The legislative step taken goes well with Clause XVII. Therefore, the contention of the States of Maharashtra and Andhra Pradesh is not tenable.

But it is evident that whole clause XIVA would not be affected. The provision made in that Clause for review remains there but only a limitation has been put to the scope of review, i.e. the disputes settled by any Tribunal prior to the Amendment of 2002, shall not be re-opened. All other matters are open to review and to be entertained under section 4(1) of the Act. It will depend upon as to what amounts to 'dispute settled'. Such matters which do not amount to have been settled finally by the previous Tribunal or have been settled in part leaving the rest, can all be entertained under Clause XIVA. We, therefore, find that modification in Clause XIVA of the

Final Order by virtue of amendment adding proviso to sub section (1) of Section 4 of the Act is only a limited modification and the whole provision is not affected. Otherwise too, new dispute or disputes arising on account of material change in facts and circumstances putting forth afresh and a new situation would all be open to be considered under Sub-section (1) of Section 4 of the Case.

We may now revert back to the question as to how proviso to sub-section 1 of Section 4 is to be construed and what it means. We find that all the three parties have enumerated certain matters which according to them are settled finally and have also enumerated some of the disputes which according to them are liable to be considered again but no criteria or basis has been indicated. The Scheme of the provision is that sub-section (1) of Section 4 is an enabling provision to provide a mechanism for resolution of inter State water disputes through adjudicatory process. The stage of adjudication by a Tribunal constituted under sub-section (1) of Section 4 is reached after the parties have made unsuccessful efforts and the Central Government finds that the dispute cannot be settled by negotiations amongst the States. The settlement of the dispute by the Tribunal is adjudicatory in nature. By means of proviso to sub-section (1) of

Section 4 a restriction is sought to be placed on the jurisdiction of the Tribunal in respect of the matters which had been settled by a Tribunal before the commencement of Inter State Water Disputes (Amending Act No. 14 of 2002), as such settled disputes are not to be reopened. Section 4(1) is a general provision conferring unrestricted jurisdiction upon the Tribunal to settle any dispute referred to it, between two or more States through adjudicatory process. On plain reading of the provision, the legislative intention seems to be that an exception to a general provision may be there to the effect that dispute settled by a Tribunal before 6.8.2002 (the date on which Inter State Water Dispute (Amending Act 2002 came into force), would not be reopened. It has the effect of narrowing down the scope of investigation, report and decision by the Tribunal, in respect of the water disputes which otherwise would have been decided by the Tribunal on a reference being made by the Central Govt. As a general principle, it can well be observed that while construing the real meaning of a statutory provision, it should be so construed as to achieve the purpose intended by the legislation. The statute should be construed to promote the general legislative purpose. In this background, we find that the purpose of sub-section(1) of Section 4 of

the Act is to provide a forum and mechanism for resolution of water disputes between two or more States. But the main provision may also not be interpreted in a manner which may render the proviso attached to it redundant. But where the proviso tends to restrict the jurisdiction meant for resolution of a dispute it ought to be construed strictly. To give wide interpretation to such a proviso, may render the main enabling provision inefficacious and much too narrow to achieve the purpose for which it was legislated. Therefore, in such a situation giving too wide an interpretation to the proviso, instead of serving the purpose of statute may prove to be retrogressive. The proviso may in this case, therefore, be attracted in those cases where the dispute was decided by a Tribunal prior to 6.8.2002 but thereafter no material change in the relevant facts and circumstances may have taken place materially altering the position as it existed when the matter had been decided earlier resulting in fresh and new situation not considered before. Therefore, we find that it can well be laid that disputes referred to the Tribunal can be considered on merit and be decided being unaffected by the proviso in the following cases.

(1) Disputes which are new disputes having not been referred earlier, can be gone into and decided.

(2) The disputes which had been referred to the previous Tribunal but remained undecided or had not been settled finally.

(3) disputes which had been referred earlier but have been decided in part or partially leaving the remaining part undecided. It may be in relation to the substance or the subject matter of the dispute

(4) disputes decided in part in reference to time factor namely upto some period of time whereafter at the instance of the any party it can be referred again considering the significant material changes on account of a long interval of time, resulting in new facts, circumstances and developments coming into existence having material effect on the merit of the case namely equitable distribution of the water. It may be equated with a new dispute.

On behalf of the State of Karnataka Mr. Nariman has raised yet another point submitting that the decision of the Tribunal which had been published as contemplated under Section 6(1) of the Act that alone could be seen and taken into account. The report of the Tribunal which has not been published in the official gazette cannot be looked into. Section 6 (1) of the Act reads as under:-

“6(1). The Central Government shall publish the decision of the Tribunal in the Official Gazette and the decision shall be final and binding on the parties to the dispute and shall be given effect to by them”.

As per the aforesaid provision, it is contended that only the decision of the Tribunal which is published in the official gazette shall be binding on the parties as final decision. The other part of the report which has not been published as in case of KWDT-1, cannot be looked into for any purpose as that would not be the decision which may be final and binding on the parties to the dispute nor they are to be given effect to. The submission was that the other observations and findings forming part of the order/report of the Tribunal could not be taken aid of to widen the scope of investigation or report or decision by the Tribunal and the expression “settled” in effect narrows down the scope of water disputes. This contention has been countered by the State of Maharashtra that findings recorded by the Tribunal have to be taken into account and the final order would be construed and seen alongwith the findings recorded in the report. The final report or the order of the Tribunal KWDT-1 is based only on the findings which have been recorded in the report.

The contention raised on behalf of the State of Karnataka can hardly be acceptable. It is true that sub-section (1) of Section 6 of the Act requires publication of the final decision of the Tribunal and on being so published becomes binding between the parties which was to be given effect to. Obviously the whole discussion and the findings recorded by the Tribunal may always not be necessary to be published in the official gazette. But the fact is that the discussion and the findings which are recorded in a report for arriving at a decision are construed as an integral part of the decision. The decision cannot stand divorced of those reasons and findings which gives support and legs to the decision to stand, non publication of such discussion and findings recorded by the Tribunal does not mean that it becomes non existent. They very much exist and can always be perused to understand the implication and proper meaning of the decision as may be published in the official gazette. It is the decision part which is given effect to or which is enforced and executed. Therefore the final decision in any case must fulfill the requirement as per Section 6 (1) of the Act. The findings which are recorded in arriving at a decision are certainly not to be enforced nor are such findings executed.

Nonetheless, such discussion and findings shall fructify into the final decision and form basis of the decision as well.

It is to be noted that under Section 6(1) of the Act decision of the Tribunal which is published is final and binding between the parties, but to say that whatever is not published in the shape of the final order becomes nonest will not be correct. It does not disappear altogether from the process of decision making which is contained in the shape of written report as findings of the Tribunal. The reasoning and the findings recorded by any adjudicatory body are the basis of the decision by which the parties abide and which is liable to be enforced.

Hon'ble Supreme Court had with approval in (2009) 5 SCC 539 had relied upon the dictum in the case of Alexander Machinery Limited Vs. Crastee 1971 (1) ALL ER 1148, where it was held that reasons are live links between the mind of the decision taker to the controversy in question and the decision or conclusion arrived at. In another case reported in AIR 1974 SC 87, it observed "reasons are the links between the material on which certain conclusions are based and the actual conclusions". It was emphasized that "the reasons should reveal a rational nexus between the fact considered and the

conclusions reached”. The case reported in JT 2004(2) SC 172 – Hon’ble Supreme Court observed that the reasons are the heart beats of every conclusion and without the same it becomes lifeless. Yet another decision relevant to the point is reported in 1995AIR SC page 686 where it is observed that the decision embraces within its field the reasons which form the basis for arriving at the conclusion.

From the decisions referred to above in the preceding paragraph, it can clearly be inferred that a decision would not be complete in absence of the reasoning for the conclusion arrived at which is the basis of the decision. Non-publication of such reasoning and conclusions shall have no effect and they continue to exist as an integral part of the decision so long the decision stands; which is inseparable with its reasoning and conclusions. Publication of decision alone may have different consequence. One of them being that decision becomes enforceable through the process under the law as may be available. It is precisely what is implementable and is actually executed whereas reasoning or findings howsoever integral part of decision, they cannot be put into execution nor they can be enforced without there being a decision. Therefore, in our view not much can be built upon non publication of reasoning and the

findings part of the decision of the Tribunal. It is the reasoning and conclusions culminating into the decision which is executable and enforceable. In the result we are of the view that for proper understanding and interpretation of the decision or order of the Tribunal, it will be quite lawful to look into the reasoning and findings upon which the decision is based. In this connection it may be further observed that in the Civil suits it is the decree which is enforced and it is executed not the findings which are recorded on different issues. Similarly what is published in the official gazette under sub section 1 of Section 6 of the Act namely the decision is like a decree passed in a regular suit which becomes executable but it does not mean that what is not decree as prepared by the Court, the rest of the part of the judgment which includes reasoning and conclusions and the findings on the issues becomes non est or ceases to exist nor it disappears altogether. Therefore the contention raised on behalf of the State of Karnataka that the reasoning and the conclusion as well as the findings recorded by the KWDT-1 cannot be looked into not being part of decision published, has no force and the same is rejected. We would like to observe that the State of Karnataka would perhaps have been better advised to avoid taking

such hyper-technical points which, on the face of it also, is not sustainable. It also indicates the mind-set of the State-party with which it is dealing with the matter, that is to say, purely as an adversarial litigation tooth and nail. To begin with such an attitude is indicative of the fact well in advance that any settlement amongst the parties on disputed issues is a far cry.

We may now proceed to deal with Issues framed for decision by the Tribunal.

Issue No. 1 “Whether apportionment made by the previous Krishna Water Disputes Tribunal-1 by its notified gazetted decision dated 31st May, 1976 based on 75% dependable yield of 2060 TMC is liable to review or reconsideration? If so, to what extent?”

The previous Tribunal on the basis of yield series of 78 water years, 1894-95 to 1971-72, held 2060 TMC as yield of river Krishna at 75% dependability. On consideration of the facts of the case the State of Maharashtra has been allocated 560 TMC, the State of Karnataka 700 TMC and State of AP 800 TMC totaling to 2060 TMC for their utilization each year. The issue raises a question as to whether the “apportionment” so made by KWDT-1 on the given quantity of water at 75% dependability can or not be reviewed or reconsidered. The previous Tribunal had taken into consideration the

relevant facts like the prior user of the water by the States and the projects which were under construction or the committed projects etc. and then had made the apportionment amongst the three States as indicated above. The facts and data remaining the same, would not justify any review. In other words on the given data, facts and circumstances, which are the basis of the apportionment, it has become final. It may perhaps also attract sub-section (1) of Section 4 of the Act, according to which disputes decided by a Tribunal before coming into force of the 14th Amendment of the Act on August 6, 2002 are not to be reopened. It is also the case of all the three parties that apportionment to the extent based on availability of 2060 TMC at 75% dependability has become final. If apportionment is not to be reviewed or reconsidered, the question of extent to which it can be done does not arise. We would, however, hasten to add that on availability of fresh data, the average yield of river Krishna, as well as at 50% and 75% dependability may now change, that would be entirely a different matter. It may be a matter covered under Issue No. 2, but suffice it to say here that in case the yearly yield of river Krishna is found to have increased, obviously yield at 75% dependability may also change from 2060 TMC to some other figure.

At 75% dependability the availability of water for distribution may increase which may give rise to reallocation of water amongst the three states. At the same time, if the dependability factor is changed for any other reason then also the availability of water for distribution may change. The scenario as indicated above are not covered under Issue No. 1. There would be constraint to review or reconsider the apportionment as made by KWDT-1, subject to the condition that availability of water at 75% dependability remains 2060 TMC. It is made clear that otherwise apportionment may require a relook. It will also be a different matter how the yield, if it turns out to be more than 2060 TMC at 75% dependability, is to be apportioned, namely, taking into account the new figure of yield at 75% dependability or considering the difference between the 75% yield at 2060 TMC and the yield as may now be found.

Subject to observation made in the preceding paragraph, we hold that apportionment of 2060 TMC made by the previous Tribunal at 75% dependability cannot be reconsidered or reviewed. The issue is answered accordingly.

KRISHNA WATER DISPUTES TRIBUNAL

THE REPORT

OF

THE KRISHNA WATER DISPUTES TRIBUNAL

WITH THE DECISION

IN THE MATTER OF WATER DISPUTES REGARDING THE
INTER- STATE RIVER KRISHNA AND THE RIVER VALLEY
THEREOF

BETWEEN

REPORT/ DECISION

1. The State of Maharashtra
2. The State of Karnataka
3. The State of Andhra Pradesh

VOLUME II
(Pages 214 – 433)

NEW DELHI

2010

COMPOSITION OF
THE KRISHNA WATER DISPUTES TRIBUNAL

CHAIRMAN

Shri Justice Brijesh Kumar,
(Former Judge, Supreme Court of India)

MEMBERS

Shri Justice S.P.Srivastava,
(Former Judge, Allahabad High Court, Uttar Pradesh)

REPORT/ DECISION

Shri Justice D. K. Seth,
(Former Judge, Calcutta High Court, Kolkata)

ASSESSORS;

1. Shri R.S. Prasad
(Former Chairman C.W.C.).
3. Shri Suresh Chandra
(Former Chairman C.W.C.)

Representatives of the State Governments before
the Krishna Water Disputes Tribunal

1. For the State of Karnataka

Advocates

Shri F.S. Nariman, Sr.Advocate
 Shri Anil B. Divan, Sr.Advocate
 Shri S.S.Javali, Sr.Advocate
 Shri Uday Holla, Advocate General
 Shri Ashok Harnahalli, Advocate General
 Shri Basava Prabhu S. Patil, Advocate
 Shri Mohan V. Katarki, Advocate
 Shri Brijesh Kalappa, Advocate on record
 Shri R.S. Ravi, Advocate
 Shri S.C.Sharma, Advocate
 Shri R.S.Pappu, Advocate
 Shri Ranvir Singh, Advocate
 Shri Gurudatt Ankolekar, Advocate

Assisted by the following officials and consultants
as informed by Shri Brijesh Kalappa, Advocate on
Record through his letter dated 20.12.2010 (received on
21.12.2010):

Shri A.K.M.Nayak, Principal Secy., Water Resources Deptt.
 Shri L.V.Nagarajan, Principal Secy., Water Resources Deptt.

Shri D.Satyamurthy, Principal Secy., Water Resources Deptt.
 Shri K.G.V.Murthy, Addl.Secy., Law Deptt.
 Shri N. Vijayaraghavan, Chief Engineer (Inter-state Waters), WRDO
 Shri M.Bangaraswamy, Chief Engineer (Inter-state Waters), DRDO
 Shri D.N.Desai, Principal Advisor
 Shri Sriramaiah, Technical Advisor
 Shri T.S.Narayana Swamy, Dy. Advisor
 Shri H.Seshadri, Dy. Advisor
 Shri B.R.Vijaya Kumar, Superintending Engineer (ISW)
 Shri A.B.G.Hiremath, Asstt.Executive Engineer
 Shri K.Vijaya Kumar, Asstt.Executive Engineer
 Smt.M. Shamala Devi, Asstt.Executive Engineer

2. For the State of Maharashtra

Advocates

Shri T.R.Andhyarujina, Sr.Advocate
 Shri U.U.Lalit, Sr.Advocate
 Shri D.M.Nargolkar, Advocate on record
 Shri Ashish Chugh, Advocate
 Shri Shoumik Ghosal, Advocate

Assisted by the following officials and consultants as
 informed by Shri Deepak M. Nargolkar, Advocate on
 Record through his letter dated 23.12.2010:

Shri V.V. Gaikwad, Secretary, Water Resources Department
 Shsri E.B. Patil, Secretary, Water Resources Department

Shri H.K. Tonpe, Chief Engineer & Joint Secretary
Shri N.L. Gawale, Chief Engineer & Joint Secretary
Shri A.R. Kore, Chief Engineer & Joint Secretary
Shri S.K. Ghanekar, Superintending Engineer
Shri S.V. Awati, Executive Engineer
Shri K.G. Devali, Executive Engineer
Shri D.G. Mogane, Executive Engineer
Shri S.G. Joshi, Executive Engineer
Shri C.N. Hangekar, Executive Engineer
Late Shri S.T. Deokule, Advisor and Consultant
Shri S.N. Huddar, Advisor and Consultant
Shri K.S. Shankar Rao, Advisor and Consultant

3. For the State of Andhra Pradesh

Shri Dipankar P. Gupta, Sr.Advocate
Shri D.Sudershan Reddy, Sr.Advocate
Shri Rakesh Dwivedi, Sr.Advocate
Shri G.Veera Reddy, Advocate
Shri E. Raveendra Rao, Advocate
Shri M.R.S. Srinivas, Advocate
Shri T.N.Rao, Advocate on record
Shri S. Santosh Kumar, Advocate
Shri M. Ramulu Reddy, Advocate
Ms. Preetika Dwivedi, Advocate
Shri Anant Prakash, Advocate

Assisted by the following officials and consultants
as informed by Shri T.N. Rao, Advocate on Record
through his letter dated 22.12.2010:

Shri S.K.Joshi, IAS, Principal Secy. to Govt., I & CAD Deptt.
Dr.P. Rama Raju, Ph.D, Chief Engineer, Inter State & Water Resources
Dr. M.S.Reddy, Principal Advisor to Govt.
Shri N.Gopal Reddy, Chairman, Technical Advisory Committee
Shri B.P.Venkateswarlu, Member Technical Advisory Committee
Shri K.V.Ram Mohan, Member, Technical Advisory Committee
Prof. Subhash Chander, Sr.Consultant
Shri V.V.S. Rama Murthy, Consultant
Shri M.A.Raoof, Supdtg. Engineer, IS&WR
Shri M.Visveswra Rao, Ex. Engineer (Hydrology)
Shri P. Rama Krishna Murthy, Dy.Director (Krishna)
Shri N.Satyanarayana, Dy.Director (Krishna Tribunal)
Shri C.R.K. Reddy, Ex.Engineer (New Delhi)

I N D E X

(Important Issues and Points)

<u>Sl.No</u>	<u>Particulars</u>	<u>Page</u> <u>No.</u>
1.	Introduction	1
2.	History of the case – Decision and Findings of the previous Tribunal	6
3.	Review Proceedings – References and Clarifications	69
4.	Proceedings before the Supreme Court in the original suits	107
5.	Complaints of the States in the present Proceedings and Preliminaries of the present Proceedings and the Issues	136
6.	Co-operation amongst riparian States – An essential element	160
7.	Question Re.- The Proviso to Section 4(1) of the Act against reopening of the settled disputes	169
8.	Question raised relating to implications arising from Section 6(1) of the Act	205
9.	Findings on the Issues	211
10.	Availability of Flows & availability of Water – Exercises before this Tribunal	214
11.	Series of 47 Water Years 1961-62 to 2007-08	260
12.	Percentage factor of Dependability	305
13.	Inevitable Wastage	331

14.	Success Rate	390
15.	Re. – Scheme-B – Issue No. 5	434
16.	Diversion Outsides the Basin – Issue No. 6	473
17.	Tungabhadra sub-basin and related disputes	488
17(a)	Projects of Karnataka – Upper Tunga Singatlur, Upper Bhadra and others – Issue No. 27	515
17(b)	Control of Head Regulator and Canal system of Left and Right Sides of Tungabhadra Dam – Issue No. 21(A)	549
17(c)	Mini Hydel Project – Issue No. 22A	561
17(d)	Administrative control over Rajolibunda Diversion Scheme – Issue No. 22	572
17(e)	Parallel High Level Canal – Issue No. 24	581
18.	Height of Almatti Dam – Issue No. 14	597
18(a)	Conditions – If violated by Karnataka in raising the height of Almatti Dam – Issue No. 15	663
19.	Supply of Drinking Water for Chennai City	705
20.	Minimum in-stream flow and flow required for environment and ecology	723
21.	Distribution and apportionment of available waters	743
22.	Machinery for implementation of the Decision of Tribunal – Issue No. 21	792
23.	Decision and Order of the Tribunal	800

A P P E N D I X

Particulars

Pages

Appendix-I	Krishna Waters Decision – Implementation Board	1- 23
Appendix-II	The Map of the Krishna Basin	24



Availability of flows in the River Krishna

The next issue of foremost importance is issue No. 2. It reads as follows:-

“What is the availability of flow of water in the river Krishna and its valley and at what dependability and on what basis it is to be quantified, distributed and apportioned?”

Availability of flows as arrived at by KWDT-1

As a matter of fact Issue No. 2 is in three parts. The first part is about the availability of flow of water in the river Krishna and its valley and the basis of its quantification. The other part is about the dependability factor i.e. at what dependability, the available water may be quantified third part is as to on what basis the available water is to be distributed and apportioned.

The available flow in the river Krishna is rain water. The surface flows are available as a result of heavy rainfall in the western ghat area mainly in the State of Maharashtra. In the proceedings before the previous Tribunal, the parties had generally agreed (page 73 of KWDT-1 Report) as follows:- “it is generally agreed that the volume of water which passes over and through Vijayawada weir

would give us a fair idea of the volume of the flow in the river after the upstream utilizations are added to it. From Vijaywada weir onwards the river Krishna forms into a delta and flows eventually into the sea". By measuring discharge at Vijaywada, added by upstream utilizations made, figure of yearly gross flows of river Krishna was arrived at. Evaporation loss was considered as utilization. The discharge data and upstream utilizations were available from the year 1894-95 onwards. Thus, a series for 78 years i.e. from 1894-94 to 1971-72 was prepared. In so far as the dependability factor is concerned, the previous Tribunal adopted simple statistical form to determine percentage dependability of the flow at a particular point, by applying the formula $M/N \times 100$. N indicated the continuous data of flow for a number of years as may be available and M is the point as may be adopted at any given serial number of series of gross flows arranged in descending order. (page 74 KWDT-1 Report). This is how dependability factor namely the flow which may be assuredly expected during certain percentage of years of the series was arrived at. All parties had agreed for adopting the said formula for the purposes of assessing gross flows and to decide the dependability factor. Before us also the parties while putting forth their case and the

series have namely adopted the same method and formula. The State of Maharashtra has though given some yield charts based on moving verage also. But mainstay of all the parties for assessment of the yearly yield has been the same as the method adopted by KWDT-1

The KWDT-1 thus, decided to assess the flow of river Krishna by preparing time series of yearly flows for a period of time long enough to give an idea of the availability of water in the river Krishna. It also appears that data for long years was not available uniformly. Another factor which needs to find mention here is in respect of a period of 10 years when there was a breach in the Vijayawada anicut in the year 1951 disrupting the gauging of the water at that point till a new anicut was constructed and was ready for gauging the flow in the year 1961-62. Therefore, there was a period of 10 years 1951-52 to 1960-61 during which there was a break in the gauging of the water flow at Vijayawada site.

On the basis of material as made available by the parties and Central Water and Power Commission that KWDT-1 directed each party-State to prepare a flow series from 1894-95 to 1971-72. Directions as issued to the State of Maharashtra for preparation of the series are at page 270 of the printed report of the Tribunal-1. For the

years 1901-02 to 1950-51 it was directed that the flows should be deemed to be modular except for 116 days; for the period 1929-30 to 1950-51 the flows were to be calculated by applying formula as it appeared in MRK-334 and another formula for non-modular flows. Upstream utilization were provided by the concerned State. Maharashtra thus prepared the series for 78 years from 1894-95 to 1971-72. According to the series, average flows of the river Krishna in a Water Year came to 2393 TMC and at the 75% dependability it came to 2060 TMC.

The directions as given to the State of Mysore for preparation of the series are to be found at page 272 col. 4 of printed report of the KWDT-1. The instructions are almost the same with some deviations which are not necessary to be mentioned. It also appears that for the years 1894-95 to 1900 -1901 the flows as mentioned in Krishna reservoir project Vol. II were to be adopted which was contained in Exh. APK 403.

The average yield, according to Karnataka (Mysore) series, came to 2394 TMC and 75% yield as 2060 TMC. Sources for obtaining data are also mentioned at the foot of the series. There

seems to be some difference in some of the data in the series of the three states.

As per instructions given to AP which were almost similar to the instructions issued to the other States, with a few differences here and there, the average annual yield came to 2390 TMC and 75 % dependability yield to 2060 TMC.

All the parties made statement agreeing to 75% dependability yield at 2060 TMC as mentioned at page 81 of the printed report of KWDT-1 quoted here. “After scrutinizing the documents parties submitted an agreed statement stating that the 75% dependable flow of Krishna river at Vijayawada for the purpose of the case may be adopted as 2060 TMC. This statement which is Ex. MRK 343 is set out at the end of this Chapter. It is a matter of great satisfaction that the dispute on a very crucial matter in the case which had been the subject matter of serious controversy between the parties and which was mainly responsible for the prolongation of the trial in this case has been thus satisfactorily resolved”.

After a series of 78 years was prepared, it was put in the descending order to find out required dependability factor in the

following manner: i.e. where 75 percentage of total number of years of the time series would fall, yield of that year would indicate the yield at 75% dependability. For an example suppose there is an yearly time series of 60 years, the 75% of 60 years would be 45 years. So the point at 45th year in the time series would show the yield at 75% dependability. It means that in 45 years out of 60 years there would be assured flow of that amount of water as in the 45th year of the series. In the rest of 15 years there would be less water than the yield of 45th year of the time series of 60 years. So in the time series of 78 years before KWDT-1, the position of 75% of the period of the series fell between the years 1951-52 and 1952-53 with yields of 2063 TMC and 2057 TMC respectively which was ultimately taken as 2060 TMC at 75% dependability.

Water Availability exercise before this Tribunal.

The State of AP has produced APW1 Prof. Subhash Chander who has filed his affidavit (CIII D 81-82) along with annexures containing exercise undertaken by him in connection with the finding out the availability of water in the river Krishna and the matters connected therewith. According to the witness, a longer series of the yearly yield would bring about better results about availability of

water. It is known as law of large numbers. In support of this method of statistical inference, he has relied upon elementary statistical method revised edition by Helen M. Walker, Teachers College, Columbia University, Joseph Lev New York State Education Department an extract from the book at page 208 has been filed as Annexure 3 to the affidavit. He has prepared a series of 112 years 1894-95 to 2005-06 applying the same method as applied by KWDT-1. The average flow was found to be 2402 TMC, 75% dependable flow 2057 TMC and 50% dependable flow as 2333 TMC. This 112 years series has been filed as Annexure 6A to the affidavit, in the bottom of Annexure 6A it is given out that data for the period from 1894-95 to 1971-72 are taken from the series of the KWDT-1. It is also indicated that these flows include the flow over anicut and withdrawal through sluices at Prakasham Barrage (Vijayawada) and data for the period thereafter upto 2005-06 were taken from CWC gauge discharge data at Vijayawada. So far utilizations are concerned they have been taken as in the series of KWDT-1 upto years 1971-72 and thereafter from the utilizations data furnished by the three States before this Tribunal.

He then proceeded to prepare a series for 104 years from the 1901-02 to 2004-5 which is extracted from the series of 112 years Annexure 6A. The average flows have been found to be 2399 TMC, 75% dependable flow 2045 TMC and 50% dependable flow as 2324 TMC. The 75% yield is less than that of Annexure 6A which is 2057 TMC. It has been filed as Annexure 6B to the affidavit. He then prepared one more series of 112 years, 1894-95 to 2005-06, but with a difference that carryover storages of Nagarajunsagar and Srisaillam dam were also taken into account. It has been filed as Annexure 7 to the affidavit. The results as obtained are that average flow is 2403 TMC, 75% dependable flow is 2057 TMC and 50% dependable flow is 2333 TMC. The data utilized was the same as indicated for the earlier two series and the data regarding Nagarjunsagar and Srisaillam was furnished by the State of AP before this Tribunal. It is filed as Anneuxre 7 to the affidavit.

He has undertaken yet another exercise for finding out the average flow for different lengths of record. It is in Annexure 8 to the affidavit and the average flows of different lengths of series are indicated at page 89.

It was done to draw an inference that with the increase in the length of record of the time series, standard error decreases. This is to strengthen the plea that a long series, as may be possible, should be prepared to find out the more accurate average flows. This has also been shown by Annexure 9 which is in graph chart.

The witness APW 1 has plotted in Annexure 11, 30 years moving average having taken the figures from the series. According to the affidavit, 83 samples of 30 years each available from the periods 1894-1895 to 2004-05 have been analyzed. The average value of these 30 years samples varies from 2796 TMC to 2187 TMC. The increase in the averages continues in 55 samples whereafter, as per the affidavit decreased to 2389 TMC in the next 22 samples. According to the witness this analysis is to determine the behaviour of flow series for the future assuming that meteorology and hydrology of Krishna basin will repeat itself in the future year. Since increase has been for 55 samples and so far there have been next 22 decreasing samples, the trend may continue and the value may decrease probably to the lowest value observed in the past years which according to him, as per Annexure 12, would be 2187 TMC. The lowest average and 75% dependable whereof at 1890 TMC.

Therefore, from sustainable point of view the utilization should be restricted to 1890 TMC.

We again find that the witness APW 1 Prof. Subhash Chander has carried out yet another exercise to find out 75% dependable value using 70, 80, 90, 100 and 112 years data from the year 2005 backwards. The respective values as found are indicated to be 2097, 2096, 2090, 2074, and 2057 TMC respectively as per Annexure 13 to the affidavit. It is also stated in the affidavit that 75% dependability for the maximum length of 112 years is 2057 TMC, it would be less by 73 TMC as compared to the already allocated waters namely, 2060 + 70 TMC (return flows), hence according to him nothing is left to be further allocated.

REPORT/ DECISION

The witness in his affidavit stated that the series as prepared in KWDT-1 proceedings for a period of 78 years included the observed flow + return flows and upstream utilization up to 1968-69 which was assumed to be the same for the years 1969-70 to 1971-72. It did not include ground water uses nor was change in storages included in the flow series. The witness further states in the affidavit that by computing long term average including changes in storages, he found no change in the 75% and 50% dependability yield.

Thus, the witness while working out the availability of flows in the Krishna Basin has undertaken exercises from different angles but mainly prepared a long term series of 112 years, 1894-95 to 2005-06, adopting the method followed by KWDT-1. It is mentioned in para 4.5.3 of the affidavit at page 10 that the series contained in Annexure 6A has been used by the witness for further computations in tune with Bachawat Tribunal. Only with a view to recapitulate it may be indicated that as per 112 years series Annexure 6A the average flow has been found to be 2402 TMC, 75% dependable flow 2057 TMC and 50% dependable flow 2333 TMC, which according to the witness shows the correct picture about availability of flows in the river Krishna.

Yet another sub basinwise series of 104 years namely, 1901-02 to 2004-05 was prepared. The sub basinwise yield is shown in table 12.1 at page 22 of the affidavit. Annexure 28 to the affidavit of Prof. Subhash Chander shows the gross flows of sub basins K-1 to K-12 from 1901-02 to 2004-05 and the 75% dependability has been worked out on the basis of the said data as 2095 TMC, the average yield as 2419 TMC. It is thus evident that yield at 75% dependability in these three series comes to 2057 TMC as per

Annexure 6A (112 years series), 2045 TMC in 104 years series Annexure 6B and in Annexure 28, series of 104 years prepared sub basin wise, it is 2095 TMC, the maximum of the three series. The witness undertook one more exercise to modify the figures of Annexure 28 yield based on sub basinwise studies to bring it in conformity with Annexure 6B. He adopted method of redistribution of the yield of Annexure 28 vis-à-vis, that of Annexure 6B, thus average yield was found to be 2399 TMC and at 75% dependability it was brought down to 2045 TMC as in the case of Annexure 6B. This exercise is contained in Annexure 29. All these charts have been used by the witness in some further exercise undertaken by him, for example in Annexure 30A, 30B and 30C showing gross flows in the three States, the figures as arrived at in Annexure 29 had been used. So the witness has prepared flow series in different manners and for different periods and purposes. Nonetheless as indicated earlier he stated that Annexure 6A shows the correct picture and further stated that it was used for further computations. The effort on behalf of the State of AP has been through different charts referred to earlier that there remains no more water available at 75% dependability to be

distributed any further. Return flows if any appear to have been neutralized by excess utilization of ground water.

The State of Maharashtra has examined MW 1, Shri S.N. Huddar, on availability of water in Krishna Basin. The affidavit filed by the witness has been marked as C II D 116. The witness made reference to 78 years series prepared during the proceedings before KWDT-1 and filed the same as Annexure 1 to his Affidavit. He has also applied the same method of adding upstream utilization to the flow data available at Vijaywada in preparing a series of 35 years from 1972-73 to 2006-07 Annexure 6 to his affidavit. The utilization data taken into account is that which has been exchanged between the parties before this Tribunal. And the gauged data at Vijaywada provided by CWC to the Tribunal. It is stated that since CWC data for the year 2006-07 was not available, it was assumed to be the same as for the year 2005-06. The yearly average flow comes to 2441 TMC, 50% dependability 2493 TMC and 75% dependability 2025 TMC. He combined Annexure 1 namely the series of 78 years before KWDT-1 Annexure 6 and 35 years series prepared by him and prepared a series of 113 years, 1894-95 to 2006-07. The average flow according to him comes to 2407 TMC, 50% dependability 2353 TMC

and 75% 2059 TMC. It may be noticed that the values are not much different from those, in the series for 78 years before KWDT-1 particularly in so far it relates to 75% dependability there being a difference of only 1 TMC.

The witness then undertakes the exercise of moving average method for computation of the available water in river Krishna considering the weather cycle which according to him should be properly represented in the computation. As per para 5.2.3 of his affidavit he also states that for determination of dependable yield, weather cycle as considered in meteorological science would be an appropriate method and for that purpose he quotes observation made by Cauvery Water Disputes Tribunal saying that World Meteorological Organisation adopts 30 years data to even out the variations having the possible peaks and dips in the meteorological phenomena.

Thus to have a moving average he adopts blocks of 30 years with three years lag of the total length of the time series of 113 years 1894-95 to 2006. Similarly he also prepares series for a block of 35 years and 40 years with 3 years lag. The study in respect of 40 years cycle with 3 years lag is indicated in Annexure 8 to the affidavit.

Annexure 9 and 10 contained a chart for the exercise done for 35 years cycle and 30 years cycle. The result of all the studies conducted by the witness has been given in tabular form at page 16 of the affidavit which is reproduced below:-

The Studies using the data as filed before the Tribunal by three States-

Sl. No.	Type of Study		Length of data years	Average	75% dependable	50% dependable	Remarks
1	Annual Flow Series for the period 1972-73 to 2006-07.		35	2441	2025	2493	Annexure 6
2	Combined series from 1894 to 2006		113	2407	2059	2353	Annexure 7
3	40 years moving average	MIN	113	2236	1927	2196	Annexure 8
		MAX		2679	2311	2685	
4	35 years moving average	MIN	113	2217	1911	2204	Annexure 9
		MAX		2704	2376	2709	
5	30 years moving average	MIN	113	2213	1880	2183	Annexure 10
		MAX		2788	2471	2733	

MW 1 Shri Huddar has also stated that the State of Karnataka has not correctly indicated the utilisation in minor irrigation for the period 1972-73 to 2005-06 in C I D 108. The State of Karnataka

has not applied the mutually agreed duties for minor irrigation before KWDT-1 as per agreed statement marked as MRDK VIII. A copy of this agreement has been filed as Appendix-X to the affidavit before us. If correct agreed duty for minor irrigation is applied according to the witness the series Annexure 6 and 7 namely for 35 years and 113 years would stand corrected since the utilization in minor irrigation by the State of Karnataka is more than what is shown in C I D 108, accordingly the modified series of Annexure 6 and 7 have been annexed as Annexure 15 and 16 to his affidavit. Annexure 15 shows average yield as 2509 TMC, at 50 % dependability as 2567 TMC and 75% dependability 2090 TMC and the said figures for 113 years series is 2428 TMC as average flow 2366 TMC 50% dependability and 75% dependability as 2059 TMC.

He states in para 7.2 that the utilization of the three States has already reached 2196 TMC which is over and above 2060 TMC and on full utilization of their allocation by Maharashtra and Karnataka, the total utilization may go 2344 TMC.

Therefore, the witness concludes that distribution of water must be on the basis of average flow or 50% dependability flow and not at 75% dependability. His conclusion in para 8.1 is that 50%

dependability on moving average varies from 2183 TMC to 2821 TMC and in addition to water diverted from outside basin, it would be safe to consider 2600 TMC (plus regeneration that would develop when the utilization reaches 2600 TMC) for the purposes of equitable distribution.

The witness has chosen the figures of varying amount of water between 2183 TMC to 2821 TMC from 30 years moving average ultimately according to him based on the same figure of availability of water in river Krishna for distribution should be taken as 2600 TMC.

So far State of Karnataka is concerned, it relies upon 50 years series which is annexed as annexure 8.1.a to their Master Plan C I D 6 printed page 126 (running page 922). It is from 1948-49 to 1997-98, according to which yield at 50% dependability is 2628 TMC, at 75% dependability it is 2251 TMC and average yield is 2647 TMC. The data which has been utilized is partly the same as in the series of 78 years prepared before KWDT-1 and partly derived from CWC data of observed flows from 1972-73 onwards. The utilization data is as provided by the parties before this Tribunal.

Yet another case which has been taken up is to bifurcate the series of 112 years prepared by APW 1 Prof. Subhash Chander Annexure 6A of C III D 81-82, into two series of 56 years each namely 1894-95 to 1949-50 and 1950-51 to 2005-06. According to the first half, namely 1894-95 to 1949-50 average flow would come to 2250 TMC, 50% dependability will be 2212 TMC and 75% dependability 1990 TMC whereas values for the series from 1950-51 to 2005-06 would come to 2551 TMC as average flows, 2581 TMC as 50% dependability and 2098 as 75% dependability. Accordingly, the yield in the series for 1950-51 to 2005-06 should be taken into account as available water in river Krishna on average yield and at 50% dependability.

In the affidavit filed by APW1 Prof. Subhash Chander, Annexure 10 is a note on ground water use in Krishna Basin. Another document attached as part of Annexure 10 is titled as Reassessment of Water Resources Potential of India published by Government of India, Central Water Commission New Delhi March 1993. On internal page 27 running page 95 of the document there is a table 4 with a caption “Estimation of Water Resources Potential in Krishna Basin”. It is in chart form with water series of 14 years from

1971-72 to 1984-85. The components which have been taken into account in preparing the yearly yield series to find out the flows of the river Krishna, are the observed flow at Vijaywada (R_o), withdrawals for irrigation (RIR), withdrawals for domestic and industrial uses (RD), withdrawals for ground water (RGW), return flows from irrigation (RRI) and return flows from domestic and industrial uses (RRD), change in storage (S), evaporation loss (E) and westward diversion, by adding up these components yearly flows are indicated in the last col. The unit figures are shown in Mm^3 . The average annual flow at Vijayawada has been found to be 75387 $Mm^3 = 2661$ TMC and 75% dependable flow at Vijayawada is found to be 67379 $Mm^3 = 2379$ TMC. Figures for average annual flow in the whole basin have also been indicated as 78124 $Mm^3 = 2761$ TMC and 75% dependable flow for the whole basin 69411 $Mm^3 = 2451.2$ TMC. The series of 14 years includes ground water withdrawals as well, which, it may be pointed out was not the subject matter of dispute before KWDT-1 nor it is before us. Note at page 94 just before the chart indicated above shows that at Vijayawada the catchment area is nearly 97% of the total area of the basin. It is perhaps therefore that the values for the whole basin have also been

separately shown. It is also mentioned that the 14 years observed flow record was considered adequate for assessing water potential of the basin without going in for the extension of the record by rainfall and runoff regression analysis.

Another study by NWDA, National Water Development Agency, in 1991 has been placed on record, being annexed as appendix 2 at page 163 of C II 5 which is rejoinder affidavit filed by the State of Maharashtra in reply to the counter affidavit of State of AP to the complaint of the State of Maharashtra. It is a series of 32 years from 1951-52 to 1982-83. It is a technical report as preliminary water balance study at Prakasham. The values arrived at are 72730 Mm^3 at 50% dependability (2576 TMC) and at 75% dependability it is 62055 Mm^3 (2245 TMC) .

In the preceding paragraphs the whole picture of the availability of water in river Krishna has been indicated as arrived at in different studies conducted by different parties and other agencies. It will not be out of place to mention here that this Tribunal had made a request to the CWC to provide flow data at Vijayawada for all the years since it is being gauged by that organization. The required data has been furnished by CWC rather they have furnished the year water books for

the period from 1965-66 to 2007-08. It also transpires that after the breach of the anicut at Vijayawada in 1951-52 a new gauging site was constructed which became operational in 1961-62 (vide p.81 KWDT-I). The CWC had started gauging the flows at the new site a little below the Prakasam Barrage (Vijayawada) from 1965.

On scrutiny, it was also found that there have been some mistakes, anomalies and omissions in the data of utilizations submitted by the parties. By order dated 17th and 27th July, 2009, the parties have been required to correct the data. They have also been required to furnish their total upstream utilizations under different heads and the aggregate of the same, so that a correct picture date with correction made thereof may be available to the Tribunal. The parties have accordingly filed consolidated statements in compliance with the orders indicated above, giving the utilizations under different heads and the total thereof. The corrections which were needed to correct the anomalies pointed out by our orders, have also been carried out in these statements. These consolidated statements for utilizations have been filed along with I.As. and have been numbered as such by means of I.A. No. 111 of 2010, State of Karnataka has filed statement on January 27, 2010, State of

Maharashtra has filed the same through I.A. No. 113 of 2010 and the State of Andhra Pradesh by means of the document C III-D-114. It may be mentioned that in case of Maharashtra and Karnataka total utilization on account of minor irrigation has been modified. So far as State of Maharashtra is concerned, it is by means of our order dated 29.3.2010 that the minor irrigation utilization has been modified. It has also resulted consequential total utilizations of these two States for the rest of the parties these consolidated statements prepared and filed by the States based on their statements Nos. 1 to 9 as prescribed formats have been acted upon by this Tribunal.

Yet another thing which is noticeable is that in the 78 years series prepared during the proceedings before KWDT-1, the flow data at Vijayawada for the year 1965-66 to 1971-72 are at variance, higher as compared to the figures which are furnished by CWC, for those years. This fact was also indicated to the parties. The State of AP has however explained in their IA No. 105 of 2009, while furnishing information in compliance with Tribunal's orders dated 17.7.2009 and 27.7.2009. It is submitted that after establishment of the new site at Prakasam Barrage, CWC though had started the gauging work but in the initial years it was not properly equipped for

the purpose. The current meters etc. were provided later, so measurements were taken by applying other methods. It was also clear from their own letter. Therefore for the years 1965-66 to 1971-72 the KWDT-1 had accepted the flow data furnished by AP on the basis of observed flows as used in the series of 78 years prepared by KWDT-1

On the basis of the different studies as has been indicated above, the parties have tried to support their case about availability of water. According to the State of Maharashtra and Karnataka much more water is available for distribution as pointed out earlier. According to the evidence of Maharashtra, it should be distributed on an annual average yield of 2600 TMC. According to the case of Karnataka, the distribution should be on the basis of availability of further 516 TMC later reduced to 482 TMC available at 50% dependable flows.

The case of AP is that there has been no increase in the availability of water rather there has been a decrease as compared to the 78 years series of KWDT-1. The availability at 75% dependability has gone down by 73 TMC. Therefore no further amount of water is available for distribution. Its case, as it regards to the surplus water amounting to about 316 TMC as per statement of

APW, Shri Rama Murthy, is that it should be allowed to be utilized by the State of AP since it suffers most in lean years and further that a part of its allocated share goes as inevitable waste into the sea.

It would, therefore, be necessary to examine the veracity of each series/study. First of all we may examine the series as prepared and accepted before KWDT-1, which has been heavily relied upon by all the parties in their further studies also. It is a series for a period of 78 years, 1894-95 to 1971-72. It seems to be a period when there have not been any uniform and proper system of gauging water of river Krishna. The records for different periods seem to have been available in broken periods and measurements having been made by each applying their own method whatever it may have been prevalent.

In connection with the above, it would be necessary to have a look at the series which have been prepared by the States for the aforesaid period according to the directions given by KWDT-1. The series prepared by the State of Maharashtra is Appendix 'O' at page 270 of the report of KWDT-1. The series prepared by the State of Karnataka (Mysore) is Appendix 'P' and that of AP Appendix 'Q' at pages 274 and 278 respectively. The directions in accordance with

which the series were to be prepared are almost the same to all the three States. Such directions given by the KWDT-1 for the State of Maharashtra are reproduced below:-

APPENDIX-O

MAHARASHTRA “X”

Annual flow series at Vijayawada for the years 1894-95 to 1971-72 filed by the State of Maharashtra

The parties requested the Tribunal that for the purposes of allocation of water the 75 per cent dependable flow of Krishna river Vijayawada be determined at this stage. With the able assistance of counsel for the parties and after thorough examination of all the material on record and after careful consideration of the matter, the Tribunal directed that the flow series from 1894-95 to 1971-72 be prepared on the following lines:-

- (1) The Tribunal has come to the conclusion that for 1901-02 to 1950-51 the flows should be deemed to be modular on all the days except 116 days (vide pages 170 to 173 of C.W. & P.C. K-5).
- (2) The Tribunal is of the opinion that for the years 1929-30 to 1950-51 for which there is complete flow data the flows be

calculated by applying the following equations as given in MRK-334 filed on 10-04-1973:-

$$(a) Q = C_1 L [(H + h_a)^{3/2} - h_a^{3/2}] \dots\dots\dots (1)$$

$$(b) Q = 3.1L [(h + h_a)^{3/2}] + CLD\sqrt{2g}(h + h_a)$$

for non-modular flows.....(2)

with the coefficient C_1 as determined by the Tribunal and

$$(c) Q = 3.33Lx [(h_1 + h_a)^{3/2} - h_a^{3/2}] \dots\dots\dots (3)$$

where h_1 is the depth of flow over the top of standing shutters.

In equation (2) above values of coefficients C for different values of 'd' are taken as given MRK-334.

(3) The coefficients C_1 as in equations 1, 2 and 3 in p. 2 above as determined by the Tribunal be adopted as under:

0' to 3'	.	.	.	.	2.60
3' to 6'	.	.	.	.	2.75
6' to 9'	.	.	.	.	3.00
9' to 11'	.	.	.	.	3.10
above 11'	.	.	.	.	3.20

- (4) The Tribunal accepts the contention of the State of Maharashtra in MR Note 1 that for the years 1925-26 to 1928-29 the flows be taken in the manner set forth in that note.
- (5) The Tribunal accepts the contention of Andhra Pradesh in Para 9 of AP Note 10 that for the years 1901-02 to 1924-25 the flows be calculated as set forth in that note.
- (6) The Tribunal accepts the contention of Maharashtra as set forth in MR Note 2 that for the years 1951-52 to 1970-71 and in MR Note No. for the year 1971-72, the flows should be taken as set forth in those notes.
- (7) The Tribunal is of the opinion that for the years 1894-95 to 1900-1901 the recorded flows as mentioned in the Krishna Reservoir Project Report (Exh. APK 403) should be adopted.
- (8) So far as the upstream utilizations are concerned, for the period 1894-95 to 1900-1901, in the absence of data or agreed figures the same utilizations as for the year 1901-1902 be adopted. So far as the utilizations for the years 1901-1902 to 1955-56 are concerned, the utilizations as agreed to between the States, be adopted (vide Tribunal's order dated 7th May 1972.)
- (9) For the years 1956-57 to 1968-69, the figures of upstream utilizations as agreed to by the States of Maharashtra and

Mysore and as given in Maharashtra chart MRA-15 in MR Note 2 have been adopted. The figures of upstream utilizations according to the contention of A.P. for these years are given in brackets.

- (10) As the date of utilizations for the years 1969-70 to 1971-72 are not before the Tribunal, the same figures of utilizations as for the year 1968-69 be taken for these years disregarding higher utilizations if any. The runoff series for 1894-95 to 1971-72 is annexed hereto as annexure I. Based on the above series the 75 percent dependable flow comes to 20560 T.M.C. This series may be adopted for the purposes of this case, and the 75 percent dependable flow may be held to be 2060 T.M.C.

It is clear that some piecemeal information was available which was put together so as to prepare water series. Some data was observed data and in respect of certain other periods two different formulae had been adopted, namely for deemed modular flows and the other non modular flows except for 116 days. Again in between the period 1901-02 to 1950-51 for which flow data was available it was to be calculated on an equation provided in one of the directions and for the period from 1925-26 to 1928-29 flows were taken in the manner as set forth in that MR note 1. Similarly, within the period of 1901-02 to 1950-51 there are different sub sets of years for which

different equation and formula was applied. It is also to be noted that out of series of 78 years upstream utilization for 10 years was not available. For the period from 1951-52 to 1961-62, there has been breach in the Vijaywada anicut disrupting the gauging at that site. It was resumed after 10 years at Prakasham Barrage where later on CWC had started gauging the flows. The flow data for the years 1894-95 to 1900-01 were taken as mentioned from Krishna Reservoir Project Report.

Despite the fact that there was a lack of uniform and proper data about the flows and the utilization etc, yet it is creditable for the officers and the learned counsels appearing in the case and the wisdom of KWDT-1 that it became possible to prepare a series as best as possible. Perhaps nothing better was possible in the circumstances. In our view it was only a right step for all the parties to have agreed to the yield series of 78 years prepared under the able guidance of the KWDT-1. It is simply commendable. It has been very rightly agreed to by the parties. But in the background of the situation as prevailing today and the fresh data that is available, its impact on the series of 78 years may have to be examined as to whether it provides a better

alternative to the series of 78 years series or not. We shall consider this aspect a little later.

SERIES PREPARED BY ANDHRA PRADESH

We may now proceed to examine the exercise undertaken by each of the party State relating to availability of water in the Krishna basin and the yearly water series prepared by them. APW1 Prof. Subhash Chander has relied upon the law of large numbers for preparing a long series of 112 years i.e. 78 years series as prepared by KWDT-1 added by 34 years series from 1972-73 on the basis of data available on the record and CWC data for flows at Prakasam Barrage. He also made studies for sub basinwise yield culminating into a series of 104 years. This he has done by resorting to rainfall runoff regression method. Rainfall data as maintained by IMD since 1901-02 was available, as also for the period 1972-73 to 2000-01. He developed regression equation for each of the sub basin from the data available for the years 1972-73 to 2000-01. He applied the regression equation, the rainfall data of the period from 1901-02 to 1971-72 and by adopting hindcasting method computing the gross flows from 1901-02 to 1971-72. We have already mentioned about Annexure 6B, Annexure 7, Annexure 28 and 29 earlier. For the purposes of

strengthening his contention for applying law of large numbers, the emphasis is on the fact that it minimizes uncertainties due to uneven rainfall in different areas and reduces standard error and provides a kind of standardized assessment of available water. He also relies upon epochal pattern of rains and recommended a series consisting of at least two epochs of 40 years each. The witness in para 4.5.2 of his affidavit at page 10 has however ultimately stated “therefore the series listed in Annexure 6A without change in storage is used for further computations in tune with Bachawat Award”. But the question which falls for scrutiny is as to whether the series of 112 years, though a long series, is it a clean series representing the same source of agency gauging the flows, the same method to gauge the flows and the same site for the measurement or not. Apart from some other relevant factors on this aspect of the matter we have already seen that the measurements had been available for broken periods and different methods were applied for quantifying the flows as indicated in Appendix O,P and Q at pages 270, 281 and 284 of the printed report of KWDT-1. That apart the witness has himself stated that the flow data for the years 1951-52 to 1960-61 is vitiated data due to breach in Vijayawada anicut, where the flow was being

measured 1950-51 only. It finds mention at page 77 of KWDT-1 report that there was a breach in Krishna anicut in the year 1952 in place whereof Krishna (Prakasham Barrage) was constructed. At p.81 of KWDT-I it is indicated that the new site came into operation in 1961. As a matter of fact it also finds mention at page 76 of the KWDT-1 report that Vijayawada anicut was built in 1852-55 as sanctioned by the East India Company. Water was also being measured by applying some formula known as MDSS formula. Whereafter there seems to be some change in 1925 when some shutters were removed and zifta weir type shutters were restored. It also appears that before KWDT-1 some controversy was raised by the parties about the dimensions of Krishna anicut which exists no more. The controversy was raised in reference to calculation made for the purpose of calculating the discharges of the flow etc. All that is sought to be pointed out is that at Vijayawada also there have been changes in the method of measurement of the waters from time to time and there had been measurement at the Vijayawada anicut only upto 1950-51 since obviously no measurement were being taken either at Vijayawada anicut, the old one, nor at the new barrage known as Prakasham Barrage which was constructed in 1962 below

the Vijayawada anicut site. So Vijaywada site was available only 1950-51. It is though true that a series of long years reduces variability factor, considering peaks and dips in rains and distributes the standard error, but despite all these factors favouring law of large numbers, one of the very important factor which cannot be lost sight of is that the longer series should be a series of some integrity, if not so, in all likelihood, it will not bring about the correct results. In the series of 112 years Annexure 6A to the affidavit of the witness Subhash Chander, there is mixing up of the two series one prepared before the KWDT-1 for a period of 78 years from 1894 to 1971-72 grafted in another set of series from 1972-73 to 2004-05 prepared by different method and at a different site. They don't match hence cannot be inter grafted. The witness APW 1 has stated in para 2.3 of his affidavit at page 5 "the accuracy of the assessment depends upon the accuracy of discharge observations, the reliability of the data on the upstream utilization, the ground water withdrawal, change in the storages, evaporation losses from water bodies and return flows from various uses".

(Emphasis supplied by us)

The purpose of 78 years series was well served upto that stage.

Such an account of a long series cannot be said to have an element of uniformity or integrity or a series having clean and accurate data observed or otherwise . We have already made our observations about the 78 years series earlier. It was lacking in various ways. The KWDT-1 itself does not seem to have been quite satisfied about it but there was no other option. In the circumstance KWDT-1 devised the best possible means to arrive at a yield series as agreed to by all the parties.

The fresh data as now available, if it is qualitatively better and more accurate and of a sufficient length of time perhaps that may have to be used in preference to series of 78 years which cannot be said to be accurate. Mere length of time may not matter. It cannot be the sole criterion.

On behalf of the State of Karnataka the witness APW 1 Prof. Subhash Chander has been cross examined at length by the learned counsel for the State of Karnataka on the point of homogeneity of the data which is used for computation of yield of river. Though nothing much may turn up on the point but since there has been a lengthy and

stressing cross examination, we feel it necessary to make a passing reference about the same. It was put to the witness that for long term data it was necessary to be tested for homogeneity. The witness initially did not agree but later admitted that the data must belong to the same category (Question No. 242 of the cross examination). He also did not agree initially that homogeneity is a very important aspect but later when reliance was placed on one of his own articles with some other co-author he admitted that such a recommendation was made in the Article "Choice of Transformation in seasonal Box-Jenkins models for hydrological forecasting" C I D P 202. It was said that data should be made homogenous and should be tested for homoscedasticity (homogeneity). The reply was that the paper referred to was not related to the work involved in the present case nor he had resorted to any forecasting in the study presented in his affidavit. However, later on in reply to another question that in his affidavit he had stated about flow series in future in Krishna basin., he affirmed it (question No. 260). He later stated that in the present case since the source of data had been authentic, namely, Indian Meteorological Department and CWC, he did not consider it necessary to undertake any consistency test. Though admitting the

necessity of homogeneity and consistency in the data he gave similar replies that it was not necessary since it came from IMD and CWC so he had assumed it to be correct. However later he stated that he had checked the data by method of moving average (question No. 281, 283). Though it was put to him that moving average was not a test for homogeneity. The cross examination went on this aspect of the matter and other related matters for days together. It was also put to the witness that F test and T test are also carried out in respect of data and series of data. He stated that he had carried out elementary analysis to see how this series was behaving. He however admitted that F test and T test are carried out to find out homogeneity of series of data but he had not thought it necessary to carry out in the present case. The witness was put some other papers on the subject also to confront that it was necessary to carry out homogeneity of the data and he was shown an excerpt from “Screening of Hydrological Data; Tests for stationarity and Relative consistency” by ER Dahmen and MJ Hall published by International Institute for Land Reclamation and Improvement. Its copy is filed as C I D P 208, the paper said “most engineer prefer long time series of hydrological data. The longer the time series, however, the greater the chance that it is neither

stationary, consistent, nor homogenous. The latter part of a long time series can present a better data set if it is reasonable to expect that similar conditions will prevail in future". The questions and answers went on at quite some length but we feel that nothing much is likely to turn upon this aspect of the matter more particularly when it is noticed that the State of Karnataka has itself relied upon the series or the yield of the river Krishna from the series as contained in Annexure 6A.

We may now examine the question of availability of water in the light of the case of State of Maharashtra. We have already noted that its witness MW 1 Shri S.N. Huddar has prepared a long series of 113 years 1894-95 to 2006-07. He has combined the 78 years series prepared before KWDT-1 with a series of 35 years from 1972-73 to 2006-07 prepared by him. We have already expressed our views about the series of 78 years in the earlier part of this order, which constitutes the major part of series of 113 years. The upstream utilization for the year 2006-07 having not been available were assumed to be the same as for the year 2005-06. The other study which has been made and which is relied more by State of Maharashtra is that of moving average with a lag of 3 years. In this connection it would be appropriate to quote a few questions put to the

witness and the answers in his cross examination “Question No. 213 – Would you consider that it is better for getting a correct yield to rely on a homogenous series and not on a series which is not homogenous?

Ans. Yes. Question No. 214 – From 1950-51 onward whether the series is homogenous or not, you have not applied mind to this fact?

Ans. Yes. Question No. 215 – Nor have you studied the 113 years from angle of homogeneity? Ans. I have analysed the 113 years

series with different methods including homogeneity but I consider moving average for better understanding of the concept of dependability and accordingly I have presented this aspect of my study in my affidavit.” The recommendation of the witness Sh. S.N.

Huddar to consider 2600 TMC as an average available water in Krishna basin is based on the method of moving average. Since the range of average yield of the series was found to be 2213 to 2821 TMC. The witness stated that it is safe to consider 2600 TMC + regeneration for purpose of equitable distribution.

So far the moving average is concerned this method is not used to determine the yield of river but to find out the cyclic trend, this fact has been admitted by the witness. In this connection it would be appropriate to quote some of the questions and answers put to the

witness in the cross examination “Question No. 219 - Your method of moving average to find the yield, has it been adopted in any project in Maharashtra? Ans No. Question No. 220 Has it been adopted to your knowledge in any of the States? Ans. No. Question No. 221 – Has it been adopted by the CWC in any project to your knowledge? Ans. No. Question No. 222 – Now I have seen your affidavit and would you agree that the moving average method is statistically for finding out weather cycle trend. Ans. Yes.” In further cross examination the witness has admitted that the figure 2600 TMC has been suggested to be accepted for distribution of the water is based on his subjective opinion.

We therefore feel that the figures arrived at by applying moving method cannot be accepted for the available water in the Krishna Basin.

We now come to the 50 years’ water series relied upon by State of Karnataka, which is provided in its Master Plan C I D 6 for the period 1958-59 to 1997-98. It is rightly pointed out on behalf of the State of AP that 50 years’ series has been picked up by the State of Karnataka, according to its own convenience and suitability. We find that it is also a mix of the two series i.e. with a part of series of

78 years before KWDT-1 in part and from 1972-73 to 1997-98 as prepared by the Karnataka. We may again observe that we have already made comments on the series for 78 years which applies to the part of the series extracted from that series. Besides that it is rightly pointed out on behalf of the State of AP that out of 50 years, 10 years period is the same when the Vijaywada anicut had breached in 1951-52. It is submitted that 10 years period out of 50 years constitutes 20 per cent of the series so it will have more adverse effect as compared to the series prepared by Prof. Subhash Chander for 112 years.

We feel that a period of series cannot be picked up in this manner. There should be some reason as to from which point it starts and the point where it ends. It is not understandable as to why further data beyond 1998 was not taken into account while filing an affidavit before this Tribunal, which may perhaps be sometime in 2006-07 or around that period. To us both ends namely the starting point of the 50 years series and the end point where it closed don't seem to be based on any logic but they are loose ends which cannot be tied together. It is, therefore, not possible to act upon the same. So far as the case put to the witness Prof. Subhash Chander in his cross examination by means of C I-D-P 201 bifurcating the 112 years series

prepared by Prof. Subhash Chander in two parts of 56 years i.e. from 1894-95 to 1949-50 and 1950-51 to 2005-06 is concerned it is submitted on behalf of the AP that C-I-DP-201 and C-I-DP-247 cannot form part of the evidence. The series are sought to be introduced by means of these documents in cross examination and they are liable to be considered only if the witness would admit the correctness of the same. It is pointed out that the witness Prof. Subhash Chander did not admit the correctness of the said documents. The State of Karnataka wanted that the yield as found in the latter series of 56 years should be accepted in preference to the set of first 56 years series yield which was much less. They have also included the ground water use in the series. As pointed out earlier it chose the wettest period. The main case of State of Karnataka is based on the series of 50 years indicated in their Master Plan and which they relied upon in their pleadings as well. We, therefore feel that the series which are sought to be relied upon by the State of Karnataka for ascertaining the available yield of river Krishna would not be helpful in any manner.

Now we move on to the series for 14 years period 1971-72 to 1984-85 as prepared by CWC. Obviously, the period of series is too

small, it is though no doubt mentioned that it was not considered necessary to expand the period by resorting to regression exercise. But it is difficult to understand where data for a longer period was available why it was necessary to stick to a series for 14 years only. It has also included ground water utilization in the series. We don't think that the series can be relied for the purpose of assessing yield of river Krishna in the proceedings. It is pointed out that this study has not been accepted by the Integrated Water Resources Commission of 1999 which fact has come out in reply to a question put to the witness of State of AP namely Shri M.S. Reddy, viz. question No. 716 (C III D 83-84A).

The only other study which is put into service on behalf of the State of Maharashtra is that of National Water Development Agency. It is a series of 32 years, 1951-52 to 1982-83. A perusal of page 163 of C-II-5 containing this study shows that it was prepared in 1991. It is not understandable why data series was restricted from 1951-52 to 1982-83. Obviously, data for the period beyond 1982-83 was available. This series sought to be relied upon by State of Maharashtra would also be of no help for arriving at the water availability in the river Krishna.

It may now be seen as to what developments have taken place since after the report and decision of the previous Tribunal having material effect on the yield of the river Krishna and its assessment. It is a period around 35 years that has passed in between. It would be worth noticing that the total yearly utilization of all the three states till then had reached a little less than around 1000 TMC as per the series of 78 years prepared by Maharashtra and Karnataka before KWDT-1. A lot of developments have taken place thereafter. A number of projects have been completed and constructed hence the utilisation capabilities of all the three States together have developed roughly 2200 TMC or may be more. As per the statement of Shri S.N. Huddar as stated in para 5.1.5 of his affidavit, Maharashtra had utilized 561 TMC in 2005-06, Karnataka 587 in 2005-06 whereas AP 1025 in 1998-99 totaling to 2167 TMC. In para 5.3.4 of his affidavit he has stated that the total consumptive use of all the three States varies between 1215 TMC in 2003-04 to 2196 TMC in 2005-06. While taking the exact figures, the actual use may perhaps be a little more than 2200 TMC by adding some of the missing/understated utilizations in the statements of the parties submitted in the format and taking into account the utilization in the minor irrigation in the States

of Maharashtra and Karnataka which is found to be more than what was indicated initially in their information exchange formats. Shri S.N. Huddar has taken into account only Karnataka's minor irrigation utilization not that of Maharashtra. It is thus clear that the utilization has more than the double as it was at the time the previous report and decision was given. It is not necessary to go into the question of percentage of regeneration. It may depend upon various factors. Nonetheless, return flows are bound to be much more now adding to total yield.

At the time of the previous report and decision large reservoirs had not been there as available now. Almatti dam had not come up till then and Srisailem Dam was only nearing completion. The Nagarjunasagar Dam was operational but the previous Tribunal had allowed crest gates in Nagarjunasagar Dam and Srisailem Dam to provide for carryover storages to AP. The carryover capacity of the two dams was assessed somewhere about 150 TMC. In this connection, previous Tribunal made observation in col. I page 172 "..... further in view of the fact that it is not possible to assess with any amount of definiteness of augmentation in dependable flow which is likely to take place on account of water being stored in the

Nagarjunasagar Dam and the Srisailem Dam to the extent of carryover capacities available in them and further in view of the fact that it is not possible to determine exactly how much water, out of the flow of the river Krishna between Nagarjunsagar Dam and Vijayawada will be going waste unutilized to the sea.” So the situation had been in the state of uncertainty till then. It is now stabilized to a very great extent. Further reservoir with a storage capacity of about 37 TMC is nearing completion in Pulichintla which will trap the water which had been going waste to the sea. Overall storage capacity in Krishna basin has considerably gone up.

REPORT/ DECISION

Yet another noticeable change is that after the breach in Vijayawada Anicut a new anicut has been constructed which had completed in 1961-62. It provided a new site for measurement of the flows. The State of Andhra Pradesh started the measurement of the flows after construction of the Vijaywada/ Prakasham barrage also, namely at the new site from 1961-62 itself. CWC started the gauging of the flows at the new site Vijaywada/ Prakasham barrage since 1965-66 but for some initial period the CWC gauging site does not appear to have been properly and adequately equipped. It was noticed that the measurements of CWC and those mentioned in the

series of KWDT-1 did not tally for some years since 1965-66. The parties by an order dated 27.7.2009 were apprised of the situation and they were required to indicate the reasons for the two different measured quantities are that of the CWC and those in the series of in the KWDT-1 for the aforesaid period i.e. 1965-66 to 1971-72. The State of AP in its explanation submitted through IA No. 105 of 2009 explained that the difference has been for the reason that it took sometime for CWC to properly set up its gauging system during which period the measurement could not be accurate and the other reason was that during that period CWC had not been taking into account the out flows through the canal under the barrage for delta. In such circumstances, the KWDT-1 had taken into account the flow data at Vijayawada/Prakasham barrage from 1961-62 to 1971-72 as measured and provided by the State of Andhra Pradesh. The same was accepted by the parties as well.

We find that the fact, however, remains that since 1961-62 actual observed data as measured at the site which was newly constructed is available data. Therefore, for the last 47 years since 1961-62 to 2007-08 flow data as actually observed and measured after construction of the new site is available. It is not a data based on

calculations, equations or any formula for the purposes. For 11 years out of 47 years namely from 1961-62 to 1971-72, it is data supplied by AP measured after construction of the new site and since 1972-73 to 2007-08 i.e. for about 36 years as provided by CWC.

In view of the noticeable developments which have taken place after the report and decision of the previous Tribunal till date, it is well in keeping with the existing facts that a fresh series may be prepared on the data of observed flow available since 1961-62 onwards 2007-08. So far upstream utilizations of the three states are concerned it has already been discussed earlier that all the parties filed their consolidated statements of total utilizations by means of I.A. No. 111 of 2010 in so far it relates to Karnataka by means of 113 of 2010 for the State of Maharashtra and CIII D 114 State of Andhra Pradesh. These statements have been acted upon by this Tribunal except in so far it relates to utilizations on account of minor irrigation in the States of Maharashtra and Karnataka with their consequential effect.

A new series from 1961-62 to 2007-08 would be a series of a length of 47 years. The data for the period 1951-52 to 1960-61 is not being included in the series due to breach in the Vijayawada anicut and the data for that period has been described as 'vitiated

data’ by Prof. Subhash Chander. In his cross examination he has stated that personally he would not have used that data for the series prepared by him but since parties had agreed for it being used, therefore he had also used it. A question therefore arises whether the length of a water year time series for a period of 47 years is long enough for the purposes of assessment of yearly water yield of a river or not.

The State of Andhra Pradesh has advocated for a long series of data, as adopted by KWDT-1. Similarly Prof. Subhash Chander has applied elementary statistical method and relied upon the law of large numbers. In this connection, he refers to an excerpt Annexure 2 A to his affidavit, from Overview of the Stream-Gaging Program. This programme is conducted by the US Geological Survey and Annexure 2A is circular 1123 issued in 1995 by Kenneth L. Wahl, Wilbert O. Thomas, Jr. and Robert M. Hirsch. The USGS collects and stores hydrological data of thousands of stream flow stations which are telemetered by an earth-satellite based communications system. The data is updated. In view of natural and inherent variations in river flows there remains an element of uncertainty in estimates of characteristics of flows. So, the data so preserved is advantageous for,

it is then observed “. ever improving accuracy of estimates of streamflow characteristics, such as the magnitude of extreme infrequent floods or low flows, and an opportunity to determine how streamflow characteristics are changing over time due to such causes as agricultural practices, urbanization, ground water development, or climate change; uncertainty decreases as the record length increases”. It also distributes the standard error of estimates. An illustration by means of Figure 4 has been given observing “the relation between the standard error of estimate (a measure of uncertainty) and the record length for the mean annual flow and the 50 year flood Minnesota is shown in figure 4. If errors are normally distributed, then the standard error of estimate is the error to be expected for about two thirds of the streamflow estimates”. (emphasis supplied by us). In this figure 4 length of record of 50 years has been taken into consideration and the standard error in percent is shown upto the figure 80. Further the concept of distribution of standard error is also sought to be supported by Annexure 2B to the affidavit of Prof. Subhash Chander which is an excerpt from Nonparametric Statistics (For the Behavioral Sciences) by Sidney Siegel. The statistical method is also known as law of large numbers. To explain the Law

of large numbers, an excerpt from an Elementary Statistical Methods, Revised edition by Helen M. Walker and Joseph Lev, has been filed as Annexure 3 where it is observed “the basic justification for statistical inference is that the distribution which is obtained from a random sample tends to be reasonable distribution of the population from which it was drawn. This tendency increases as the size of sample increases.”

Yet another document which has been relied upon by the witness APW Prof. Subhash Chander is Annexure 4 to his affidavit, which is a paper published in the journal under the caption Natural Hazards 29: 189-206, 2003 Kluwer Academic Publishers, Printed in the Netherlands titled as ‘Indian Monsoon Variability in a Global Warming Scenario’. It is a paper by scientist of Indian Institute of Tropical Meteorology, Pune (RH Kriplani, Ashwini Kulkarni, S.S. Sabade and M.L. Khandekar consulting Meteorologist, Unionville, Ontario, Canada). The purpose of the study seems to be to find out the effect of Global Warming on Asian monsoon. It is observed “while the interannual variation shows year to year random fluctuations, the decadal variations reveal distinct alternate epochs of above and below normal rainfall. The epochs tend to last for about

three decades. There is no clear evidence to suggest that the strength and variability of the Indian Monsoon Rainfall (IMR) nor the epochal changes are affected by the global warming”. It is a paper on entirely a different aspect but for some general kind of observation that it has been relied upon like epochs tend to last for about 3 decades. Figure 1 at running page 52 of the affidavit of the witness Prof. Subhash Chander shows the variability of the Indian Monsoon Rainfall. It has been worked out on statistics for the 11 year running means depicting decadal variability and the epochs of above and below normal rainfall values which have been plotted at the center of the 11 year period. Paper is a lengthy one with some observations here and there as at page 61 it is observed “interannual variability shows random year to year fluctuations, while the decadal variability shows distinct alternate epochs (lasting approximately 3 decades) of above and below normal rainfall. This interannual and decadal variability appear to have no relationship with global warming”.

(Emphasis supplied by us)

One thing which is noticeable is that decadal variability is said to be in distinct alternate epochs yet in bracket it is said that it lasts approximately for 3 decades. How variability would last for 3

decades if the decadal variability is in “distinct alternate epoch” it may perhaps beg for an answer.

It is then further observed at the same page “several studies caution the direct use of these model scenarios on regional scale for studying the impacts since GCMs do not capture the finer details of the epochal variations and the results are not free from uncertainties (Rupa Kumar and Ashrit, 2001: De, 2001)

(Emphasis supplied by us)

In paragraph 4.4.2 at page 8 of his affidavit APW-Prof. Subhash Chander while referring to Annexure 4 suggests the necessity of at least 6 decades of record for determining long term average yield. Then referring to CIII D 28 he opined in Paragraph 4.4.3 of his affidavit that epochs in Krishna Basin last for longer period, approximately for 4 decades, thus suggested the necessity of at least 8 decades of record for determining the long term average yearly yield of Krishna River. It seems his own bald assertion. C III D 28 appears to be a study undertaken by Govt. of AP on “change in Weighted Average Rainfall in Krishna Basin’. Sub basinwise

weighted average rainfall is worked out. It does seem to be a study on the subject of epoch and its length etc.

As a matter of fact the witness has mainly relied upon the law of large numbers on the strength of Annexures 2A, 2B, 3 and Annexure 4 already referred to above. So far applying the law of large numbers is concerned, it is obviously resorted to usefully for assessing the average yield of a river by preparing a long term yearly water series, which may cover peaks and dips of the rainfall during a sufficiently long period, so as to be able to assess that on an average how much water yield is expected in future. The KWDT-1 also had adopted the same method. But none of documents referred to above, as relied upon by Prof. Subhash Chander, has laid the number of years necessary for preparing such a series. The epoch of rainfall of above normal and below normal rains has been derived from Annexure 4 – a paper prepared by Scientist of Indian Institute of Tropical Meteorology, Pune. It was a study in reference to the global warming and its impact on the Indian Monsoon. The ultimate finding on the subject was that global warming had hardly any effect on Indian Monsoon saying that there is no clear evidence to suggest that the mean monsoon rainfall, frequency and intensity of extreme events,

decadal variability are affected by the global warming. The other matters which occurred in the discussion of the paper are incidental, it was not a study undertaken on epochs. The suggestion of the witness is that where epochs last approximately 30 years the data of 6 decades should be taken into account and that of 80 years where the epoch lasts for 4 decades i.e. 40 years, since that alone would give a fair picture of the yield expected in future. We have already made our observations about it in the preceding paragraph, it fails to convince us on any reasonable basis. No authoritative work or study otherwise, on the subject of epochs or on the point regarding the required length (number of years) of data for assessment of yield of the river has been referred. In this connection it has been put to the witness that in Annexure 2A No. 1123 of US GS, record of 50 years was taken into account as would be evident from 7th and 8th line of the related paragraph as well as figure 4 at page 43. The witness denied that data of 50 years was taken into consideration for the analysis and the conclusion. However, we find that Annexure 2A supports law of large numbers where it is observed that increase in the length of record is valuable for accuracy of estimates of streamflow characteristics etc. and further uncertainty decreases as the

record of length increases. Illustration given by Fig. 4 record of 50 years of length was considered. True a series of 50 years is nowhere presented therein but that length of period was certainly considered in context of law of large numbers.

On the basis of epochal theory, the witness prepared Annexure 5A and 5B to his affidavit based on 30 years average rainfall saying that there may be low rainfall 1975 and so on so forth. He also prepared Annexure 11 for 30 years moving average taking 83 samples of 30 years each from 1984 to 2005. The average values increased in 55 samples and decreased in 22 samples. He states that it may continue. However, it is to be noticed that in any case it would not be an alternate epochal change. The number of increased and decreased rainfall over and below of the normal rainfall are not equal. It shows epochs may not be alternate nor it is necessary that below normal rainfall epochs would be followed by above normal rainfall. They may be alternate or may be consecutive for many terms. It shows uncertainties to a very great extent in the proposition of epochal period of rainfall. In this view of the matter it would be difficult to give any credence to the view that for the purposes of assessing the yield of river by applying the law of large numbers there

must always be a series of 60 years or 80 years consisting of 6 or 8 decades.

The witness was also confronted with his own affidavit filed before Supreme Court in OS No. 2 of 1997 wherein he had stated about epochs lasting 15 and 12 years. The witness only replied that he would check if he had stated so but later he admitted in reply to question No. 736 and 737. It was put to the witness that the epochs last for 4 decades, he relied on Annexure 4 to his affidavit, to which the witness replied that Annexure 4 was about Indian Monsoon and not related to epochal pattern and for that purposes he has relied upon methodology used by IITM and on that basis had carried out the studies in Annexure 5A and 5B. The witness was asked as according to him what are epochs. The answer was that he cannot give a precise reply. The IITM scientists used data which showed 3 low rainfall period and 2 high rainfall periods meaning that at this frequency these means are likely to be repeated and they called them “probably as epochs” (question No. 761 page 233). We feel that this answer itself shows that the witness is not clear and sure about theory of epochs, whatever it may be. The concept of epochs is sought to be introduced by him. He talks of 3 low rainfall period and

2 high rainfall periods (as per data used by IITM), such periods do not seem to be equal. They may be alternate or may not be so. The witness has been unable to give any precise reply as to what he understands by term epoch, he only refers to some data used by IITM scientists. He, however, further replied to the next question that it is a period of rainfall changes from below normal to above normal followed by below normal and again followed by above normal. This reply to question No. 762 does not fit in with his reply to question No. 761. Yet in the reply to the next question he states that “when I say that the epochs last approximately 4 decades that does not mean that the other sub frequencies are not present”. The witness also admits in reply to question No. 882 that in Annexure 4 relied by him 11 years running mean have been calculated. It was then put to the witness that they had found epochs even in that situation. Witness replied that “when it comes to epoch they have given their findings on page 61 line 5, there they have clearly said that the decadal variability shows distinct alternate epoch of above and normal rainfall. The witness further replied in affirmative to question No. 822 at page 241 that even a meteorologist finds it difficult to predict the future rainfall.

A lengthy cross examination has taken place and ultimately it has been put to the witness that in reply to several questions he had given different definition of the epochs. The witness admits that he cannot refer any book on epochs which he may have consulted on the subject nor he can point out any literature on the subject. The witness was asked a question about his definition of epoch that twice the length of epoch period should give the same value as follows:-

“If you take your definition that twice the length of epoch period should give the same value is correct in the epoch that you have discovered in annexure 5B, 80 years must be equivalent to the “same value”. What according to you that value is.

Ans. It should yield the same value provided both the epochs i.e. above average rainfall epoch and below average rainfall epoch have the same amplitude in natural phenomenon, the epochs are not necessarily symmetrical so therefore they will yield a value for twice the length of epoch whose difference between the maximum value for that length in the time series and the minimum value in the time series is less than any period which is smaller than the twice the length of yield”.

It is to be noticed that witness states that epochs are not necessarily symmetrical and ultimately he was unable to point out as to what should be the value of 80 years, according to Annexure 5B. He ultimately stated in reply to question No. 971 that he had prepared and used Annexure-5B to indicate that there are epochs. The proposition that there must, at least, be a series of 80 years (period of two epochs of 4 decades each) for assessing the yield of river Krishna cannot therefore be acceptable. Undoubtedly though there should be a series of sufficient length which may represent peaks and dips during the period covered by the series so that it may give a fair idea about what amount of yield may reasonably be expected in future. The course of behaviour of nature in future is never certain but only some reasonable assessment is possible so as to make it easier to plan for years to come.

According to IS 5477 (Indian Standard – Fixing the capacities of Reservoir Method Part -1 General Requirements) the simulation period should not be less than 40 years for a storage project. It is though true that it is for the purposes of assessing availability of water at a project site. None the less it is generally considered that simulation of 40 years would be sufficiently long to give idea of

assessment of availability quantity of water at particular site of the project or any nearby site. Another witness on behalf of State of Andhra Pradesh, Shri M.S. Reddy has also stated that a data of at least 40 years should be available for such purposes. Shri S.N. Huddar, has pointed out earlier also quoted in para 5.2.3 of his affidavit, the observation of the report of the Cauvery Water Disputes Tribunal “that the World Meteorological Organisations adopts the data over a period of 30 years block for analyzing the rainfall and other relevant parameters. A block of 30 years will even out the variations and would contain a series fully representing the possible peaks and dips expected in the meteorological phenomena. We feel however that it may be said that longer the data it may perhaps be better, that is all. Though some view has been expressed that too long a series of data may also not be very useful. And in that connection an excerpt from a paper Screening of Hydrological Data : Tests for Stationarity and Relative Consistency by ER Dahmen and M.J. Hall. C I DP 108 was put to the witness Prof. Subhas Chander which says : “Most engineers prefer long time series of hydrological data. The longer the time series, however, the greater the chance that it is neither stationary, consistent, non homogeneous. The later part of

a long time series can present a better data set if it is reasonable to expect that similar conditions will prevail in future”. The witness agreed with the statement but said that it is only an isolated time series not cause and effect system. (Question 337 cross examination of Prof. Subhash Chander).

Water Year Series of 47 years.

We are of the opinion that 47 years length of a series should be considered sufficient to assess water availability of a river. It more than fulfills the minimum requirements of the IS code though of course meant for projects, nonetheless to a great extent the principle may apply about availability of flows of a river. It has almost 5 decadal variations, as they may be. We find that it consists of highs and lows of the rainfall for a long period of nearly 50 years short by 3 years only. The gross flow Prakasham ranges between 4193.72 TMC and 1239.45 TMC during this period. It covers large variations. It has long spells of low yield for the years viz. 2001-02 (1836 TMC), 2002-03 (1239 TMC) and 2003-04 (1253 TMC), whereafter there have been flow of 3624.04 TMC, 3186.66 TMC and 3230.91 TMC in 2005-06, 2006-07 and 2007-08 respectively. This period of 47 years consists of a spell of dry years i.e. low flows as

well as high flows to the extent of 4193 TMC. Such a record of observed data for 47 years, in our view would represent a fair assessment of the yield of river Krishna. A data series of a longer period equally consistent, neat and accurate may have been better but that is not available nor necessarily required.

After considering the flow data at the terminal point viz. Prakasham barrage, next important component to arrive at is upstream utilization. The parties were required to furnish upstream utilization of their respective states on the formats prescribed for the purpose. They accordingly submitted the utilization in different category of projects namely major project, medium project and in minor irrigation as well as for domestic and industrial use. While scrutinizing the statements, some discrepancies in the Statements were found here and there including some omissions in respect of certain years which had been pointed out to the parties by means of detailed orders passed by us on 17.7.09 and 27.7.09 and some other orders passed later on. Accordingly, the parties explained their stand in the replies submitted by them and wherever it was necessary after hearing of the matter they corrected the statements. They were also required to prepare a consolidated statement of their utilization indicating total utilization

under different categories of projects and sum total of aforesaid utilizations. That has also been done (I.A.No. 111/2010, I.A.No. 113/2010 and CIII D 114). But utilizations in regard to minor irrigation in the States of Karnataka and Maharashtra have yet to be dealt with since that is not correctly reflected in IA No. 111/2010 (Maharashtra) and IA No. 113/2010 (Karnataka). Other utilizations in the above mentioned documents are acceptable.

In its Statement 4, C I D 108 the State of Karnataka furnished the details of number of minor irrigation schemes sub basinwise from the year 1972-73 2005-06 with net and gross area irrigated and the duty in Acres/Mcft and the total utilization. Surprisingly, the duty indicated in col. 8 has been uniformly shown as 10.58 acre/mcft in respect of the whole area in all the years throughout the State in Krishna Basin. On the face of it the statement in col. 8 is incorrect. The duty differs from area to area depending upon various factors a few for example are the nature of soil, availability of water, cropping pattern etc. An objection in that connection was raised by the State of AP as well as by the State of Maharashtra. MW 1 Shri S.N. Huddar stated in paragraph 5.3.1 of his affidavit “The problem of how to assess the minor irrigation use of large number of

tanks in Krishna basin cropped up before the previous KWDT. So the parties agreed to use district-wise statistics of irrigation under such works and apply a mutually agreed and accepted duty for the district-wise area irrigated and thereby estimated minor irrigation use. As far as agreed duties of minor irrigation of Karnataka are concerned, the relevant pages are given from MRDK VIII as appendix X". Appendix X is an agreement on behalf of the three States signed by the learned counsel for the parties as well as by the expert/witness of the party States. It mentions about the different agreed duties in respect of different areas in the districts in the State of Mysore (Karnataka)

The duty ranged between 3.38 to 13.87 acres/mcft for different areas in different districts and different duty for the first crop and the second crop. The districts are Bijapur, Belgaum, Dharwar, Bellary, Bidar, Chikkamagalur, Chitradurga, Gulbarga, Hassan, Kanara, Raichur, Shimoga and Tumkur.

It is, no doubt, true that the agreement had been in relation to Scheme B. Appendix R at page 282 of the report of KWDT-1, is common draft of Part II prepared by the party States on 26.7.1973. Sub clause iii of Clause XII (B) provided as under:

“The Authority shall estimate the uses made for minor irrigation i.e. works utilizing less than 1 TMC each on the basis of the areas irrigated in each year and on the basis of duties agreed upon by the three States in the agreement dated 26.8.1971 until another method or other duties are adopted by the Krishna Valley Authority either suo moto or on the application of any State to the Authority that the method and duties adopted in the agreement dated 26.8.1971 should be altered”.

It is well known that Scheme B has never been implemented nor has been held to be part of decision of KWDT-1, but the fact remains that the three States on the basis of material, whatever they had, agreed upon duty for minor irrigation at different rates relating to different areas in different districts, for the 1st crop and the 2nd crop on periodical averages of the area, and the water utilization etc. For certain areas, in certain districts, agreed duty has been as high as 3.42, 2.65, 4.00, 2.52, 2.60, 3.14, 3.96, 3.42 acres/mcft and so on so forth. All this was based on facts. It is also true, as submitted on behalf of the State of Karnataka that agreed duties were not for all time to come and they could be altered. As per clause (iii) quoted, above the duties for minor irrigation were to be considered the same as under the agreement dated 26.8.1971 unless any other method or

duty had been adopted by the Krishna Valley Authority either suo motu or on the application of any State, then alone the agreed duty could be altered. But Scheme B having not come into force, there is no such authority as Krishna Valley Authority for effecting change in duty, if any. None the less, a party adopting changed duty may have to satisfactorily show the change in duty substantiated by facts and reasons. With the improved methods and new techniques of irrigation, consequent improvement in duty would obviously be there. Lift irrigation is one of such method which does improve the duty. There are other factors also like change in cropping pattern, using better seeds adopting micro irrigation etc. Even if such steps are undertaken, then too improvements take place gradually. It is difficult to accept that such improvement started from the year next to the year of agreement. The agreement is dated 26.8.1971. The improved duty is from the year 1972-73 at uniform rate of a fanciful figure of 10.58 throughout.

C I D 117 contains Statement No. 5 filed by the State of Karnataka about lift irrigation schemes from the river and tributaries using less than 1 TMC. Col. 6 (C) shows the gross area irrigated in hectares sub basin wise. It shows very meagre area having been

covered by lift irrigation scheme. Later on it gradually increased. Andhra Pradesh has furnished a note of arguments APAD 54. It is a chart compiling data/information from the documents of Karnataka itself viz. C I D 108, C I D 117, C I D 382 and C I D 384 as mentioned therein as sources of the information. As per this chart no area is shown to be irrigated under lift irrigation scheme from 1972-73 to 1978-79 (C I D 117) whereas the gross area irrigated under minor irrigation schemes as per statement No. 4 (C I D 108) ranges between 3 to 4 lacs hectares per year during that period. There was some meagre LIS in the years 1979-80, 1980-81 and 1981-82. In the year 1981-82 it was only two hectares and it crossed 1000 hectare only in 1994-95. In the year 2007-08, a gross area of 3,48,749 hectare is shown to be irrigated under minor irrigation out of which it was only 8,403 hectares through LIS. Perhaps the maximum area covered by LIS is in the year 2003-04 when it was 14,041 hectare being 7.516 per cent of the total area irrigated by minor irrigation. The percentage of the total lift irrigation has been usually 3 to 4 per cent in the later years of 1990's. On an average it is indicated that total area irrigated through LIS was only 2.321 per cent of the gross area irrigated by minor irrigation. The improvement and progress in

the minor irrigation through LIS does not seem to be so substantial and quick and fast during all this period as tried to be argued. It can be said that in initial 22 years from 1972-73 onwards it had not been significant at all.

In the background of what has been indicated above, the clarification as given by the State of Karnataka may be examined. During the course of arguments they have also furnished a note KAD 112.

As per KAD 65 which is prepared on the basis of the C I D 108, gross area irrigated in hectares on an average of 34 years from 1972-73 to 2005-06 is 3,01,634 hectares i.e. 7, 45, 337 acres. APAD 54 which has been referred to above – average irrigated area for the years 1972-73 to 2007-08 that is for 36 years comes to 3,03,933 hectares out of which 6, 213 hectares as average is irrigated by LIS which is 2.321 per cent of the total irrigated area.

In KAD 67 a note on minor irrigation, there is a mention about minor irrigation census report of 1986-87, second census report 1993-94 as well as the 3rd census of minor irrigation carried out in 2000-01 which was published in 2005. These reports have also

been furnished vide KAD 69 and KAD-70, published in 1991 and 2005 respectively. These reports have been furnished to support the case that there has been improvement in the field of minor irrigation mainly in LIS. Hence duty for minor irrigation has also improved. In this connection it may be pointed out that these reports are of much later period since minor irrigation utilization under consideration are for the period between the period 1972-73 to 2007-08. The basic documents which have been filed by the State of Karnataka namely C I D 108, C I D 117 etc. don't support the case of alleged progress made in LIS. It is also not understandable that if such figures were available, why the improved duty was not indicated in C I D 108 which shows it uniformly 10.58 through out from 1972-73 onwards. Their own document does not show any lift irrigation at all in the initial period, as indicated earlier.

A note KAD 112 has been furnished justifying the duty 10.58. It is mentioned that the year 2000-01 has been considered as example year for working out average duty of minor irrigation in Krishna Basin in Karnataka. The study is based on the information which was available as per cropwise water rate demands raised by Chief Engineer, Minor Irrigation, Government of Karnataka as per census

report 2000. The year 2000-01 was considered as an example for arriving at an average duty of Minor Irrigation. The example year is almost 30 years later from the year 1972-73. The data in different documents indicates that some progress in LIS in the later part of 1990's and onwards that is to say near about 20 to 25 years after the relevant period which starts in 1972-73.

Yet another effort has been made by saying that some research had been undertaken by Agriculture University in Dharwad, Karnataka to work out the crop water rate requirement for different crops. It is stated that water requirement was worked out for 2000-01 for each district of Krishna Basin. They also mentioned about working out of the duty for minor irrigation on the basis of revenue rates and demands made from the farmers. In the end it is stated in KAD-112 that for an average crop area of 1,04,865 hectares in a year, and the water rate demand raised, the duty worked out to be 9.54 acres/mcft and with lift irrigation component it worked out to 11.8 acres per mcft. Therefore it was considered reasonable to fix duty at 10.58 acres/mcft. It is difficult to go by such calculation said to be based on some research work with the 2000-01 as the example year. The research report is said to be published sometime in 2006

and finally in 2008. It is difficult to rely on any such research work with base year 2000-01, for the purposes of this case.

In view of the situation as indicated above, further submissions were made by the State of Karnataka and a note KAD 113 has been furnished. It is submitted that there have been dynamic changes in the technology of minor irrigation which cannot be lost sight of and the duty of 1966-67 could not be applied. There is some force in the submission made. Some improvements of course, must have been made in the technique of minor irrigation, but the question is when and to what extent. In the note a reference has also been made to the cross examination of MW Shri S.N. Huddar particularly to questions Nos. 30 to 126 and question Nos. 96,97,98, 100, 125 and 126. Ultimately the State of Karnataka came out with a via media of working out weighted average duty based on agreed duty and arrived at a duty 7.64 acres/mcft for both first and second crop for the whole area. Table 2 shows that they have started with the year 1972-73 with weighted average duty 7.64 acres/mcft. They applied a progressive increment in the duty at the rate 0.105 per year and continued the incremental duty 2000-01 until they arrived at figure 10.58 acres/mcft. Uniformly incremental increase every year has been

assumed which was applied for 29 years continuously. It would be improvement by about 30% in less than 30 years and on the top of it, what is noticeable is that 10.58 initially is sought to be applied for the period through out from 1972-73 to 2005-06. We have already noticed initially for some period there has been no LIS at all 1979. Normally improvement in duty may be possible somewhere 10 to 15% or maximum by 20%. This via media of applying weighted average duty common for both crops first and second and for all the area in all the districts does not stand to reason. Therefore we had given out to the learned counsel for State of Karnataka that it will be more appropriate if duty is worked out on the basis of the agreed duty areas wise and thereupon some reasonable allowances @ 10% for improvement due to LIS etc. may be allowed, which may provide some solution to the problem. The learned counsel agreed to do the exercise and furnished an elaborate chart KAD 134 indicating the same. We had suggested improvement of 10% in the duty over the agreed duty in view of the fact that though in initial years there may not have been any improvement later it may have started improving incrementally and in the subsequent years it may have improved substantially. Therefore it would be reasonable to allow 10 percent

improvements over the agreed duty uniformly for the whole period. It will cover all the period where they may have made improvement, sometime later there may be some lesser improvement but significant improvement in the later years. The chart KAD 134 in col. 3 shows utilisation as per C I D 108 i.e. at 10.58, col. 4 shows the utilization quantity as per agreed duty as calculated in Annexure 13 to the Affidavit of Shri S.N. Huddar and Col. 5 indicates the utilization with 10 % improvement over the agreed duty. It is to be noticed that figures of yearwise utilization on account of minor irrigation are higher in col.5 as compared to the figures in Col. 3 based on duty shown in C I D 108 and it is lower than the figures shown in col. 4 based on agreed duty. Figures shown in Col. 5 are though calculated by Karnataka, they are not admitted by it.

However, we are of the opinion that it will be fair and just to calculate the utilization of the State of Karnataka on account of minor irrigation as per Col.5 of KAD-134. It takes into account the improvement which may have been made by State of Karnataka by applying the new techniques in minor irrigation. We, therefore, hold that figure, as shown in col. 5 of the chart prepared by Karnataka KAD 134 shall be taken into account while calculating the utilization

on account of minor irrigation in Karnataka and not the quantity of water which has been calculated as per C I-D-108 at the rate of 10.58 acres/mcft which does not have support of any credible evidence.

An amended statement of utilization in minor irrigation, for the State of Karnataka is placed below as Chart No. 1.

KARNATAKA

Minor Irrigation Utilization

TMC

S.No.	Year	As given by Karnataka in Statement-4 (C-I-D-108)	As per Col.5 in KAD-134, (with 10% improvement in agreed duties)
1	2	3	4
1	1972-73	97.174	176.096
2	1973-74	92.988	168.335
3	1974-75	92.189	166.907
4	1975-76	89.698	162.154
5	1976-77	87.207	157.506
6	1977-78	84.714	152.855
7	1978-79	82.222	148.208
8	1979-80	79.730	143.558
9	1980-81	77.238	138.909
10	1981-82	74.745	134.340
11	1982-83	72.486	130.364
12	1983-84	69.761	124.964
13	1984-85	67.271	120.318
14	1985-86	59.542	107.184

15	1986-87	62.286	111.022
16	1987-88	60.594	104.908
17	1988-89	62.128	112.270
18	1989-90	63.558	114.335
19	1990-91	63.119	113.537
20	1991-92	63.612	114.991
21	1992-93	64.108	115.899
22	1993-94	73.904	141.208
23	1994-95	65.097	117.713
24	1995-96	64.062	114.580
25	1996-97	66.086	119.525
26	1997-98	67.164	115.993
27	1998-99	63.504	108.130
28	1999-00	63.504	108.069
29	2000-01	78.604	136.076
30	2001-02	61.297	107.963
31	2002-03	43.002	75.413
32	2003-04	43.628	76.391
33	2004-05	64.656	112.490
34	2005-06	74.345	127.605
35	2006-07	78.770	136.490 *
36	2007-08	81.452	143.353 *

* Figures added as per calculations made on the basis of the material available for those years.

Consequently, the upstream utilization of the State of Karnataka shall also stand amended reflecting the increased upstream

utilization on account of Minor Irrigation. It is placed below as Chart

No. 2:-

Yearwise Total Utilization in Karnataka from 1972-73 to 2007-08

TMC

S.No.	Year	Utilisation Under Major, Medium & Minor Projects Including Domestic, Industrial Uses and Evaporation Losses as given by karnataka in I.A No.111 of 2010,Annexure-A, Page-6	Utilisation Under Major, Medium & Minor Projects Including Domestic, Industrial Uses, Evaporation Losses and Minor Irrigation uses as per Col.4 of Chart No 1
1	2	3	4
1	1972-73	344.724	423.646
2	1973-74	365.839	441.186
3	1974-75	374.727	449.445
4	1975-76	396.431	468.887
5	1976-77	387.998	458.297
6	1977-78	418.844	486.985
7	1978-79	428.994	494.980
8	1979-80	421.344	485.172
9	1980-81	448.470	510.141
10	1981-82	425.137	484.732
11	1982-83	435.690	493.568
12	1983-84	428.485	483.688
13	1984-85	445.932	498.979
14	1985-86	407.258	454.900
15	1986-87	429.683	478.419
16	1987-88	346.263	390.577
17	1988-89	421.768	471.910

18	1989-90	422.947	473.724
19	1990-91	445.484	495.902
20	1991-92	432.948	484.327
21	1992-93	457.553	509.344
22	1993-94	477.863	545.167
23	1994-95	482.337	534.953
24	1995-96	425.710	476.228
25	1996-97	424.874	478.313
26	1997-98	465.422	514.251
27	1998-99	448.750	493.376
28	1999-00	493.921	538.486
29	2000-01	508.975	566.447
30	2001-02	454.792	501.458
31	2002-03	400.281	432.692
32	2003-04	421.997	454.760
33	2004-05	545.241	593.075
34	2005-06	598.239	651.499
35	2006-07	638.250	695.970
36	2007-08	605.854	667.755
Source:	Col.3 Annexure-A , Col.5 of IA No 111 of 2010, Page no 6 Col.4 Annexure-A, Col.3 of I.A No. 111 of 2010 and adding with Minor Irrigation uses as per Col.5 of KAD-134		

UTILISATION IN MINOR IRRIGATION IN THE STATE OF MAHARASHTRA.

The utilization on account of minor irrigation in the State of Maharashtra as furnished in Statement No. 4 appeared to be low at 17.81 TMC on an average. They were required to furnish better particulars about minor irrigation. Initially their case was that many of the minor irrigation Schemes were fed by major or medium projects and some of the minor irrigation is carried on through KT weirs, Nallas and so on so forth. A clear picture had not been emerging so in that connection a note MHAD 52 has been furnished on behalf of the State of Maharashtra. Paragraph 4 of which is quoted below:-

“In late Shri S.T. Deokule’s affidavit (C II D 119), Annexure IV) it is stated that the planned utilization for MI projects and small private lifts is 19.12 TMC. In MHAD 41 which was given to this Hon’ble Tribunal on 24.11.2009, Maharashtra stated as follows:

“Maharashtra’s expert, Mr. Deokule has, in his evidence, given a statement showing annual utilization for various projects undertaken by Maharashtra out of the enbloc allocation of 585 TMC as per Annexure IV at page 44. Annexure IV is for projects existing and under construction. This 585 TMC includes 19.12 TMC pertaining to minor irrigation projects utilizing less than 1 TMC each as stated in item 71. However, it is necessary to clarify that apart from the figure of 19.12 TMC pertaining to minor irrigation, there are other items of utilization of less than 1 TMC, which are enlisted individually in the preceding items aggregating to 13.22 TMC. Therefore,

in effect and as per Annexure IV of Mr. Deokule's affidavit, the total utilization for projects utilizing less than 1 TMC is 19.120 TMC + 13.22 TMC = 32.34 TMC.

Therefore, use proposed by Maharashtra in its overall planning for MI projects is 32.34 TMC only. This is the correct figure of present utilization of Maharashtra under MI (Use less than 1 TMC)".

This matter was considered and our order dated March 29, 2010 reads as follows:

"Mr. Andhyarujina, learned Sr. Counsel for the State of Maharashtra made his submissions on the utilizations on account of minor irrigation and has submitted a Note MHAD-52. He has submitted and agreed that as indicated in the bottom of para 4 of the Note the utilization on account of minor irrigation may be taken as 32.34 TMC for the years 1972 onwards upto 2004 whereafter the current/actual utilizations as have been given in MHAD 52 as 32.50 TMC for 2005 and so on for other years may be taken into account."

We therefore, hold that utilization in minor irrigation for the State of Maharashtra shall be taken as 32.34 TMC for the years from 1972-73 to 2003-04. Thereafter as per recorded utilization in their relevant records.

An amended statement of utilization in minor irrigation for the State of Maharashtra is being placed below as Chart No.3:

Maharashtra

Minor Irrigation Utilization

TMC

S.No.	Year	As given by Maharashtra in Statement-4 (I.A.No.113of 2010)	Corrected as per KWDT-II Order dated 29-03-2010
1	2	3	4
1	1972-73	15.71	32.24
2	1973-74	15.71	32.24
3	1974-75	15.71	32.24
4	1975-76	15.71	32.24
5	1976-77	15.71	32.24
6	1977-78	12.98	32.24
7	1978-79	14.20	32.24
8	1979-80	11.84	32.24
9	1980-81	14.03	32.24
10	1981-82	14.63	32.24
11	1982-83	14.86	32.24
12	1983-84	18.95	32.24
13	1984-85	20.90	32.24
14	1985-86	17.61	32.24
15	1986-87	18.20	32.24
16	1987-88	15.77	32.24
17	1988-89	20.06	32.24
18	1989-90	21.72	32.24
19	1990-91	20.33	32.24
20	1991-92	22.62	32.24
21	1992-93	20.32	32.24
22	1993-94	28.74	32.24
23	1994-95	17.00	32.24

24	1995-96	11.92	32.24
25	1996-97	14.67	32.24
26	1997-98	13.55	32.24
27	1998-99	13.70	32.24
28	1999-00	13.86	32.24
29	2000-01	15.78	32.24
30	2001-02	15.44	32.24
31	2002-03	10.27	32.24
32	2003-04	5.01	32.24
33	2004-05	15.36	32.24
34	2005-06	32.50	32.50
35	2006-07	35.62	35.62
36	2007-08	40.49	40.49

Consequently upstream utilization of the State of Maharashtra shall also stand amended reflecting the increased upstream utilization on account of Minor Irrigation. It is placed below as Chart No.4:-

S.No.	Year	Total Utilisation Under Major, Medium & Minor Projects & Lift Irrigation Schemes (Major & Medium Including Evaporation losses) Annexure-I of I.A. No. 113 of 2010	Total Utilisation Under Major, Medium & Minor Projects & Lift Irrigation Schemes (Major & Medium Including Evaporation losses) (by adding Minor Irrigation uses as per Col.4 of Chart No 3)
(i)	(ii)	(iii)	(iv)
1	1972-73	228.63	245.16
2	1973-74	279.67	296.20
3	1974-75	268.10	284.63

4	1975-76	282.79	299.32
5	1976-77	294.45	310.98
6	1977-78	324.98	344.24
7	1978-79	367.06	385.10
8	1979-80	333.59	353.99
9	1980-81	347.42	365.63
10	1981-82	361.98	379.59
11	1982-83	343.22	360.60
12	1983-84	371.16	384.45
13	1984-85	366.92	378.26
14	1985-86	355.05	369.68
15	1986-87	351.37	365.41
16	1987-88	299.14	315.61
17	1988-89	385.10	397.28
18	1989-90	376.62	387.14
19	1990-91	423.02	434.93
20	1991-92	434.38	444.00
21	1992-93	413.48	425.40
22	1993-94	495.40	498.90
23	1994-95	484.49	499.73
24	1995-96	415.86	436.18
25	1996-97	457.23	474.80
26	1997-98	510.31	529.00
27	1998-99	483.28	501.82
28	1999-00	528.17	546.55
29	2000-01	441.17	457.63
30	2001-02	433.61	450.41

31	2002-03	451.09	473.06
32	2003-04	440.68	467.92
33	2004-05	509.86	526.74
34	2005-06	563.59	563.59
35	2006-07	551.65	551.65
36	2007-08	527.72	527.72

CHANGE IN STORAGE

The other component constituting the yearly yield of a river is change in storage. It also finds mention in the equation provided by CWC as per Anneuxre 1 to the affidavit of Prof. Subhash Chander titled as Reassessment of Water Resources Potential of India. At running page 39 there is a equation for methodology to be adopted for assessment of the yield of river and one of the component is indicated as S = the increase in the storage of reservoirs in the basin. We find that in the series of 78 years prepared before KWDT-1 this component of change in storages or increase in storage has not been taken into account. May be understably for the reason that till that time there had not been many storages nor much water seems to have been stored. APW Prof. Subhash Chander has considered change in storage and has prepared a series of 112 years with change in storage.

It is Annexure 7 to his affidavit. He has taken into account only two storages namely Nagarjunsagar Reservoir and the Srisailem Reservoir. The series, Annexure 7, started with the year 1894-95 and upto the year 1971-72, the columns Nos. 5 and 6 meant for the change in storages in the two reservoirs are blank as also col. 7 meant for total of the two. In col. 5 of Annexure 7 for the first time change in storage in Nagarjunsagar Reservoir has been shown as 5 TMC in the year 1972-73. So far Srisailem is concerned it is shown as zero w.e.f 1972-73 upto 1982-83 and it is one TMC in 1983-84. Since thereafter change in storage has been indicated in Nagarjunsagar and Srisailem storages upto the year 2005-06. In col. 7 the total storage change on an average has been shown as 154 TMC. But change in storage i.e. 154 TMC has been totally ignored in working out the average flows of river Krishna as well as at 75% dependability and 50% dependable flow. The gross flow has been shown as 2403 TMC excluding 154 TMC. The average flow at Prakasham barrage has been shown as 1634 and upstream utilization as 769 TMC total of which comes to 2403. Figure 154 TMC on account of change (increase) in storage has been completely ignored in working out any kind of figure. In paragraph 4.5.2 APW1 Prof.

Subhash Chander has indicated a reason for not taking into account the change in storages as he found no change in 50% and 75% dependable flows therefore he used the series contained in Annexure 6A for further computation. Paragraph 4.5.2 is reproduced below:-

“The series is developed by adopting the method followed by the Bachawat Tribunal. The impact of change in storage on the flow computations, which was not considered by Bachawat Tribunal, has been taken care of by considering the change in storage in both Nagarjunsagar and Srisaïlam projects. The results show that the average value has increased by 1.4 TMC due to change in storage and there is no change in 50% and 75% Dependable flows (Virgin Flows + Return flows) Annexure 7. Therefore the series listed in Annexure 6A, i.e. without change in storage is used for further computations in tune with the Bachawat award”.

In our opinion the approach adopted by the witness is not correct. He seems to have been driven more by the result of taking into account change in storage at 50% and 75% dependable flow. It is also indicated that average value has increased by 1.4 TMC only hence ignored. The storage change in Nagarjunsagar Reservoir is for a period of 32 years and in Srisaïlam Reservoir, for a period of 22 years totaling to 154 TMC, appears to have been divided by the whole number of years of the series i.e. 112 years, to work out meagre average increase @ 1.4 on an average which is incorrect.

The storage change has been considered by this Tribunal in respect of all the storages in Krishna basin in the three states, may be carry over storages or otherwise. The figures of the storage change have been arrived at from the working tables of the reservoirs which have been provided in the data exchange formats by the three states w.e.f. 1972-73. Initially the data was upto 2004-05 later on it has been got updated upto 2007-08. Thus in 35 years namely from 1972-73 to 2007-08 namely the period for which data was available, the storage change was to the extent of plus 301 TMC. In the 47 years series assessing the flow of the river Krishna, change in storage has been shown in col. viii of the chart and gross flows have been shown in col. ix after making the adjustment by deducting or adding the change in storage yearwise. Thus in the new series prepared for the assessment yield in river Krishna, change in storage has been taken into account, which was not considered in the series prepared before KWDT-1 and ignored in the series prepared on behalf of the State of AP by APW Prof. Subhash Chander in Annexure 7 to his affidavit. It is though true that data regarding storage change is available for 35 years w.e.f. 1972-73 out of series of 47 years and it also stands divided indirectly for the whole period of 47 years but the

gap is much less. It is not like dividing data of 32 years and 22 years by 112 years. In any case storage change in 35 years adds to about 301 TMC it then makes a significant change in average value. If it is divided by 32 years, the change on average comes to about 8 TMC and in case it is divided by 47 years then also it is 6.40 TMC on an average. In both cases it is significant.

The new flow series prepared for the purposes of assessment of the flows in the river Krishna is for a period of 47 years i.e. from 1961-62 to 2007-08. The chart prepared for the purposes has ten columns. Col.No.(iii) shows the observed flow at Vijayawada/Prakasham barrage while Cols. (iv), (v) and (vi) show the upstream utilization by each of the three States. Total utilization of the 3 states is shown in Col. (vii). Col. (viii) shows the figures of change in storage, which have been worked out from Statement 2 as submitted and exchanged between the parties on the prescribed format containing the working tables of all the reservoirs. Col.(ix) shows gross flows i.e. total of Col.(iii) and (vii) after adjustment of figure of storage change in Col. (viii). Col. (x) shows the series in descending order. Since figures of the observed flow data in Col. (iii) and total upstream utilization in Col. (vii) have been taken as in the series

before KWDT-1 for the year 1961-62 to 1971-72 the separate upstream utilization of the three States in the Cols. (iv) to (vi) have not been shown for those years as they have not been shown in the series prepared before KWDT-1.

The upstream utilizations of the three States are based on exchange of data by the three respective States and ultimately as shown in their concise statement submitted, as per direction of this Tribunal, in I.A. No. 111 of 2010 for the State of Maharashtra, I.A. No.113 of 2010 for the State of Karnataka and C III-D-114 for the State of Andhra Pradesh but for the fact that in the final figures of total upstream utilization given by State of Maharashtra and Karnataka modifications have been made on account of revised utilizations, on account of minor irrigation as has been discussed earlier and those figures after adding revised minor irrigation, utilizations have been shown for the States of Maharashtra and Karnataka. Upstream utilizations of Andhra Pradesh remained the same as shown in C III-D-114. The yearly water series of 47 years is placed below as Chart No.5:-

S. No.	Year	Observed Flow at Vijaywada	Utilisations by Major, Medium & Minor Schemes for Irrigation+Domestic+Industrial uses+Evaporation				Storage Change in all Major/Medium Reservoirs of 3 States in Krishna Basin	Gross Flow Col.iii+v ii+viii	Descending Flow Series
			MAH	KAR	AP	Total	Table SI-4 16.4.2010		
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
1	1961-62	3168.00				592.00	0.00	3760.00	4193.72
2	1962-63	2481.00				598.00	0.00	3079.00	3760.00
3	1963-64	2099.00				658.00	0.00	2757.00	3624.04
4	1964-65	2736.00				661.00	0.00	3397.00	3519.36
5	1965-66	1378.00				696.00	0.00	2074.00	3397.00
6	1966-67	1181.00	See Foot note 2			776.00	0.00	1957.00	3318.24
7	1967-68	1621.00				917.00	0.00	2538.00	3238.71
8	1968-69	1140.00				996.00	0.00	2136.00	3230.91
9	1969-70	1689.00				996.00	0.00	2685.00	3186.66
10	1970-71	1749.00				996.00	0.00	2745.00	3185.01
11	1971-72	1235.00				996.00	0.00	2231.00	3079.00
12	1972-73	192.00	245.16	423.65	667.79	1336.60	-17.07	1511.53	2967.20
13	1973-74	1168.00	296.20	441.19	810.30	1547.69	86.21	2801.89	2919.13
14	1974-75	1002.00	284.63	449.45	945.81	1679.89	-27.23	2654.66	2916.67
15	1975-76	2480.00	299.32	468.89	910.43	1678.64	35.08	4193.72	2851.04
16	1976-77	1059.00	310.98	458.30	773.72	1543.00	-6.55	2595.45	2809.52
17	1977-78	695.00	344.24	486.99	970.55	1801.78	92.05	2588.82	2801.89
18	1978-79	1791.00	385.10	494.98	874.14	1754.22	-25.86	3519.36	2757.00
19	1979-80	920.00	353.99	485.17	945.82	1784.98	19.45	2724.43	2745.00
20	1980-81	1094.00	365.63	510.14	886.09	1761.86	-46.34	2809.52	2724.43
21	1981-82	1048.00	379.59	484.73	912.44	1776.76	26.28	2851.04	2685.00

22	1982-83	509.00	360.60	493.57	912.58	1766.75	7.62	2283.37	2654.66
23	1983-84	1395.00	384.45	483.69	890.67	1758.81	31.20	3185.01	2628.35
24	1984-85	361.00	378.26	498.98	948.07	1825.31	7.32	2193.63	2624.23
25	1985-86	192.00	369.68	454.90	805.16	1629.74	17.91	1839.65	2602.11
26	1986-87	179.00	365.41	478.42	878.18	1722.01	-59.20	1841.81	2595.45
27	1987-88	152.00	315.61	390.58	752.91	1459.10	38.11	1649.21	2588.82
28	1988-89	1179.00	397.28	471.91	948.10	1817.29	-29.09	2967.20	2538.00
29	1989-90	765.00	387.14	473.72	935.23	1796.09	41.02	2602.11	2489.85
30	1990-91	1040.00	434.93	495.90	950.91	1881.74	-2.61	2919.13	2305.56
31	1991-92	1155.00	444.00	484.33	866.49	1794.82	-33.15	2916.67	2283.37
32	1992-93	341.00	425.40	509.34	905.21	1839.95	21.01	2201.96	2231.00
33	1993-94	686.00	498.90	545.17	930.59	1974.66	-36.43	2624.23	2201.96
34	1994-95	1385.00	499.73	534.95	926.82	1961.50	-28.26	3318.24	2193.63
35	1995-96	224.00	436.18	476.23	755.08	1667.49	-23.95	1867.54	2185.69
36	1996-97	673.00	474.80	478.31	887.61	1840.72	114.63	2628.35	2136.00
37	1997-98	583.00	529.00	514.25	867.99	1911.24	-4.39	2489.85	2074.00
38	1998-99	1185.00	501.82	493.38	1033.73	2028.93	24.79	3238.71	1957.00
39	1999-00	365.00	546.55	538.49	931.20	2016.24	-75.68	2305.56	1934.43
40	2000-01	252.00	457.63	566.45	916.41	1940.49	-6.80	2185.69	1867.54
41	2001-02	111.00	450.41	501.46	784.12	1735.99	-10.95	1836.04	1841.81
42	2002-03	13.00	473.06	432.69	369.76	1275.51	-49.06	1239.45	1839.65
43	2003-04	12.00	467.92	454.76	335.62	1258.30	-17.62	1252.68	1836.04
44	2004-05	23.00	526.74	593.08	717.83	1837.65	73.78	1934.43	1649.21
45	2005-06	1272.53	563.59	651.50	993.09	2208.18	143.33	3624.04	1511.53
46	2006-07	944.35	551.65	695.97	1065.44	2313.06	-70.76	3186.66	1252.68
47	2007-08	927.44	527.72	667.76	1015.27	2210.75	92.73	3230.91	1239.45
Conclusion : - Dependable flows are 75% (2173), 65% (2293), 60% 528), 50% (2626) and average (2578) TMC									
Not -es:-	1) Data on utilizations have been taken as 'Total Use by Each State'.								

- 2) Annual Total Upstream Uses for the Years 1961-62 (Col.vii) are taken from Bachawat Report Appendix P, Page 276-277. Statewise upstream utilisation break up is not available.
- 3) Annual Upstream Uses for 1972-73 to 2007-08 are taken from IA No.111, 113 of 2010 and C-III-D-114.
- 4) Vijayawada Observed Flow Data (Col (iii) for the Years 1961-62 to 1972-73 are taken from Bachawat Report Appendix P, Page 276-277 and for the years 1972-73 to 2007-08 are taken from the CWC Water Year Books.
- 5) Storage changes in reservoirs from 1961-62 to 1971-72 (Col.viii) are taken as zero for want of data.
- 6) Karnataka utilisations on Minor Irrigation are as shown by Karnataka in KAD-134 Col 5.
- 7) Maharashtra utilisations on Minor Irrigation for 1972-73 to 2004-05 are taken as 32.24 TMC each year as per the Tribunal Order dated 29-03-2010. Actual Utilisations for the years 2005-06 to 2007-08 are taken from IA 113 of 2010 S.No. IV.

The result of the series of 47 years as mentioned above is as follows:- (1) average flows 2578 TMC (2) flows at 50% dependability 2626 TMC (3) flow at 60% dependability 2528 TMC (4) flows at 65% dependability 2293 TMC and (5) flow at 75% dependability is 2173 TMC.

It is to be noticed that in average flow there is an increase of about 180 TMC as compared to the series prepared by before KWDT-1 and the series of 112 years and at 75% dependability there is an increase of about 113 TMC. Such increase as reflected seems to be quite natural and obvious. The utilizations have more than doubled since 1971-72. The increase therefore clearly seems to be on account of the return flows and addition of increase in

storages and utilisation in minor irrigation. The availability of water thus has increased rather than decreased as has been tried to be shown on behalf of the State of Andhra Pradesh

Percentage Factor of Dependability.

After having arrived at the availability of water in River Krishna, we now move to the next limb of issue No.2 i.e. dependability factor at which it is to be quantified for the purposes of distribution and apportionment amongst the three states.

The equation of 'Percentage of Dependability' is useful and required for the purposes of planning and water management by the users of water. They would obviously plan according to the safely available quantity of water for an estimated period of time. Water is not always available for utilization for different purposes as and when and in the quantity that one needs or wishes. Nature is not made to order. It has its own uncertain ways. It may rain heavily resulting in floods, it may have dry spell leading to famine conditions. The mainstay of India is Agriculture and it is very much dependent upon Monsoon and availability of water. Irrigation is life line of agricultural operation. Excess and scarcity of water, both are sources

of problem and, therefore, an act of balancing becomes necessary. One of the ways to do it is to construct Dams & Reservoirs where water may be stored and released as and when needed. The dams also provide for extra-storage to put some check on floods and the extra water is slowly released to avoid inundation.

For planning it is necessary to find out how much of water out of the total, is available for actual utilization and for how much period of time viz., every year, in alternate years or in what percentage of time in number of years.

The 'percentage of dependability' is a relationship between volume of water available for utilization and the period of time in number of years during which it shall be available. Higher the dependability, lower the quantity of available water for use and lower the dependability higher the quantity of available water. Obviously, assured higher quantity of water will be available for lesser number of years and vice versa.

We have already discussed in the beginning of discussion on issue No.2 (p.182) as to how dependability factor is worked out. The formula which was adopted is $M/N \times 100$ (p 74 KWDT-1).

There is, to some extent an element of certainty which makes the user of the water confident as certain amount of water they would be getting during certain period of time. The KWDT-I observed at page 74 of the report “dependable flow is the magnitude of the river flow which may be assuredly expected at a given point on the river on some scientific or rational basis inspiring confidence”. For different kind of uses different percentage of availability in terms of number of years is required e.g. for domestic purposes the availability of water is required to be in cent-percent years, for generation of power the availability is required at 90% of the years and for agricultural purposes it is required at 75% dependability.

The previous Tribunal has distributed the water of River Krishna at 75% dependability which was quantified at 2060 TMC. That is to say, out of 100 years it was expected that 2060 TMC or more would be available for utilization in 75 years and in the remaining 25 years it may be less than 2060 TMC. It can also be described as availability of 2060 TMC at 75% dependability, which would be there in three out of four years. The Irrigation Commission 1972 recommended dependable percentage of availability of water for different kind of uses in paragraph No.6.53 of its Report Volume-I, as

referred to at p.155 of the Report of the KWDT-1, which is quoted here “6.53 – the rain fall in various catchment areas varies from year to year and so does the volume of water in rivers. Irrigation projects have to be so designed that their full requirements are met in most years. At present the practice is to design the projects to utilize river flows at 75% dependability. It means that in 75 years there is some surplus in the river and 25 years some shortage, ranging from marginal to substantial”. It further observed “..... availability can, however, be improved by providing an extra capacity in the reservoir for carry over supplies from surplus years to lean years. By adopting this device a project can be designed on river flows of lower dependability to provide a larger volume of water to irrigators, with same degree of assurance”. The more precious is water in an area, as in drought area, the greater is the justification for providing a carry over”. The Irrigation Commission recommended to continuing the practice to design supplies at 75% dependability for irrigation schemes.

The State of Maharashtra submits that the distribution of water of River Krishna should be at 50% dependability or at the average yearly yield. In that event larger quantity of water would be available

for utilization in two out of four years instead of three years in case of distribution at 75% dependability. During the course of arguments the learned counsel for the State of Maharashtra also furnished two notes on the subject marking them as MHAD 10 and MHAD 16. According to the series prepared before the KWDT-1 by the States of Maharashtra and Karnataka the average availability of water was 2393 TMC whereas, according to Andhra Pradesh it was 2390 TMC. The 50% availability was not worked out, it would however be 2305 TMC. The volume of flows in River Krishna as now indicated by Maharashtra, based on the studies made by its witness Shri S.N. Huddar is 2600 TMC which would be available for distribution on the basis of average flows. We have however, already discussed about the series of Maharashtra in the earlier part of this Report.

It is also the case of State of Maharashtra that the present situation is much different from that as it existed when the previous order was passed by KWDT-1. Now the total utilization of three states has reached about 2344 TMC. The capabilities to utilize that much volume of water have already been built-up. Andhra Pradesh had utilized upto 1025 TMC. Thus, the actual utilization and the capability to utilize is now much more than 2060 TMC which was at

75% dependability before the previous Tribunal. The present total storage capacity of the three states is indicated to be 1727.8 TMC. Therefore, it is submitted that larger amount of water than 2060 TMC can well be distributed, since the situation is ripe for the same. Mr. Andhiyarujina submits that the distribution at the lower dependability may not make much of a difference as in the case of distributing it at 50% dependability, the deficit would be in two years out of four instead of one year's deficit if distribution is at 75% dependability, but in that event with availability of more water Maharashtra can increase its command. Statement of its witness Shri Deokule C-II-D 119, particularly paragraphs 14.3 and 14.4 have been referred to in support of distribution at 50% dependability, otherwise in 3 years out of 4, some water would always go waste into the sea unutilized. Answer to questions No.364 and 365 of the cross examination of Shri Huddar has also been referred saying that if required, additional construction would be made for carry over storages. A letter dated 29.10.1983 issued by Ministry of Irrigation, Govt. of India addressed to all Irrigation Secretaries of the States, has been relied to show that the dependability factor for irrigation projects can be relaxed to 50% dependability in case of irrigation schemes in drought areas.

Yet another submission which has been made on behalf of the State of Maharashtra is that its Master Plan C-II 3F has been prepared on the basis of 50% availability of water. Therefore, more projects would come up requiring more water. If distribution is made at 50% dependability the increased amount of water shall be utilized in the new projects as proposed in the Master Plan and it may not be necessary to have carry over storages at all. At the same time, it is also submitted that if necessary Maharashtra shall construct suitable storage, if feasible, so that deficit would be mitigated in the lean years. Alongwith MHAD-10 Table No.1 has been appended showing that the planned utilization of Maharashtra for completed and on-going projects is 614.977 TMC. It has gross storage capacity of 578.773 TMC and live storage capacity is 476.79 TMC. The requirement for planned projects for future is 208 TMC so the total requirement of completed and on-going projects as well as the future planned projects comes to 856.086 TMC including minor irrigation. The planned gross storage capacity would become 750.066 TMC and that of live storage 608.505 TMC. The other two tables appended with MHAD 10 indicate the total demand of Karnataka as 994.80 TMC including future projects.

The gross storage capacity would be 752.64 TMC and live storage capacity as 693.09 TMC. The total of three for the requirement of Andhra Pradesh is shown as 1445.38 TMC for completed and ongoing projects 35 in number and its gross storage capacity as 1138 TMC with live storage as 880.08 TMC. So the total planned live storage capacity will become 2181.522 TMC. These tables are all mix up of ongoing and future projects or either of them, not showing similar features of each of the States. On the basis of the facts and submissions indicated above, State of Maharashtra tried to justify its request for distribution of water at 50% availability or on the basis of average yield, as according to it in future, as planned, the total storage capacity of all the three States will become 2181.522 TMC.

The State of Karnataka also submitted that distribution of water should be on the basis of average yield or at 50% dependability. It has furnished a note KAD-8 showing total planned utilisation of Maharashtra as 775 TMC and that of itself i.e. Karnataka as 995 TMC and planned utilisation of Andhra Pradesh as 1115 TMC, totaling to 2885 TMC. It is submitted that the figures are on the basis of information furnished by the parties on the common format. The submission is that there is a surplus of 517 TMC over and above 75%

dependability of 2060 TMC as worked out in the series prepared before KWDT-1. The surplus of 517 TMC as shown by Karnataka is on the basis of the series of 50 years (1948 to 1998) which have been relied upon in its Master Plan and it is according to that series that the average yield comes to 2647 TMC out of which $2060 + 70 = 2130$ TMC as allocated by KWDT-1 has been deducted to arrive at the figure of 517 TMC. It is submitted that $2060 \text{ TMC} + 517 \text{ TMC}$ brings the distributable yield to about 2577 TMC. Then the shares of the three States which have been calculated according to the proposed schemes B have been indicated. To support its contention, the surplus water over and above 2060 may also be distributed which totals to as indicated above 2577 TMC and according to the Maharashtra the distribution of water should be at 2600 TMC.

The State of Andhra Pradesh submits that availability of water in the River Krishna continues to remain the same as at 75% dependability it has rather slightly reduced. Therefore, there is no more water available for distribution. It is submitted that the distribution should remain at 75% dependability otherwise so far as Andhra Pradesh is concerned it would not be possible for it to realize its allocated share and it will suffer much in deficit years.

Learned counsel has drawn our attention to the report of KWDT-1 page 167 quoting one of the general factors adopted on 9th December, 1969 by the Indian Standards Institution for design of live storages as follows:- "3.3 - The storage provided in an irrigation project should be able to meet the demand of 75% of the time whereas in power and water supply projects the storage should meet the demand for 90 per cent and 100 per cent of the time respectively". Whereafter, it is pointed out that the KWDT-1 observed that it was proper that the water available at 75% dependability should be distributed under Scheme A. Our attention has also been drawn to page 23 of the final report of KWDT- 1 where it is observed that the average river flow is the 'theoretical upper' limit of utilizable river supply that can be developed by storage and regulation. It is also observed that without further study it was not possible to say that water can be impounded in storage to such an extent that river flow of 50% dependability can or should be distributed. At the same page it is further observed that until a chain of reservoirs having sufficient carryover storages is constructed in the Krishna Basin, it is not possible to utilize or distribute river flow to the full extent. The KWDT-1 also observed that in the circumstances as then prevailing

criterion of 75% dependability of river flow was the most suitable for irrigation projects in the Krishna basin. The submission of the State of Andhra Pradesh is that no further studies have been made nor any carryover storages have been built by the State of Maharashtra and Karnataka. They also admitted that no such site for new storage is available in the Krishna Basin in AP. Reliance has also been placed upon the observation made by KWDT-1 at page 24 of the Final Report that until entire dependable supply of 2060 TMC is fully utilized, the complaint of apportionment of the remaining water is unrealistic. Therefore, complaint of Karnataka is unrealistic.

To further support the argument that the distribution should continue at 75% dependability, our attention has been drawn to the observations made in the judgment in the case of Wyoming Vs. Colorado 259 US 419, as referred to by KWDT-1 at page 156 of the Report. It was observed that looking to the great variation in the flow of the river; supply must be fairly continuous and dependable. It was further observed that though natural flow can be materially conserved and equalized by means of storage reservoirs but it also has limitations. For example, if there are more than one dry years consecutively the storage may not serve the purpose and due to the

evaporation loss water cannot be stored for longer period.

It is then next submitted that the success rate of the upper riparian states as per Annexure 38 to the Affidavit of Prof. Subhash Chander, is very high even within the year allocations whereas it is low in so far it relates to Andhra Pradesh. If water is distributed at a lower dependability Andhra Pradesh will further be adversely affected.

The objections about success rate, raised on behalf of the State of AP, it is submitted by Mr. Andhyarujina, learned counsel for the State of Maharashtra that the chart of success rate Annexure 38 to the affidavit of Prof. Subhash Chander is faulty and cannot be relied upon. It is submitted that the witness had taken into account the whole area of the sub basin though a large area remains unintercepted by Maharashtra and that water in sub basin K-1 flows down to Karanataka. Same is the position in respect of K-5 sub basin. The witness has assumed that the whole K-5 sub basin is intercepted by Maharashtra. The water from unintercepted area from K-5 also flows down from Maharashtra. The success rate of Maharashtra as shown by the witness of AP as 92% has also been disputed. It is submitted that success rate of K-1 sub basin is only 63%. The simulation based

on an assumed terminal lump reservoir at the terminus of each sub basin has also been faulted with. It is further submitted that wrong assumption has been made in preparing the tables and charts regarding success rate etc., assuming that water from one sub basin flows down only after meeting the full demands of that upper sub basins. It is submitted that it shows artificially high rate of satisfaction of demand in upper sub basins, as a result of which, artificial diminished in flows in K-7 sub basin is shown. It has also been criticised on the ground that 70% inevitable flows have been wrongly deducted from the water available in K-7 sub basin. Certain question put to the witness in that regard have also been referred to by the learned counsel, particularly in reply to question No1898 witness admits that the lumpsum of 12 reservoirs placed at the end of each basin was not the best way to simulate. The best way was to simulate, major, medium and minor and lift schemes etc., but that was not done. Apart from this, as we will discuss later there is no justification for deducting the so called inevitable waste from the allocation made to Andhra Pradesh. Therefore for the purposes of theory of success rate the chart Annexure 38 to C-III D-81, 82 would not be of any help.

We also find it stated at page 8 of APAD 13 paragraph 12, that as per Anx. 41(R) to the affidavit of Prof. Subhash Chander, the total capacity of storages in Krishna Basin including those under construction is shown as 1728 TMC out of which 296 TMC was deducted as utilization in minor irrigation, its ratio being 1:1, hence there was no scope of carryover. Therefore remaining storage for medium and major projects was reduced to 1432 TMC. We find that further 150 TMC is reduced as it was provided to Andhra Pradesh as carryover storage and to compensate its basin disadvantages. Therefore, the storage stood reduced to 1282 TMC only. On account of alleged inevitable waste, again some deductions have been made. This all is to show that their success rate is very low and that distribution of water cannot be made at 50% dependability as storage capacity was not enough for that purpose. It, however, does not give a correct account of the picture of storage and total utilization capabilities built up by the three States.

As far claim for distribution of water of river Krishna at 50% dependability on parity with Cauvery case, it is rightly submitted on behalf of the AP that the case of river Krishna is different from Cauvery, therefore as pleaded by Maharashtra, it would not be

possible to allocate the water at 50% dependability on analogy of Cauvery case. It is submitted that in Cauvery basin, difference between 50% dependable flow and the flow at 75% dependability is not much, it is a difference of only 70TMC but so far as Krishna basin is concerned, the difference between 50% dependable flow and 75% dependable flow is 276 TMC as per Annexure 6A to CIII-D-81-82. And yet another factor is that Cauvery basin is supported by two monsoon seasons whereas it is only southwest monsoon which is the source of the flows in river Krishna. It is also pointed out that variation of flows in Krishna basin is very high that is upto 56%, whereas in Cauvery basin the flows are fairly even and that utilization in Cauvery basin had already exceeded 50% dependable flow. It is pointed out that as per the affidavit of the witness of Maharashtra, Shri S.N.Huddar, the utilization upto the 31.5.2000 is 1993 TMC only and the decadal average of utilization of the riparian States of Krishna basin for the years 1995-96 to 2005-06 is only 1939 TMC. It is submitted that utilization of Krishna basin has not exceeded even 75% dependable yield.

In our view, the distinguishing features which have been pointed out on behalf of the State of AP for not adopting 50% dependability

on the basis of the decision in the case of Cauvery, are justified except the reliance placed on decadal utilization of three States etc.

Considering all the aspects as canvassed before us on behalf of the contesting States the facts undisputed which emerge are that there is a great difference between the situation as prevailing when the KWDT-1 decision was rendered in 1973-76, as compared to as it is prevailing now. The utilization which had not even reached 1000 TMC during the earlier period, has now more than doubled. As per the data available upto 2007-08 we find that in the last preceding 3 years the total utilization of the 3 States has gone upto 2208.18 TMC in 2005-06, 2313.06 TMC in 2006-07 and 2210.75 TMC in 2007-08. Just before these years mentioned above, the utilization was less because of paucity of water due to dry spell. Now it has already crossed the utilization at 75% namely 2060 TMC and 2130 TMC with return flows.

Yet another thing which must be noticed is that as expected there is increase in the yield of the river Krishna. As per the series now prepared for a period 47 years i.e. from 1961-62 to 2007-08, the average yearly yield comes to 2578 TMC, at 50% it is 2626 TMC, at 60% it is 2528 TMC, at 65% it is 2293 TMC at 75% it is 2173 TMC

compared to the previous series of 78 years, the average yield has increased from 2393 TMC to 2578 TMC. That is to say average yield has increased by 185 TMC and so far as 75% yield is concerned, which is now 2173 TMC has increased by 113 TMC. Apparently; it appears that increase has been on account of return flows as well. The utilization has gone much higher and during all this period the return flows must have been substantial as appear to be reflected in the yield as assessed by the present series. The other contributory factors are increase in storage including Pulichintala, increased upstream utilization in minor irrigation etc. which had not been taken into account.

REPORT/ DECISION

But at the same time, it does not mean that automatically utilization may be switched over to 50% dependability or on the average yield as suggested by Maharashtra and Karnataka i.e. distribution at about 2577 or 2600 TMC or any amount of water around that figure. Availability of more water alone is not the sole criterion for distribution and utilization of the water, rather all of it. The other factors to be considered are the need of requirement, the capacity as may have been built store water as there is need of fairly continuous supply of water for utilization for different purposes.

Further to have some carryover storage capacity to meet at least minimum requirement in deficit or dry years, the users of water must have some confidence of getting certain amount of water for certain percentage of period of time in number of years. So the dependability factor is very important in deciding how much of the available water may be utilized. Distribution at 50% dependability or an average implies 2 bad years out of 4 years. It must therefore have a good back up of carryover storage to take care of 50% of bad years.

It may have to be examined as to what will be proper dependability factor i.e. at 75% dependability or at some lower dependability. In this connection we may again refer to some of the observations which have been made by KWDT-1 to the effect that undisputedly the dependability factor can be improved by having carryover capacity. How much it can be increased depends upon the availability of carryover storages. This observation has also been found in the report of the Irrigation Commission paragraph 6.53 which has already been referred to earlier saying that availability can be improved by carryover storages. The KWDT-1 has also observed very categorically at page 155 of the report that serious attempt should be made to use entire water available in the basin, by construction of

carryover storages wherever possible. And at the same time at page 156, as referred to earlier also, it has been observed that average yearly yield, may not be utilized. The KWDT-1 has ultimately discouraged utilization at 50% or at average availability of water except after due studies are made and carryover storages are constructed.

It is an admitted position that no State has studied the viability of constructing carryover storage nor any of them has acquired carryover capacity. Only Andhra Pradesh has carryover storage in Srisailem and Nagarjunsagar reservoirs to the extent of 150 TMC together as provided by KWDT-1. The case of Maharashtra that on distribution of higher quantity it will expand its command, is no answer to the problem. It is also very casually said that if necessary and feasible it will construct carryover storages. It is a mere stand which has been taken without being substantiated at all. No idea has been given as to when and where it is possible to construct them. No such studies have been made. It is difficult to act on such arguments without any basis. It may be harsh upon the farmers to leave them in a situation where it will not be possible to manage 2 bad years out of 4 years without any carryover storage. Wellbeing of farmers,

economic and social is not to be ignored. Even where projects at 50% dependability are recommended in drought affected areas there too it is desirable to have some carryover back up.

It may by way of a passing reference be mentioned here that at page 157 of the report of KWDT-1 evidence of Mr. Framji has been referred according to whom 75% dependable flow was 2176 TMC and by adding 180 TMC as carryover available in Nagarjunasagar and Srisailem dams, the available water for utilization was calculated to the extent 2300 TMC. It was his estimation of availability at 75% dependability.

We may now examine the position of storages in the three States. Initially as noticed earlier it has been much less but storage capacity of Maharashtra as now worked out from their documents, gross storage capacity is shown as 585.22 TMC and live storage capacity is 483.24 TMC. Due to some discrepancies here and there in argument notes etc., we preferred to have the figures from the basic document viz. Statement 8 of data exchange on formats. It is appended at Sl. No. 6 to the Appendix 1.

Similarly, storage position as prepared on the basis of the records of Karnataka, their gross storage capacity comes to 529.2 TMC and that of live storage as 479.35 TMC. Similarly the gross storage capacity of Andhra Pradesh is 805.84 TMC and live storage 524.68 TMC. Live storage would actually come to 555.84 TMC since live storage of Nagarjunasagar dam has been considered as 233.63 TMC instead of 202.47 TMC as shown. The increase in the live storage is on account of average of drawals made from below the MDDL over the years quite frequently. It is in use almost like live storage even below MDDL. The average figure of the drawals, which have been quite high in some years, has come to 31.16 TMC which has been added to 202.47 TMC. Storage at Pulichintla has also been added. The storage charts in relation to Karnataka and AP are placed at Sl.No. 7 and 8 to Appendix A respectively. So the total gross storage capacity of all the three States comes to 1919 TMC and live storage capacity comes to 1518 TMC ($479.35 + 483.24 + 555.84$ TMC = 1518.43 TMC). Out of 1518.43 TMC, the carryover storage capacity of 150 TMC is deducted leaving the live storage capacity for within the year utilization to 1368.43 TMC.

For calculating the minor irrigation capability of the three States, the highest utilization by the States on account of minor irrigation in any year has been taken into consideration. The highest utilization of Andhra Pradesh has been 164.35 TMC, for the State of Karnataka it has been 176.096 and that of Maharashtra 40.49 TMC. The total of the three States utilization capability on account of minor irrigation comes to 381 TMC.

We may now have broad features and the relevant facts and figures as found by us, at a glance as given below:

Yield of river Krishna from the series of 47 years 1961-62 to 2007-08 at different dependabilities:

Average yearly yield	-	2578 TMC
At 50% dependability	-	2626 TMC
At 60% dependability	-	2528 TMC
At 65% dependability	-	2293 TMC
At 75% dependability	-	2173 TMC

Maximum utilization capability - 2313.06 TMC
as built up by the three States
as per actual utilization in
2006-07.

Utilization break-up being

Maharashtra	-	551.65 TMC
Karnataka	-	695.97 TMC
Andhra Pradesh	-	1065.44 TMC

Note: Utilization of Maharashtra in 2005-06 was 563.59 TMC.

<u>Storages</u>	Gross Storage Capacity of the three States	- 1919 TMC
	Live Storage capacity of the three States	- 1368.43 TMC
<u>Minor Irrigation</u>	Total utilization capacity of the three State in Minor Irrigation	- 381 TMC

In the above scenario, taking into consideration the live storage capacity as 1368.43 TMC and maximum utilization figure of 2313.06 TMC the storage – utilization ratio comes to around 1:1.40 TMC. The live storage including minor irrigation utilization figure 1368.43 TMC x 1.40 = 1915 TMC + 381 TMC (utilization in Minor Irrigation) = 2296 TMC. It is the nearest figure to 2313.06 TMC. It is an approximate ratio applied @ 1:1.40. It cannot be rigidly fixed ratio, rather it is flexible. It may differ from project to project or in different parts of the basin and sub-basins. But a general idea of approximate

ratio of storage and utilization is kept in mind which can be worked out in given facts and circumstances. In the case in hand it is rather demonstrated to be @ 1:1.40 or near about, touching that ratio. The other States tried to show that the ratio would be lower but that is not acceptable in view of the position indicated above.

So far as evidence on the point relating to storage – utilization ratio is concerned, a suggestion was made on behalf of the State of Karnataka in the cross examination of Prof. Subhash Chandra, a witness of Andhra Pradesh, in question No.1500 at page 418 that in a river system the utilization would be approximately one and a half times of the storages. The answer of the witness is ‘yes, it varies around that figure’. We have rather calculated it on a conservative estimate @ 1:1.40 instead of 1:1.50. For minor irrigation it has been calculated @ 1:1 only.

We find that in the series of 47 years prepared in this Tribunal from 1961-62 to 2007-08, the yield at 65% dependability comes to 2293 TMC. This is a figure which is nearest to the utilization figure 2313.06 TMC in 2006-07. The figures of storage and the utilization which are found as fact are almost matching each other. In such a situation, we find it would be appropriate to distribute the water of

river Krishna amongst the three States at 65% dependability. It would mean that out of 100 years 2293 TMC atleast or more would be available in 65 years which will be around, though not exactly, but nearly two years out of three years in place of the availability at 75% in 3 years out of 4 years. But this change which is being made i.e. dependability at 65% will not be resulting in any drastic change. It would be certainly manageable. The distribution of this amount of water and the manner in which it may be utilized may take care of the some difference which may occur due to change in dependability factor. By fixing the said dependability factor it will also check some wastage of water which has been going waste unutilized in 75% of the years at 75% dependability. The KWDT-1 has also observed as well as the Irrigation Commission that an effort is to be made to utilize as much water as possible. It has become more relevant in the present scenario when an acute scarcity of water is being felt all around, the wastage as far as possible must be checked and steps should be taken by the users of the water to minimize the wastage and maximize the utilization of water, also by adopting new methods of irrigation. Now some water may go waste unutilized in 65 years in place of 75 years out of 100 years but a substantial quantity of more water shall also be

put to use. The dependability factor has been reduced only by 10%. The plea of Maharashtra and Karnataka to further lower the dependability to 50% or on average will not be feasible without any more carryover storages added to the existing ones. Thus, there is a good reason fix dependability factor at 65%. The second limb of issue No.2 is answered in the manner indicated above.

The third limb of Issue No. 2, as to on what basis quantified flow of river Krishna is to be distributed and apportioned, shall be considered and dealt with by us at a later stage after we have dealt with some other issues. There are some other issues also, subject matter of which may overlap third limb of Issue no.2. Therefore, we are postponing consideration of that aspect for the present.

THE QUESTION OF INEVITABLE WASTAGE

Before considering the question of distribution and apportionment of the dependable flows to the three States, it would be necessary to clarify certain points which have been prominently projected to have effect on the distribution and allocation of the water of river Krishna. The first question that requires clarification is about “inevitable flows”. The grievance of the State of Andhra Pradesh is that some water flows down unutilized to the sea. As a consequence whereof it is not possible, quite often, to utilize its full allocation of 800 TMC. In case inevitable waste is not there, Andhra Pradesh would not suffer any problem of shortage in realizing its full allocation.

In connection with the above, the State of Andhra Pradesh has furnished a note APAD-58. The first question which the State of Andhra Pradesh poses in this note is as contained in paragraph one itself saying “.....whether the inevitable wastage

claimed, forms part of 2060 TMC or 800 TMC? The further question is whether Andhra Pradesh will be able to receive water for all its projects (considered by the Bachawat Tribunal), when the upper riparian States are able to utilize their allocations to the full”.

According to the State of Andhra Pradesh, the water which goes waste into the sea unutilized forms part of 2060 TMC as well as 800 TMC allocated to it. The submission is that the claim of wastage is limited to the yield from K-11, K-12 and part of K-7 sub-basins less the utilization in these areas and the area below Pulichintala. In paragraph 2 of the note APAD 58 it is averred that any flow coming from upstream of Pulinchintala (whether from the upstream States or flows of Pulinchintala generated in Andhra Pradesh itself) have been ignored for this part of the argument. It is submitted that dependable flow of 2060 TMC was derived from the series prepared before KWDT-I. It consists of observed flows at Vijayawada and by adding upstream utilizations. It is further submitted that the unutilized flow passes over Vijayawada therefore forms part of the observed flows. It forms part of each of the figure in column 3 at page 279 of KWDT-I. It is then tried to be said, it is quoted “since figure of 2060 TMC was one particular figure in column 3 at page 279 (at the 75th place after

rearranging them in descending order), it necessarily follows, it is submitted that the said unutilisable flow was part of 2060 TMC. It is submitted that since 800 TMC forms part of 2060 TMC, said unutilisable flow can only come out of 800 TMC”.

We, however, fail to find any logic or clarity in the argument which has been advanced, as indicated above. Out of the whole quantity of water flowing in river Krishna, whatever remains unutilized upstream would pass-over Prakasam Barrage. The amount of water viz. 2060 TMC is only a part of the total yield and the water over and above which passes and flows down to the sea would not make any difference at all. The figure at 75th point in the series arranged in descending order would be the minimum available yield at least or more in 75% of period of time. Therefore, any water which flows down to the sea over and above 2060 TMC is not material at all for achieving the allocated share of Andhra Pradesh. The Tribunal had distributed utilizable water and 800 TMC had fallen in the share of Andhra Pradesh. It is true that 2060 TMC is a part of the whole yield of the river Krishna but apart from that quantity whatever passes over Prakasam Barrage, it would not be correct to say that it constitutes 2060 TMC. Some water may, of course, go waste

unutilized in almost every year except in acute dry years. In most of the years, as indicated above, it would be water over and above the quantity of 2060 TMC which will flow down to the sea. It is not that whatever flows down is part of 2060 TMC. Near about 300 TMC flows over the barrage being surplus flows. It is also not understandable as to why all that flows down to the sea would be a part of 800 TMC forming part of 2060 TMC. As stated above, the inevitable waste would be that amount of water which is over and above 2060 TMC which is not utilizable for whatever reasons. Up to the quantity of 2060 TMC all water is utilizable and in case it falls short of the said quantity it may be due to scarcity of water created on account of it being a dry year. Some leakage here and there of some TMCs to the sea cannot be ruled out completely even in some not good years as well but that is not material.

So far as the other situation, as described in paragraph 5 of the note APAD-58 is concerned, it is clearly averred and submitted that 800 TMC as allocated to Andhra Pradesh is undoubtedly available from Karnataka border up to Vijayawada. The situation as described above is quite correct since in a normal year, that is to say, a year in which the 75% yield i.e. 2060 TMC or above is available there is

every reason that 800 TMC would be available to Andhra Pradesh for utilization. But the problem which has been posed is in respect of availability of utilizable water for fully feeding the delta area which has been allocated 181.20 TMC as protected utilization, that water is allegedly not available as such, below Pulinchintala. The difficulty which has been highlighted is that the yield from K-11, K-12 and the lower part of K-7 which reaches Prakasam Barrage is only partly utilizable, not the whole of it because during monsoon months, it is submitted, the delta canal openings are capable of carrying only about 30% of the water which arrives at barrage from the above noted sub-basins. Over and above 30% of the water arriving at the barrage from K-11, K-12 and part of K-7 flows down to sea. According to Andhra Pradesh, it goes as unutilizable flow which forms part of 800 TMC affecting protected allocation to Krishna Delta area. It may be noticed here, the main reason which emerges for water overflowing the barrage and going waste into the sea is “delta canal openings are only capable of carrying about 30% of water which arrives at the barrage at Vijayawada”. It means that if capability of the canal system at the barrage is more, the water to be utilized in delta area itself will not flow down.

We will, however, advert to this question of inevitable waste at a fixed percentage basis a little later, but immediately we may come to the concrete example as illustrated in paragraph 6 of APAD 58 for the year 2000-01. It has been alleged that even when the total yearly yield is 2096 TMC in 2000-01, Andhra Pradesh could get its allocated share of 800 TMC including for the delta area, only for the reason that it had received 329.144 TMC as inflows from Karnataka due to under-utilization of their allocated share of water by the States of Maharashtra and Karnataka. The submission is that if this extra amount of unutilized water was not available, Andhra Pradesh could not realize its full allocation.

The above said concrete example for the year 2000-01 may now be analyzed. In case Maharashtra and Karnataka utilize their full allocation of 560 TMC and 700 TMC respectively, the total utilization out of 2096 TMC would come to 1260 TMC. The balance left would be 800 TMC for utilization of Andhra Pradesh leaving a surplus of 36 TMC, which if not utilized over and above the share allocated, it may flow down as surplus flows. This is how the requirements for each State would well be met leaving something extra, namely, 36 TMC over and above 2060 TMC. But the case of Andhra Pradesh is that

the water generated below Pulinchintala cannot be utilized in full. Only 30% of it was utilizable. According to Andhra Pradesh, as per 'Annexure 31' to the affidavit of Prof. Subhash Chander remaining 70 per cent (wastage) comes to 95 TMC. By deducting 95 TMC from 836 TMC what is left for Andhra Pradesh is alleged to be only 741 TMC which is short by 59 TMC of the share of Andhra Pradesh. The shortage for Andhra Pradesh would be there yet 70% of the water generated in K-11, K-12 and part of K-7 would flow down unutilized, which according to Andhra Pradesh, is inevitable waste. So the other difficulty in realizing its full allocation is 70% of the water generated in K-11, K-12 and part of K-7 necessarily going unutilized down to the sea. This reason is also directly related to the canal capability at the barrage, therefore, this aspect would also be considered along with the question of canal capacity a little later.

We now come to 'Annexure A' to the note APAD 58. It is a sketch map depicting the flow of the water in the example year of 2000-01 at different stages and how the inevitable waste goes down to the sea unutilized. The total yield of the year 2000-01 amounting to 2096 TMC is bifurcated in two stages in the first line which is red in colour. It shows 1899.77 TMC having been generated upstream up to

Pulinchintala. Below Pulinchintala, up to the barrage, 196.23 TMC is shown to be generated in K-11, K-12 and part of K-7. Out of 196.23 TMC, 11.15 TMC is shown to be utilized, in the box with blue colour, in K-11 leaving the balance 22.77 TMC out of total generation in K-11 to the tune of 33.92 TMC. Similarly in K-12, 36.31 TMC is utilized out of 150.69 TMC leaving a balance of 114.38 TMC and in the part of K-7, 10.20 TMC is utilized out of 11.62 TMC being generated in lower part of K-7 leaving a balance of 1.42 TMC. It totals to 138.57 TMC which flows down to the barrage after the utilizations shown above. This 138.57 TMC would be available for diversion to delta system out of the water generated in K-11, K-12 and part of K-7.

Next we find a broad blue line which shows a balance of 78.63 TMC after upstream utilization above Pulinchintala. So this amount of water also flows down below Pulinchintala. In the end of the sketch map it is indicated that out of 138.57 TMC which remains available up to the barrage after utilizations in K-11, K-12 and part of K-7, only 41.57 TMC is possible to be utilized, being 30% of 138.57 TMC, while 95 TMC the 70% would (rather must) go waste because Mr. Jaffer Ali had said so. Therefore, water available for utilization

below Pulinchintala at the barrage is $41.57 + 78.63 = 120.20$ TMC against the protected utilization of 181.2 TMC for the delta which falls short by about 60 TMC or so.

Obviously, if the total amount of water of 138.57 TMC is available for utilization + 78.63 TMC the total availability would be 217.20 TMC and not 120.20 TMC.

Now we take up the question as to whether 70% of the flow available at the barrage is necessarily to go waste unutilized or not?

REPORT/ DECISION

The reasons as to why some water must go waste down the stream are given by Mr. Jaffer Ali (a witness produced on behalf of the State of Andhra Pradesh before KWDT-I). These reasons have been quoted in the Report of KWDT-I at pages 167-168.

- (i) “There is no active storage available at the Krishna Barrage.
- (ii) The bulk of the available yield from the intermediate catchment, that is, between the Nagarjunasagar Dam and Vijayawada will be received from June to November and much of it during freshets.
- (iii) The intermediate catchment is heavily intercepted by minor dams and numerous tanks. These ordinarily start

surplusing from about the end of August intermittently for a few days at a time till about the end of October and on the days when these are surplusing there will be heavy discharge from the intermediate catchment very much in excess of the canal withdrawals.

- (iv) Whenever there is heavy rainfall in the ayacut, the demand for irrigation – waters gets reduced and the canal discharge is also reduced. It is quite likely that when there is heavy rainfall in the ayacut, there is also heavy rainfall in the catchment adjoining to the ayacut which will bring in heavy discharges at a time when the withdrawal by the canals is considerably reduced.
- (v) The supply of water for delta irrigation will be from the unregulated discharge from – the intermediate catchment and the releases to be made from the Nagarjunasagar Dam and it will not be possible to make a correct forecast of the daily releases from the Nagarjunasagar Dam two or three days in advance, which is the time that is likely to be taken for waters released from the Nagarjunasagar Dam to reach the Krishna Barrage, and the tendency will be to err on the safe side. Thus a considerable part of the discharge from the intermediate catchment is likely to be wasted during the monsoon months.”

Apart from the reason that there is no active storage available at the barrage, main reason assigned, which has been heavily relied upon during the course of the argument by the learned counsel for the

Andhra Pradesh, is as indicated in reason No. (iii) that about the end of October there may be heavy discharge from the intermediate catchment very much in excess of the canal withdrawals. From reason No. (iv) quoted above, it appears that whenever there is heavy rainfall in the ayacut and in the catchment adjoining to the ayacut, there would be heavy discharges at a time when the withdrawal by the canals is considerably reduced. It is then to be found, as stated in the end of reason No. (v), that considerable part of the discharge from the intermediate catchment is likely to be wasted during the monsoon, as also the fact that by erring on the safer side, there may be releases more than the need, from Nagarjunasagar Dam.

Therefore, the emphasis is on the heavy rainfall, excess discharge and lesser demand during such period that the canal withdrawals are not commensurating to the excess discharge resulting in overflows. Yet another factor which emerges is that it would generally be during the monsoon particularly when there is heavy rainfall that water may be available at the barrage beyond the capacity of the canals and it appears more a conjecture than a reason that during such period there may be heavy releases from Nagarjunasagar Dam adding to the problem of overflows. The water which cannot be

received by the canals would obviously flow over the barrage. It is not that all the water which may be generated even during heavy and very heavy rainfall all must necessarily, in all cases be divertible through the canals to the delta system. In the case of excess the rains overflows would always be there. Learned counsel, emphatically submitted that during rainy season there is no arrangement to trap the water which overflows, thus it is wasted.

As a matter of fact, we would not be very much concerned about any kind of waste or overflows during monsoon, it is only if the overflows are such that Andhra Pradesh cannot realize its allocation of 800 TMC, then alone it would be material for the purposes of the point raised by the State of Andhra Pradesh. In the overflow over the Prakasam Barrage which does not curtail their utilization to the extent it is allocated for the delta system, namely, 181.20 TMC no grievance can validly be made nor a request to compensate for the same. It is said to be mainly because of the capacity of the canal system at the barrage that the loss allegedly occurs because it is not possible for the canals to take or absorb the heavy discharges during heavy rains in monsoon season.

In the affidavit of Prof. Subhash Chander C-III-D-81-82 mechanically 70% of the yield as calculated by him from K-11, K-12 and part of K-7 has been deducted which was assumed to necessarily go waste since only 30% of yield would be utilisable. It will, however, be necessary to see as to what is the capacity of the canals in the delta system through which water flows to the ayacut for irrigation. We find that at page 109 of the Report of KWDT-I a statement in Chart form has been given showing annual diversions of water to the Delta and the area irrigated. It is for the years 1941-42 to 1968-69. The withdrawals are for the period June to December and then in the next column for the months of January to May. It is to be noted in a number of years total withdrawals in two spans of June to December and January to May, have been much above 200 TMC. The highest withdrawals are to be found in the year 1967-68, when withdrawals from June to December have been to the tune of 191.73 TMC and from January to May 92.91 TMC totaling to 284.64 TMC. Similarly, we find that as per statement No. 1, furnished by the State of Andhra Pradesh C-III-D-32 total withdrawals in the year 1974-75 for the Krishna Delta was 300.049 TMC. It seems to be the highest during this period from 1972-73 to 2005-06. In other years also

withdrawals have quite often been over and above 200 TMC repeatedly. We have pointed out this to show the withdrawal capacity of the canal system of the delta. The allocated amount of water for the delta area is 181.20 TMC. Therefore, this much amount of water can very well be received and taken by the delta canal system and whatever overflows may be beyond the said quantity of water, would not give a ground of grievance to the State of Andhra Pradesh to be compensated for. It is not understandable that if the capacity of the delta canal system to receive water is demonstrated to be up to 300 TMC, during a water year, why is it necessary that whenever and whatever be the arrival at the barrage, 70% of the same must always be deducted for the item of wastage as having gone unutilized. Even if one or two gushes of rain water pass over the barrage, in totality as a whole it would not be material in achieving the allocation of 181.20 TMC for Delta.

It is also very strange to find that wastage and utilization is to be calculated as has been done in 'Annexure-31' to the affidavit of Prof. Subhash Chander on percentage basis. It belies logic to say that if the arrival up to the barrage is suppose 200 TMC only 60 TMC is utilizable and 140 TMC must necessarily go waste over the barrage

unutilized. Similarly, if the arrival at the barrage is suppose 100 TMC, in that case only 30 TMC can be utilized and 70 TMC has to be assumed to have flowed down unutilized over the barrage. If the capacity of the canals is there to take or absorb 60 TMC in the former case, there is no reason that it would not take or absorb the same amount of water say 60 TMC when the arrival at the barrage is 100 TMC. This kind of notion of fluctuating waste and utilization on some formulae based on percentage equation does not logically go down well. To the full extent of the capacity of the canal, water would normally be utilized and the only amount of water which arrives at the barrage over and above the capacity of the canal, that alone will overflow. It cannot be said that if arrival up to the barrage is 50 TMC, only 15 TMC would be utilized but utilization will increase to 30 TMC if the arrival at the barrage is 100 TMC. If 30 TMC can be utilized on arrival of 100 TMC at the barrage then the same amount of water viz. 30 TMC will be utilized with the arrival of 50 TMC up to the barrage. Canal capacity will be no hurdle. It is, therefore, clear that there would be no difficulty in realizing the allocated amount of water for delta system, namely, 181.20 TMC, if that much amount of water is available and arrives at the barrage.

It may now be seen as to from where this concept of percentage of utilization and wastage has crept into this matter. In that connection we will again refer to page 167 of the Report. In column-II, KWDT-I has dealt with this argument of State of Andhra Pradesh that every year some water is likely to go waste unutilized to sea. For the said contention they pressed into service the evidence of Mr. Jaffer Ali. The Tribunal then observed that the substance of his evidence was that 30% of the available flow between Nagarjunasagar Dam and Vijayawada would be utilized for irrigation in Krishna Delta and the rest was likely to go waste unutilized to sea. The contention of the State of Maharashtra and Karnataka has also been noticed that no water would go waste in any year out of the dependable flow and entire water would be utilized. The Tribunal then reproduced the five reasons given by Mr. Jaffer Ali for some water to go waste, which have been reproduced by us also in the earlier part of this report. The Tribunal then referred to the statement on the point made by Mr. Framji. Some part of his evidence has also been referred to about capacity of the canals where Mr. Framji stated that combined capacity of Krishna East Canal and the Krishna West Canal is of the order of 18,710 cusecs and further stated that considering the available

pondage and the large capacity of the delta canals a flood peak of 50,000 to 60,000 cusecs can be absorbed (it may be noted that 18,710 cusecs would be equal to 1.6 TMC which the canal would absorb per day). After considering all the evidence on the point the Tribunal observed at page 168 column 2 as follows:-

“Even taking all these circumstances into consideration, it is clear from the evidence that some water out of the flow between Nagarjunasagar and Vijayawada is likely to go waste unutilized to the sea, but it is not possible to assess exactly the quantity of such water likely to be wasted. Even Mr. Jaffer Ali at page 66 of his evidence has stated that a rough estimate is only possible from the daily discharges of available yield”. (underlined by us).

REPORT/ DECISION

It is thus clear that the evidence of Mr. Jaffer Ali saying that only 30% of the water flowing between Nagarjunasagar Dam and Vijayawada would be utilized was not accepted by the Tribunal. On the other hand, it has been pointed out that even according to Mr. Jaffer Ali only a rough estimate is possible from “daily discharge” of available yield.

Yet another thing is that the percentage in which the flow was found to be utilizable by Mr. Jaffer Ali was in respect of only one

year. It does not appear to have been laid down as a principle to find out utilizable part of the yield of K-11, K-12 and part of K-7 and the unutilizable wastage. Therefore, there was no occasion to have calculated the availability of water for utilization on such a criteria applying to all the years irrespective of the amount of yield available. In this connection a question was put to the witness Prof. Subhash Chander in his cross-examination by Shri T.R. Andhiyarujina, learned senior counsel appearing for the State of Maharashtra. The question No. 1868 is “you have assumed throughout your affidavit that there can be only utilization of 30% in the catchment between Pulinchintala and Prakasam Barrage and 70% is not utilizable and what you call as unutilizable flows. This figure of 70% is based upon Andhra Pradesh’s witness Mr. Jaffer Ali’s deposition before the last Tribunal. Is that correct? Ans: Yes Sir, that was one of the considerations for choosing 30%”.

Q.No. 1869: “This was an assumption by Mr. Jaffer Ali which was not accepted by the Tribunal. Would you agree?

Ans: It was partially accepted and there will be inevitable flows and a provision was made in the Bachawat Tribunal Award to set off these inevitable flows”. Later on certain more questions were put to the

witness who tried to say that he had also found that Mr. Jaffer Ali was right. Although in reply to question No. 1872 “the 70% figure of inevitable flow was the same figure which was taken by Mr. Jaffer Ali. Ans: I agree”.

Q.No. 1875:- “Is it a very fortuitous co-incidence that Mr. Jaffer Ali considered the inevitable flows at 70% and you also considered the inevitable flow at 70%. Is it a co-incidence? Ans: No. After I analysed the dry year, I found that Mr. Jaffer Ali’s contention seems to be right. Therefore, I used the views of Mr. Jaffer Ali in computing the inevitable flows”.

Q.No. 1876: “In paragraph 14.1 dealing with inevitable flows received, you do not suggest that you carried out any independent study apart from adopting Mr. Jaffer Ali’s inevitable flows to the sea at 70%.

Ans:- I did not give the second explanation in the affidavit”.

From the questions put to the witness and the answers given by him, it is clear that the witness simply adopted the figure of 70% wastage as indicated by Mr. Jaffer Ali in his statement which has been referred to in the Report of KWDT-I. He tried to say that he had

carried out some exercise to come to the same conclusion as Mr. Jaffer Ali, but he did admit that no such averment was made by him in his affidavit or having made or undertaken any exercise in connection with unutilizable flows. It is to be found in paragraph 14.1. of the affidavit of Prof. Subhash Chander that while deposing about inevitable wastage, he has made a reference to the fact that Mr. Jaffer Ali had worked on inevitable flows to the sea between Nagarjunasagar Dam and Prakasam Barrage. In fact it is stated to have been recognized by the Tribunal. Again it is to be found stated in paragraph 14.2 of his affidavit “.....it is assumed that quantitative precipitation forecast may enable the State of Andhra Pradesh to use 30% of these inevitable flows. A study is made to estimate this quantity. Results can be seen in ‘Annexure-31’ (revised).....”. (emphasis supplied by us) So the whole exercise as contained in ‘Annexure-31’ is on the assumption that only 30% of the inevitable flows can be converted in utilizable flow by Andhra Pradesh. We find it difficult to accept that wastage and utilization is possible to be calculated on percentage basis, as already discussed earlier, the KWDT-I has also not accepted such evidence of Mr. Jaffer Ali. The KWDT-I has only found that some water was

likely to go unutilized to the sea. It was a mere likelihood, nothing definite about it. As a matter of fact in reply to question No. 1870 Prof. Subhash Chander admits that the KWDT-I at page 172 of its Report had found that it was not possible to determine how much water would be going waste unutilized to the sea. Yet all the calculations have been made in 'Annexure-31' are on the same assumption of ratio of 30 per cent and 70 per cent utilization and wastage. Even according to Mr. Jaffer Ali, it could be found out on the basis of daily discharges. It has not been done on that basis.

REPORT/ DECISION

In a bid to show that inevitable flow forms part of the 75 per cent dependable yield i.e.2060 TMC Mr. Dipankar Gupta, learned senior counsel appearing for the State of Andhra Pradesh has referred to the observation of KWDT-I “.....going waste unutilized to the sea thus reducing the dependability”, at pages 171 & 172 of the Report. The other observation which has been relied upon is at page 47 of the Final Report in connection with the same, “.....no deduction was made from dependable flow on account of inevitable waste to the sea or a part of the flow of the river Krishna between Nagarjunasagar Dam and Vijaywada.....” and yet another

observation to which our attention has been drawn is at page 49 of the Further Report “.....Andhra Pradesh was foregoing its claim for deduction of inevitable wastage of water out of its equitable share.....”.

On the basis of the above observations it is contented that the inevitable flow is a part of the dependable yield at 75 per cent, namely, 2060 TMC as well as part of 800 TMC allocated to Andhra Pradesh as its share. In connection with the above, we may have to examine as to whether there is any specific finding that inevitable flow forms part of 2060 TMC or 800 TMC allocated to Andhra Pradesh or it is a mere inference on some general observations made here and there in the Report and Final Report of KWDT-I.

In this connection we may have to refer to the whole discussion starting from page 167 column II and page 168 of the Report of KWDT-I where the evidence on the point has been considered by the previous Tribunal, namely, that of Mr. Jaffer Ali and Mr. Framji and in the bottom of page 168, column-2, where the ultimate finding on the point has been recorded by KWDT-I, already quoted by us at page 15 of this report which is only to the effect that some water was likely to go waste between Nagarjunasagar and Vijaiwada which could not exactly be assessed.

This finding has been finally recorded after considering all the evidence including the five reasons which had been shown by Mr. Jaffer Ali regarding inevitable waste as well as the conclusion drawn by him quantifying the percentage of utilizable water which has not been accepted by the previous Tribunal. The final finding nowhere says that whatever may be flowing down over the barrage to the sea constitutes a part of 2060 TMC or 800 TMC and, in our view, rightly so. Whatever water may not be required for the delta irrigation may flow over the barrage. If the demand for delta irrigation is met whatever flows over the barrage is inconsequential for the purposes of calculating, as alleged, loss to Andhra Pradesh out of its share, as it would factually not be so.

The KWDT-I later, at page 169 tried to explore any possibility of carryover storages in the territory of State of Andhra Pradesh so that reduction in dependable flows that may be due to water going waste may be compensated. On behalf of the States of Maharashtra and Karnataka it was submitted that by proving carryover storages there would be, on the other hand, augmentation in the dependable flow by utilization of water more than 75 per cent dependability which obviously goes unutilized, but they objected to the proposal to

install crest gates for increasing the impoundment in Nagarjunasagar Dam and Srisaïlam Dam, as this would prejudice the present and future rightful interest of the upper riparian States. However, it was noticed that in the meantime Nagarjunasagar project was sanctioned. Ultimately, after discussing the matter KWDT-I allowed the crest gates at Nagarjunasagar Dam and Srisaïlam Dam increasing their capacity to be utilized as carry-over storages. It was also observed by the Tribunal at page 171 of the Report, column-2 that with the help of evidence of the experts it could be said that some augmentation in the quantity of dependable flow would be there, if water is permitted to be stored in carry-over capacity of Nagarjunasagar Dam and Srisaïlam Dam. As to the extent to which the augmentation would be there, it may require some further studies to be undertaken.

The KWDT-I thereafter in the last paragraph at page 171, column-2 considered the argument advanced on behalf of the State of Andhra Pradesh that in the deficit years when the flow would be less than 2060 TMC, the State of Andhra Pradesh would suffer most, as compared to the upper riparian States. Therefore, Andhra Pradesh should be permitted to utilize the carry-over storage capacity that may be available in the two dams during surplus years for use in the deficit

years. The KWDT-I found that the said submission deserved to be considered. It may be noticed that no submission was made at that stage to compensate for any inevitable flow reducing dependable flow or otherwise.

In connection with the above argument it may be pointed out that KWDT-I at page 167, column-1 had already taken this factor of deficit years into consideration and had provided as follows:

“.....We have taken notice of the fact that out of 100 years, there may occur deficiencies in 25 years and in these 25 years the State of Andhra Pradesh is likely to suffer more than the States of Maharashtra and Karnataka. In this connection we have discussed the carryover capacities of Nagarjunasagar Dam and Srisaïlam Dam and have permitted the State of Andhra Pradesh to utilize the carryover capacities available in these two Dams”.

From what has been quoted above it is clear that carryover capacities allowed to be built in Nagarjunasagar Dam and Srisaïlam Dam were permitted to be utilized by Andhra Pradesh by reason of the fact that in 25 years of deficiency Andhra Pradesh is likely to suffer more than the States of Maharashtra and Karnataka. The factor which weighed with KWDT-I was about more deficiency or so to say as argued by Andhra Pradesh intensity of deficiency which lead to

permit Andhra Pradesh to utilize carryover capacities. In this light now we see the statement made by the learned Advocate General at the top of the page 172, column-1. The Advocate General of Andhra Pradesh has made a statement that “in view of the installation of crest gates in the Nagarjunasagar Dam and the completion of Srisailem Dam in the near future, the entire quantity of 75 per cent dependable flow i.e. 2060 TMC of Krishna river may be allocated between three States of Maharashtra, Karnataka and Andhra Pradesh”.

So the above statement of the Advocate General of Andhra Pradesh was in the light of the fact that in the 25 deficient years where Andhra Pradesh may suffer more was allowed to utilize carryover capacity that they agreed that 2060 TMC may be distributed amongst the three States. It cannot lead to an inference that there was, in fact, any water flowing down unutilized out of 2060 TMC or 800 TMC. This may have been their case but there is no such finding much less on consideration of merit of the matter. Andhra Pradesh volunteered to give up that argument, in view of the benefit it was allowed to enjoy out of the carry-over capacity to mitigate intensity of deficiency in 25 deficient years in comparative terms as against Maharashtra and Karnataka. Thereafter, in the second paragraph at page 172, column-1

KWDT-I again spells out the reasons for allowing Andhra Pradesh to utilize the carry-over capacities, which may be analyzed, as follows:-

- (i) that a way has been found out by which Andhra Pradesh may be relieved of difficult situation in deficit years,
- (ii) in view of the fact that there was going to be augmentation in dependable flow on account of further storage in Nagarjunasagar Dam and Srisaïlam Dam though quantity of augmentation was not definitely known, and
- (iii) since it was not possible to determine exactly the quantity of water which might be going waste unutilized to the sea, therefore, the KWDT-I opined that it would be proper that till the decision was reviewed, Andhra Pradesh may be permitted to store water by installation of crest gates and to utilize the impounded water, in any manner, it deemed proper and in lieu thereof no deduction be made in the dependable flow on account of circumstance that some water out of flow of river Krishna between Nagarjunasagar Dam and Vijaywada Dam will be going waste unutilized to sea thus reducing the dependable flow.

The discussion, as indicated above, nowhere shows that any finding was ever recorded on consideration of any evidence and on merit that the water which was flowing down unutilized would reduce the dependable flow. It is a mere conjectural observation without support of any evidence or facts. On the other hand, the observation was that some augmentation in the dependable flow because of extra storage in Nagarjunasagar Dam and Srisailem Dam was to take place. From the whole discussion it clearly appears that dominant factor which weighed for permission to utilize the carry-over storage was comparatively more hardship in 25 years, allegedly to be faced by Andhra Pradesh and the fact of augmentation in dependable flow by adding capacity by putting crest gates in the two dams. So far the quantity of water which was likely to go waste was not known and according to their own witness Mr. Jaffer Ali there could be only a rough estimate on the basis of daily discharge. Again, there is no finding much less on merit that allocated share of 800 TMC of Andhra Pradesh would be affected in any manner. All this is also to be viewed in the background of the reasons given by Mr. Jaffer Ali for water flowing down unutilized and pre-dominantly such a situation would occur in case of heavy rains. Thus it would not be a

normal feature. Such a heavy rain may or may not occur in a water year. Again if in such a situation water is not needed it would obviously flow over without adversely affecting the water demand for the delta system. It is not to be compensated. But still according to Andhra Pradesh the difficulty allegedly arises in meeting the demand of 181.20 TMC allocated for delta since canal capacity falls short of available water.

We have already seen that in most of the years they have drawn through the same canal system much above 181 TMC in a water year for the delta area. This fact has already been indicated earlier but still there is an effort to say that their allocation of 800 TMC is cut short. It only leads to a strange and unrealistic situation which hardly seems to be reasonable and justified. Even learned senior counsel appearing on behalf of the State of Andhra Pradesh submitted that 800 TMC is available from Jurala to Vijayawada. If that is so, there seems to be no reason as to why the canals which have capacity to absorb up to 300 TMC should not be able to absorb 181.2 TMC, in case it is required for the purposes of irrigation, if not, it only shows that their demand already stands meted out. We will further discuss about it with data a little later. The whole thing, as discussed is found to be in

a state of indefiniteness without any clear finding on any relevant point. It appears to be more out of sympathetic consideration that a solution was found out to mitigate intensity of deficiency in 25 years out of 100 and the augmentation in the storage capacity of Nagarjunasagar Dam and Srisailem Dam that Andhra Pradesh was allowed to utilize carryover capacities. The third factor that it was not known how much water was going to the sea unutilized, though referred to, but does not seem to have a real bearing on the point. It is not known how much water would go down unutilized, it was only some water likely to go unutilized and of course, nothing as fact has been found that it would have formed part of 2060 TMC or 800 TMC. This is what we find, it means, on analyzing the basic finding of fact recorded by KWDT-I at page 168 after consideration of all the evidence. The observation made by KWDT-I at page 172 column-2 top “.....in lieu thereof no deduction be made in the dependable flow.....” is also to be read in context with the whole discussion made above. There being no definiteness about some water going waste unutilized, which was only found to be “likely” to go waste and again there is no definiteness, if at all, how much of it would go waste, which may or may not go or may have any

affect if at all on dependable flow or not. It will not lead to conclusion that there was anything to be compensated for in favour of Andhra Pradesh on account of loss of dependable flows.

We will now consider the observations made in the final order as referred to by the learned counsel for the State of Andhra Pradesh. So far the observation made at page 47 of the final order, to which our attention has been drawn, is nothing except reproduction from the report of KWDT-I at pages 171-172, while dealing with clarification No. XIII sought by the State of Karnataka which was to the following effect:

“(i) That Andhra Pradesh is not entitled to allocation of water in excess of 14 TMC towards evaporation loss at Nagarjunasagar Dam from out of 75 per cent dependable flow;

(ii) That the allocation of 3 TMC from out of 75 per cent dependable flows towards (over) evaporation loss having reference to the carry-over storage between FRL + 546 and FRL + 590 in respect of which no right has been conferred on

Andhra Pradesh is liable to be deducted from the allocation made to Andhra Pradesh; and

(iii) That the excess quantity of 3 TMC is liable to be allocated to Karnataka in order to compensate partly the denial of their just share in 75 per cent dependable flow”.

It was in context with the above clarification that the Tribunal had made reference to what it had observed earlier at page 172. There was no such question involved as to whether any dependable flow as already assessed 2060 TMC was going waste unutilized or not. It is also observed that the permission granted to utilize the carry-over capacity was only till the decision of KWDT-I was reviewed. Thus, there is no such clear cut nor any independent finding about the water going waste, if at all, over the barrage out of the flow generated between Nagarjunasagar Dam and Vijayawada Dam constituting a part of 800 TMC or the overflows after meeting the requirements of delta system. It is to be particularly noted that there is no finding that any reduction was to take place from the dependable flow on account of inevitable waste. It was merely a plea and nothing more, which was initially set up by the State of Andhra

Pradesh, correctness of which was not gone into on merits more so in view of the statement of the learned Advocate General of the State of Andhra Pradesh to the effect that having been permitted to utilize carry-over storage, the entire quantity of 2060 TMC at 75 per cent dependability may be distributed between the three States. Thus, from the observation as quoted in para 8(ii) of APAD 58, no inference could be drawn that some reduction was to occur from 2060 TMC or that wastage, if at all, was a part of 2060 TMC.

The same would be the position as indicated above relating to the observation of KWDT-I at page 49 of the Final Report quoted by Andhra Pradesh in para 8(iii) of APAD 58. Although some different phrases have been used but basically the matter remains the same. The basic finding as indicated earlier is at the bottom of page 168 of column-2 of the Report of KWDT-I. These observations are also made while dealing with the clarification No. XIV, sought by the State of Karnataka, as follows:

“(i) That the evaporation loss at Srisailem Project is liable to be adjusted in the liberty given to Andhra Pradesh for utilization of surplus waters;

(ii) That the allocation of 33 TMC is liable to be deducted from the allocations made to Andhra Pradesh from the 75 per cent dependable flows; and

(iii) That the said quantity of 33 TMC is liable to be allocated to Karnataka to compensate, at least partly, the denial of their just and lawful share in the 75 per cent dependable flows of Krishna River”.

While holding discussion on the said clarifications sought by Karnataka that the observations, which are being relied upon by Andhra Pradesh at page 49 of the Final Order of KWDT-I, have been made. The relevant observations are around para 120 at page 49. One thing new which has been added in the observation is “.....Andhra Pradesh was foregoing its claim for deduction of the inevitable wastage of water out of its equitable share and was thus increasing the dependable flow available for distribution” (underlined by us). It is to be noticed that in this clarification much more is added as to the basic finding recorded at the bottom of page 168, column-2 of the Report of KWDT-I. Again we find that KWDT-I observed that Andhra Pradesh was foregoing its claim for deduction of inevitable wastage but by no means this unsubstantiated observation cursorily

made without any discussion on merit amounts to recording of any finding of fact on merits that any inevitable waste of water was flowing down out of the equitable share of Andhra Pradesh. The KWDT-I was only mentioning about the claim of Andhra Pradesh which Andhra Pradesh, as observed by us earlier, chose to withdraw voluntarily on being allowed to utilize carry-over storage without this claim having been tried on merit as to whether any part of the dependable flow at 75 per cent dependability or any part of equitable share of Andhra Pradesh was going waste or not. Maharashtra and Karnataka both had denied the claim of Andhra Pradesh and had pleaded that no flow goes down as waste to the sea as alleged by Andhra Pradesh. Therefore, such observations which are made do not amount to findings of KWDT-I except that what is found at page 168, column-2 (bottom) of the Report after consideration of evidence. We need not repeat that the reasons for allowing the use of carryover storage were more for other reasons than the mere claim of water going waste out of dependable flow at 75 per cent dependability or out of the equitable share of Andhra Pradesh. It could not be done on the basis of a mere bare claim which the party chose to withdraw on account of some advantage it got for some other reasons. To

properly understand the observation of KWDT-I as being relied upon by the State of Andhra Pradesh, the background in which they have been made and other findings and absence of some findings and other observations all must be read together. Mere mentioning of claim of Andhra Pradesh and foregoing of such claim as described by KWDT-I by no stretch of imagination leads to inference that there is inevitable waste out of the share allocated to Andhra Pradesh. Some amount of water may flow down over the barrage but such overflow would not automatically or necessarily constitute a part of 2060 TMC or 800 TMC. Any amount of water flowing over after demand of 800 TMC is met is not relevant for the purposes of this point. As a matter of fact a lot of surplus flow goes down to the sea passing over the barrage. It all is not out of 2060 TMC or 800 TMC.

The States of Maharashtra and Karnataka have also taken up the case that there is no question of any waste flowing out of the share allocated to Andhra Pradesh. If the water which is flowing over the barrage is over and above 75 per cent dependable flow i.e. 2060 TMC, is trapped, would obviously increase the dependable flow but it is not vice versa. Any amount of water flowing over the barrage would not necessarily mean that it is reduction in dependable flow, all it can

mean is that it could not be turned into utilizable flow. As a fact, a lot of water over and above 2060 TMC flows down to the sea unutilized. All of it cannot be trapped on the own showing of all the States.

States of Maharashtra and Karnataka have also faulted with the method adopted by Andhra Pradesh arriving at inevitable waste allegedly reducing their allocated share. On behalf of the State of Maharashtra, it is submitted that Prof. Subhash Chander, the witness of Andhra Pradesh has worked out average yearly inevitable waste to the extent of 76.59 TMC which at 75 per cent dependability comes to 47.2 TMC and while doing so he has taken into account all the flows from 1901 to 2004-05. It was rightly submitted that in the earlier times about a century ago much water might have been flowing down unutilized but all that has no relevance as of today. The method adopted on the face of it is wrong. It is also the case of Maharashtra that alternatively if the calculations are made properly this average inevitable flow may come to only 25.90 per cent. We do not think it is necessary to go into details of these calculations etc.

While challenging the claim of Andhra Pradesh about the alleged inevitable flow affecting their allocation, the witness Prof. Subhash Chander in reply to question No. 1402 at page 398 has stated

that question of inevitable waste arises during flood season and such flows can be utilized only if there is need of water in that season and further states that flows can be utilized when generation of water is matching with the demand. Very rightly, if generation is more than the demand, the residuary amount of water will obviously flow down. It does not cut into any one's share to be compensated if demand is met. It is thus also clear that if there are floods no such occasion of utilizable wastage arises, particularly, out of the share and allocation of Andhra Pradesh.

We have already noticed earlier that canal system of Prakasam Barrage is such that it has absorbed the supplies up to 300 TMC in one year. Therefore, the main ground of incapacity of the canals to draw all the water is not tenable. As a matter of fact, learned senior counsel appearing on behalf of the State of Andhra Pradesh had also submitted during the course of arguments that discharge from intermediate catchment is likely to go waste only during heavy rains in monsoon. According to him it consists of generation in K-7 below Nagarjunasagar Dam. But floods are not always there, if at all it may be occasional, short lived and again there would be normal rains and normal flows matching to the capacity of canals.

We have already seen from the chart at page 109 of KWDT-I and the chart contained in C-III-D-32, that in most of the years State of Andhra Pradesh has been able to draw above 200 TMC and even up to 300 TMC in a water year. These withdrawals include those which have been made during the monsoon season. There may also have been some stints of heavy rains on some of the days during monsoon. So in totality there does not seem to be any impediment in Andhra Pradesh in realizing its full allocation even when good monsoon is there with some stints of heavy rains also. It never rains uniformly. They have been drawing water quite huge in quantity. The chart at page 109 of the Report of KWDT-I is for the period from 1941-42 to 1968-69, 28 years. Sometimes heavy rains obviously must also have been there but without any difficulty Andhra Pradesh has been drawing heavy amount of water in 22 years out of 28 years. The whole plea of the State of Andhra Pradesh is against the facts on record. The way inevitable flows have been calculated on uniformly percentage basis for all the years is a novel method and against the findings of KWDT-I. It is not understandable when admittedly 800 TMC is available to Andhra Pradesh from Jurala to Vijayawada, why any problem may be there only in realizing small supplies from the

water generated in K-11, K-12 and part of K-7. Once flows which remain unutilized in these basins go down to the mainstream and reach the Prakasam Barrage, there would not be any good reason that it may not be utilized unless, of course, Andhra Pradesh does not need it any more, due to good rains and sufficient quantity having been already drawn as required.

We also feel that for the purposes of alleged inevitable flows, why is it necessary to confine to the yield of K-11, K-12 and part of K-7 alone for meeting the requirement of 800 TMC. Once the yield of these sub-basins joins the mainstream, it is the water in the mainstream all of which arrives at the barrage. It would not be possible to distinguish between the yield of these sub-basins, namely, K-11, K-12 and part of K-7 and the rest which is flowing down from the upstream. It all becomes one flow and one stream arriving at the barrage. In case, due to heavy rains sometimes there is gush of water at the barrage which is actually the case of Andhra Pradesh, by reason of which there is overflow, that over-flown water would not be confined to the water generated in sub-basins K-11, K-12 and part of K-7 only, but the availability of water in totality will be of the whole stream including which is coming down from upstream flowing

towards the barrage. At the barrage, there should be enough arrivals in a water year to satisfy the requirement of Krishna delta system which is admittedly there. It is not necessary that the requirement is to be met by the yield of only above noted three sub-basins. The record shows that in most of the years there has been enough drawal of utilizable water, fully meeting out requirement in delta.

One of the arguments which has been put forward by the State of Andhra Pradesh is that earlier the requirement of delta system was met by reason of the fact that upper riparian States had not been utilizing much water and there has been under-utilization of their allocation by the States of Maharashtra and Karnataka. So the flows were available to the Andhra Pradesh so as to enable it to meet the requirements for Krishna Delta System. We, however, find that the position is not so as sought to be depicted by Andhra Pradesh. We have already referred to a Chart given at page 109 of the Report of KWDT-I giving details of the withdrawals made for irrigation of delta area from the year 1941-42 to 1968-69. We find that out of these 28 years only in six years, there have been withdrawals less than 181 TMC. In the remaining 22 years the withdrawals have been above 181.20 TMC and maximum up to 284.64 TMC, which was in the year

1967-68. It is also noticeable that the years during which short fall was there, were the initial years, namely, in the years 1941-42, 1942-43, 1944-45, 1945-46, 1949-50 and 1952-53. Thereafter, there has never been any shortfall in any year. Rather in the later years withdrawals have been increasing and in the last 16 years continuously from 1953-54 up to 1968-69 the withdrawals have been above 200 TMC. The years in which shortfall was there, in many cases it was nominal, as in the year 1942-43 total withdrawal was 174.39 TMC. In 1944-45 it was 178.53 TMC. Again in 1945-46 it was 174.32 TMC and almost the same position in respect of 1949-50. But with the years advancing, there is supposed to be development of more area and new projects coming up in upper riparian States also, but despite that the withdrawals continued to be increasing. We have also checked the position from the year 1990-91 so as to ascertain the position in the later years with increase in utilization by the States of Maharashtra and Karnataka upstream. We find that the position of withdrawals has been as follows:

1990-91	212.675 TMC
1991-92	190.514 TMC
1992-93	181.200 TMC

1993-94	234 TMC
1994-95	237.032 TMC
1995-96	187.903 TMC
1996-97	192.364 TMC
1997-98	234.217 TMC
1998-99	223.681 TMC
1999-2000	233.329 TMC
2000-01	220.649 TMC
2001-02	189.664 TMC
2002-03	117.786 TMC
2003-04	83.669 TMC
2004-05	136.644 TMC
2005-06	187.019 TMC
2006-07	254.33 TMC
2007-08	235.481 TMC

From the position as indicated above, depicted in C-III-D-32 and C-II-D-114 for the last two years, it is to be noticed that with the increase in utilization of the upper riparian States the availability of water for the delta system never decreased. Rather withdrawals have been much more than the allocated share of 181.20 TMC in a number of years. So far as the years 2002-03 to 2004-05, they have been lean years and the total yield has been very low. Therefore, the supplies to the delta have also been low but we find that since 2004-05 the withdrawal had started increasing, it being 136.644 TMC in that year. In the last two years 2006-07 and 2007-08 we find that utilizations of Andhra Pradesh in delta have been 253.33 TMC and 235.481 TMC respectively. One year prior to that, namely, in 2005-06 utilization of Maharashtra had been 563.59 TMC, that is to say, slightly over the allocated share of 560 TMC. Similarly, so far as the State of Karnataka is concerned, for the last two years its utilization has been 695.97 TMC and 667.76 TMC respectively. Thus, with almost full utilization by the upper riparian States there has not been any shortage in availability of water for the delta system rather Andhra Pradesh has drawn more than the allocated amount of water 181.20 TMC for delta

area. Therefore, this argument put forward by the State of Andhra Pradesh also fails.

An objection has been taken on behalf of the other States that once the learned Advocate General for the State of Andhra Pradesh had made a statement as noted at page 172, column-1 top of the Report of KWDT-I that with the raising of the crest gates at Nagarjunasagar Dam and Srisailem Dam, the entire quantity of the 75 per cent dependable flow i.e. 2060 TMC may be allocated between the three States, therefore, now it is not open to the State of Andhra Pradesh to rake up the same controversy and again plead for higher allocation on account of inevitable waste and intensity of deficiency in 25 years out of 100 years. In reply to the said objection, learned counsel for the State of Andhra Pradesh submits that the statement made by the learned Advocate General for the State of Andhra Pradesh should be taken only for the time being so long the decision of the previous Tribunal is not reviewed and in this connection it is submitted that the statement of the learned Advocate General is to be read with the following paragraph at page 172 of the Report where it is observed that “the Tribunal was of the opinion that it would be proper that till their decision is reviewed, the State of Andhra Pradesh

may be permitted to store water by installation of crest gates at the two dams and may utilize the water so impounded in any manner as it deem proper”. Therefore, it is submitted that the effect of the statement made by the learned Advocate General would also be limited to the period of time till the review of the decision of the previous Tribunal. It can be said to be a possible argument on behalf of the State of Andhra Pradesh, but in this connection we would like to make it clear that we do not propose to disturb the arrangement which has been made by the previous Tribunal by allowing the State of Andhra Pradesh to raise the crest gate of Nagarjunasagar Dam and Srisailem Dam and utilize the so impounded water as carryover storage, more particularly to mitigate the intensity of hardship during the 25 lean years out of 100 years.

As a matter of fact, the increased storage viz. carryover storages seem to have been permitted also from the point of view of that some water was likely to go waste inevitably. Although, we do not find nor have any serious doubts if any such inevitable waste goes to the sea passing over the barrage from the quantity at 75 per cent dependability, i.e. 2060 TMC or from the share of Andhra Pradesh, namely, 800 TMC allocated to it, yet we are not inclined to review

that arrangement. Since we do not propose to alter the situation as prevailing as per the previous Award, we may not further go into the matter relating to the statement of Advocate General. But one thing we must clarify that any plea of Andhra Pradesh for any further benefit in the matter of allocation on the ground of inevitable waste from 2060 TMC or 800 TMC does not deserve to be entertained. They have already got enough advantage on that plea and for mitigating intensity of their hardship in 25 deficit years. The advantage of carryover storage was made available to them without examination of their plea of inevitable flows to their detriment affecting their allocated share of 800 TMC on merits, and without any such clear cut finding to the above effect or about the extent of intensity of their hardship in 25 years. All this happened in a floating state of indefiniteness on all counts. Even in these proceedings, Andhra Pradesh avoided to provide any assessment of inevitable waste on the basis of daily discharge yield, in place whereof an absolutely untenable formula on percentage basis has been put into service leading to artificial results as regards inevitable waste. It deserves to be out-rightly rejected. The chart given at page 109 of the Report of KWDT-I and the documents C-III-D-32 and C-III-D-114

showing heavy withdrawals for delta in 54 years out of total 63 years from 1941-42 to 2007-2008, belies all the arguments and the paper exercise done on behalf of the State of Andhra Pradesh. Facts on record speak of entirely a different picture from what was sought to be projected.

For the purpose of placing the picture with clarity we reproduce the Chart as given at page 109 of the Report of KWDT-I to show the data about withdrawals made by Andhra Pradesh for delta system for the years 1941-42 to 1968-69 and then a compilation of the data of withdrawals by Andhra Pradesh from C-III-D-32 for delta system for the years from 1972-73 to 2005-06 and another extract for the years 2006-07 and 2007-08 from C-III-D-114. These charts are given below:

Page No. 109

Annual diversions of water and area irrigated:

The annual diversions of water and the area irrigated by the Krishna Delta system were:

Area irrigated by crops (in acres)				withdrawals in TMC	
Year Total	Kharif	Rabi	Total	June to January	December to May-
1941-42	9,87,690 161.91	3,884	9,91,574	149.37	12.54
1942-43	9,97,060 174.39	9,413	10,06,473	154.56	20.83
1943-44	10,44,169 211.29	15,763	10,59,932	183.13	28.16
1944-45	10,63,613 178.53	87,273	11,50,886	163.74	14.79
1945-46	10,80,916 174.32	21,285	11,02,201	164.86	9.46
1946-47	10,96,250 205.09	31,900	11,28,150	185.82	19.27
1947-48	11,06,411 192.57	28,626	11,35,037	175.09	17.48
1948-49	11,13,706 202.61	29,403	11,43,109	178.70	23.91

1949-50	11,81,241 174.93	46,658	12,27,899	154.96	19.97
1950-51	12,16,254 192.71	37,416	12,53,670	177.71	15.00
1951-52	11,81,851 186.14	45,816	12,27,667	177.01	9.13
1952-53	10,84,529 167.99	30,839	11,15,368	161.33	6.66
1953-54	11,08,079 202.65	45,325	11,53,404	167.11	35.54
1954-55	11,76,377 204.92	81,809	12,58,186	155.54	49.38
1955-56	11,65,732 208.44	1,08,362	12,74,094	160.97	47.47
1956-57	11,82,748 203.83	1,04,430	12,87,178	147.38	56.45
1957-58	11,39,819 221.00	1,03,956	12,43,775	172.89	48.11
1958-59	11,29,173 203.38	92,152	12,21,325	157.17	52.21

1959-60	10,24,816	1,61,641	11,86,457	177.08	64.90	241.98
1960-61	256.54			201.21	55.33	
1961-62	11,28,972	1,33,763	12,62,735	195.39	53.46	248.85
1962-63	11,07,267	1,31,848	12,39,115	162.61	56.80	219.41
1963-64	11,35,817	1,64,368	13,00,185	181.33	43.98	225.31
1964-65	11,61,245	3,17,130	14,78,375	163.68	68.27	231.95
1965-66	11,53,454	1,87,425	13,41,179	173.79	39.09	212.88
1966-67	11,81,098	3,08,726	14,89,824	196.71	63.29	260.00
1967-68	11,83,463	4,83,950	16,67,413	191.73	92.91	284.64
1968-69	11,87,194	4,90,468	16,77,662	209.37	65.36	274.73

Chart for the years 1972-73 to 2005-06 prepared from
C-III-D-32:

1972-73

216.688 TMC

1973-74	229.502 TMC
1974-75	300.049 TMC
1975-76	233.694 TMC
1976-77	232.036 TMC
1977-78	300.806 TMC
1978-79	201.652 TMC
1979-80	263.101 TMC
1980-81	262.809 TMC
1981-82	275.242 TMC
1982-83	272.454 TMC
1983-84	222.098 TMC
1984-85	255.281 TMC
1985-86	216.229 TMC
1986-87	246.636 TMC
1987-88	212.743 TMC

1988-89	220.624 TMC
1989-90	224.108 TMC
1990-91	212.675 TMC
1991-92	190.514 TMC
1992-93	181.200 TMC
1993-94	234 TMC
1994-95	237.032 TMC
1995-96	187.903 TMC
1996-97	192.364 TMC
1997-98	234.217 TMC
1998-99	223.681 TMC
1999-2000	233.329 TMC
2000-01	220.649 TMC
2001-02	189.664 TMC
2002-03	117.786 TMC

2003-04	83.669 TMC
2004-05	136.644 TMC
2005-06	187.019 TMC

Chart for the year 2006-07 and 2007-08 prepared from C-III-D-114:

2006-07	254.33 TMC
2007-08	235.481 TMC

A perusal of the above noted data shows that there have not been many occasions when Andhra Pradesh suffered any shortfall in the requirements for the delta area. As noted earlier it has very fairly been given out by the State of Andhra Pradesh that from Jurala to Vijaywada 800 TMC is available to it, but despite that availability commensurating to their allocation, difficulty arises for irrigation in delta area since some water was inevitably going waste due to heavy rains and floods, resulting in shortfall because of inability of the canal system to divert the whole amount of water for irrigation to the delta area. This aspect we have already dealt with in the earlier part of this report. The figures, however, indicated in `Annexure-II' to APAD-63

report. The figures, however, indicated in 'Annexure-II' to APAD-63 is not accepted as correct figures. We have considered the figures of gross flows and utilization as per chart prepared for 47 years' series to assess yield of the river Krishna but figures of utilizations in delta area are all taken from the chart at page 109 of the Report of KWDT-I and documents of Andhra Pradesh viz. C-III-D-32 and C-III-D-114 as indicated earlier.

It is, however, worth noticing once again that out of the total number of years 28 (page 109 KWDT-I) + 34 years (C-III-D-32) + 2 years (C-III-D-114)=64 years, the delta utilization was less than 181.20 TMC only in 9 years, in the rest of 55 years out of 64 years, delta utilization have been 181.20 TMC and much above up to 300 TMC. This is the factual position and ground reality, while 'Annexure -II' to APAD-63 is merely a fictional calculation chart with unnecessary break up of yield and on assumption of facts and incorrect data. We have already noticed earlier that 4 years out of the chart at page 109 of KWDT-I the deficit in delta supplies has been only marginal and ignorable. However, on the own figures of utilizations in delta area the failure years being only 9 out of 64 years, the success rate for delta area works out to around 86 per cent. It is the factual position in last 64 years. Upstream utilizations have also

been almost to the full extent of their allocation in some of the later years but it has not made any difference on availability of water for delta. Nor in 55 years out of 64, canal capacity and gush of water during heavy rains could make any difference for delta utilizations nor even the conjectural extra releases from Nagarjunasagar Dam as per reason No. (v) given by Mr. Jaffer Ali. This all seems to be a myth of 'inevitable waste'. As a matter of fact the shortage in 3 years for delta area shown in C-III-D-32 is during the period when gross yield itself was very low and these were extremely lean years. Every project in the basin suffered due to shortage. In four years out of 28 in the chart at page 109 of KWDT-I report, the shortage for delta was marginal, those years could not be said to be failure years except two years. Thus in reality there would be only 5 failure years out of 64 years. However, still treating it to be 9 years' failure, the success rate for delta comes to around 86 per cent. While parting with this point we may also consider the clarificatory note APAD-63 furnished by Andhra Pradesh though these points have already been touched earlier.

The APAD-63, furnished on 18.3.2010 tried to show, true, there has not been any shortfall in the utilization of water for the delta area except for years 2002-03, 2003-04 and 2004-05, thus, the allocation

for delta has been deficient in three years out of total 33 years, but in case upper riparian States, namely, Maharashtra and Karnataka utilize their full allocated share, the shortfall will increase to 10 years in place of three years. The conclusions have been drawn for the same period during 1972-73 to 2004-05 on the basis of the calculations made in 17 columns with break up of utilizations of Andhra Pradesh in parts. On the basis of this 'Annexure-II' to the note APAD-63 it has been said that the success rate of Krishna Delta would only be 69.7 per cent. To this Chart 'Annexure-II' we may add three more figures for the years 2005-06, 2006-07 and 2007-08. In these three years it is to be found that in 2005-2006 the utilization of Maharashtra has been 563 TMC which is 3 TMC above its allocation and that of Karnataka it is 651.50 TMC which is less than 700 allocated share and the utilization of Andhra Pradesh is 993.09 TMC and its utilization in delta system is to the extent of 187.019 TMC. The utilization of only Karnataka is less by about 48.50 TMC but utilization of Andhra Pradesh is about 193 TMC more than its allocation. it is still that delta got more than its allocation of 181.20 TMC. In the year 2006-07 utilization of Maharashtra has been 551.65 TMC, that of Karnataka 695.97 TMC and utilization of Andhra Pradesh has been 1065.44

TMC and the utilization in delta area has been to the tune of 254.33 TMC. Utilisation of Maharashtra has been less by about 9 TMC and that of Karnataka by about 4 TMC, that is to say, that both these upper riparian States have utilized their almost full allocated share and the State of Andhra Pradesh had utilized 265 TMC more than its allocation. And the utilization in delta area has been much above of its allocation. Similarly for the year 2007-08, utilization of Maharashtra has been 527.72 TMC, that of Karnataka 667.76 TMC and that of Andhra Pradesh 1015.27 TMC. The utilization in delta has been 235.481 TMC. The utilization of Maharashtra was short by about 33 TMC of the allocated share and around the same figure is in regard to Karnataka totaling to above 66 TMC short utilization but it cannot be said to be much below their allocated share. In any case, Andhra Pradesh had utilized more than 200 TMC over and above its share, including 235.481 TMC for delta much too in excess of 66 TMC. Therefore, the effort made by Andhra Pradesh, as per its calculations in 'Annexure-II' to APAD-63 to show shortages for delta does not seem to be correct. We are not going into the question of manner in which the break up in calculations has been made in 'Annexure-II' to APAD-63, that is to say, even after full utilization of

their share by upper riparian States, there is still enough water available for the delta area.

We need not make any further comments on it absent to say that this plea of the State of Andhra Pradesh is not made out at all. Rather the picture that emerges is entirely different. However, we do not propose to disturb the arrangement which has been made by the previous Tribunal by giving benefit to Andhra Pradesh to build up carryover capacity in Nagarjunasagar Dam and Srisailem Dam out of the flows other than dependable flows and to utilize the water so stored.

SUCCESS RATE

The coinage of the expression 'success rate' has its roots in dependability factor which we have already discussed in detail earlier. It has also been noticed that according to the recommendations of the Irrigation Commission, 1972, as also adopted by KWDT-I, and laid down in I.S. 5477, (part-III): 2002 paragraph 4.3, the irrigation projects should be planned at 75 per cent dependability, i.e. in 75 years out of 100, the flows as assessed at 75 per cent dependability should be available for the command. In the case in hand we have seen that KWDT-I had assessed the yield at 75 per cent dependability as 2060 TMC, which amount of water or above, was supposed to be available at least in 75 per cent of the period of time in number of years. But in the remaining 25 per cent of the period of time in number of years, that quantity of water may not be available and there would be deficiency sometimes marginal and sometimes it may be substantial as well. It appears that it is considered that agricultural operations can well be successfully carried on if the water for the irrigation projects as planned is available in 75 out of 100 years.

The KWDT-I distributed the quantity of water at 75 per cent dependability i.e. 2060 TMC to the three riparian States. State of

Maharashtra has been allocated 560 TMC, State of Karnataka 700 TMC and the State of Andhra Pradesh 800 TMC for utilization in a water year. In a year when a State gets the allocated amount of water it is called a success year, for example, if in a particular year Maharashtra gets 560 TMC for utilization, State of Karnataka 700 TMC and Andhra Pradesh 800 TMC, it would be a success year for all the three States. If in a year any State gets less than the allocated share it would be called a failure year for that State. Therefore, success rate depends upon the fact, as to in how many years a State is getting required volume of water for its projects. In case a State gets water as allocated, for more number of years i.e. over and above 75 per cent of the period, it would be called high percentage of success rate depending upon excess number of years and in case the failure is more than 25 per cent of the period in number of years, it will be considered less than required rate of success and more of failures.

The grievance of the State of Andhra Pradesh is that it being the lowest riparian State, it is at a disadvantageous position. The maximum amount of water is generated in the State of Maharashtra from where a part of it which is not utilized by Maharashtra, flows down to Karnataka. The generation of water in Karnataka is the next

to the highest and after utilizations made by Karnataka the remaining water flows down to Andhra Pradesh whose generation of water is the lowest of all the three States. The average gross generation of water in the State of Maharashtra in a water year is 1141.5 TMC, that of Karnataka is 779.8 TMC and Andhra Pradesh generates 478 TMC of water as per `Annexure-30(A), 30(B) and 30(C) to the affidavit of Prof. Subhash Chander. The grievance is that upper riparian States utilize more water, as a result of which, the State of Andhra Pradesh does not get its allocated share of water, namely, 800 TMC. It is contended that the success rate of Andhra Pradesh is only 68 per cent, that is to say, instead of getting the allocated share of water at the rate of 75 per cent of period of time in number of years, it is getting only in 68 per cent of years. It is thus short by 7 per cent at least.

In connection with success rate of different States the witness of the State of Andhra Pradesh Prof. Subhash Chander has prepared a chart which is filed as `Annexure 34' to his affidavit. This chart is based on a water year series of 104 years with effect from 1901-02 to 2004-05. The 75 per cent dependability has been taken as 2060 TMC as assessed before KWDT-I. The shares of the three States have also been taken as 560 TMC, 700 TMC and 800 TMC for the States of

Maharashtra, Karnataka and Andhra Pradesh respectively, as allocated by the previous Tribunal. The chart has been prepared on the basis that the States of Maharashtra and Karnataka meet their full requirement of 560 TMC and 700 TMC respectively and whatever is left after utilization by the upper riparian States, flows down to Andhra Pradesh plus its own generation, which is available to Andhra Pradesh for utilisation.

The Column 3 of 'Annexure-34' shows the gross flows, columns 4 and 5 show the allocation to the State of Maharashtra and the allocation met by it or it remained short. Columns 6 and 7 show the flows from Maharashtra to Karnataka and column 8 shows the generation in Karnataka and column 9 shows the total flows available to Karnataka. The column 10 shows the allocation of Karnataka and column 11 whether the allocated share was met or it remained short. Column 13 of the chart shows the inflows from Karnataka to Andhra Pradesh and column 14 shows the flows generated in Andhra Pradesh after deducting the so called 'inevitable flows'. So the flows generated in Andhra Pradesh have been reduced on the ground that 30 per cent flows generated in sub-basins K-11, K-12 and part of K-7 only is utilizable and 70 per cent of it goes waste. Column 15 then

shows the total flows thereafter available to Andhra Pradesh and column 17 shows the years in which the allocated share is met and the years where there have been failures in achieving the allocated shares. Column 18 shows the remaining water that flows down to the sea.

According to the chart prepared in the manner indicated above it is shown that Maharashtra had only one failure year out of the series of 104 years. Therefore, its success rate is shown as 99 per cent. The State of Karnataka achieved its allocation of 700 TMC in 97 years out of 104, and the success rate is shown as 93 per cent. So far as Andhra Pradesh is concerned it is indicated that there have been failure in 33 years out of 104 years in achieving the allocated share of 800 TMC. Hence, its success rate came to 68 per cent only. It is therefore, submitted that Andhra Pradesh stands on a disadvantageous position and achieves its allocation only at the rate of 68 per cent of the period of time which is much below the required percentage of success rate at 75 per cent dependability.

The submission on behalf of State of Andhra Pradesh is two fold; the one that the States of Maharashtra and Karnataka are utilizing more water having a much higher rate of success, as a result of which Andhra Pradesh is unable to achieve the required rate of

success and remains below the 75 per cent success rate. We may first examine the question as to whether or not the success rate of Andhra Pradesh is only 68 per cent as shown in 'Annexure-34', The other two States objected to the manner of working out of 'Annexure 34' submitting that it does not give the correct picture.

The first and the foremost objection is that there is no occasion to make any deduction from the flows generated in the State of Andhra Pradesh on the ground that some water inevitably flows down to the sea unutilized which forms part of 2060 TMC as also the part of water allocated to Andhra Pradesh, namely, 800 TMC. In this connection suffice it to say that in the preceding discussion of this report we have held that there has not been any such inevitable flow going down to the sea unutilized which may form part of 2060 TMC or 800 TMC as alleged. Therefore, no doubt water flows down, as it does, to the sea unutilized but that is not material for the purposes of assessing success rate of the State of Andhra Pradesh. The water which may flow down over and above 2060 TMC has no bearing on the merit of the matter under examination. Therefore, there is no justification to deduct any amount of water from the flows generated

in Andhra Pradesh on the ground that it goes inevitably waste from the share of Andhra Pradesh.

The State of Maharashtra has prepared a chart without making such deduction from the water generated in Andhra Pradesh as inevitable flows, the success rate of Andhra Pradesh then comes to 73 per cent. The chart prepared by Maharashtra C-II-D-P-162 was put to the witness Prof. Subhash Chander in his cross-examination and in question No. 1887, page 548 of C-III-D-81-82A Vol. IV Question No.1887: “In your master chart ‘Annexure-34’ if you were to add back the inevitable flows which, in our submission, are wrongly deducted the result would be as per C-II-D-P-162 which shows that with the addition of so called inevitable flows, Andhra Pradesh can meet its allocation in 76 out of 104 years i.e. success rate by this alone is improved to 73 per cent. Ans: I agree”.

An exercise on the similar basis as that of ‘Annexure-34’ has also been undertaken by the Tribunal with a difference that inevitable flows have not been deducted and a series of 107 years, with effect from 1901-02 to 2007-08 has been prepared since the data up to 2007-08 is available. The chart so prepared for 107 years is given on the next following pages numbers 397 to 399.

Success rates for an allocation of 2060 TMC without considering inevitable flow in A.P. in 107 years series (1901-02 to 2007-08)

Success Rates of Meeting the allocation of Maharashtra (560 TMC)						Success Rates of Meeting the allocation of Karnataka (700 TMC)						Success Rates of Meeting the allocation of Andhra Pradesh (800 TMC)					
		Maharashtra				Karnataka						Andhra Pradesh					
S. No	Year	Gross Flow in Maharashtra	Allocation	Allocation Met	Flows from Maharashtra to Karnataka (col.3-col.5)	Flows from Maharashtra	Gross Flows Generated in Karnataka	Total Flows available to Karnataka (col.7+col.8)	Allocation	Allocation Met	Flows from Karnataka to A.P (col.9-col.11)	Flows from Karnataka to A.P	Gross Flows Generated in A.P	Total Flows available to A.P (col.13 +col.14)	Allocation	Allocation Met	Balance to Sea(col.15-col.17)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	1901-02	1025	560	560	465	465	709	1174	700	700	474	474	324	798	800	798	0
2	1902-03	877	560	560	317	317	633	950	700	700	250	250	359	609	800	609	0
3	1903-04	1187	560	560	627	627	1048	1675	700	700	975	975	926	1900	800	800	1100
4	1904-05	857	560	560	297	297	596	894	700	700	194	194	317	510	800	510	0
5	1905-06	601	560	560	41	41	397	438	700	438	0	0	274	274	800	274	0
6	1906-07	800	560	560	240	240	616	856	700	700	156	156	474	630	800	630	0
7	1907-08	1237	560	560	677	677	715	1391	700	700	691	691	325	1016	800	800	216
8	1908-09	1232	560	560	672	672	668	1340	700	700	640	640	572	1212	800	800	412
9	1909-10	1015	560	560	455	455	710	1165	700	700	465	465	419	884	800	800	84
10	1910-11	1125	560	560	565	565	780	1345	700	700	645	645	517	1162	800	800	362
11	1911-12	689	560	560	129	129	484	613	700	613	0	0	278	278	800	278	0
12	1912-13	911	560	560	351	351	738	1088	700	700	388	388	316	705	800	705	0
13	1913-14	898	560	560	338	338	566	904	700	700	204	204	344	548	800	548	0
14	1914-15	1463	560	560	903	903	968	1871	700	700	1171	1171	618	1789	800	800	989
15	1915-16	1157	560	560	597	597	689	1286	700	700	586	586	528	1114	800	800	314
16	1916-17	1578	560	560	1018	1018	1220	2238	700	700	1538	1538	923	2461	800	800	1661
17	1917-18	1357	560	560	797	797	957	1754	700	700	1054	1054	715	1769	800	800	969
18	1918-19	447	560	447	0	0	331	331	700	331	0	0	229	229	800	229	0
19	1919-20	1088	560	560	528	528	754	1282	700	700	582	582	428	1010	800	800	210
20	1920-21	903	560	560	343	343	591	934	700	700	234	234	197	430	800	430	0
21	1921-22	978	560	560	418	418	756	1173	700	700	473	473	431	904	800	800	104
22	1922-23	1131	560	560	571	571	576	1147	700	700	447	447	356	803	800	800	3
23	1923-24	1016	560	560	456	456	966	1421	700	700	721	721	490	1211	800	800	411
24	1924-25	996	560	560	436	436	801	1237	700	700	537	537	527	1064	800	800	264
25	1925-26	950	560	560	390	390	741	1130	700	700	430	430	591	1021	800	800	221
26	1926-27	1210	560	560	650	650	709	1359	700	700	659	659	258	917	800	800	117
27	1927-28	1064	560	560	504	504	732	1236	700	700	536	536	509	1045	800	800	245
28	1928-29	1012	560	560	452	452	744	1197	700	700	497	497	456	952	800	800	152
29	1929-30	929	560	560	369	369	689	1058	700	700	358	358	300	658	800	658	0
30	1930-31	1102	560	560	542	542	684	1226	700	700	526	526	410	936	800	800	136
31	1931-32	1365	560	560	805	805	911	1716	700	700	1016	1016	627	1643	800	800	843
32	1932-33	1316	560	560	756	756	938	1694	700	700	994	994	449	1443	800	800	643
33	1933-34	1394	560	560	834	834	954	1788	700	700	1088	1088	588	1676	800	800	876

Success rates for an allocation of 2060 TMC without considering inevitable flow in A.P. in 107 years series (1901-02 to 2007-08)

Success Rates of Meeting the allocation of Maharashtra (560 TMC)						Success Rates of Meeting the allocation of Karnataka (700 TMC)						Success Rates of Meeting the allocation of Andhra Pradesh (800 TMC)					
Maharashtra						Karnataka						Andhra Pradesh					
S.No	Year	Gross Flow in Maharashtra	Allocation	Allocation Met	Flows from Maharashtra to Karnataka (col.3-col.5)	Flows from Maharashtra	Gross Flows Generated in Karnataka	Total Flows available to Karnataka (col.7+col.8)	Allocation		Flows from Karnataka to A.P (col.9-col.11)	Flows from Karnataka to A.P	Gross Flows Generated in A.P	Total Flows available to A.P (col.13+col.14)	Allocation	Allocation Met	Balance to Sea(col.15 -col.17)
34	1934-35	1105	560	560	545	545	564	1110	700	700	410	410	415	825	800	800	25
35	1935-36	855	560	560	295	295	631	926	700	700	226	226	441	667	800	667	0
36	1936-37	877	560	560	317	317	606	923	700	700	223	223	508	730	800	730	0
37	1937-38	1161	560	560	601	601	550	1151	700	700	451	451	335	786	800	786	0
38	1938-39	1339	560	560	779	779	745	1524	700	700	824	824	529	1353	800	800	553
39	1939-40	952	560	560	392	392	758	1150	700	700	450	450	484	934	800	800	134
40	1940-41	1073	560	560	513	513	753	1266	700	700	566	566	461	1027	800	800	227
41	1941-42	883	560	560	323	323	574	897	700	700	197	197	258	455	800	455	0
42	1942-43	1086	560	560	526	526	739	1265	700	700	565	565	345	909	800	800	109
43	1943-44	1064	560	560	504	504	793	1297	700	700	597	597	476	1073	800	800	273
44	1944-45	1014	560	560	454	454	684	1138	700	700	438	438	431	869	800	800	69
45	1945-46	937	560	560	377	377	567	943	700	700	243	243	457	701	800	701	0
46	1946-47	1517	560	560	957	957	900	1856	700	700	1156	1156	424	1580	800	800	780
47	1947-48	998	560	560	438	438	859	1297	700	700	597	597	668	1266	800	800	466
48	1948-49	1206	560	560	646	646	698	1344	700	700	644	644	407	1051	800	800	251
49	1949-50	1137	560	560	577	577	819	1396	700	700	696	696	588	1284	800	800	484
50	1950-51	1218	560	560	658	658	864	1522	700	700	822	822	546	1369	800	800	569
51	1951-52	841	560	560	281	281	713	994	700	700	294	294	416	710	800	710	0
52	1952-53	972	560	560	412	412	541	952	700	700	252	252	237	489	800	489	0
53	1953-54	1326	560	560	766	766	1041	1806	700	700	1106	1106	553	1659	800	800	859
54	1954-55	1133	560	560	573	573	800	1373	700	700	673	673	506	1179	800	800	379
55	1955-56	1419	560	560	859	859	922	1781	700	700	1081	1081	628	1709	800	800	909
56	1956-57	1929	560	560	1369	1369	1422	2790	700	700	2090	2090	816	2906	800	800	2106
57	1957-58	1299	560	560	739	739	994	1733	700	700	1033	1033	439	1472	800	800	672
58	1958-59	1530	560	560	970	970	919	1889	700	700	1189	1189	667	1856	800	800	1056
59	1959-60	1691	560	560	1131	1131	1086	2217	700	700	1517	1517	705	2222	800	800	1422
60	1960-61	1613	560	560	1053	1053	974	2027	700	700	1327	1327	482	1809	800	800	1009
61	1961-62	1756	560	560	1196	1196	1164	2360	700	700	1660	1660	840	2500	800	800	1700
62	1962-63	1268	560	560	708	708	1161	1869	700	700	1169	1169	650	1819	800	800	1019
63	1963-64	1328	560	560	768	768	868	1635	700	700	935	935	562	1497	800	800	697
64	1964-65	1558	560	560	998	998	1178	2176	700	700	1476	1476	661	2137	800	800	1337
65	1965-66	1110	560	560	550	550	655	1204	700	700	504	504	310	814	800	800	14
66	1966-67	933	560	560	373	373	653	1027	700	700	327	327	370	697	800	697	0
67	1967-68	1337	560	560	777	777	766	1542	700	700	842	842	436	1278	800	800	478
68	1968-69	854	560	560	294	294	770	1063	700	700	363	363	513	876	800	800	76
69	1969-70	1259	560	560	699	699	877	1576	700	700	876	876	549	1425	800	800	625
70	1970-71	1288	560	560	728	728	889	1617	700	700	917	917	568	1485	800	800	685
71	1971-72	1077	560	560	517	517	727	1245	700	700	545	545	352	897	800	800	97
72	1972-73	647	560	560	87	87	572	658	700	658	0	0	203	203	800	203	0

Success rates for an allocation of 2060 TMC without considering inevitable flow in A.P. in 107 years series (1901-02 to 2007-08)

Success Rates of Meeting the allocation of Maharashtra (560 TMC)						Success Rates of Meeting the allocation of Karnataka (700 TMC)						Success Rates of Meeting the allocation of Andhra Pradesh (800 TMC)					
S.No	Year	Maharashtra				Karnataka						Andhra Pradesh					
		Gross Flow in Maharashtra	Allocation	Allocation Met	Flows from Maharashtra to Karnataka (col.3-col.5)	Flows from Maharashtra	Gross Flows Generated in Karnataka	Total Flows available to Karnataka (col.7+col.8)	Allocation		Flows from Karnataka to A.P (col.9-col.11)	Flows from Karnataka to A.P	Gross Flows Generated in A.P	Total Flows available to A.P (col.13+col.14)	Allocation	Allocation Met	Balance to Sea(col.15-col.17)
73	1973-74	1306	560	560	746	746	893	1639	700	700	939	939	411	1350	800	800	550
74	1974-75	1128	560	560	568	568	953	1522	700	700	822	822	499	1321	800	800	521
75	1975-76	1596	560	560	1036	1036	1378	2414	700	700	1714	1714	1085	2798	800	800	1998
76	1976-77	1418	560	560	858	858	596	1454	700	700	754	754	489	1244	800	800	444
77	1977-78	1199	560	560	639	639	739	1379	700	700	679	679	457	1135	800	800	335
78	1978-79	1363	560	560	803	803	1097	1900	700	700	1200	1200	989	2189	800	800	1389
79	1979-80	1355	560	560	795	795	820	1614	700	700	914	914	434	1348	800	800	548
80	1980-81	1361	560	560	801	801	919	1720	700	700	1020	1020	481	1501	800	800	701
81	1981-82	1409	560	560	849	849	976	1825	700	700	1125	1125	575	1700	800	800	900
82	1982-83	971	560	560	411	411	799	1210	700	700	510	510	419	929	800	800	129
83	1983-84	1439	560	560	879	879	921	1800	700	700	1100	1100	711	1811	800	800	1011
84	1984-85	1062	560	560	502	502	710	1212	700	700	512	512	337	849	800	800	49
85	1985-86	903	560	560	343	343	494	837	700	700	137	137	351	488	800	488	0
86	1986-87	849	560	560	289	289	554	843	700	700	143	143	422	565	800	565	0
87	1987-88	640	560	560	80	80	579	659	700	659	0	0	314	314	800	314	0
88	1988-89	1364	560	560	804	804	866	1670	700	700	970	970	691	1660	800	800	860
89	1989-90	1061	560	560	501	501	746	1248	700	700	548	548	676	1224	800	800	424
90	1990-91	1493	560	560	933	933	781	1713	700	700	1013	1013	569	1582	800	800	782
91	1991-92	1522	560	560	962	962	804	1766	700	700	1066	1066	545	1611	800	800	811
92	1992-93	944	560	560	384	384	810	1195	700	700	495	495	343	838	800	800	38
93	1993-94	1259	560	560	699	699	862	1560	700	700	860	860	458	1319	800	800	519
94	1994-95	1832	560	560	1272	1272	1003	2275	700	700	1575	1575	439	2014	800	800	1214
95	1995-96	753	560	560	193	193	633	826	700	700	126	126	415	541	800	541	0
96	1996-97	1083	560	560	523	523	783	1306	700	700	606	606	558	1164	800	800	364
97	1997-98	1439	560	560	879	879	671	1550	700	700	850	850	296	1145	800	800	345
98	1998-99	1410	560	560	850	850	1142	1992	700	700	1292	1292	577	1869	800	800	1069
99	1999-2000	1172	560	560	612	612	788	1400	700	700	700	700	345	1045	800	800	245
100	2000-01	779	560	560	219	219	798	1017	700	700	317	317	519	836	800	800	36
101	2001-02	766	560	560	206	206	634	840	700	700	140	140	366	506	800	506	0
102	2002-03	657	560	560	97	97	314	411	700	411	0	0	237	237	800	237	0
103	2003-04	676	560	560	116	116	381	497	700	497	0	0	133	133	800	133	0
104	2004-05	1021	560	560	461	461	491	952	700	700	252	252	264	516	800	516	0
105	2005-06	1738	560	560	1178	1178	1181	2360	700	700	1660	1660	704	2364	800	800	1564
106	2006-07	1529	560	560	969	969	1039	2007	700	700	1307	1307	619	1927	800	800	1127
107	2007-08	1550	560	560	990	990	1053	2043	700	700	1343	1343	628	1971	800	800	1171
Success rate of Maharashtra =(107-1)/107*100 = 99.07%						Success rate of Karnataka =(107-7)/107*100 = 93.46%						Success rate of AP =(107-26)/107*100 = 75.70%					
Notes: - 1) The statewide flows from 1901-02 to 2004-05 have been taken from Annexure 34© of C III D 81/82 except for Col 14 from which inevitable flows have not been deducted.																	
2) The statewide flows from 2005-06 to 2007-08 have been worked out from the data furnished by the states in IA 111, 113 and C III D 114..																	
3) The years 1901-02 and 1937-38 in which the allocations met (Col 17) are 798 and 786 TMC respectively for AP, are treated as successful years since their allocations met are verv close to 800 TMC.																	

According to this chart Andhra Pradesh is not able to meet its allocation of 800 TMC in 28 years out of 107 years, as a result of which the success rate of Andhra Pradesh comes to 73.83 per cent, on rounding off say 74 per cent. We also find that in 1901-02, 798 TMC was available to Andhra Pradesh as against 800 TMC and similarly in the year 1937-38, 786 TMC was available. But the shortfall of mere two TMC in case of the year 1901-02 is insignificant and ignorable and in the year 1937-38 the shortage is that of 14 TMC and such a meagre shortage out of huge requirement of 800 TMC is too insignificant to consider it a failure year. The allocation is reasonably to be taken as met rather than to mechanically treat these two years as failure years. In such matters things cannot be measured by drops, rather the position may be appreciated in the backdrop of the requirement of the total amount and the amount of shortfall. Some small variations are but natural, out of 800 TMC, 14 TMC will not be that material. It thus brings down failure years to 26 out of 107 years and the success rate of Andhra Pradesh comes to around 76 per cent. Therefore, irrespective of other objections which, though, we shall deal a little later, the success rate of Andhra Pradesh comes to more than 75 per cent, by ignoring the alleged inevitable waste which was

deducted in 'Annexure-34' from the flows generated in Andhra Pradesh.

We may now consider certain other anomalies which are very apparent in the exercise undertaken in 'Annexure-34'. We find that the witness of the State of Andhra Pradesh, Prof. Subhash Chander, has worked out more than one figure as 75 per cent dependability. The KWDT-I had arrived at the figure of 2060 TMC at 75 per cent dependability in the series of 78 years i.e. from 1894-95 to 1971-72. However, he prepared a series of 112 years for the period 1894-95 to 2005-06. It is 'Annexure 6A' to his affidavit and he found 75 per cent dependability as 2057 TMC. In paragraph 4.5.2 page 10 of his affidavit he stated that for further computations he had used 'Annexure-6A'. In para 4.5.3 he has indicated values at different percentages. But another series of 104 years has been prepared from 1901-02 to 2004-05. The 75 per cent flow has been worked out to be 2045 TMC. It is Annexure-6B to his affidavit.

It is, however, not understandable as to why in the series 'Annexure 6B' the data for the year 2005-06 was not included which was very much available to the witness, as would be evident from 'Annexure 6A' prepared by him wherein it was included and the gross

flow in 2005-06 have been shown as 3355 TMC. We may, however, leave it at that. He then prepared another chart of 104 years series on the basis of the yields of 12 sub-basins of Krishna basin. This series is also for the period 1901-02 to 2004-05. It is 'Annexure-28' to his affidavit. It is to be noted again that the year 2005-06 has not been included in the series and it is for the same period as 'Annexure-6B'. The 75 per cent dependability has been worked out as 2095 TMC. By this series the yield of Krishna river increases significantly. And by adding yield for the year 2005-06 it must have further increased and again we leave it at that. Then yet again another exercise was undertaken for the same period of 104 years, re-distributing the values to reconcile the anomaly between the results of 'Annexure-6B' and 'Annexure-28'. This exercise is 'Annexure-29' to the affidavit. End result of this exercise is that 75 per cent dependability has been worked out as 2045 TMC tallying with the result of 'Anneuxre-6B'. Again by deducting 47 TMC as the average inevitable flows from 2045 TMC, which was found to be 75 per cent dependable flow in the series of 104 years 'Annexure-6B' and 'Annexure-29', the 75 per cent dependability has been further reduced to $2045-47=1998$ TMC only. It is 'Annexure-32' to the affidavit of Prof. Subhash Chander.

These values as calculated in different charts which have been prepared and indicated above may be precisely put as follows:-

1. 78 years' series before KWDT-I, 1894-95 to 1971-72,(page 272, KWDT-I report) the 75 per cent dependable flow, 2060 TMC.
2. 112 years' series, `Annexure-6A', 1894-1895 to 2005-2006,
75 per cent dependable flow, 2057 TMC.
3. 104 years' series, `Annexure-6B', 1901-1902 to 2004-2005,
75 per cent dependable flow, 2045 TMC.
4. 104 years' series, sub-basinwise, `Annexure-28',
75 per cent dependable flow, 2095 TMC.
5. 104 years' series, 1901-1902 to 2004-2005 with re-distributed values, `Annexure-29' 75 percent dependable flow, 2045 TMC.

6. 104 years' series, 1901-1902 to 2004-2005, deducting inevitable

flow, 'Annexure-32', 75 per cent dependable flow, 1998 TMC.

The above figures of 75 per cent dependable flow have been used in one or the other charts. We find that it had been rightly pointed out on behalf of State of Maharashtra that the success rate of the three States has been calculated on the basis of 75 per cent dependable flow at 2060 TMC, as found in the series of 78 years prepared before KWDT-I. The shares of the each State have also been taken into account as allocated by KWDT-I on the basis of 2060 TMC, but the exercise of success rate in 'Annexure-34' has been made on a format of a series of 104 years from 1901-02 to 2004-05 in which 75 per cent dependable flow was worked out as 2045 TMC viz. 'Annexure-6B' and 'Annexure-29'. Such an exercise obviously cannot give correct results. If success rate was to be calculated on the basis of a series of 104 years, that is, from 1901-02 to 2004-05 the dependable flow of such a series of 104 years should have been considered.

We also find that the value of 75 per cent dependable flow as arrived at in 'Annexure-28' i.e. sub-basinwise series which is 2095

TMC, has been used in preparing 'Annexure-31' which is an exercise to calculate inevitable waste as alleged by Andhra Pradesh, on the basis of the ratio between utilizable and unutilisable flows being 30 per cent and 70 per cent respectively. The amount of flows at 75 per cent dependability, 2095 TMC is the highest as compared to any other exercise. That figure has been used to calculate inevitable waste, obviously the amount of 70 per cent out of the yield of K-11, K-12 and part of K-7 would be higher. It is this amount of inevitable waste which, on an average has been found to be 47.2 TMC in 'Annexure-31'. It has been used in preparing 'Annexure-34'.

It is also noticeable that the 78 years' series prepared before KWDT-I was extended to a series of 112 years from 1894-95 to 2005-06 which is 'Annexure-6A' to the affidavit of Prof. Subhash Chander. It seems, then they found necessary to prepare another series of lesser period i.e. from 1901-02 to 2004-05 (104 years) excluding the year 2005-06. By undertaking another exercise, an effort was made by the State of Andhra Pradesh to show its success rate only to the extent of 60 per cent. It is 'Annexure-37' to the affidavit of Prof. Subhash Chander. This chart has been prepared to show the success rates of three States on an allocation of 2130 TMC, that is to say, 2060

TMC+70TMC(return flows)=2130 TMC. It is pointed out in paragraph 8 of MHAD-32 that while success rate was being computed for allocation of 2130 TMC, but 75 per cent availability taken into account was 1998 TMC as arrived at in 'Annexure-32'. Undoubtedly, such an exercise would result in erroneous conclusions.

The discussion as made above clearly shows 'Annexure-34' to the affidavit of Prof. Subhash Chander filed on behalf of the State of Andhra Pradesh, cannot be acted upon and the conclusions drawn about the success rate are not correct. Different conclusions of 75 per cent dependable flows arrived at in different series have been conveniently used interchangeably, which led to wrong results.

The State of Karnataka has prepared various charts indicating different kind of exercises making comparison of gross flows as given in 'Annexure-28' and 'Annexure-29' and furnished the same as C-I-D-P-257, C-I-D-P-258 and C-I-D-P-259. All these have been furnished to indicate the values as given in 'Annexure-30' to the affidavit of Prof. Subhash Chander from 'Annexure-28' and comparative statement of utilization as per common format information and as per 'Annexure-34' to C-III-D-81 & 82, but we don't think it necessary to consider or discuss such charts. One chart

has been placed on record C-I-D-P-260 working out the success rate of the three States on the basis of the data contained in 'Annexure-28' to the affidavit of Prof. Subhash Chander, that is, calculated according to sub-basinwise yields, the success rate of the State of Andhra Pradesh is indicated as 76 per cent. This too will not be necessary to be looked into.

One chart that needs mention specifically is C-I-D-P-261 calculating the success rate of Andhra Pradesh taking into consideration the carryover storage to the extent of 105 TMC and according to this exercise the success rate of Andhra Pradesh has been shown as 81 per cent.

The State of Maharashtra also submits that in calculating the success rate, the carryover storages permitted to the State of Andhra Pradesh in Nagarjunasagar Dam and Srisailem Dam, should also be taken into consideration. They have also carried out a study of success rate of Andhra Pradesh taking into account the carryover storages in Andhra Pradesh. It is C-II-D-P-163.

Mr. Dipankar Gupta, learned senior counsel appearing for the State of Andhra Pradesh objected to taking into account the carryover storages for the purposes of working out success rate of Andhra Pradesh, because in doing so the respective States have not taken into consideration the evaporation loss, and the siltation of the storages, and the third objection is that computation should have been made on monthly basis and not yearly basis as has been done in the exercise undertaken by the States of Maharashtra and Karnataka. It has further been submitted that even if C-II-D-P-163 is assumed to be correct then also availability from carryover storage of the capacity of 150 TMC, the augmentation will be only to the extent of 27 TMC. It is further submitted that the 75 per cent dependability comes to 1998 TMC as per 'Annexure-32' to the affidavit of Prof. Subhash Chander and by adding 27 TMC the 75 per cent dependability would be increased to 2025 TMC only. Therefore, it would not make any material difference. It may be observed here that considering the 75 percent dependable yield as 1998 TMC itself is not correct. We have already seen and discussed earlier the manner in which this figure has been arrived at in 'Annexure-32' to the affidavit of Prof. Subhash Chander, which has not been accepted by us.

However, irrespective of the stand of different States on the point, in our view, it would not be justified to take into consideration the carryover storages while calculating the success rate of Andhra Pradesh at 75 per cent dependability. We have, though, already adverted to on this aspect of the matter, it may, however, be again observed that the main reason for providing carryover capacity to Andhra Pradesh was to mitigate the intensity of deficiency in 25 per cent of deficient years. In this connection we find the observations made at page 167 of the Report KWDT-I, column-1, it has been observed that “.....out of 100 years there may occur deficiencies in 25 years and in these 25 years the State of Andhra Pradesh is likely to suffer more than the State of Maharashtra and Karnataka. In this connection we have discussed carryover capacities of the Nagarjunasagar Dam and Srisailem Dam and have permitted the State of Andhra Pradesh to utilize the carryover capacities available in these two dams”. We may again see the observations made by KWDT-I in its report at page 171, column-2, last paragraph where the submission made by the learned Advocate General of Andhra Pradesh was considered that “in the deficit years Andhra Pradesh was likely to suffer and for this reason it may be permitted to store water by

utilizing the carryover capacity as available in those dams”. The tribunal observed in the concluding part that this argument deserved consideration. Again we find it observed at page 172 of the report of KWDT-I, column-1, second paragraph, where the tribunal observed that “.....a way has to be found out by which the State of Andhra Pradesh may be relieved of the difficult situation in which it may be placed in the deficit years”. It was, therefore, dominantly in the mind of the previous tribunal, while allowing the carryover capacity to Andhra Pradesh that in 25 lean years intensity of their suffering may be more as compared to the other two States and this is how a way was found out for Andhra Pradesh to tie over the suffering in some of the years out of 25 years which may be lean years. It is true that two other factors had also been mentioned, as we have discussed earlier also, that there may be some augmentation as well and some water was also likely to go waste. These considerations were also mentioned at page 172 of the report of KWDT-I. But both these later considerations have been indefinite and in-assessable. Therefore, what emerges is that carryover storages provided in Nagarjunasagar Dam and Srisailem Dam had a specific purpose. It was not for improving the success rate of Andhra Pradesh at 75 per cent

dependability. It was definitely to mitigate the sufferings to the extent possible in 25 lean years that this extra benefit was provided to Andhra Pradesh.

There is yet another aspect which is to be noticed that the carryover storage has not been provided out of the 75 per cent dependability yield i.e. out of 2060 TMC. The distribution of water amongst the three States on the basis of the aforesaid dependability has not been disturbed. Therefore, the carryover in the two dams, namely, Nagarjunasagar Dam and Srisaïlam Dam would be filled up out of the surplus flows, that is to say, flows over and above 2060 TMC. Such flows over 2060 TMC would be available in some years marginally and substantially in some other years. True, there may be some augmentation, benefit of which may be claimed by other two States but it is not possible to calculate that part of augmentation if at all, out of the total carryover capacity of the two dams. As a matter of fact, in some years out of 25 years of deficit, the intensity of deficit is such that the carryover storage may only mitigate the problem arising out of intense deficiency and may not turn a failure year into a success year. Considering all these facts and circumstances, we are not inclined to accept the contention of the State of Maharashtra and

Karnataka that success rate of Andhra Pradesh may be calculated taking into consideration the carryover capacities of Nagarjunasagar and Srisailem Dams.

Though generally carry over capacity would obviously be taken into account in such an exercise as it would amount to augmentation in the available water but as we have seen above the position in hand is quite different and basically the carryover capacity can be termed as 'purpose specific' to mitigate the intense hardship in some of the 25 lean years.

The next limb of the argument of the State of Andhra Pradesh relating to the success rate is that the success rate of State of Maharashtra being 99 per cent and that of Karnataka 93 per cent, as shown in 'Annexure-34' to the affidavit of Prof. Subhash Chander, which leads to the conclusion that their utilization is very high. The irrigation projects are supposed to be constructed at 75 per cent dependability, but the success rate higher than 75 per cent shows that water much above quantity of 75 per cent dependability is being utilized. In reply to query made to the learned counsel appearing for the State of Andhra Pradesh, submitted that the number of success year should not exceed 75 per cent of period of the total number of

years. In other words, the success rate is to be restricted to 75 per cent period of time. In this connection, the statement of Mr. Deokule was referred who was examined on behalf of the State of Maharashtra. It has been submitted that in reply to question No. 614, C-II-D-119A, Vol.-II, page 145, he admitted that the success rate of the projects of Maharashtra may be quite high, say may be about 95 per cent. Denying any admission as such and submitting that his statement may be read in context with other questions and answers, the statement of Mr. Deokule is sought to be explained by answer given by him in reply to a question put in the cross-examination, C-II-D-119A, Vol.-II, page 143, where he stated “if the project capabilities built up to 585 TMC in most of the years, Maharashtra can use 585 TMC”.

In reply to question No. 607 put to Mr. Deokule on the same page of C-II-D-119A, he stated “..... it all depends upon the overall availability in Maharashtra and in a year if it is more than 585 TMC in that year also the limit for use for Maharashtra would be 585 TMC. In Maharashtra as the overall yields are much more, practically most of the years, Maharashtra can utilize 585 TMC. Hence, if the project capability is built up to 585 TMC in most of the years, Maharashtra can use 585 TMC. In some lean years, when the

yields in Maharashtra are even less than 585 TMC at the respective storage sites, obviously in that year Maharashtra will not be able to use 585 TMC". The witness was thereafter asked if he could indicate the percentage of 'in most of the years'. Again in reply to question No. 609, page 144, C-II-D-119A by which he was required to indicate some percentage roughly which he may have had in mind while saying 'in most of the years', the witness replied "no specific percentage can be indicated because in a particular series, if lean years are more, then the percentage of uses less than 585 TMC would be more compared to other series used". The question about indicating percentage vis. a vis. 'most of the years' was pursued in further questions, the witness replied to question No. 611, page 144, C-II-D-119A " I have already stated that as Maharashtra yields are of the order of 1168 TMC and as the permitted allocation is only 585 TMC, most of the years Maharashtra would be able to use 585 TMC except in a few lean year when the yield in Maharashtra itself at the location of storages is less than 585 TMC". It was thereafter that certain percentages were suggested to the witness by the learned counsel as to whether it could be 90 per cent or 95 per cent and so on to which he replied may be around that. However, what emerges from the

statement of Mr. Deokule, it appears that there being availability of water more than what has been allocated, in most of the years, Maharashtra may be able to utilize 585 TMC as and when the projects are ready and subject to the lean years or non-availability of water at the location of the storage. It is also stated by Mr. Deokule that there may be availability of more water but there is a limit to use only 585 TMC in a particular year. Therefore, utilization would not exceed that limit.

We feel that one of the questions which needs to be considered is, whether or not the success rate be strictly restricted to 75 per cent and of period and it is incumbent upon the State to disallow the increase in the success rate above 75 per cent. The apprehension of the State of Andhra Pradesh is that higher success rate means that much more water than the allocated share at 75 per cent dependability is utilized, as a consequence whereof the lower and the lowest riparian States suffer and their rate of success also becomes low. It is further submitted that such a situation also leads to the conclusion that either the oversized reservoirs are constructed having capacity to utilize more water than at 75 per cent dependability or the State has carryover capacity in the reservoirs. In absence of the two

eventualities, as indicated above, the success rate would be confined only to 75 per cent dependability not otherwise. This argument perhaps leads to the proposition that compulsorily there have to be failure years to the extent of 25 per cent of the period. It would not be a correct proposition.

In support of the contention that success rate not more than 75 per cent is to be maintained, otherwise there would be utilization of more than allocated water and probably with the aid of carryover storages, the learned counsel refers to C-III-D-6, page 48, paragraph 4.2.2 of I.S.5477 (Part-I): 1999, which says “The active or conservation storage in a project should be sufficient to ensure success in demand satisfaction, say 75 per cent of the simulation period for irrigation projects.....”. The I.S.: 5477 (Part-III) 1969, para 1.1, lays down the criteria and methods for fixing the live storage capacity of a reservoir. Our attention has thus been drawn by the learned counsel to paragraph 3.3 at page 56 of C-III-D-6, which says “ The storage provided in an irrigation project should be able to meet the demand for 75 per cent of the time whereas in power and water supply projects the storage should meet the demand for 90 per cent and 100 percent of the time respectively”. As a matter of fact, this provision is

only for the purposes of fixing the live storage capacity of a reservoir. Para 3.3 quoted above is an enabling provision, that live storage capacity of reservoir for irrigation should be able to meet the demands for 75 per cent of time. It can well mean that it may not be less than 75 percent of time. However, there is no dispute about the fact that irrigation projects are to be constructed at 75 per cent dependability. Our attention has then been drawn to page 50 of C-III-D-6 which is I.S.5477 (Part-I):1999, paragraph 5.7, which is also of the similar nature as the provisions quoted earlier. It, however, says “5.7 **Criteria for Assessing the success of the Project:-** Water Resources Projects are to be designed for achieving specified success. Irrigation projects are to be successful for 75 per cent period of simulation.....”. This provision also does not mean anything different from what has been referred to earlier in paragraph 3.3 of I.S.5477 (Part-III) 1969. It is, further, submitted that the project is to be so designed that the success rate may be as specified, namely, 75 per cent of the time and as a corollary of the same, there must also be failures for 25 per cent of the time. We feel that it may perhaps not be possible to interpret provision as it is sought to be done. There may be cases where number of lean years may become more, that would

increase the number of failure years more than 25 per cent of time and success years would decrease or in a reverse case where the location of a project is such that the required quantity of water may be available for more than 75 per cent of time, the number of success years may increase. It may, therefore, depend upon such circumstances and it may become difficult to say that it can be worked as a precise formulae balancing the success and failure years by scales in the ratio of 25 per cent and 75 per cent fixed and final. It would rather be ideal if there would be no failure year, if, of course, there is no adverse affect on other riparian State.

The learned senior counsel for the State of Andhra Pradesh then refers to the report of a working group which was to prepare guidelines for detailed project report of irrigation and multi purpose projects, published by Government of India, Ministry of Water Resources in the year 2000. Our attention has been drawn to paragraph 9.13 at page 43 where a suggestion has been made by some member of the working group in respect of Water Resources Development Projects that they may be planned on 50 per cent dependable flow or on average flow and in that connection it was observed that the success rate of irrigation projects are planned for 75

per cent success and it was further indicated “Actual water utilization may be more than 75 per cent dependable flow if there is adequate storage back up”. The working group has recommended that existing criterion for planning of the projects may continue. It is apparent that the working group was considering planning of projects on 50 per cent dependable flow or on average flow and in that connection it was observed that actual water utilization may be more than 75 per cent dependable flow if there is adequate storage back up. The suggestion of the working group nowhere has laid down or suggested anything about restricting the number success years in a project planned at 75 per cent dependability. In totality, rather it is observed by the working group that with adequate storage back up, actual water utilization may be more than 75 per cent flow even where storages are planned on 50 per cent dependability. We do not think that this provision, in any manner, helps in making out the contention raised by the learned counsel.

The learned senior counsel for the State of Andhra Pradesh has then referred to Check List-II, Planning. It is given at page 151 of APAD-7. It appears that it is a Check List for the purposes of preparing Detailed Project Report. The Sub-heading II relates to

Planning. Our attention has been drawn to Item No.9, which says whether the effects of the scheme on the riparian rights and existing upstream and downstream projects are discussed. It has been referred to highlight the point that while planning, the existing upstream and downstream projects should be kept in mind so that they may not be affected. Insofar as this question is concerned, perhaps it does not arise any more in this case. Each State has been allocated the shares in the 75 per cent dependable flows and each one of them is supposed to plan accordingly. The case of the State of Maharashtra is that they have planned all their projects which have been completed or under construction, at 75 per cent dependable flow. In case the State of Andhra Pradesh is able to achieve 75 per cent success rate it cannot be said that their downstream schemes have been adversely affected in any manner by the projects of the State of Maharashtra. A reference has also been made to Item 35 of APAD-7 at page 154. This item is under the heading '**Hydrology**'. This item 35 enquires as to whether integrated working table (for more than one reservoir in the system) been prepared. We are afraid even this clause will not be attracted. As a matter of fact, integrated working tables are prepared where two reservoirs or more work in one system, for example, the reservoir at

Almatti and Narayanpur or, Srisaïlam and Nagarjunasagar in Andhra Pradesh, but integrated working table for all the reservoirs in whole basin is not required.

The learned counsel then referred to C-III-D-7, page 17, Paragraph 4.2, it is, as a matter of fact, a document relating to parawise compliance. Para 4.2, to which our attention has been drawn says that the demand of canals taking off from Almatti Dam are met with cent per cent reliability and that from Narayanpur Dam fails in 7 years out of 39 years, namely, with 80 per cent success. Thus the suggestion was that there was scope for reducing the storage capacity at Almatti by satisfying the accepted 75 per cent criteria for irrigation success. The reply which has been submitted by the State of Karnataka was that the Almatti project was now proposed as multi purpose project taking into account the balance storage for generation of electricity. Suffice it to say that it related to Almatti Dam in Karnataka and have nothing to do with Maharashtra projects. Karnataka submitted its reply but all that was sought to be pointed out seems to be that where demand was being met at a higher percentage the observation was that there was scope for reducing the storage.

The learned counsel has then referred to C-III-D-8. It is, as a matter of fact, Summary Record of Discussions of the 81st Meeting of the Advisory Committee for Consideration of Techno-Economic Viability of Irrigation, Flood Control and Multi-Purpose Project Proposals held on August 4, 2003. The Committee had met to consider Techno-Economic Viability of 14 projects. It was agreed that irrigation projects may be planned at 75 per cent dependable flow. Our attention has also been drawn to page 27 of C-III-D-8, which is in respect of Tarali Irrigation Project. All that comes out of the discussion is that irrigation project should be planned at 75 per cent dependability as per the existing norms. While discussing the matter it was also observed that Maharashtra was planning some projects at 50 per cent dependability with carryover storage and in respect of Tarali Irrigation Project it was observed that utilization was more than 75 per cent dependable yield and it was suggested that in the projects where success was more than 75 per cent, storage planning of such projects needs to be revised to avoid carryover storage. All these observations have been coming through the discussions at page 28. However, it is indicated that subsequently the authorities had explained and clarified that utilization proposed from storage of Tarali

Dam is 6.54 TMC which was less than 75 per cent dependable yield at the Dam site. The balance utilization of 1.7 TMC was to be met from the yield available between Tarali Dam and G.D. site. After this clarification the project was considered acceptable by Irrigation Planning (S)Dte. Therefore, the opinion which was initially expressed by Advisor (WR) Planning Commission, indicating that project was being planned for utilization on more than 75 per cent dependability was clarified to be not correct which was also accepted and the project was approved. The next item out of C-III-D-8 which was referred to was about Dhom Balakwadi Tunnel Project at page 28/29. Here again we find that it was Advisor (WR) Planning Commission who pointed out that irrigation success rate was 82 per cent which was more than 75 per cent, hence it involves higher storage. However, in the end the matter was deferred and no decision seems to have been taken directing curtailment of the storage etc.

Yet another project which has been referred to is Chillhewadi Irrigation Project. In this project success rate was stated to be 97.44 per cent and in the end it is observed that there is a possibility of reducing gross/live storage capacity by about 30.23 hm³ and still achieving success rate of more than 75 per cent. Thus it is clear that

though it was suggested to reduce gross/live storage still success rate over and above 75 per cent was allowed. It is nowhere indicated that the storage must be cut to have 75 per cent success only and nothing more than that. On the other hand, as stated above success rate more than 75 per cent was allowed. In this connection, it would be necessary to have certain facts regarding this project and they are that the live storage is 23.13 hm^3 which is 76.51 per cent of the proposed utilization of 30.23 hm^3 and it is 30 per cent of 75 per cent dependable yield of 75.3 hm^3 (hm^3 is as it is mentioned in C-III-D-8, page 29. It may perhaps be Mm^3). Still the success rate was to be near about 100 per cent. It is to be noticed that the planning was at 75 per cent of the proposed utilization with a high success rate. Therefore, what falls out is that higher rate of success will not necessarily lead to the conclusion that there is some carryover storage or there is oversized storage to give higher rate of success. It may all depend upon the site and location of the project and the hydrology of the area which may have the material bearing on the success rate. Chillhewadi project or there may be some other such projects which may fall in high rain zone, therefore, the possibility of higher rate of success is possible even though the planning may be according to 75 per cent success

rate. Yet another possibility may be, if there is prolonged monsoon in such an area. The size and storage capacity will remain the same for all times, namely, for 75 per cent of period of success as well as 25 per cent of period of failures but there may be possibility of more rains available if monsoon prolongs in particular area, it may give some higher rate of success. So there may be projects giving higher rate of success without adversely affecting other States.

In any case, the success rate of State of Maharashtra is shown as 99 per cent in 'Annexure-34' to the affidavit of Prof. Subhash Chander and which is being relied upon by State of Andhra Pradesh. Learned senior counsel appearing for the State of Maharashtra denied it and submits that 'Annexure-34' is incorrectly prepared. It is submitted that it is erroneous to presume that Maharashtra would be able to utilize full share of its allocation of 560 TMC in all years. It is also submitted that all the projects are planned and constructed individually at not more than 75 per cent dependability. In aggregate, such projects cannot render the success rate of more than 75 per cent, but on the other hand it is on this assumption that 'Annexure-34' has been prepared. As a matter of fact, we have already dealt with 'Annexure-34' to C-III-D-81-82. It is vehemently urged that all the

water which is generated in Maharashtra is not and cannot be utilized by it. There are un-intercepted catchments. It has also been pointed out that there are cappings which have been put by the previous tribunal, for that reason also all water generated in K-3 and K-5 cannot be utilized. He refers to notes of his arguments, MHAD-32, as also paragraph 34 at page 19 of MHAD-10 and the cross-examination of Prof. Subhash Chander. Our attention has been drawn to question No. 1840 at page 523 of C-III-D-81- 82A, Volume-IV. In reply, the witness answered in affirmative to the suggestion made that according to Andhra Pradesh, Maharashtra could use 560 TMC throughout. The next question was 1841 at the same page, "In fact, the Tribunal has put restrictions on two sub basins in Maharashtra, namely K-3 sub basin and K-5 sub basin restricting Maharashtra not to use more than 7 TMC and not more than 95 TMC respectively in these sub basins. Therefore, your suggestion that Maharashtra can use whatever quantity it likes in K-3 and K-5 sub basins, as you have stated in 'Annexure 30A', page 222 is incorrect. A: "Yes. This column needs modification. But it will still not change high dependability enjoyed by Maharashtra". Question No. 1843, at page 524 of the same volume: "Would you agree that notion that an aggregate quantity of

560 TMC can be utilized irrespective of the practical utilization at a particular part of the sub basin would not be correct? It would depend upon the topography, the availability of the flows at a particular part of the river and so on. Would you agree”? Ans: “I agree that is why planning is needed and I am sure that when the availability is so high one can plan for utilization of 560 TMC at a very high success rate”.

From the answers in reply to the two questions indicated above, it is clear that admittedly ‘Annexure-34’ which is the basis of alleged success rate of Maharashtra needed modification. Thereafter, all that witness says is that there would still be high rate of success to be enjoyed by Maharashtra but here we find that the percentage figure of success rate as 99 per cent disappears and it comes down to high dependability to be enjoyed by Maharashtra. It is perhaps on the same lines on which Mr. Deokule had stated that Maharashtra would achieve its allocation in ‘most of the years’ which was pursued by suggesting to him many alternative percentages, and the other thing which emerges is that success rate of a project may vary depending upon the topography and the availability of flows at a particular part of the river etc. It will not be uniform in all of the projects. The success rate may be higher than what it is planned for, if a project falls

in high rain zone or where there may be prolonged monsoon and so on and so forth, not necessarily with a back up of carryover storage. Some other projects may not give the same rate of success at which they have been planned depending on some other material factors. In any case, it does take away the case taken up by Andhra Pradesh that the success rate of Maharashtra is 99 per cent. It is to be noticed that in reply to the question put to the witness Prof. Subhash Chander in cross-examination, namely, question No. 1845 at page 525 of the same volume, where he was asked what was the significance of his theory of success/failure rate. The witness answered that he made a plea in his affidavit that no carryover should be allowed in the upper States and so on. Question No. 1846 of the same volume at page 526 reminded him that he was not answering the question put to him and he could think over and answer, the next day. The witness replied "Thank you". Next day in the cross-examination the same query was put to the witness in question No. 1847, to which the witness answered that the purpose was that additional carryover storage be provided to the State whose success rate is lower or barter dependability in lower State with use of low dependability flow. He was asked to explain as to what he meant by barter the dependability

in question No. 1848 at page 527. His answer was “In the Bachawat Tribunal, a similar situation had arisen wherein the Tribunal felt that Andhra Pradesh would suffer most in years when the flow at Vijayawada is less than 2060 TMC. So the Tribunal made a provision of granting carry over storage to Andhra Pradesh and also freedom to use the remaining water. This amounts to bartering equal dependability with carryover storage and use of remaining water”. It is to be noticed that it is definitely not the reason given by the witness that by alleged higher rate of success of Maharashtra, any of the project at 75 per cent dependability in Andhra Pradesh is adversely affected. All the three States had been allocated water at 75 per cent dependability including Andhra Pradesh. We have already found that success rate of Andhra Pradesh is not below 75 per cent in any case and over and above that they also enjoy the benefit of carryover storage which also has some augmentation of its yield which has not been taken into account by us while calculating its success rate. Therefore, according to the answer as given by the witness quoted above, all that is sought is to have more carryover storage or continuance of the liberty granted to it to utilize the surplus water, it is definitely not their case that by any alleged higher success rate of

Maharashtra, their existing projects suffer in any manner. In these circumstances, we feel that there is no good reason to entertain their plea of success rate of Maharashtra at 99 per cent which is admittedly not correct and what is the “high dependability” has not been precisely spelt out by the witness Prof. Subhash Chander.

On behalf of the State of Maharashtra, learned senior counsel Shri Andhyarujuna tried to show that some water flows down to Karnataka un-intercepted and he asked a question on that point which is question No. 1849 at page 528 of C-III-D-81,82, Volume IV and also showed to him a sketch map C-II-D-P-155 showing the intercepted and un-intercepted catchments and the witness in reply to the suggestion said that all the flows in the un-intercepted catchment flow down to Karnataka. The witness agreed to the same in the answer saying “yes. With the present planning it could be so”. Again we find that in question No. 1850 put to the witness, a chart C-II-D-P-156 was shown to him showing success rate of Maharashtra at 75 per cent to which the witness replied at page 529 that he had not been able to understand column 3, in respect of which when another question was put to him that it was the same figure as was mentioned by the witness in `Annexure-30A” to his affidavit, the witness answered “I

stand corrected. I will check it and let you know”. Again in question No. 1852 at page 530 of the same volume, it was put to the witness that in K-1 and K-5 sub basins which are crucial and large basins in Maharashtra, the success rate in those sub-basins was only 63 per cent. In reply, the witness stated “The calculation has given lower success rate because in the chart C-II-D-P-156, column 9 for K-1 sub-basin, un-intercepted flow have been computed using area ratios, probably.....” In the next question, namely, question No. 1853 at page 530 the witness was confronted by the learned counsel “I have to correct you that in C-II-D-P-156 and in Table-1, flows have not been computed using area ratios as you wrongly assumed. Further, Maharashtra has used precisely the same method as you have used in your table 30 at page 227”. Ans: “I will check it”.

So this is how we find that the alleged success rate of 99 per cent attributed to Maharashtra has been challenged and in our opinion to some extent, rightly, which is also admitted by the witness Prof. Subhash Chander. State of Maharashtra gave its own calculations of its success rate in respect of which witness twice assumed wrong facts. Therefore, it is difficult to say that the case of high success rate (99 per cent) attributed to Maharashtra is apparently made out but we

hasten to add that it does not mean that it would amount to acceptance of the case of Maharashtra giving out its own success rate. The position as it presently exists is that Maharashtra has not achieved utilization of its full allocation of water to the extent of 560 TMC except on a few occasions lately. But we have already seen that it has not made any difference for Andhra Pradesh to achieve its success rate at 75 per cent dependability. It is also not the case of Andhra Pradesh that any of its existing projects is affected by alleged higher success rate of Maharashtra. All that was intended by showing the higher success rate of the upper riparian States is to obtain more carryover storages and to continue the liberty to utilize surplus flows. We, therefore, find that the case taken up by Andhra Pradesh by alleging 99 per cent success rate of Maharashtra is not made out as alleged, subject to what has been discussed in the preceding paragraphs. Maharashtra may have some high rate of success in some of the projects but in some other it has pleaded that it is not achieving 75 per cent success rate. A State is not bound to restrict its success rate strictly within 75 per cent nor is that necessary that it must in all cases compulsorily have 25 per cent failures. Higher success rate cannot be objected to unless it adversely affects the projects of lower

riparian State bringing down its performance below the prescribed or as per allocated dependability. We have already noticed the purpose of all this exercise for success rate as indicated by the witness of Andhra Pradesh Prof. Subhash Chander so that no carryover storages may be allowed to the upper riparian States and Andhra Pradesh may be allowed to have more carryover storages and continuance of the permission to utilize remaining flows. In this context it may be seen that at present the position is that Andhra Pradesh is utilizing 800 TMC as its allocation as against 560 TMC to Maharashtra and 700 TMC to Karnataka. Apart from that, Andhra Pradesh is also given benefit of carryover storages to the extent of 150 TMC which also it is already utilizing and yet again in view of the permission granted by KWDT-I it is utilising quite a considerable amount of water out of the remaining water, of course, without accrual of any right. This gives a picture as prevailing presently about the quantity of water being utilized by the different States. The effect of it, however, we will consider later while dealing with the question of distribution and allocation of the water available for the purpose.

.....

KRISHNA WATER DISPUTES TRIBUNAL

THE REPORT

OF

THE KRISHNA WATER DISPUTES TRIBUNAL

WITH THE DECISION

IN THE MATTER OF WATER DISPUTES REGARDING THE
INTER- STATE RIVER KRISHNA AND THE RIVER VALLEY
THEREOF

REPORT/ DECISION

BETWEEN

1. The State of Maharashtra
2. The State of Karnataka
3. The State of Andhra Pradesh

VOLUME III
(Pages 434 – 662)

NEW DELHI

2010

COMPOSITION OF
THE KRISHNA WATER DISPUTES TRIBUNAL

CHAIRMAN

Shri Justice Brijesh Kumar,
(Former Judge, Supreme Court of India)

MEMBERS

Shri Justice S.P.Srivastava,
(Former Judge, Allahabad High Court, Uttar Pradesh)

Shri Justice D. K. Seth,
(Former Judge, Calcutta High Court, Kolkata)

ASSESSORS;

1. Shri R.S. Prasad
(Former Chairman C.W.C.).
4. Shri Suresh Chandra
(Former Chairman C.W.C.)

Representatives of the State Governments before
the Krishna Water Disputes Tribunal

1. For the State of Karnataka

Advocates

Shri F.S. Nariman, Sr.Advocate
Shri Anil B. Divan, Sr.Advocate
Shri S.S.Javali, Sr.Advocate
Shri Uday Holla, Advocate General
Shri Ashok Harnahalli, Advocate General
Shri Basava Prabhu S. Patil, Advocate
Shri Mohan V. Katarki, Advocate
Shri Brijesh Kalappa, Advocate on record
Shri R.S. Ravi, Advocate
Shri S.C.Sharma, Advocate
Shri R.S.Pappu, Advocate
Shri Ranvir Singh, Advocate
Shri Gurudatt Ankolekar, Advocate

Assisted by the following officials and consultants
as informed by Shri Brijesh Kalappa, Advocate on
Record through his letter dated 20.12.2010 (received on
21.12.2010):

Shri A.K.M.Nayak, Principal Secy., Water Resources Deptt.
Shri L.V.Nagarajan, Principal Secy., Water Resources Deptt.

Shri D.Satyamurthy, Principal Secy., Water Resources Deptt.
Shri K.G.V.Murthy, Addl.Secy., Law Deptt.
Shri N. Vijayaraghavan, Chief Engineer (Inter-state Waters), WRDO
Shri M.Bangaraswamy, Chief Engineer (Inter-state Waters), DRDO
Shri D.N.Desai, Principal Advisor
Shri Sriramaiah, Technical Advisor
Shri T.S.Narayana Swamy, Dy. Advisor
Shri H.Seshadri, Dy. Advisor
Shri B.R.Vijaya Kumar, Superintending Engineer (ISW)
Shri A.B.G.Hiremath, Asstt.Executive Engineer
Shri K.Vijaya Kumar, Asstt.Executive Engineer
Smt.M. Shamala Devi, Asstt.Executive Engineer

2. For the State of Maharashtra

Advocates

Shri T.R.Andhyarujina, Sr.Advocate
Shri U.U.Lalit, Sr.Advocate
Shri D.M.Nargolkar, Advocate on record
Shri Ashish Chugh, Advocate
Shri Shoumik Ghosal, Advocate

Assisted by the following officials and consultants as
informed by Shri Deepak M. Nargolkar, Advocate on
Record through his letter dated 23.12.2010:

Shri V.V. Gaikwad, Secretary, Water Resources Department
Shsri E.B. Patil, Secretary, Water Resources Department

Shri H.K. Tonpe, Chief Engineer & Joint Secretary
Shri N.L. Gawale, Chief Engineer & Joint Secretary
Shri A.R. Kore, Chief Engineer & Joint Secretary
Shri S.K. Ghanekar, Superintending Engineer
Shri S.V. Awati, Executive Engineer
Shri K.G. Devali, Executive Engineer
Shri D.G. Mogane, Executive Engineer
Shri S.G. Joshi, Executive Engineer
Shri C.N. Hangekar, Executive Engineer
Late Shri S.T. Deokule, Advisor and Consultant
Shri S.N. Huddar, Advisor and Consultant
Shri K.S. Shankar Rao, Advisor and Consultant

3. For the State of Andhra Pradesh

Shri Dipankar P. Gupta, Sr. Advocate
Shri D. Sudershan Reddy, Sr. Advocate
Shri Rakesh Dwivedi, Sr. Advocate
Shri G. Veera Reddy, Advocate
Shri E. Raveendra Rao, Advocate
Shri M.R.S. Srinivas, Advocate
Shri T.N. Rao, Advocate on record
Shri S. Santosh Kumar, Advocate
Shri M. Ramulu Reddy, Advocate
Ms. Preetika Dwivedi, Advocate
Shri Anant Prakash, Advocate

Assisted by the following officials and consultants
as informed by Shri T.N. Rao, Advocate on Record
through his letter dated 22.12.2010:

Shri S.K.Joshi, IAS, Principal Secy. to Govt., I & CAD Deptt.
Dr.P. Rama Raju, Ph.D, Chief Engineer, Inter State & Water Resources
Dr. M.S.Reddy, Principal Advisor to Govt.
Shri N.Gopal Reddy, Chairman, Technical Advisory Committee
Shri B.P.Venkateswarlu, Member Technical Advisory Committee
Shri K.V.Ram Mohan, Member, Technical Advisory Committee
Prof. Subhash Chander, Sr.Consultant
Shri V.V.S. Rama Murthy, Consultant
Shri M.A.Raoof, Supdtg. Engineer, IS&WR
Shri M.Visveswra Rao, Ex. Engineer (Hydrology)
Shri P. Rama Krishna Murthy, Dy.Director (Krishna)
Shri N.Satyanarayana, Dy.Director (Krishna Tribunal)
Shri C.R.K. Reddy, Ex.Engineer (New Delhi)

I N D E X

(Important Issues and Points)

<u>Sl.No</u>	<u>Particulars</u>	<u>Page No.</u>
1.	Introduction	1
2.	History of the case – Decision and Findings of the previous Tribunal	6
3.	Review Proceedings – References and Clarifications	69
4.	Proceedings before the Supreme Court in the original suits	107
5.	Complaints of the States in the present Proceedings and Preliminaries of the present Proceedings and the Issues	136
6.	Co-operation amongst riparian States – An essential element	160
7.	Question Re.- The Proviso to Section 4(1) of the Act against reopening of the settled disputes	169
8.	Question raised relating to implications arising from Section 6(1) of the Act	205
9.	Findings on the Issues	211
10.	Availability of Flows & availability of Water – Exercises before this Tribunal	214
11.	Series of 47 Water Years 1961-62 to 2007-08	260
12.	Percentage factor of Dependability	305
13.	Inevitable Wastage	331

14.	Success Rate	390
15.	Re. – Scheme-B – Issue No. 5	434
16.	Diversion Outsides the Basin – Issue No. 6	473
17.	Tungabhadra sub-basin and related disputes	488
17(a)	Projects of Karnataka – Upper Tunga Singatlur, Upper Bhadra and others – Issue No. 27	515
17(b)	Control of Head Regulator and Canal system of Left and Right Sides of Tungabhadra Dam – Issue No. 21(A)	549
17(c)	Mini Hydel Project – Issue No. 22A	561
17(d)	Administrative control over Rajolibunda Diversion Scheme – Issue No. 22	572
17(e)	Parallel High Level Canal – Issue No. 24	581
18.	Height of Almatti Dam – Issue No. 14	597
18(a)	Conditions – If violated by Karnataka in raising the height of Almatti Dam – Issue No. 15	663
19.	Supply of Drinking Water for Chennai City	705
20.	Minimum in-stream flow and flow required for environment and ecology	723
21.	Distribution and apportionment of available waters	743
22.	Machinery for implementation of the Decision of Tribunal – Issue No. 21	792
23.	Decision and Order of the Tribunal	800

A P P E N D I X

Particulars

Pages

Appendix-I	Krishna Waters Decision – Implementation Board	1- 23
Appendix-II	The Map of the Krishna Basin	24



RE: SCHEME 'B'

Before we take up the matter relating to apportionment and allocation of water, it would be appropriate to decide Issue No. 5 which reads as follows:-

“Whether the complete ‘Scheme-B’, as drawn up in the further report of KWDT-I, including the shares of States, be adopted as a decision in the present adjudication”?

While considering the question of distribution of water the KWDT-I took suggestions from the party-States as to in what manner the distribution may be made. It appears that several suggestions were made. Ultimately, parties submitted a document Ex. MRK-340 (pages 160-161, KWDT-I), which contained their views on the method of allocation to be adopted by the Tribunal. Broadly, it appears that the parties were in agreement that there may be mass allocation of utilizable dependable flow at 75 percent and on percentage basis in surplus as well as deficit years. Some restrictions with regard to use, as were to be decided by the Tribunal, would also be provided and that there should be a joint control body to give effect to the decision of the Tribunal. On these broad features, the Tribunal considered the details of the scheme and separate drafts of the scheme for division of

water were prepared by each of the State in two parts. Part-I related to details of the distribution of water and the other related points and Part-II related to constitution and powers of an authority which was called in the draft as the Krishna Valley Authority which was to supervise that the States share the water in accordance with the order of the Tribunal.

In Part-I of the scheme, the water was to be distributed for the beneficial use of the States in the manner as provided in Clause III(A) of the scheme, according to which, in case water in any year is not more than 2060 TMC, share of Maharashtra would be 560 TMC, Karnataka 700 TMC and that of State of Andhra Pradesh 800 TMC. In case it was above 2060 TMC but up to 2130 TMC, Maharashtra was to get 35 per cent of such excess, Karnataka 50 per cent of such excess and Andhra Pradesh 15 per cent, as provided in sub-clause (B) of Clause III and the water over and above 2130 TMC, if available, was to be distributed, Maharashtra 25 per cent of such excess, State of Karnataka 50 per cent of such excess and State of Andhra Pradesh 25 per cent of such excess (page 26/27, final order KWDT-I). The other feature of the scheme was about sharing of the deficit as to how it was to be ascertained and in what manner releases were to be made by the

upper riparian States with certain restrictions and conditions, though there were some differences on some material points about Part-I of the Scheme 'B' as well.

However, it was thought that unless a Joint Control Body or Inter-State Authority was established, it would be difficult to work out Scheme 'B'. All the parties sought adjournment for agreeing upon provisions of Part-II, to ascertain whether each of the State Governments was agreeable to set up Krishna Valley Authority having the constitution and powers, as mentioned therein. On the adjourned date, State of Maharashtra agreed to the constitution and powers as mentioned in Part-II of Scheme 'B' as well as the State of Karnataka (Mysore) but with certain modifications proposed by it. Learned Advocate General of Andhra Pradesh, however, stated that he was authorized to state that the State of Andhra Pradesh was unable to give formal consent to set up Krishna Valley Authority having the constitution and powers as mentioned in Part-II and further that the State of Andhra Pradesh was also not agreeable to the modifications suggested by State of Mysore in the proposed Part-II of the scheme (Page 162, Report of KWDT-I).

It appears that on behalf of the State of Maharashtra it was submitted that despite the disagreement on the point, Joint Control Body can be set up by the order of the Tribunal. The KWDT-I considered the question in detail, considering the legalities involved in view of the provisions in the Constitution of India and from the other points of view as well. It was thought that it would only be appropriate that such an authority was constituted with the consent of all the parties and on consideration of all the questions involved, the Tribunal at page 165, column-2 bottom observed: “These circumstances have impelled us to take the view that it will not be proper to set up any authority without the consent of the parties. Propriety of the matter rather than legality is playing a decisive part in our decision on this point”. Ultimately, the KWDT-I, provided thus at page 166 of the report: “After deeply pondering over the matter we have come to the conclusion that it would be better if we devise two schemes for the division of the water of the river Krishna between the State of Maharashtra, Mysore and Andhra Pradesh. These schemes will be called Schemes ‘A’ and ‘B’. Scheme ‘A’ will come in operation on the date of the publication of the decision of this Tribunal in the Official Gazette under Section 6 of the Inter-State

Water Disputes Act, 1956. Scheme 'B' may be brought into operation in case the States of Maharashtra, Mysore and Andhra Pradesh constitute an inter-state administrative authority which may be called the Krishna Valley Authority by agreement between them or in case such an authority is constituted by legislation made by the Parliament. Scheme 'A' does not at all depend upon the agreement of the parties and comes into operation by virtue of the order of the Tribunal. It is altogether independent of Scheme B". (page 161, Column-2, Report of KWDT-I)

This is how Scheme 'A' came into operation on publication of the decision of the Tribunal but so far as Scheme 'B' is concerned, parties did not agree to constitute Krishna Valley Authority nor any legislation was made by the Parliament constituting such an authority as suggested in the order of the Tribunal. It also appears that at the stage of proceedings under sub-section (3) of Section 5 of the Inter-State Water Disputes Act, the State of Maharashtra again pressed for constituting the authority and the Government of India also sought clarification that Scheme B which is a better scheme may be made a part of the order so that all necessary steps in that regard may be

taken. However, the decision of the Tribunal remained the same unchanged on that point.

In the Suit filed before the Hon'ble Supreme Court by the State of Karnataka being O.S. No. 1 of 1997; the questions relating to status of Scheme B and its implementation were raised and issues in that regard were also framed. The Supreme Court observed in its decision reported in 2000 (9) SCC 572 at 597:- "It is no doubt true that Scheme 'B' is more beneficial and provides for more beneficial and fuller utilization of water of the river Krishna but the Tribunal itself has not considered the same to be a part of its decision which could be implemented by a Notification under Section 6 of the Act". The arguments raised on behalf of the State of Karnataka that Scheme 'B' may also be considered as a decision of the Tribunal was not accepted and it was held that Scheme 'B' is not a decision of the Tribunal as such. Therefore the Court could not issue any direction for implementation of Scheme 'B' and it was held that the question relating to Scheme 'B' could be raised before the Tribunal or an authority which may be constituted for resolution of the disputes between the States and while providing so, it was also observed that Scheme 'B' provides for a fuller and better utilization of the water

resources in river Krishna and in future if the question of allocation of water of river Krishna is gone into by any authority, the said authority would certainly look into Scheme 'B', but the authority which may be entrusted with the task of resolving the dispute would come to its own decision and the Scheme 'B' formulated by the earlier Tribunal can only serve as a useful blue print for this authority, though it may not strictly be binding on it and further observed that the observations made by Supreme Court are to be understood only in that light.

In connection with the dispute, relating to implementation of Scheme 'B', raised before this Tribunal, we may first peruse the averments made by the State of Karnataka in its letter of complaint C-I dated 25th September, 2002. In paragraph-3 under the heading '**SPECIFIC MATTERS IN DISPUTE**', which would arise, they are indicated in sub-clauses and sub-clause (ii) says whether the shares in the surplus water should be allocated as follows:

State of Maharashtra	25 per cent.
State of Karnataka	50 per cent.
State of Andhra Pradesh	25 per cent.

Thereafter, we find that in paragraph-4 titled as '**MATTERS CONNECTED WITH OR RELEVANT TO THE WATER DISPUTES**', sub-para (a) is “Whether, any mechanism is necessary and/or appropriate to monitor the shares of the respective States in the surplus waters”?

Thereafter, in clause (c) there is a complaint about appropriation of the surplus waters by the State of Andhra Pradesh in certain projects indicated therein. Similarly we find that in clause (d) also grievance is raised about Maharashtra appropriating or likely to appropriate the surplus waters by creating extra storages etc.

We then find in paragraph-5 titled as '**EFFORTS MADE TO SETTLE THE DISPUTES**', Negotiations which took place between the States is mentioned and in sub-para © it is stated that State of Karnataka by its letter dated 17th August, 1996 called upon the States of Maharashtra and Andhra Pradesh to consent for enforcement of Scheme 'B' formulated by the Krishna Water Disputes Tribunal allocating surplus water amongst the riparian States, but these States declined to given consent.

We again find that in Part-B of paragraph-5 with the title **`SUBSEQUENT TO THE DECISION OF THE SUPREME COURT IN O.S. 1 OF 1997'**, it is indicated in clause (iv) that the Chief Minister of Karnataka had sent a letter dated 14.6.2001 to the Union Minister drawing his attention to the observations made in the judgment dated 25.4.2000. The observations of the Supreme Court which have been quoted related to utilization of surplus waters in excess of allocated quantity and one of the passages quoted is as follows:-

“.....It is Central Government which has to exercise this discretion while clearing projects of the lowest riparian State and it should be so exercised that there should not be any apprehensions in the minds of the upper States that for all times to come, the right of sharing surplus water in any manner be endangered”.

We then find paragraph-6 titled as **`DISPUTE NOT SETTLED BY NEGOTIATIONS'**, and thereafter disputes which according to Karnataka were not settled, one of them “.....the water disputes with respect to the sharing of surplus waters of the river Krishna in excess of 2130 TMC, as also the wrongful utilization of the surplus waters by Andhra Pradesh.....”.

We then find that 'Annexure-A' quotes from the decision of the KWDT-I and one of the parts quoted from the report of KWDT-I, 1973 at page 166 and 167 pertains to a situation where total use made by the States in a water year is more than dependable flow, it is to be shared by the three States in given proportions. Thereafter quotation from the further report of 1976 has been made, clause-III of which provided about the allocations made to the States out of 2060 TMC. Then the clauses relating to sharing of excess water above 2060 TMC and above 2130 TMC in the percentages fixed therein, have been quoted, as laid down at page 27 of clarification No. (iii) of the further Report 1976 made by the Tribunal. Thereafter, the notification of scheme is mentioned and some findings of the Supreme Court in O.S. No.1 of 1997 have been quoted, some of which we have already referred to earlier.

The request which has been lastly made in the complaint is that the Government of India may constitute a Water Disputes Tribunal and refer to the Tribunal so constituted, for decision in the water disputes and matters connected with or relevant to the water disputes, emerging from the letter of complainant and 'Annexure-A'.

A perusal of the letter of complaint shows that mainly the stress has been on sharing and utilization of the surplus water amongst the three States. Apprehensions have been expressed from both the States that they may utilize all the surplus water and deprive the State of Karnataka of the same and further stress seems to be about the percentage in which the surplus water is to be distributed as provided under Scheme 'B' by KWDT-I. The witness of the State of Karnataka Mr. D.N. Desai has filed his affidavit in support of the case taken up by the State. He also made a mention about the report, the decision of KWDT-I and the Suit filed before the Supreme Court and some of the findings recorded therein. He, however, also refers to the further report of KWDT-I, page 25 in paragraph 3.11 of his affidavit to the following effect:

- “(a) The share of each State should be fair and equitable;
- (b) Under Scheme B, all the States would share the surplus as well as the deficiency; and
- (c) As far as possible, the shares of the States under Scheme B should be in consonance with their shares under Scheme A and water for irrigation should be provided in the first instance for all areas within the Krishna river basin.

In paragraph 7.1 of his affidavit at page 19, it is pointed out that Scheme `B' drawn up by KWDT-I for allocation of entire water of Krishna basin including flows in the surplus and deficit years continues to be an equitable scheme. He also points out that according to their case the surplus water is not less than 517 TMC and in the conclusions, in the end of his affidavit in paragraph 8.1 in clause (f) says "The matters taken into account by KWDT-I while fixing the shares of the three States have not changed and therefore, the Scheme `B' continues to be an equitable scheme to be adopted by this Hon'ble Tribunal."

Mr. D.N. Desai, the witness for the State of Karnataka has no doubt made a mention at a few places about Scheme `B' without confining it to the sharing of the surplus flows alone. According to clause (f) indicated above, rather spells that Scheme `B' continues to be an equitable scheme to be adopted.

Learned senior counsel Mr. Andhyrujina, appearing for the State of Maharashtra submits that the State of Karnataka seems to be concerned only with distribution of the surplus flows. It has nowhere stated anything about sharing of the deficit of water in lean years as provided in Scheme `B'. He refers to C-I-5 which is rejoinder

affidavit filed by the State of Karnataka to the reply filed by Maharashtra to the complaint C-I (complaint of Karnataka), where again the State of Karnataka has submitted that all the three States are obliged to share surplus water of Inter-State River Krishna and its valley and while reserving its right to make appropriate comments, lastly stated that any scheme for division of waters should not prejudicially affect its share in the surplus water. Thus, on the basis of the averments made in the complaint and 'Annexure-A' to the complaint C-I and the rejoinder C-I-5, it is submitted that Scheme 'B' cannot be implemented without sharing of deficit also which is integral part of Scheme 'B'. Since sharing in deficit has not even been mentioned in the complaint, it cannot be said to be subject matter of reference made by the Central Government to the Tribunal on the complaint of Karnataka. The Tribunal will have jurisdiction to adjudicate only those matters which have been referred for decision by the Central Government. It is submitted that the facts clearly indicate that the case of Karnataka is only in respect of sharing of surplus waters in the proportion as provided in Scheme 'B'. Therefore, the implementation of Scheme 'B' cannot be pressed by the Karnataka.

Mr. Andhiyarujina has then referred to the statement of Mr. D.N. Desai in cross-examination. In question No. 3 put to the witness by the learned counsel for the State of Maharashtra, certain portions from the further report of KWDT-I have been read out and it was ultimately asked if Karnataka wanted to share the deficit in the waters when the flow is less than 2060 TMC, the witness replied “Karnataka has prayed for implementation of Scheme ‘B’ for the surplus water and the Scheme ‘B’ prepared by the earlier Tribunal that will be followed by Karnataka as and when this Tribunal may so direct”. The next question put to the witness, question No. 4 is: “Therefore, I, take it that the State of Karnataka also wants to share the deficiency in waters in the event of being a bad or a lean year as part of Scheme ‘B’.” Answer of the witness is “Yes”. In question No. 5, it was pointed out to the witness that in the complaint Karnataka had asked for sharing of surplus flows in paragraph 3 but there was no mention about sharing of deficit, the witness answered “In this I don’t find it”. Question No. 11 put to the witness is “Mr. Desai in your affidavit, you do not ask this Tribunal to implement the full Scheme ‘B’ as drawn up by the previous Tribunal. If there is any paragraph for that please draw our attention? Ans:- “In para ‘F’ at page 25 of my affidavit, I

have mentioned the matters taken into account by KWDT-I while fixing the shares of the three States, have not changed and therefore, Scheme `B' continues to be an equitable scheme to be adopted by this Hon'ble Tribunal". The cross-examination on this point has further been pursued and our attention has been drawn to question No. 88 at page 34 of C-I-D-118A, putting it to the witness that the State of Karnataka had not, in its letter of complaint to the Government of India and the pleadings before this Tribunal, ever asked for full and complete implementation of Scheme `B' as drawn up by the previous Tribunal. The answer of the witness to the said question is: "I do not agree. In the Karnataka's complaint in Annexure-A, it is pointed out that the entire Scheme `B' may be adopted for implementation". Question No. 89 put to the witness is "Even in your present affidavit before the Tribunal, you have not asked for full implementation of Scheme `B' and you are only referring to the distribution of surplus at 50% in favour of Karnataka. Is it correct? Ans:- "That is partly correct. 50% share to Karnataka comes out in Scheme `B' provided by the previous Tribunal". Thereafter, the next question was put to the witness on behalf of the Tribunal, question No. 90:- "While saying that Scheme B may be implemented, do you mean to say that it should

confine only to sharing of surplus water and not to deficit”. Ans: “Karnataka’s prayer before this Tribunal is for adoption of total Scheme `B’ as provided by earlier Tribunal for implementation. The draft of Scheme `B’ provides for implementation includes sharing of deficit also”.

On the basis of the material as pointed out by the learned counsel for the State of Maharashtra, his submission is that the question of implementation of Scheme `B’ as framed by KWDT-I does not arise since it has not been so prayed for, nor there is any mention made, in the complaint about sharing of the deficit.

True, there may be some scope for the State of Maharashtra to raise an argument that specifically sharing of deficit which is one of the most important ingredient of Scheme `B’, does not find mention in the complaint of Karnataka made to the Central Government and the stress has all along been repeatedly for sharing of surplus water, so Karnataka wanted only partial implementation of Scheme `B’ not the whole of it. Therefore, implementation of whole Scheme `B’ cannot be subject matter of adjudication before this Tribunal. But in our view this argument is a bit too technical to be given much weight, so as it may be taken as a matter touching the jurisdiction of this

Tribunal to deal with the issue framed at the instance of the State of Karnataka for implementation of complete Scheme 'B'. It is also true that in its complaint, at many places stress has only been given by the State of Karnataka about sharing of the surplus waters, may be Karnataka was feeling quite anxious about sharing of the surplus waters and more concerned about it but it cannot, in our view, be as a corollary follow that what is not specifically mentioned in the complaint, though a part of Scheme 'B', was intended not to be considered.

The whole thing has to be examined in the background from which it emerges. We have already seen how the Scheme 'B' was framed after taking suggestions from all the three parties for the purposes of distribution of the water. Broadly there was an agreement on certain matters which has been marked as Ex.MRK-340 referred to earlier, in pursuance whereof detailed drafts were prepared as Part-I and Part-II of Scheme 'B'. The State of Karnataka had been agreeing for implementation of Scheme 'B', of course, making some suggestions for modification in Part-II, however, ultimately it could not be through. But there has not ever been any indication that the State of Karnataka had been against the finalization and

implementation of Scheme `B` or wanted only partial implementation of Scheme `B`. Thereafter, ultimately, the State of Karnataka filed a Suit in the Hon'ble Supreme Court, pressing for implementation of the Scheme `B`. It was pleaded on behalf of the State of Karnataka that Scheme `B` may be made a part of the decision of KWDT-I and the same may be implemented, which prayer was not accepted for the reasons as indicated in the judgment of the Supreme Court. The Supreme Court, however, provided that an authority or a Tribunal, which may be constituted by the Central Government would go into this matter. In this background the State of Karnataka approached the Central Government for constitution of Tribunal to settle the disputes and matters connected with or relevant to the water disputes emerging from the complaint and `Annexure-A`. It is though true that in the complaint or `Annexure-A` there is no mention about the sharing of the deficit as provided in Scheme `B` but that alone does not mean that the State of Karnataka was asking only for partial implementation of Scheme `B` relating to the shares of the parties in the surplus waters. Besides the sharing of the surplus waters many other things are also provided for in the Scheme `B` as framed, which also do not find mention in the complaint or `Annexure-A` nor we feel it was

necessary to mention each component or provision as framed in Scheme `B` to be specified or to be specifically mentioned in the complaint. The whole tenor, as rightly pointed out on behalf of the State of Maharashtra, heavily tilted for the shares in surplus flows as provided in Scheme `B` but it does not mean that rest of the provisions of Scheme `B` are given a go-by or they cease to be part of Scheme `B`.

Learned senior counsel Mr. Andhiyarujina while pointing out to the statement of the witness of Karnataka Mr. D.N. Desai, as indicated in the earlier part of this Report, submitted that the statement of the witness would not constitute part of the complaint nor it can change the position as it stands in the complaint and the prayer made therein by the State of Karnataka. It is true no amount of evidence would form part of a claim, if the basis of the claim is not laid in the basic document like plaint or the Complaint in this case. But we find that Mr. D.N. Desai has only clarified, what he was asked to do, on behalf of the State of Maharashtra and in that connection we may again refer to question No.3 put to the witness in his cross-examination, in answer to which he had stated that the prayer was for implementation of Scheme `B` for the surplus water and the Scheme `B` prepared by

the earlier Tribunal, which will be followed by Karnataka as may be directed by this Tribunal. Again in the next question it was specifically put to the witness that it means that Karnataka also wants to share the deficiency in bad years as a part of Scheme 'B', to which the witness answered in affirmative. It is the State of Maharashtra itself, that got its doubts clarified as to whether partial implementation of the Scheme 'B' was intended by the State of Karnataka or in full including the deficit sharing. So far it is on the part of the witness, he had already stated, as referred to earlier, in Clause (f) of paragraph 8.1 of his affidavit that Scheme 'B' continues to be an equitable scheme to be adopted. Therefore, whatever may not have been clear, has been got clarified by the State of Maharashtra itself. The Tribunal had also got it clarified. The clarification which comes out of the statement of the witness is to be read in context with prayer made in the complaint, which has already been referred to earlier and it may be seen that request (b) made by the State of Karnataka is for constitution of a Tribunal for adjudication and decision of the water disputes and "matters connected with or relevant to the water disputes (as well interim measures) emerging from this letter of complaint (and the 'Annexure A' hereto)". So the prayer which has been made is very

wide in terms. According to this prayer the water disputes and matters connected with or relevant thereto, have been sought to be adjudicated through a Tribunal. Therefore, if only a part of the provision of Scheme 'B' has been stated and re-iterated times and again in the complaint, it would in terms of the prayer made, also attract other matters connected with or relevant to such part which finds a specific mention in the complaint. If claim for sharing of surplus is pressed, sharing in deficit would also become relevant as well as connected with prayer for sharing of surplus, both being the integral part of the same scheme. If one part is invoked, the other will also get attracted, as both relate to sharing of water in surplus and in deficit.

The prayer also refers to the disputes emerging from the complaint and 'Annexure-A' to the complaint. We may now peruse paragraph 5 of the complaint which mentions about the efforts made to settle the dispute and sub-para A(c) of which reads as under:

“The State of Karnataka by its letter dated 17th August, 1996 called upon the States of Maharashtra and Andhra Pradesh to grant consent for enforcement of Scheme 'B' formulated by the Krishna Water Disputes Tribunal allocating surplus water amongst the riparian States. The State of Andhra Pradesh

declined to give its consent by letter dated 21st August, 1996. The State of Maharashtra which had earlier supported sharing of surplus water, changed its stand in its letter dated 5th October (Letters dated 17-8-1996; 17-8-1996; 21-8-1996; 5-10-1996 at para © at Annexure-B-Colly.)”.

It is thus there in the complaint itself that a mention was made while narrating the efforts to settle disputes prior to the decision of the Supreme Court, that the State of Karnataka had approached the other two States to consent for enforcement of Scheme `B` formulated by the Tribunal allocating surplus water amongst the riparian States. It is also mentioned that the other two States declined to give their consent. This all is a part of the complaint. If it is read with the prayer (b) referred to earlier, deficit sharing would be a matter relevant to and connected with the water dispute. The share in surplus has been claimed by implementation of Scheme `B`. Thus, the statement of the witness Mr. D.N. Desai simply clarifies the position which may otherwise appear to be unclear, the way the complaint has been drafted. The whole Scheme `B` including the sharing of the deficit is encompassed in terms of prayer (b) referred to above. Therefore, we are of the opinion, it would not be appropriate to debar the consideration of implementation of Scheme `B` on merits rather on a

technical ground that it does not form part of the complaint and the prayer made by the Karnataka, therefore, this Tribunal will have no jurisdiction to try the issue under consideration.

Mr. Andhyarujina, learned senior counsel for the State of Maharashtra, next submits that due to the long time that has lapsed, say near about 34 years, it is now not possible to implement Scheme 'B'. It is submitted that after publication of the decision of KWDT-I none of the States including Karnataka took any step for implementation of Scheme 'B'. It was only in the year 1996 i.e. near about 20 years of the framing of the Scheme 'B' and the publication of the decision of the Tribunal that Karnataka wrote to the State of Maharashtra and Andhra Pradesh to consent for implementation of the shares in the surplus water as provided in Scheme 'B' framed by the KWDT-I.

In paragraph 7 at page 3/4 of MHAD-14 a part of the letter dated August 30, 1993 written by State of Karnataka is quoted as follows:-

“.....that the machinery for implementation of Scheme B can come only when parties opt for Scheme B and

even without reference to Scheme B, the surplus water can be shared by the parties by mutual agreement. In view of this Karnataka Government is of the firm opinion that establishing of Krishna Valley Authority (KVA) is not called for at present”.

On the basis of what has been quoted above, it is submitted that till 1993 at least State of Karnataka did not consider it necessary to establish Krishna Valley Authority. In the same connection observations made by the Supreme Court in the judgment reported in 2000 (9) SCC 572, para 26 at page 607 have been referred to regarding lapse of time. It is submitted that during this period of more than 30 years the States have planned their schemes according to Scheme `A` framed by the KWDT-I. The projects are also running accordingly and the things have almost settled down. Therefore, at this stage it would not be appropriate to switch over to some other scheme and unsettle the position which has settled down in more than 30 years.

It is also submitted that according to Scheme `B` as framed by KWDT-I there have to be carryover storages for utilization of water of river Krishna on 50 per cent dependability or on average yearly yield. The reservoirs are also to have sluices for release of the water to the

lower riparian State as and when may be so directed by the Authority. It is submitted that the reservoirs in the State of Maharashtra do not have the carry over capacities and the reservoirs are for within the year utilization of the water. The reservoirs in Maharashtra also do not have sluices. Some of the sluices which have been pointed out by the State of Karnataka are not such which can be used for the purposes of release of the water as per Scheme 'B'. They were never constructed or designed in that manner. In reply to the statement of the witness of Karnataka, Mr. D.N. Desai, that water can be released from the tail channel and the escape-canal, it is submitted that escape-canal are only safety devices and not meant for regular releases. State of Andhra Pradesh has also taken that objection that as per the decision of KWDT-I there have to be chain of carry over storages so that the whole water can be utilized as envisaged under Scheme 'B'. In this connection our attention has been drawn to page 23 of the final order of KWDT-I. It has been observed by the previous Tribunal in paragraph 57 at page 23 "The average river flow is the theoretical upper limit of the utilizable river supply that can be developed by storage and regulation.....without further study it is not possible to say that water can be impounded in storages to such an extent that

river flow of 50 per cent dependability can or should be distributed,.....but until a chain of reservoirs having sufficient carry over storages is constructed in the Krishna basin, it is not possible to utilize or distribute the river flow to the full extent”. It has been pointed out on behalf of the State of Andhra Pradesh that no study has been carried out for constructing carryover storages nor any such carryover capacity has been built by any of the three States. It is submitted that, as a matter of fact, the Tribunal had observed that there should be chain of carryover storages so as to utilize the full water or to the extent of 50 per cent dependability, but nothing to say about chain of carryover storages, even the studies for the purpose had not been taken up either by Maharashtra or by Karnataka. It is, therefore, submitted that it is not possible to implement Scheme `B`. We feel that if any of the two States were interested in utilizing water at 50 per cent dependability or to the full extent as provided in Scheme `B` it was at least expected that they should have undertaken exercise exploring possibility of carryover storages and chain of carryover storages. According to Scheme `B`, as framed by the KWDT-I, carryover storages seems to be an essential part of the scheme so envisaged.

Mr. Andhyarujina, learned senior counsel for the State of Maharashtra then refers to Clause (x) of Scheme `B', Part-II, Appendix-R at page 282/284 of the Report of KWDT-I which is to the following effect:-

“The Authority shall determine necessary sluicing capacities required for the release from reservoirs (existing as well as new) for the purpose of proper regulation and ensure that necessary works for the same are carried out immediately”.

In reference to the above provision it is submitted that the Authority has been given the right to direct any of the State to immediately carry out the construction and changes as may be directed for necessary sluices in the existing structure or in the new ones. It is submitted that it may not be possible to make changes in the existing structures of the reservoirs or to have new constructions of reservoirs with sluices. It is submitted that these are some of the impossible conditions as provided in the Part-II of Scheme `B' and it could not be easy to comply such directions immediately as required. It is further submitted that in case Scheme `B' is implemented as such and directions are issued by the authority, to construct new carryover storages or to modify the existing structures for having sluices, it

would mean that it will take many more years further for the proper working of the scheme.

Another difficulty which has been indicated on behalf of the State of Maharashtra from the point of view of practical implementation of the Scheme 'B' is that it would not be easy rather very difficult for the upper riparian States to release water, if so directed, during a lean year when the requirement of the upper riparian State itself may fall short of its own requirement. The submission is that though, as per the scheme such directions are to be followed but at the spot reality of such a situation, and may sometimes lead to ugly situation. Therefore, the ultimate submission made on behalf of State of Maharashtra is that it is not possible now to implement Scheme 'B' as framed by KWDT-I.

So far the State of Andhra Pradesh is concerned, it also opposes the suggestion of State of Karnataka to implement Scheme 'B'. First of all, as submitted by Mr. Dipankar Gupta, learned senior counsel for the State of Andhra Pradesh, that State would like to clear the impression that it backed out from entering into an agreement for constitution of Krishna Valley Authority at the last moment, as a result of which the whole edifice of the Scheme 'B' fell down. It is

submitted that, as a matter of fact, there was no full agreement either in respect of Part-I of Scheme `B' nor the States had agreed for Part-II as well. In this connection he has drawn our attention to page 161 of the Report of KWDT-I, column-II, bottom where it is observed: "It was realized that unless a joint control body or inter-State authority was established, it would be difficult to divide the waters of the river Krishna between the parties in every water year on the lines suggested by the parties. For this reason while Part-I prepared by the parties differed on some material points, as was naturally to be expected, a common draft was prepared of Part-II. It was considered that at least on this point there must be an agreement between the parties.....".

It is, therefore, submitted there was yet not any common agreed Part-I of the Scheme `B' and for the purposes of considering the Part-II about the constitution of Krishna Valley Authority, the counsel for all the parties had asked for adjournment to ascertain the stand of the respective States Governments. Adjournment as sought was granted on July 27, 1973. The Tribunal met on August 17, 1973, the adjourned date, the learned counsels intimated to the Tribunal of the stand of the different States, namely, Maharashtra agreeing to Part-II of the Scheme, as also the State of Mysore (Karnataka) but with

certain modifications as proposed by it. The State of Andhra Pradesh expressed its inability to give consent for Part-II and was also not agreeable to the modifications suggested by State of Mysore (Karnataka).

On the basis of what has been indicated above finding support from the discussion held at pages 161-162 of the Report of KWDT-I, it is submitted that it would be unfair to say that Andhra Pradesh had backed out at the last moment after having agreed for Scheme `B`. It is further submitted that even in respect of Part-I, as observed by the previous Tribunal, there were differences on some material points. So far Part-II is concerned, all the parties had sought time to seek instructions from their respective States for which purpose adjournment was granted by the Tribunal where-after Andhra Pradesh had conveyed its inability to consent to Part-II of Scheme `B`. The purpose of showing these details, it is submitted, is to clear the air that finally no agreed scheme had ever come into being from which the State of Andhra Pradesh may have withdrawn at the last moment.

We too see the point which is sought to be canvassed before us by Mr. Dipankar Gupta, that Andhra Pradesh is not to be totally blamed for disagreement on Scheme `B` or that Andhra Pradesh after

having agreed for it, caused fall of the Scheme `B' at the end. It is pointed out that even for Part-I of the scheme there existed differences on some material points as observed by the previous Tribunal and it was on the adjourned date that at the first opportunity, Andhra Pradesh conveyed its inability to agree for Part-II of Scheme `B' or to the modifications as suggested by State of Mysore (Karnataka). However, this is only for the purposes of clearing the position, according to the learned senior counsel, that in the circumstances, as indicated, it is not fair to blame Andhra Pradesh that it backed out of Scheme `B', rather no agreement had actually been arrived at amongst the parties, it was still only in that process. May be, perhaps, if Andhra Pradesh had in principle agreed to Part-II, there may have been possibility of sorting out other differences in Part-I or the modifications as suggested in Part-II by Karnataka. Be that as it may, it is not necessary to go any further in this aspect of the matter since the previous Tribunal thought it appropriate to frame the Scheme `B' in two parts. The question before us is only as to whether complete Scheme `B' as drawn by KWDT-I is to be adopted as a decision in the present adjudication or not. We only thought to mention about the

stand of Andhra Pradesh since it was vehemently urged that it wanted to clear the facts and its position.

It is submitted that presently the position is that State of Maharashtra which had given its consent for Scheme 'B' and for establishment of Krishna Valley Authority is now not agreeable for its implementation. It is also pointed out that, as a matter of fact, in its letter dated August 13, 1993, State of Karnataka also was not in favour of constitution of Krishna Valley Authority at that stage. Now, for the present only Karnataka is interested in implementation of Scheme 'B'.

REPORT/ DECISION

On merits of the Scheme 'B' learned counsel for the State of Andhra Pradesh submits that it was not easy to implement the Scheme 'B' as framed and in that connection has referred the observations made by KWDT-I in its report at page 185, column-I where it is observed "It may appear that the division of water in every water year in the stated proportions as envisaged by us in the above paragraphs may present un-surmountable difficulties even if the Krishna Valley Authority is established for it may be difficult to forecast in each water year as to how much water will be flowing in the river Krishna in that water year and how much water is being utilized by each

State”. But we find that immediately after the above observation, the KWDT-I has observed that much of these difficulties are solved by nature and has given the details as to when South West monsoon starts and when it withdraws normally between 1st October and 15th November and after giving the details about the rainfall pattern between different period of time it is observed that it is possible to get the approximate idea of total amount of water that would be available by the end of October. It is also observed that the picture will not be complete but workable data would be available on the basis of which the Krishna Valley Authority may see that the parties get their share. The shares are supposed to be determined by Krishna Valley Authority under Scheme ‘B’ in the second week of October, last week of December and last week of May. The directions may be issued by the authority to the parties to adjust their utilizations so that by the end of the water year, they may utilize water, as far as practicable according to their allocations. Krishna Valley Authority was also authorized to give directions from time to time for transfer of water from upper State to lower State which proposition was objected to as discussed at page 185, Column-II of the Report of KWDT-I. The State of Andhra Pradesh submits that the lowest riparian State would

be dependant upon the upper riparian State and may have to wait for release of the water till 2nd week of October, which may affect its kharif crop. It is thus ultimately submitted that according to each of the States, there would be difficulties in implementation of the Scheme `B'. The objections as raised by Maharashtra and Karnataka are indicated at page 185, Column-II of the Report of KWDT-I. It is against power of the Authority to direct release of water to lower State before the end of October, on several grounds. Regarding all these difficulties which have been pointed out by the three States the KWDT-I has pinned hope for the proper running of the scheme, about sharing and release of the water and the period of the release etc., on the ground that Krishna Valley Authority would be a highly competent body having representatives of the States and the Central Government. Ultimately what is sought to be made out is that even though, now Karnataka is pressing for implementation of Scheme `B' but at the same time had also expressed difficulties regarding the working of the scheme and about the powers of the authority.

The next contention which has been raised by the State of Andhra Pradesh is about the carryover storages rather chain of carryover storages as found to be necessary by the Tribunal for

implementation of Scheme 'B'. It is also submitted, according to KWDT-I a further study was to be undertaken for the purposes of construction of carryover storages and admittedly none of the two States, namely, the State of Karnataka nor the State of Maharashtra ever made any study regarding carryover storages. The States of Maharashtra and Andhra Pradesh, both have also stressed upon the transit loss which may occur in the implementation of Scheme 'B'.

Considering all the facts and circumstances, we feel that it is too late a stage now to press for implementation of Scheme 'B'. It has been rightly pointed out that after the decision of the KWDT-I, none of the parties, particularly the State of Karnataka took any interest for implementation of Scheme 'B'. For the first time in the year 1993 i.e. about 17 years of the decision of KWDT-I that Karnataka approached other States for sharing the surplus water even without resorting to Scheme 'B' or constitution of Krishna Valley Authority. And it was only in 1996 that it approached the other two States for their consent for implementation of Scheme 'B' for sharing the surplus waters according to the proportion fixed in the Scheme 'B'. It was thus about 20 years after the final decision of the Tribunal, KWDT-I, that State of Karnataka for the first time seemed to have thought about Scheme

`B'. The time for review of the matter was also nearing by then. If there was any intention to implement Scheme `B' some seriousness through their action may have been indicated by the State of Karnataka but there appears to be none. At least some study may have been undertaken for exploring the possibility of constructing carryover storages. It is true, we have already held that even asking for share in the surplus water as provided in Scheme `B' will attract other provisions of the Scheme `B' also for considerations but it is evident from the averments made in the complaint by Karnataka that their interest was mostly centered around the sharing of surplus water, whole anxiety appears to be only about that alone. It appears that the interest in implementation of Scheme `B' is pressed more for sharing surplus water, while in other matters, if at all, it is only half hearted interest. Even the letters sent to other parties in 1993 and 1996, referred to earlier, only talk about sharing of surplus water.

It is worth noticing that the Central Government also sought clarification, describing Scheme `B' as a very good scheme and wanted it to become a part of the decision of the Tribunal but it never took any step to make any statutory provision to implement it, which was the other option suggested by the KWDT-I.

We find much force in the submission made on behalf of the State of Maharashtra and Andhra Pradesh that things have now almost settled down in accordance with the provisions of Scheme `A' which is in force since after the publication of the decision of the previous Tribunal. More than 30 years have now passed. The projects have been planned and almost completed and they are functional as such. We do not find it feasible at this stage that this Tribunal may adopt Scheme `B' as framed by KWDT-I, as decision of this Tribunal. The State of Karnataka has tried to show the injury it is likely to suffer by non-implementation of Scheme `B' and in that connection has furnished a note KAD-24. The injury which Karnataka is likely to suffer if Scheme `A' is continued and Scheme `B' is not implemented, is indicated in five paragraphs of the said note stating that if Scheme `A' is continued, Karnataka would be deprived of its right of sharing the surplus water which right has been recognized by the Hon'ble Supreme Court in the case referred to earlier O.S. No.1 of 1997 (supra) at page 610(d). It is indicated that it has a large area which is to be served by the surplus water and its large number of inhabitants falling in UKP, Stage-III and the needs of the people of that area

would not be satisfied. It would also affect development under-desert development programme.

Interestingly, we find a note at the end of KAD-24 as follows:-
“This note is put in as requested by the Hon’ble Tribunal and is one additional reason for adoption of complete Scheme ‘B’ or a like scheme for fuller utilization of the waters of river Krishna”. We fail to understand how and why this note was thought to be necessary. Nobody could perhaps think that by submission of the note KAD-24, which Karnataka may have been required to furnish to pointedly indicate the injury which may be caused to it if Scheme ‘B’ is not implemented, it would wash out its other pleas, as may have been raised for implementation of Scheme ‘B’. In any case, perhaps the State of Karnataka seems to be under an impression that it is either Scheme ‘A’ as a water tight scheme or Scheme ‘B’ as framed by KWDT-I in a water tight manner, either of which alone can be implemented. Whereas the position is that it is open for this Tribunal to make provisions for the beneficial use of the water to the maximum extent possible, other than Scheme ‘A’ or ‘B’ so that all the three States are benefited within the constraints which may otherwise be there for any other reason.

We are, however, not impressed by the pleas raised by Karnataka in KAD-24, particularly about implementation of Scheme 'B'. Those points are for general consideration which are to be borne in mind regarding all the States.

For all the reasons indicated above, we are of the opinion that it would not be now possible to adopt Scheme 'B' as framed by KWDT-I as a part of the decision of this Tribunal.

.....



REPORT/ DECISION

Next, we may now consider Issues Nos. 3, 4 and 6 which relate to surplus flows. As framed, the issues are as follows:-

ISSUE NO. 3:- Whether any surplus flows are available for equitable apportionment among the riparian States, if so, on what basis water can be distributed among the riparian States?

ISSUE NO. 4:- Whether any surplus water flows are available after equitable distribution of the water amongst the riparian States, which may be utilized by the State of Andhra Pradesh alone, as claimed by Andhra Pradesh?

ISSUE NO.6:- Whether the equitable apportionment of surplus waters should include claim for diversion of water for use outside the Krishna basin?

We have already seen that according to the series prepared before KWDT-I, the average flows of river Krishna came to 2093 TMC as per figures of State of Maharashtra and Karnataka and according to Andhra Pradesh it came to 2390 TMC. The 75 per cent dependability was found to be 2060 TMC. The water of river Krishna was apportioned for utilization by the three States at 75 per cent dependability. For the remaining water, liberty to utilize it, was given

to the State of Andhra Pradesh but without accrual of any right to such surplus water in their favour. This provision seems to be in the background that Scheme 'B' as framed by KWDT-I could not be made a part of the decision and till such time Scheme 'B' was not implemented by consent of parties or by legislation, Scheme A was made effective from the date of publication of the decision in the Gazette. A Review was also made permissible after May, 2000. Therefore, it was by way of an arrangement in between that Andhra Pradesh was allowed to utilize the remaining water without any right to raise any claim in respect thereof. This position has been very well clarified by the Hon'ble Supreme Court in its judgment reported in 2000 (9) SCC 572 para 28, page 609. This Tribunal also, while disposing of interim applications moved by the parties, viz., I.A. Nos. 1 and 3 of 2005, by its order dated 9.6.2006 had made it clear that utilization of surplus waters would not vest in Andhra Pradesh any right over the surplus waters. As a matter of fact, this position is not disputed and fairly so, before us, by the learned counsel for the State of Andhra Pradesh. So, as per the series of 78 years before KWDT-I the amount of surplus water would come to 2393 TMC-2060 TMC=333 TMC.

A fresh series of 47 years has been prepared by this Tribunal, according to which, as indicated earlier also, the average flow of the river Krishna comes to 2578 TMC and the flows at 75 per cent dependability are 2173 TMC. This Tribunal has also calculated the yield of river Krishna at 65 per cent dependability as well which figure comes to 2293 TMC. It has already been held that without disturbing the allocations which have been made by the previous Tribunal at 75 per cent dependability i.e. at 2060 TMC, the difference between the yield at 75 per cent dependability of the previous series and yield at 65 per cent dependability of 47 years' series, viz. 2293 TMC may be distributed. This difference comes to $2293 \text{ TMC} - 2060 \text{ TMC} = 233 \text{ TMC}$. Over and above 2060 TMC, 70 TMC stands already allocated by the previous Tribunal on account of return flows. So the equitably distributable water in hand based on dependability factor comes to $233 \text{ TMC} - 70 \text{ TMC} = 163 \text{ TMC}$.

So the total amount of water already distributed by KWDT-I viz. 2130 TMC ($2060 \text{ TMC} + 70 \text{ TMC}$) and now distributable to the parties i.e. 163 TMC comes to 2293 TMC. The surplus flows at present, according to the water series of 47 years, come to 2578 TMC (average flow) - 2293 TMC = 285 TMC. It is to be noticed that the State

of Andhra Pradesh has been allowed a carry over storage of 150 TMC which amount of water is not out of 2060 TMC but over and above 2060 TMC. This amount of 150 TMC comes only out of surplus flows. Therefore, presently the distributable surplus flows come to $285 \text{ TMC} - 150 \text{ TMC} = 135 \text{ TMC}$ only.

The previous Tribunal had made a provision for distribution of the surplus flows on percentage basis which is to be found at page 25 of the further Report while dealing with clarification No. III sought by State of Karnataka. It was for the purposes of Scheme 'B' that the provision was made for distribution of surplus waters in the manner indicated at page 25 of the further Report. It was provided that if the quantity of water used by the States was more than 2060 TMC in a water year, 35 per cent of it was to go to Maharashtra, 50 per cent of the excess to the State of Karnataka and 15 per cent to the State of Andhra Pradesh. In case, however, the excess water above 2060 TMC was beyond 2130 TMC, 25 per cent of the such excess was to go to Maharashtra, 50 per cent to Karnataka and 25 per cent of such excess to Andhra Pradesh. This is how the arrangement for distribution of excess water was made by the previous Tribunal. But the Scheme 'B' could never be implemented.

On behalf of the States of Maharashtra and Karnataka it has been submitted that all the excess or surplus water should be distributed only between them and no share is to be given to the State of Andhra Pradesh. In support of this contention our attention is drawn to the observation made by the previous Tribunal saying that Andhra Pradesh has already been allotted water much more than it should have been but for the historical reasons, as a result of which certain prior users had to be protected. So far as State of Andhra Pradesh is concerned, its case is that after equitable distribution of the shares of the three States, whatever remains should be allowed to be utilized by Andhra Pradesh alone.

Mr. Andhyarujina, learned senior counsel for the State of Maharashtra submits that the surplus flows over and above 2130 TMC have to be distributed on well established equitable principles keeping in mind legitimate, economic and social needs of each State. In this connection he made a reference to Law of International Drainage Basins edited by A.H. Garretson & Others and the Helsinki Rules of International Law on the above subject. We have already made a reference about the parameters of equitable distribution of Inter-State River Waters which may be more elaborately discussed later while we

take up distribution of water amongst the riparian States. Our attention has also been drawn to the observation made by KWDT-1 at page 93 of the Report where it has been said that there is no mechanical formula of equitable apportionment applicable to all rivers. It was further observed that instead of laying down a rigid order of priority, pragmatic and flexible solution is more appropriate. Relevant factors in each particular case have to be taken into consideration, as observed at page 138 of the report of KWDT-I, so as to justify any substantial share in the surplus waters. The need for future plans of State of Maharashtra has been referred to which comes to 222.38 TMC. The drought prone area, as recognized by the Irrigation Commission, 1972, have also been indicated to stress upon the fact that the need of Maharashtra is more pressing and in any case not less pressing than that of any other State.

So far as the claim of exclusive use of surplus flow extended by Andhra Pradesh is concerned, Mr. Andhyarujina referred to the statement of the witness of Andhra Pradesh Mr. Ramamurthy C-III-D-98 showing that Andhra Pradesh is utilizing much above 811 TMC allocated to it. It is submitted that according to Mr. Ramamurthy, Andhra Pradesh has been utilizing 1185 TMC and some more projects

are in advance stage of construction for utilizing 227.50 TMC as per C-III-D-98, page 12, Table-3. It would take the total utilization to 1412.5 TMC. It is submitted that the utilization of water over and above 811 TMC by Andhra Pradesh is on account of liberty granted to it by KWDT-I to utilize remaining water, though without acquiring any right over it. It is also submitted that a huge quantity of water is being utilized outside the basin and further planning is also for utilization of a large quantity of water outside the basin. To emphasise that Andhra Pradesh has no right to claim the surplus water refers to Clause V(C) of the Final Order which reads as under:-

“The State of Andhra Pradesh will be at liberty to use in any water year the remaining water that may be flowing in the river Krishna but thereby it shall not acquire any right whatsoever to use in any water year nor be deemed to have been allocated in any water year water of the river Krishna in excess of the quantity specified hereunder.....”.

The specified quantity is 800 TMC plus the return flow. The observation, in that connection, made in the judgment of the Supreme Court, have also been referred to.

So as to indicate the manner in which the State of Andhra Pradesh tried to claim right over the surplus water, Mr. Andhyarujina refers to cross-examination of Mr. Ramamurthy, witness of Andhra Pradesh. In reply to question No. 1390 Mr. Ramamurthy replied that liberty granted to utilize surplus water to Andhra Pradesh was not because otherwise it would go waste to the sea but because of sufferance in dry years and also the inevitable wastage. In reply to question No. 1392 at page 492 of C-III-D-98A, Volume IV, the witness agreed only to the extent that Andhra Pradesh had been given liberty to use the surplus water and not the right but further stated about the liberty given as follows:-

“.....Andhra Pradesh gets highly uneven flows sometimes very high and sometimes very low. If in a wet year, Andhra Pradesh is able to utilize say 900 TMC and in a dry year Andhra Pradesh is able to use only 700 TMC, it means on an average, Andhra Pradesh has used only 800 TMC. Otherwise, the liberty given to Andhra Pradesh to utilize the additional 100 TMC in the previous years gets converted into right in the subsequent year”.

The next question put to witness was question No. 1393 “Is this, your theory or is said by the Tribunal?” Ans: “This is my understanding”. In reply to the next question i.e question No. 1394 after the reference to the observations of the Tribunal and the Supreme Court were referred to, witness answered: “It was true that Tribunal had given only the liberty to use surplus water but normally average utilizations have been taken into consideration”. Thereafter, question No. 1398 was put to the witness which reads as under:

“Your whole deposition in this Tribunal is based on the theory that Andhra Pradesh has so acquired a right to surplus water. Will that be correct?”

Ans: “No. I did not say that Andhra Pradesh has a right for surplus waters. I agree that only liberty is given”.

We find that effort made to show that the liberty granted to Andhra Pradesh to utilize the surplus flows gets converted into right or that justice would be done only if that right is given to Andhra Pradesh, miserably failed. Therefore, any claim sought to be raised under Issue No. 4 that surplus flows, after equitable distribution of the water amongst the riparian States, may be utilized by Andhra Pradesh alone, is not made out in any manner. No such question arises that the

other two riparian States may be ignored and surplus flows be allowed to be utilized by Andhra Pradesh alone.

The question as to amongst whom, out of riparian States and how much water out of the surplus flows is to be distributed will depend upon on relevant consideration for the purpose. In our view the considerations for distribution of surplus water would be the same as applicable for equitable distribution of river water amongst the riparian States of Inter-State rivers. The further needs of the States may have to be examined, then the competitive needs and the nature and purpose of the needs as well as the fact how much quantity has already been allocated to different States and so on. This exercise will be gone into while dealing with distribution of waters and the distribution of surplus waters. For the present, suffice it to say that the cases of all the three States as put forward for sharing the surplus water shall be considered on merits and accordingly surplus water shall be distributed amongst them on the principles of equitable distribution. We, however, find that Andhra Pradesh cannot be allowed to utilize the surplus waters alone, nor we exclude consideration for its case for share in surplus water merely on the basis of the case taken up by the State of Karnataka and Maharashtra

that the surplus flows should be distributed only between them. The question that all the States or which of the States would be entitled for how much share in the surplus water, we shall deal with it while dealing with the distribution of water at later stage.

Another question which remains to be considered is whether diversion of surplus water outside the Krishna basin will be permissible or not. We find that this aspect of the matter has been dealt with at length by KWDT-I in Chapter XIII at page 126 of its Report. It considered the legality of diversion of river water to another watershed. In column-2 of page 126 of the Report, the previous Tribunal considered the decisions of the Courts of different countries as well as the instances in India where water has been diverted to other watersheds and recorded its finding in column-2 at page 126 which reads as follows:-

“For all these reasons, we hold that diversion of water of an inter-State river outside the river basin is legal. In the present case, all the areas outside the Krishna basin to which the Krishna waters are diverted or proposed to be diverted are situated within the territories of riparian States. We express no opinion on the question whether the Krishna waters can

lawfully be diverted to areas situated in the territories of a non-riparian State”.

It is further observed in column-I at page 127 “Under Section 3 of the Inter-State Water Disputes Act, 1956, the crucial question is whether the interest of the State or any of its inhabitants in the waters of the Inter-State River and river valley is prejudicially affected by the action of another State. Thus, the relevant consideration is the interest of the State as a whole and all its inhabitants and not merely the interest of basin areas of the State”. However, in the matter of diversion of water outside the basin the other fact which has been taken note of by the KWDT-I is what is held in the case of *Nebraska Vs. Wyoming* 325 US 589, 665 as quoted below:-

“However, the fact that the water diverted to another watershed is wholly lost to the river basin and no part of it appears as return flow or adds to the ground water recharge in the basin is also a relevant factor in equitable apportionment”.

It is then observed in the next paragraph in column-I of page 127 which reads as follows:-

“Permissible limits of diversion to another watershed – Though out-of-basin diversions and needs may be relevant in determining a State’s equitable share, the weight to be given to

them depends upon the circumstances of each case. Each river basin has its own peculiar problems and there is no set of rigid norms that can be applied to all river systems under all circumstances”.

After considering the various views and factors the KWDT-I observed thus at page 128 of the Report which is quoted below:-

“The preponderance of opinion seems to indicate that diversion of water to another watershed may be permitted, but normally, in the absence of any agreement, the prudent course may be to limit the diversion to the surplus waters left after liberally allowing for the pressing needs of basin areas. In general, basin areas are more dependent on the water than other areas. Maximum economic benefit can rarely be achieved by ignoring the pressing needs of the areas of origin and permitting development elsewhere”.

We don't find any reason to take any different view as has been expressed by the previous Tribunal holding that diversion of water outside the river basin is legal. It will, further depend upon the facts of each case whether diversion or further diversion outside the basin should be permitted or not and in case it is to be permitted, then to what extent. It would further be worth noticing that in Clarification No. VII the State of Karnataka wanted the previous Tribunal to clarify

that the liberty given to Andhra Pradesh to utilize surplus waters be restricted to utilization within the basin. In this connection the previous Tribunal referred to its Report (pages 128-129) saying that no restrictions were placed on Andhra Pradesh regarding diversion of water outside the Krishna basin, hence, no further clarification was required. However, on behalf of the State of Karnataka, the observation of the previous Tribunal has also been referred to, where it is observed at page 25 of the Further Report that water for irrigation should be provided in the first instance for all areas within the Krishna basin.

REPORT/ DECISION

The State of Karnataka had claimed that the remaining water may be distributed between Karnataka and Maharashtra in proportion to the irrigable area under the contemplated projects of the two States. In connection with the above, Karnataka had also sought a clarification before KWDT-I i.e. Clarification No. XX which is dealt by the previous Tribunal at page 72 of the Further Report. The previous Tribunal while dealing with this matter distinguished the observation in the report of the Anderson Committee, Volume I, Para 42 at page 24, relied upon by Karnataka, saying that Anderson Committee had considered the distribution of water from projects

prepared in the future on the basis of culturable irrigable area and not for division of water in an Inter-State river or river valley. It then referred to the discussion which was held in its report indicating therein the factors which had been taken into account while making the allocations. In the end at page 73 of the further Report it is observed that no State had proprietary interest in any particular volume of water of an Inter-State river on the basis of its irrigable area or contribution.

We thus find that now only 135 TMC of surplus flow is available to be distributed amongst the riparian States apart from the distribution of 163 TMC out of the dependable yield. The distribution of the surplus water would be considered on the basis and on the parameters for equitable distribution of water amongst the three States. We do not find that any case is made out by Andhra Pradesh to utilize the surplus flows alone by itself. We also hold that it would be permissible and legal to consider diversion of surplus flow for use outside the basin along with other relevant factors having bearing on the merit of such a claim.

Issues Nos. 3, 4 and 6 stand disposed of in the manner indicated above.

We may now consider the disputes which relate to Tungabhadra sub-basin. It covers a large area and has considerable yield. The river Tunga and the river Bhadra are two rivers emanating from the State of Karnataka in sub-basin K-8. These two rivers run for a considerable distance independently and later join each other and after the confluence, the river is called Tungabhadra River. It ultimately joins the mainstream of river Krishna in the territory of Andhra Pradesh. The details and the matters related to Tungabhadra sub-basin including Tungabhadra Dam have been dealt with by the previous Tribunal in Chapter V at page 44 of its report. It gives some facts and figure about the Tungabhadra sub-basin in some details.

River Tungabhadra is one of the important tributaries of river Krishna and it is a part of Krishna basin system.

We may beneficially take some facts as described in Chapter V of the Report of KWDT-I which may provide background facts for better understanding of the points raised by the parties. Its catchment areas had been in the States of Mysore, Hyderabad and the Provinces of Madras and Bombay and small portions in the States of Sangli, Sandur, Savanur, Miraj(Senior), Miraj(Junior) and Banaganapalle as these places then stood. Before independence, about 1163 sq. miles of

the catchment of Tungabhadra fell within the old Mysore State. Now 22,011 sq. miles lie within Mysore whereas 5,563 sq. miles lie within Andhra Pradesh. After the confluence of the river Tunga and the river Bhadra, it runs 40 miles within Mysore and then formed the boundary between Bombay and Mysore for 35 miles, boundary between Madras and Bombay for 62 miles and boundary between Madras and Hyderabad for 192 miles. Now it runs for 237 miles in Mysore, forms the boundary between Mysore and Andhra Pradesh for 36 miles and runs for the next 57 miles in Andhra Pradesh before joining the mainstream of the river Krishna.

The Tungabhadra Project (pages 47-48 of the KWDT-I report) consisted of 8 components: (i) Dam; (ii) Left Bank Low Level Main Canal; (iii) Right Bank Low Level Main Canal; (iv) Right Bank High Level Canal; (v) Distributaries emanating from the Canals; (vi) Power House on right side of the dam; (vii) Power House on Right Bank Low Level Canal at Hampi and (viii) Power House on left side of the Dam at Munirabad.

The June 1944 Agreement, enabled the Madras and Hyderabad Governments to start construction of the Tungabhadra Project, the left side whereof fell within the dominion of the Nizam of Hyderabad and

the right side fell within the province of Madras. Hyderabad and Madras continued to be in charge of the left and right sides of the project after the commencement of the Constitution of India till the passing of the Andhra State Act, 1953 on 1st October, 1953, when the Madras part of the project was divided between the States of Mysore and Andhra Pradesh. The right side headworks and the Right Bank Canal up to 96th mile fell within the limits of Mysore State and the remaining canal fell within Andhra Pradesh. The main canal after it entered Andhra Pradesh fed branches which re-entered Mysore. The left side of the project continued to be in the charge of Hyderabad. After the State Re-organization Act 1956 came into force w.e.f. 1st November, 1956, the control of the left side vested in Mysore.

The President of India in exercise of powers under sub-section (4) of Section 66 of Andhra Pradesh Act established the Tungabhadra Board empowering it to take charge of and deal with all matters relating to works on or connected with the Tungabhadra Project common to both the States of Andhra Pradesh and Mysore without authorizing the Board to deal with any matter in respect of works, in which only one State was interested.

Tungabhadra Dam:

The construction of the dam was inaugurated by the Governments of Hyderabad and Madras on 28th February, 1945. It was decided that the work relating to Dam would be divided into two halves, the right half to be executed by Madras and the left half by Hyderabad, each side undertaking the canal work within its territories. The dam was formally opened in 1953 and completed in 1956. There are a number of outlets for low level canal irrigation and power sluices, high level canal sluices, water supply sluices and river outfall sluices on both right and left banks, river sluices and sluices for existing irrigation (Raya and Basavanna channels) on the right bank. On the left bank there is a left bank Low Level Main Canal which is 127 miles in length and the Left Bank High Level Canal is 9.5 miles in length. These Left Bank Canals are under the control of Mysore and serve areas in Raichur District. The Right Bank Low Level Canal is 217 miles long and is intended to irrigate areas in Bellary and Kurnool District. The Tungabhadra Board exercises its jurisdiction up to 155 miles of the Right Bank Low Level Canal, the rest of it is in the charge of Andhra Pradesh (pages 49 & 50 of KWDT-I Report). The Right Bank High Level Canal is 116 miles long, the first 68 miles and 6 furlongs running is Mysore and the rest in Andhra Pradesh. The

Tungabhadra Board was in charge of construction, maintenance and operation of about 68 miles and 6 furlongs of the main canal up to Mysore State limits. The rest of the main canal has been in the charge of Andhra Pradesh.

The States of Mysore and Andhra Pradesh, by means of a joint statement made on January 22, 1971, before KWDT-I, agreed to share the benefits between the two States in Tungabhadra Project Right Bank Low Level Canal, 24 TMC was to be utilized by Andhra Pradesh and 19 TMC by Mysore and in the Right Bank High Level Canal 32.5 TMC was to be utilized by Andhra Pradesh and 17.5 TMC by Mysore. The reservoir losses for both the canals were to be shared by Andhra Pradesh to the extent of 5.5 TMC and Mysore 3.5 TMC.

A question seems to have been raised before the KWDT-I for taking away the administration and control of Tungabhadra Left Bank Canal and the headworks from Mysore, now Karnataka and to vest it in the Tungabhadra Board. However, the KWDT-I considered it feasible that control over the maintenance and operation of the entire Tungabhadra Dam and reservoir and spillway gates on the left and right sides, should be vested in a Single Control Body but it may be done by a suitable legislation (pages 52 and 53 of KWDT-I Report).

It was further observed that if a control body for entire Krishna Valley is established, the Tungabhadra Board may be abolished and all powers of the Board may be vested in such Control Body. So far the question raised about vesting the control of Rajolibunda Diversion, that it may vest in the Tungabhadra Board, the KWDT-I found that there was no sufficient ground for taking away the administration and control of Rajolibunda headworks and the common portion of the canals within Karnataka and to vest in Tungabhadra Board or any other Joint Control Body. The directions were, however, given about sharing of the benefits of utilization of water under the Rajolibunda Diversion Scheme and 1.2 TMC was to be utilized by Karnataka and 15.9 TMC by Andhra Pradesh (page 54 of KWDT-I Report).

Some important Projects in K-8 Sub-basin and the findings of KWDT-I.

The Bhadra Reservoir Project (page 111 of KWDT-I Report): It is a multipurpose scheme comprising of a storage having Right Bank and Left Bank Canals and power houses. It is operating since 1957. The State of Karnataka claimed protection to the extent of 56.8 TMC for utilization in this project, but protection was given only to the extent of 46.6 TMC. It was, however, provided that utilization of

56.8 TMC and evaporation loss of 4.9 TMC under the Tungabhadra Project Reservoir should be preferred to contemplated uses (page 112 of KWDT-I Report).

Tunbgabhadra Left Bank Low Level Canal.

The State of Karnataka claimed protected use of 92.3 TMC. It runs up to about 141 miles in the State of Karnataka. But it was considered that only 82 TMC was sufficient to meet the requirements of irrigation for an area of 5,80,000 acres, as was the position up to 1960.

Tungabhadra Project Left Bank High Level Canal:

The KWDT-I found that annual utilization of 83 TMC and evaporation loss of 9 TMC under the Tungabhadra Project Left Bank Low Level Canal including Left Bank High Level Canal of Karnataka, should be preferred to the contemplated uses.

Vijaynagar Channels:

It is an old system of Pre-Moghul times, constructed sometimes during 1509 A.D. to 1560 A.D. It was found that the committed use

as upto September, 1960 was 5.71 TMC, which should be preferred to contemplated uses (page 113 of KWDT-I Report).

Rajolibunda Diversion Scheme:

It is situated near Rajolibunda village in District Raichur. It is a lined canal and partly perennial as well as partly two seasonal. After the re-organisation of the States in 1956, the headworks and the initial 26/27 miles of the canal fell in the State of Karnataka with an ayacut of 5,900 acres and the rest of the ayacut of 87,000 acres fell in Andhra Pradesh. By agreement between the States of Karnataka and Andhra Pradesh, 1.2 TMC was to be utilized by the State of Karnataka and 15.9 TMC by the State of Andhra Pradesh (page 115 of KWDT-I Report).

Kurnool-Cuddapah Canal:

Kurnool-Cuddapah Canal scheme comprises of an anicut across Tungabhadra River at Sunkesula and a Right Bank Canal. A part of the canal is lined. It serves the areas in Kurnool, Mahboobnagar and Cuddapah Districts which are water scarcity areas. After remodeling of the canal in the year 1960-61 the ayacut of 2,78,000 acres was approved, out of which 45,000 acres was within Krishna Basin and

the remaining 2,33,000 acres lie in Pennar Valley, about 90 per cent of the area is irrigated by Kurnool-Cuddapah Canal. Some releases started since 1953-54 from Tungabhadra Dam for the benefit of second crop in the Krishna delta. Due to such releases there was large increase in the inflow at Sunkesula anicut during the rabi season. The KWDT-I ultimately allowed a protected use of 39.9 TMC to K.C. Canal (page 118 of KWDT-I Report).

The KWDT-I also considered about the minor irrigation requirements as dealt with at page 122-123 of KWDT-I Report and ultimately 49.04 TMC was allocated to Karnataka for minor irrigation in K-8 sub-basin and 6.46 TMC to State of Andhra Pradesh.

The KWDT-I considered the requirements of projects of Karnataka in Tungabhadra Valley. It was found that it required 354.33 TMC for projects completed or under construction and 181.28 TMC for proposed projects. So, the total requirement came to 535.61 TMC (page 153 of KWDT-I Report). KWDT-I apportioned the water of Tungabhadra between the States of Karnataka and Andhra Pradesh as extracted below from pages 188-189 of the Report of KWDT-I. The allocation to Andhra Pradesh is:-

Table-1 (Extract as indicated)

All Figures in TMC

S.No.	Name of Project	Demand as per APK-1 Pages 123-125	Protected utilization	Balance demand	Demand out of dependable flow vide AP Note 14
1	2	3		4	5
1	**				
2.	Kurnool-Cuddapah Canal (See also item No. 23)	39.9	39.9	--	20.87
3.	**				
4.	Tungabhadra Project Right Bank Low Level Canal (Andhra share)	29.5	29.5	--	--
5-6	**				
7.	Tungabhadra Project Right Bank High Level Canal Stages I & II	32.5	32.5	--	--
8-12	**				
13.	Rajolibunda Diversion Scheme	15.9	15.9	--	--

14-20	**				
21.	Gajuladinne	2.0	2.0	--	--
22.	**				
23.	Improvements to Kurnool-Cuddapah Canal (See also item No.2)	29.5	--	29.5	--
24	*				
25.	Upper Krishna Project Extension to Andhra Pradesh	54.4	--	54.4	--
26-29	**				
30.	Tungabhadra Project Left Bank Low Level Canal Extension to Andhra Pradesh	19.2	--	19.2	--
31.	Rajolibunda Right Canal Scheme	12.9	--	12.9	--
32-37	**				
--	Minor Irrigation P.123 KWDT-I Report		6.46		
	Total		126.26		

Note: Total figure rounded off to 127 TMC.

Allocation to Karnataka extracted from pages 209-210 and page 223 of the KWDT-I Report):--

S.No.	Name of Projects	Utilization as per Master Plan (Statements- 5 & 6 of Ann.III, MYK-1 TMC	Protected utilization TMC	Balance demand TMC	Demand out of balance 75 % dependable flows TMC
1.	Tungabhadra Project (Left Bank Canal, Right Bank Low Level Canal, Right Bank High Level Canal)	147.50	132.00	15.50	9.30
2.	Vijayanagar Channels	13.70	5.71+	7.99	8.00
2A.	Vijayanagar Channels		6.35= <u>12.06</u> Further allocated vide page 223 of KWDT-I		

3.	Rajolibunda Diversion	1.20	1.20	-	-
4.	Tunga Anicut	11.50	11.50	-	-
5.	Bhadra Project	62.00	61.70	-	-
6.	Bhadra Anicut	3.10	3.10	-	-
7.	Gondi Left Bank Canal Ext.	2.00	-	2.00	-
8.	Ambligola	1.40	1.40	-	-
9.	Anjanapur	2.50	2.50	-	-
10.	Dharma Project & Canals	2.20	2.20	-	-
11.	Hagaribommanahalli	2.00	2.00	-	-
12.	Upper Tungabhadra	19.00	-	19.00	-
13.	Tungabhadra Foreshore Lift	11.85	-	11.85	-
14.	Tungabhadra Division	20.00	-	20.00	-
15.	Upper Tunga Project	40.00	-	40.00	20.00
16.	Upper Bhadra Project	36.00	-	36.00	10.00-
17.	Madagmasur	2.71	-	2.71	-
18.	Dandavathy	2.60	-	2.60	-
19.	Varada	7.00	-	7.00	-

20.	Hirehalla	1.06	-	1.06	-
21.	Minor Irrigation.	100.92	49.04+	51.88	23.59
21A.	K-8		11.17= <u>60.21</u> Further allocated vide page 223 of KWDT-I		
	Total K-8 Sub Basin	490.24	289.87	217.59	72.89

Note: Total figure rounded off to 290 TMC

So far the yield of Tungabhadra is concerned, we find it mentioned at page 179 of KWDT-I Report that as per State of Karnataka the 75 per cent dependable yield of Tungabhadra Dam at Sunkesula is 565 TMC. It is indicated to be 455.6 TMC up to Tungabhadra Dam, from Tungabhadra Dam up to Rajolibunda Diversion Scheme 95.9 TMC, from Rajolibunda Diversion Scheme to the Karnataka Border 9.5 TMC and from Karnataka Border up to Sunkesula 4.1TMC. The case of State of Karnataka is further

indicated by KWDT-I at page 180 about flows of the river Tungabhadra to the Krishna river after utilizations as follows:-

“The case of the State of Mysore is that after meeting the further requirements of the State to the extent of 79.2 TMC of water ($58+21.2=79.2$ TMC), about 39 TMC of water will be available out of dependable flow at Sunkesula and below Sunkesula further 15.6 TMC of water will be available. Thus, 54.6 TMC of water would flow down to the river Krishna”.

From the case of the State of Karnataka, as indicated above, 54.6 TMC would flow down to the river Krishna after meeting its further requirement to the extent of 79.2 TMC ($58.+21.2=79.2$ TMC). It would thus follow that without meeting the requirement of 79.2 TMC the flows going down to the river Krishna from Tungabhadra would be $79.2 \text{ TMC} + 54.6 \text{ TMC}$, that is to say, to the tune of 133.8 TMC. Even if flows available below Sunkesula amounting to 15.6 TMC is taken out of consideration then too, according to the State of Karnataka, the flows going down to the river Krishna from K-8 sub-basin would be 118.2 TMC.

According to the State of Andhra Pradesh, the water which flows to the river Krishna, after the committed utilization, would be only 31.45 TMC (page 180 of KWDT-I Report). The total protected

utilization in Tungabhadra (K-8) and Vedavathi (K-9) sub-basin are indicated to be to the tune of 398.61 TMC and 50.54 TMC respectively. According to Andhra Pradesh the average yield of Tungabhadra including Vedavathi and at Sunkesula was 558.6 TMC and 10.54 TMC below Sunkesula up to confluence with river Krishna. The 75 per cent dependable yield of Tungabhadra has been calculated to be 471.7 TMC. Thus, the balance that remains is shown to be 31.45 TMC. On this basis it was submitted before KWDT-I that no further allocation could be made in favour of Karnataka.

The KWDT-I considering the utilizations out of river Tungabhadra, disallowed the demand of Karnataka for Tungabhadra Left Bank Low Level Canal project for 101.3 TMC including 9 TMC for evaporation loss, as against 92 TMC. It was observed that unless very necessary, available water in sub-basins K-8 and K-9 should not be further depleted.

However, for Vijaynagar Channels an additional demand to the extent of 6.35 TMC was held to be worth consideration besides 5.71 TMC, the protected use (page 221 of KWDT-I Report).

So far as demand for Upper Tunga Project is concerned, it was not allowed. Even its consideration for 20 TMC only was also deferred until further studies. It was found not worth consideration “for the present”.

In regard to Upper Bhadra Project, the KWDT-I at page 221 of its Report noted the claim of 36 TMC but deferred its consideration pending further study of water availability in the river Tungabhadra. Same view was held in respect of Feeder Channel to Ranikere where consideration was put off till the further study about the availability of water in the river Vedavathi.

Ultimately, in Clause IX(B) of the of the Final Order of the Tribunal, ceiling on utilizations was provided as follows:-

“(B) Out of the water allocated to it the State of Karnataka shall not use in any water year—

(i) more than the quantity of water specified hereunder from the Tungabhadra (K-8) sub-basin.

(a) as from the water year commencing on the 1st June next after the date of the publication of the decision of the Tribunal in the Official Gazette up to the water year 1982-83. - 295 TMC

(b) as from the water year 1983-84 up to the water

year 1989-90: 295 TMC plus

a quantity of water equivalent to $7\frac{1}{2}$ per cent of the excess of the average annual utilizations - - - - -

(c) -----

(d) -----

(ii) more than 42 TMC from the Vedavathi (K-9) sub-basin.

(iii) more than 15 TMC from the main stream of the river
Bhima”.

The gradual increase on account of return flows is provided upto sub-para (d) of sub-clause (i).

In Clause (C) Andhra Pradesh was allowed to utilize not more than 127.5 TMC from Tungabhadra (K-8 sub-basin) and more than 12.5 TMC from Vedavathi. It was pointed out in Clause (iii) that the use mentioned in Clause (C)(i) did not include the use of water flowing from Tungabhadra into the river Krishna. Thereafter, directions were given to be observed for the utilization by Andhra Pradesh and Karnataka to the extent indicated therein from different canals of Tungabhadra Dam, it is to the following effect at page 97-98 of the Final Order:--

“The following directions shall be observed for use of the water available for utilization in the Tungabhadra Dam in a water year

(a) The water available for utilization in a water year, in the Tungabhadra Dam, shall be so utilized that the demands of water for the following Projects to the extent mentioned below may be met:--

(i) Tungabhadra Right Bank Low Level Canal 52.00 TMC

Water available for Tungabhadra Right Bank Low Level Canal shall be shared by the States of Karnataka and Andhra Pradesh in the following proportion:

State of Karnataka -- 22.50

State of Andhra Pradesh -- 29.50

(ii) Tungabhadra Right Bank High Level Canal –Stages I

and II 50.00 TMC

Water available for Tungabhadra Right Bank High Level Canal shall be shared by the States of Karnataka and Andhra Pradesh in the following proportion :

State of Karnataka -- 17.50

State of Andhra Pradesh -- 32.50

(iii) Tungabhadra Left Bank Low Level and High Level

Canals 102.00 TMC

(iv) Raya and Basavanna Channels of the State of

Karnataka

7.00 TMC

(v) Assistance by way of regulated discharges to Vijayanagar Channels other than Raya and Basavanna Channels of the State of Karnataka

2.00 TMC

(vi) Assistance by way of regulated discharges to the Rajolibunda Diversion Scheme for use by the States of Karnataka and Andhra Pradesh in the proportion mentioned in Clause XI(C)

7.00 TMC

(vii) Assistance by way of regulated discharges to the Kurnool-Cuddapah Canal of the State of Andhra Pradesh

10.00 TMC

REPORT/ DECISION

230.00 TMC"

It appears that the State of Karnataka sought modification of Clause IX of the Final Order that the provision made to the effect that all the three sources should remain open to satisfy the allocations made to Andhra Pradesh, be re-considered and it was contended that there being enough water in Tungabhadra more allocations should have been made to Karnataka for its projects and it was requested that in Tungabhadra sub-basin (K-8) some more water may be allocated for Tungabhadra Left Bank Low Level Canal to the extent of 9.3

TMC, for Upper Bhadra Project 10 TMC, for Upper Tunga Project 20 TMC, for Rajolibanda Left Canal Station 2 TMC and 12 TMC for minor irrigation, all this totals to 53.3 TMC.

However, the demand for Upper Bhadra Project was held to be not worth considering and the same view was held about Upper Tunga Project, unless a further study was made about the available water of river Tungabhadra.

In Clarification No. XIX at page 52 of the Further Report, one of the Clarifications sought was for prescribing an Authority for making further studies of the available waters in the Tungabhadra and Vedavathi sub-basins and further that Clause V(B) of the Final Order should be made subject to the provision for allocation of additional waters determined by such Authority. Clarification was also sought by the Government of India seeking guidance that after lapse of a period of time when the return flows would progressively become available, the ceiling specified by the Tribunal for utilization of water in sub-basins and rivers would require any upward revision or not.

Taking into account some other Clarifications as sought by different parties and the Government of India, the Tribunal considered

all such questions together on the subject relating to restrictions imposed by Clause IX(B) at pages 54-55 of the Further Order and observed that in fixing the ceilings on uses, the Tribunal had not considered the fact that 75 per cent dependable flow of 2060 TMC would increase progressively on account of return flows but upward revision of the ceiling on uses, was not revised. The Government of India sought Clarification that this lacuna may be rectified and upward revision of the restrictions should be made, which was supported by the State of Karnataka and Maharashtra but opposed by the State of Andhra Pradesh. The Tribunal under Clause IX(B) placed following restrictions on State of Karnataka –

“Out of the water allocated to it, the State of Karnataka shall not use in any water year –

- (i) more than 295 TMC from the Tungabhadra (K-8) sub-basin and more than 42 TMC from the Vedavathi (K-9) sub-basin.
- (ii) more than 15 TMC from the main stream of the river Bhima.”

However, no upward revision of ceiling was made in respect of river Bhima considering the respective needs of the States.

The State of Karnataka submitted that ceiling of utilization of 295 TMC for K-8 sub-basin, would result in denial of use of

additional water for future works. There are scarcity conditions in the Districts of Dharwar, Bellary, Chitradurga and Tumkur and prayed for irrigation facilities in drought stricken areas in Tungabhadra (K-8) sub-basin –

Further allocation under Tungabhadra Project --

(1) Left Bank Low Level Canal	9.3 TMC
(2) Upper Bhadra	10.0 TMC
(3) Upper Tunga	20.0 TMC
(4) Gondi Left Bank Canal Extension	2.0 TMC
(5) Minor Irrigation	12.0 TMC

53.3 TMC

and further demand was made in Vedavathi (K-9) sub-basin to the following effect –

(1) Jinigehalla	1.0 TMC
(2) Feeder Channel to Ranikere	1.0 TMC
(3) Minor Irrigation	<u>1.0 TMC</u>
	<u>3.0 TMC</u>

The Tribunal disposed of the demand for raising the ceiling in (K-9) Vedavathi sub-basin observing that Feeder Channel to Ranikere and Jinigehalla have been held to be not worth consideration on the ground “.....that further study was necessary of the water available in the river Vedavathi. We adhere to this view. If the State of Karnataka can minimize the use of water elsewhere in this sub-basin it may use water for these two projects and for additional minor irrigation within the limit of 42 TMC.” (page 56 of KWDT-I Report)

In connection with the demand of Karnataka in Tungabhadra (K-8) sub-basin, relating to 10 TMC for Upper Bhadra Project, it has been observed in Column-I at page 222: “The whole Chitradurga and Bellary Districts have been identified as drought-affected by the Indian Irrigation Commission (Report of Irrigation Commission 1972, Volume-I, pages 422 and 423).

It cannot be said that the demand for this Project is not worth consideration. But unless a further study is made of the water available in the river Tungabhadra, the Project may be deferred.”

Then about demand of Karnataka for Upper Tunga Project serving Taluks of Dharwar District and Koppal Taluk of Raichur

District, in its MY Note No. 17 Appendix III 40 TMC it was proposed to meet only 20 TMC out of 75 per cent dependable flow and the balance coming out of surplus flows. In connection with this demand also, it is observed that the Tribunal had already held this demand not worth consideration “for the present” unless further study was made about availability of water in river Tungabhadra. The additional demand for Tungabhadra Left Bank Low Level Canal to the extent of 9.3 TMC was also rejected. It is observed by the Tribunal as follows:-

“In all the three cases, the main reason for not allowing the additional utilizations to the State of Karnataka was that in our opinion Tungabhadra should continue to make significant, in other words substantial, contribution to the river Krishna. But the picture changes when due to return flow more water will be available in the river Krishna for use by the State of Karnataka.”

The Tribunal has also observed that the requirement of Karnataka from Tungabhadra (K-8) sub-basin was 290 TMC (page 57 of the Further Report). As against 290 TMC, a little higher than the actual requirement of the projects was allowed to be used to give the States concerned, on which the Tribunal imposed restrictions, some

flexibility in the uses. While fixing the ceiling, the additional dependable flow on account of return flows was not taken into consideration. Ultimately, the ceiling of 295 TMC has been retained and has not been revised upwardly, as prayed by Karnataka, but use of extra quantity of water progressively was allowed on account of return flows over and above 295 TMC as provided in Clause IX(B) as substituted by the Tribunal on consideration of the fact that more water would be available for utilization on account of return flows. The substituted Clause IX(B) in the Final Order has already been quoted by us at page 435 earlier.

According to the substituted Clause, as indicated earlier, percentage of the return flows which would be available for utilization progressively have been indicated.

The proportion in which the two States, Karnataka and Andhra Pradesh would utilize the water allocated to them from Tungabhadra Dam and the assistance provided by way of regulated discharges have been provided in Sub-Clause (E) of Clause IX which has already been quoted in this Report at pages 13 and 14.

The demands which were put forward by the State of Karnataka had not been allowed in respect of 10 TMC for Upper Bhadra Project, not because it was not worth consideration but for the reason that before allowing this requirement the availability of water in the river Tungabhadra was to be ascertained. Same was the reason given about the Upper Tunga Project for which 20 TMC was demanded, although it was found to be worth consideration, the main reason, however, for not allowing these projects, as mentioned above was that Tungabhadra should continue to make significant and substantial contribution to river Krishna. The picture would change, it is observed, when more water would be available as return flows. We have also noticed that in respect of demand made in K-9 sub-basin it was observed that for utilizing the demanded amount of water, Karnataka could make savings in utilization in some other sub-basin.

It is now in this background that we proceed to take up the several issues, as framed, relating to K-8 sub-basin. First of all, we take up Issue No. 27. It is to the following effect:--

Issue No. 27:

“Whether the State of Karnataka has already exceeded its allocation in K-8 sub-basin, if so, whether the State of Karnataka is entitled to construct, Upper Tunga, Singatlur, Basapur, Sasalwad Stage-I and II, Guddada Mallapur Lift Irrigation Scheme, Varada, Bennur balancing reservoir, Upper Bhadra Project, Lakya dam and lift irrigation schemes from foreshore of Tungabhadra reservoir”?

The State of Karnataka in its complaint in para (iii) at page 3 stated as follows:--

“The State of Karnataka has prepared Master Plan-2002 indicating the manner of utilization of surplus water in the Inter-State Krishna River or Krishna valley. The State of Karnataka reserves its right to file detailed pleadings, documents, studies and other technical data apart from leading oral evidence in support of its case before the Tribunal, when constituted.”

The State of Karnataka filed its Master Plan-2002 which is C-I-D-6 indicating therein a number of projects as planned and the requirement of water. It also filed Project Report of Singatlur Project which is C-I-D-36. On the basis of such documents, the State of

Karnataka made the following demands for allocation from K-8 sub-basin.

In the revised Master Plan-2002, it is indicated that re-adjustments have been made in the requirement and utilization of some of the projects which had been prepared in the Master Plan-1993. In some of the projects utilizations are reduced in view of non-availability of water at the relevant site. In some of the projects, savings have been proposed in Master Plan-2002 so as to provide for the increased need of some of the projects looking to the need of the people of the area and the local requirement. Revised Master Plan under Scheme-A has been filed as Annexure 4.5 to C-I-D-6 which is the Report of the Master Plan-2002. The main projects in respect of which objections have been raised by the State of Andhra Pradesh are Singatlur L.I.S. in K-8 sub-basin. It finds mention at Sl.No.39 of the list of the revised plan. The total requirement for this project is shown as 18.55 TMC.

The Upper Tunga Project is at Sl. No. 40 of the revised plan in K-8 sub-basin projecting the requirement of 12.24 TMC and Upper Bhadra Stage-I is at Sl. No. 42 of the list and its requirement as shown in the Annexure 4.5 at page 43 of C-I-D-6 is 10 TMC. So the total

requirement as shown in the revised Master Plan under Scheme-A for these three major projects comes to 40.79 TMC. It is rounded off as 40 TMC. The other Schemes for which requirement is made are—

Basapur L.I.S. for which requirement is 0.60 TMC;

Guddada Mallapur L.I.S. K-8 sub-basin, requirement is 1.00 TMC.

Sasalvad Stage-I & II

Varada

Bennur Balancing Reservoir

Lakya Dam and Lift Irrigation Schemes

About Singatlur L.I.S. Project, C-I-D-36 its Project Report has been filed in support of the demand.

We find that out of the 9 Projects which are mentioned in Issue No. 27, only Upper Bhadra, Upper Tunga, Singatalur, Basapur and Guddada Mallapur Lift Irrigation Scheme find mention in C-I-D-6, the Master Plan-2002 prepared by State of Karnataka. The other four projects viz. Sasalvad Stage-I & II, Varada, Bennur Balancing Reservoir and Lakya Dam and Lift Irrigation Scheme do not find mention in the Master Plan-2002.

Mr. Dipankar Gupta, learned senior counsel appearing for the State of Andhra Pradesh, while concluding his submissions on 13.5.2009, made a request that the arguments relating to K-8 sub-basin may be permitted to be advanced by Mr. Rakesh Dwivedi, senior advocate and further requested that on some other miscellaneous matters he may make his submissions after Mr. Rakesh Dwivedi concluded his arguments.

Mr. Rakesh Dwivedi, started his arguments on 14.5.2009 and submitted that the State of Karnataka has already exceeded its utilizations in K-8 and K-9 sub-basins. Therefore, it was not entitled to construct the projects, namely, Upper Tunga, Singatlur, Basapur, Sasalwad Stage-I and II, Guddad Mallapur Lift Irrigation Scheme, Varada, Bennur Balancing Reservoir, Upper Bhadra Project, Lakya Dam and Lift Irrigation Scheme from foreshore of Tungabhadra reservoir and to support the argument that the State of Karnataka has already exceeded its utilization, refers to note of his submissions APAD-21, page 38 which contains Annexure-I to APAD-21. The case of the State of Andhra Pradesh is that KWDT-I has allocated a total of 295 TMC+ return flows of 12 TMC (i.e. 307 TMC) to Karnataka in K-8 sub-basin. Out of its allocation, 155.26 TMC was

meant for utilization in Tungabhadra Dam and its related projects and the remaining 151.74 TMC as per page 57 of the Further Report, was to be utilized in the projects in K-8 sub-basin above the Tungabhadra Dam and for minor irrigation. About the Chart Annexure-I to APAD-21 which pertains to the years 1997-98 to 2006-07, it is submitted that it is evident from the Chart that except for the years 2002-03 and 2003-04 which were lean years, the State of Karnataka has utilized its entire allocation in almost all the years. In the year 2000-01 Karnataka exceeded its utilization of 151.74 TMC to 176.26 TMC. It shows that the State of Karnataka has developed its capacity to utilize more than 151.74 TMC in K-8 sub-basin above Tungabhadra Dam. However, the position is not shown to be similar in respect of other part of the utilization to the extent of 155.26 TMC out of Tungabhadra Dam.

It is also submitted that due to siltation, the storage capacity of Tungabhadra Dam has already reduced. The learned counsel has then referred to the observations made by KWDT-I at page 70 of the Further Report to the effect that the Karnataka shall be able to use progressively some more water in K-8 sub-basin to make it possible to

construct Upper Bhadra Project or any other project at Tungabhadra Dam and to meet its demand of 10 TMC i.e. to utilize 102 TMC on the left bank of the Tungabhadra Dam. He also refers to the provision made for regulated discharges for Kurnool-Cuddapah Canal, Rajolibunda Diversion Scheme and Vijaynagar Channels down the Tungabhadra Dam to avoid any adverse affect on the projects of Andhra Pradesh. Mr Rakesh Dwivedi further submitted that Karnataka having been allowed to utilize 10 TMC more above Tungabhadra Dam considering return flows, that should not be taken as upward revision of the ceiling in absence of return flows. It is further submitted that the allocation for K-8 sub-basin is not enbloc, rather it is project-wise and for the present there is enough water in K-8 sub-basin to meet its existing needs. It is submitted that no further new projects can be allowed to be constructed by Karnataka in K-8 as indicated in APAD-21, page 29, specifically mentioning seven projects as under:--

Sl.No.	Name of the Project	Revised Allocation Quantity in TMC
1.	Upper Tunga	12.24
2.	Upper Bhadra Stage-I	10.00+13.00
3.	G. Mallapur LIS	1.00

4.	Basapur LIS	0.60
5.	Singatlur LIS	18.55
6	Hirehalla	2.27
7	Maskinala	0.78
	Total	58.44

Mr. Rakesh Dwivedi learned senior counsel for the State of Andhra Pradesh submitted that the objection is mainly in respect of Tungabhadra Project requiring 12.24 TMC, Upper Bhadra Statge-I and II Project requiring 10+13 TMC and Singatlur LIS Project requiring 18.55 TMC. He further stated that other smaller projects are not very seriously objected to, utilization of which is proposed to be like 2.27 TMC, 0.60 TMC and 0.78 TMC etc..

The learned senior counsel then refers to page 179, column-2 and page 180 of the Report of KWDT-I, where KWDT-I has observed: “Tungabhadra River makes substantial contribution to the River Krishna” and further observed –“If the interests of the State of Andhra Pradesh are to be safeguarded in the matter of receiving water from the River Krishna, it is necessary that mainstream of Krishna should continue to receive sufficient water from River Bhima and River Tungabhadra. It is only then that all the three sources of supply

of water to the State of Andhra Pradesh will remain open. This means there should be no overcrowding of projects in K-5 and K-6 sub-basins, as also in K-8 and K-9 sub-basins.” The reference of the observations made by Godavari Commission has also been made recommending that more new projects may not be launched in some sub-basins including K-8 sub-basin. It is then submitted that according to the State of Karnataka the total flows going down to Andhra Pradesh would be 54.6 TMC considering the flows below Sunkesula and after meeting its requirement of 79.2 TMC, whereas it is pointed out that according to Andhra Pradesh only 31.45 TMC will be flowing down to Andhra Pradesh including the water of Vedavathi.

The learned counsel then refers to the yield of K-8 sub-basin in reference to the yearly water series of different length and ultimately points out the studies made by Prof. Subhash Chander, according to whom the yield 486.53 TMC at 75 per cent dependability. It has been arrived at from a series of 104 years prepared on the basis of rainfall run off relationship of 1972-73 to 2000-01 which data was available based on CWC Gauge data and utilizations. Prior to the period 1972-73 he utilized rainfall data of IMD. By the method of hindcasting a series of 104 years, 1901-02 to 2004-05 was prepared. It is then

submitted that the total allocation made to the State of Karnataka and Andhra Pradesh in K-8 sub-basin, totals to 434 TMC. Resultantly, only 52.53 TMC would flow down to Andhra Pradesh. During the course of arguments at another place, it has been submitted that only 12 TMC may remain available for flowing down to Andhra Pradesh. Ultimately, what is sought to be made out is and vehemently urged that there is no more water available in K-8 sub-basin to allocate for the new projects proposed to be launched by Karnataka or to increase the utilization in some of the projects.

At this stage we may ascertain the requirement of Karnataka which is opposed to by Andhra Pradesh. It has been submitted, as pointed out earlier that the main objection is in respect of three projects, namely, Upper Tunga Project requiring 12.24 TMC, Upper Bhadra Project requiring 10 TMC and Singatlur Project requiring 18.55 TMC. It totals to 40.79 TMC. So far other smaller projects are concerned, as indicated at page 29 of APAD-21, they are not seriously objected to nor any submissions have been directed against those smaller projects.

Uncertainty about availability of water

So far Upper Tunga and Upper Bhadra Projects are concerned, the previous Tribunal has not considered them to be not worth consideration. Singatlur Project was not before KWDT-I. We may now examine the reason for not allowing Upper Tunga and Upper Bhadra Projects. The main reason seems to be uncertainty about availability of water as per the material available before KWDT-I. In this connection we may refer to the observations of KWDT-I at page 221-222 of its Report, where it is mentioned in the left hand column in respect of Upper Bhadra Project:-- “It cannot be said that the demand for this Project is not worth consideration. But unless a further study is made of the water available in the river Tungabhadra, the Project may be deferred” (emphasis supplied by us). It will, therefore, not be correct to say that the demand of the State of Karnataka in respect of Upper Bhadra Project was rejected. It was only deferred until further study about availability of water was made.

So far as Upper Tunga Project is concerned, it is observed in column 2, page 221 of the Report of KWDT-I in the concluding part while dealing with this Project – “In our opinion unless a further study is made of the available water in the river Tungabhadra, the demand

to the extent of 20 TMC for this Project is not worth consideration for the present.” (emphasis supplied by us). Thus, in respect of Upper Tunga Project also the main reason was further study in regard to the availability of water in the River Tungabhadra, as a result of which, it was found to be not worth consideration “for the present”

It is, therefore, clear that allocation to the aforesaid two projects would be subject to availability of water. These projects were not rejected on any other ground whatsoever.

We feel that in case water is found to be available, the same criteria may apply to Singatlur LIS, of course, taking into consideration the facts as to the area to which it would serve and other relevant factors.

As a general principle, development in a State is a matter solely for consideration and decision of that State. No other State has any business or right to object to the development of any other State which knows better about the needs of the people of the area of that State. This broad and general principle is subject to a rider that the development sought to be undertaken may not be such that it may adversely affect or damage the cause of the co-riparian State. There is

yet another principle that if such damage or adverse effect is such that it can be compensated for, it would be preferred to allow the development in the State compensating the co-riparian State. In the present case, however, we are only concerned with the principle that a State is free to develop of its areas, unhampered by any co-riparian State. Therefore, if water is available, which can be utilized in such projects without adversely affecting the co-riparian States, there should not come any impediment in the activity of the State developing any area for the benefit of the people of the State. As a matter of fact, the other co-riparian State in the absence of an adverse effect upon it, shall have no reason to come in the way.

Return flows for use by Karnataka:

We may now refer to the observation made by KWDT-I at page 57 of its Further Report while dealing with the Clarification No. XIX, as raised by the State of Karnataka in respect of not allocating water for the Projects Upper Tunga and Upper Bhadra and further allocation for Tungabhadra Left Bank Low Level Canal. It was observed:-- “In all the three cases, the main reason for not allowing the additional utilizations to the State of Karnataka was that in our opinion the river Tungabhadra should continue to make significant, in other words

substantial, contribution to the river Krishna. But the picture changes when due to return flow more water will be available in the river Krishna for use by the State of Karnataka”. (emphasis supplied by us).

It is thus clear from the above observation that there was no impediment in allowing the additional utilization by the State of Karnataka in the three projects but for the reason that, it was thought that some significant contribution was required to be there from the River Tungabhadra to River Krishna, which it appears, was thought to be not possible unless further study about the availability of water was made and there is change in the picture on account of return flows.

The other reason seems to be, as indicated earlier, as found at page 71 of the Further Report that if the interests of the State of Andhra Pradesh are to be safeguarded in the matter of receiving water from river Krishna, the mainstream must receive contribution from Tungabhadra and there may not be any overcrowding of projects in K-8 and K-9 sub-basins besides some other basins. According to Andhra Pradesh, Tungabhadra river was thus contributing 31 TMC to the river Krishna. The KWDT-I wanted continuation of the contribution by Tungabhadra.

The conclusions of the submissions of the State of Andhra Pradesh, as indicated in APAD-21 are that savings projected by Karnataka are non-existent and there is no water available in K-8 sub-basins to provide for the three major projects and that it will also be against the mandate of KWDT-I to avoid overcrowding of projects in K-8 sub-basins. So far Singatlur Lift Irrigation Scheme is concerned, it is located on the fore-shore of the Tungabhadra Dam, hence it will affect the established utilization in the Dam, hence, it cannot be provided any water.

From the objections raised on behalf of the State of Andhra Pradesh and the findings recorded by the KWDT-I, it is clear that two factors are to be mainly considered (i), as to whether water for allocation for the three major projects of Karnataka is available or not and (ii) in case it is available, whether or not sufficient water will be left in the River Tungabhadra for making significant contribution to the main River Krishna after utilization in the three projects by Karnataka.

The State of Karnataka had taken up the case before KWDT-I also that there was enough water available for providing for its projects and before us it is also submitted that Karnataka proposes to

make savings in its current utilizations so as to provide for the new requirements and in that connection Table-2 has been filed with KAD-58. It is given below:--

Sl. No.	Name of Projects	Utilisation As in KWDT Report	Utilisation as in Master Plan-2002	Sources		
				Savings (3-4)	Return Flows	Reduction due to Non-utilisation
1	2	3	4	5	6	7
1	Tungabhadra LBMC	102.00	92.00			10.00
2	Vijayanagar Channels	12.06	12.05	0.01		
3	Ambligola	1.40	1.10	0.30		
4	Dharma	2.20	1.10	1.10		
5	Kanakanala	0.40	0.27	0.13		
6	Minor Irrigation	59.11	35.58	23.53		
7	Return Flows				12.03	
	Total	177.17	142.1	25.07	12.03	10.0
	Grand	Total 5+6+7			47.10	

Total savings in column 5 are shown to the extent of 25.07 TMC. Return flows to the extent of 12.03 TMC and column-7 shows reduction due to non-utilisation from the allocation made by KWDT-I and that of the Master Plan of 2002, which provides them 10 TMC. The total of the three items shown above comes to 47.10 TMC. According to the State of Karnataka this amount of water is enough to provide for their projects. Yet another Chart has been placed along with notes of arguments indicating in detail the amount of savings made from different projects etc. Therefore, according to the Karnataka there will be no paucity of water for the proposed projects nor there will be any reduction in the water which is flowing down to River Krishna from Tungabhadra. The proposed savings, it has been submitted on behalf of Andhra Pradesh, are unreal and in fact no water is available out of savings, as alleged.

REPORT/ DECISION

We may, therefore, now consider the question of availability of water in River Tungabhadra as to whether it is enough for the proposed projects as canvassed by the State of Karnataka or it is so little that the water cannot be made available, and it will amount to overcrowding of projects in K-8 sub-basin and will diminish the flow

of water down to River Krishna from River Tungabhadra for use of Andhra Pradesh.

We have already seen the estimate of yield of River Tungabhadra made by State of Karnataka as mentioned at page 179, column-(ii) bottom of the Report of KWDT-I. It is calculated to be 565.1 TMC from Karnataka up to Sunkesula. It was the case of the State of Karnataka that after meeting the further requirement of the State of Karnataka to the extent of 79.2 TMC, thereafter 39 TMC will be available out of 75 per cent dependable flows at Sunkesula and another 15.6 TMC below Sunkesula, thus 54.6 TMC water would flow down to River Krishna.

On page 180 of the Report of KWDT-I, we find the estimate given by the State of Andhra Pradesh. According to it yield of K-8 sub-basin was 398.61 TMC and that of Vedavathi sub-basin 50.54 TMC. The average yield of Tungabhadra River together with Vedavathi and Sunksesula plus protected uses is shown as 558.6 TMC and average yield below Sunkesula up to confluence with river Krishna 10.4 TMC, which totals to 569.05 TMC. The 75 per cent dependable yield is shown to be 471.7 TMC, which up to junction of Krishna River comes to 480.6 TMC and after deducting the

allocations to the tune of 449.15 TMC the balance remains only 31.45 TMC which was flowing down to River Krishna.

We find there is a marked difference between the yields as assessed by the two States. According to Karnataka 54.6 TMC would be available to flow down to Andhra Pradesh after providing for the further requirements of 79.2 TMC. Therefore, flows without providing for the additional required amount of water would come to $79.2 \text{ TMC} + 54.6 \text{ TMC} = 133.8 \text{ TMC}$. So, as per the case of the State of Karnataka the water available for joining the River Krishna from Tungabhadra was quite large in quantity. The yield of Vedavathi is not indicated to have been included in calculation of yield shown by Karnataka.

Apart from the other facts, one thing which is noticeable is that while coming to the conclusion that 31.45 TMC flows down to the River Krishna, Andhra Pradesh did not take into account the water available over and above 75 per cent dependability (2060 TMC) available in 74 years out of 100 years, will also flow down along with the alleged quantity of 31.45 TMC. Even according to Prof. Subhash Chander the 75 per cent yield of River Tungabhadra is 486.53 TMC. We find that at page 10 of APAD-21 it is mentioned that 52.53 TMC

water would flow down to Andhra Pradesh. This is an improvement over 31.45 TMC.

So, according to Andhra Pradesh, there should not have been lesser flows than 31.45 TMC, as were then available. No further depletion should be made. It was also their case that requirement of Karnataka which was over 50 TMC could not be met out of 31.45 TMC. So, all that they wanted was that the flow of 31.45 TMC may not reduce on account of further allocations to Karnataka so that 31.45 TMC must continue to flow down.

The case of Karnataka, as indicated above, was that there has been enough water for allocation and if its requirement had been met amounting to 79.21 TMC then also 54.6 TMC would flow down to River Krishna which was much more than 31.45 TMC. Otherwise, the flow going down to River Krishna would be to the tune of 133.8 TMC.

KWDT-I does not seem to have accepted the case of any of the State, on the yield of Tungabhadra, at least there is no such finding. May be due to conclusions arrived at by the State of Andhra Pradesh that amount of water which would flow down to River Krishna will

only be 31.45 TMC, no allocation was made for the projects of Karnataka. But, at the same time, the KWDT-I had deferred the allocations to the State of Karnataka until further studies were made about the availability of water in the River Tungabhadra. As indicated earlier it was also observed that the yield will increase with the return flows which may change the picture about the availability of water. But during all this to happen, the KWDT-I perhaps felt safer to make no further allocations for the projects of Karnataka.

Determination of yield of Tungabhadra by Competent Tribunal:

So as to assess the yield of the River Tungabhadra, the State of Karnataka had requested the previous Tribunal to prescribe an authority but KWDT-I declined to do so as it thought that it was not possible to delegate the function of determining the yield of River Tungabhadra to any authority prescribed by it. It was further observed at page 54 of the Final Report, while disposing of the Clarification No. XIX of the State of Karnataka— “Such a determination can be made only by a competent Tribunal or Authority

constituted under the Inter-State Water Dispute Act, 1956. Clause XII read with Annexure 'B' to the Final Order provides for gauging of the flows of various rivers at different sites. Therefore, data of the river flows may enable the reviewing authority or tribunal to determine accurately the available water in the River Tungabhadra and Vedavathi sub-basin".

Clause XII of the Final Order provides as under:

"The regulations set forth in Annexure 'B'(i) of this order regarding gauging and gauging sites in the Krishna River system be observed and carried out."

Accordingly, Annexure 'B' provides for gauging at different sites of the River Krishna and its tributaries. Some sites were operating since before and some had been set up after the passing of the order of the Tribunal.

Therefore, as per the provisions made by the previous Tribunal, the accurate availability of water in Tungabhadra and Vedavathi sub-basins was required to be determined by the reviewing authority on

the basis of the fresh data of the river flows. River flows are being gauged at different sites which are maintained by CWC which is officially charged with the duty of performing such functions. The data is maintained by CWC and water year book is published and issued containing all the details including the data of gauging at different sites, besides other relevant information. These water year books are available with the Tribunal as supplied by the CWC. Therefore, fresh data for the years from 1965-66 is available before this Tribunal, pertaining to flows at different sites which would enable this Tribunal to accurately assess the availability of flows of the River Tungabhadra and Vedavathi.

In the above background it will be pertinent to mention here that this Tribunal has already prepared a water series of 47 years to assess the yield of river Krishna which is found to have increased. It will be in consonance with that also that we have prepared a Chart of 43 years from 1965-66 to 2007-08 to assess the yield of river Tungabhadra. This Chart is given on the next following page no.537.

YIELD SERIES OF K-8 SUB BASIN (1965-66 to 2007-08) - 43 Years

S. No.	Year	Discharge at Site No.C-24 Bawapuram	Utilisation in K-8 Sub basin			Utilisation in K-9 Sub Basin			Change in Storage in K-8 Sub basin	Gross flow (of K-8 +K-9) upto Bawapuram G&D Site (Col.3+6 +9+10)	Gross flows of K-9 Sub basin	Gross Flows of K-8 sub basin only @Bawapuram (Col.11-12)	Contribution per Km ² in Mct below Bawapuram to K-8 end. (as per Doc.C-III-D-81-82 Annexure-22 Col-11, page 165-166)	Contribution below Bawapuram upto K-8 end Col.14x4237/ 1000	Gross flows of K-8 Sub basin	
			Utilisation in Karnataka Major,Medium& Minor	Utilisation in A.P Major,Med ium & Minor	Total Utilisation Kar+A.P. (Col.4+5)	Utilisation in K-9 Sub Basin by Kar.	Utilisation in K-9 Sub Basin by A.P	Total Utilisation Kar+A.P. (Col.7+8)							Col.(13+15)	Descending Order
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	1965-66	190.151	227.601	97.808	325.409	48.761	11.855	60.616	0	576.176	80.198	495.979	4.92	20.846	516.825	945.936
2	1966-67	127.380	227.601	97.808	325.409	48.761	11.855	60.616	0	513.405	80.198	433.207	4.92	20.846	454.054	895.964
3	1967-68	176.749	227.601	97.808	325.409	48.761	11.855	60.616	0	562.774	80.198	482.576	4.92	20.846	503.422	797.147
4	1968-69	228.434	227.601	97.808	325.409	48.761	11.855	60.616	0	614.459	80.198	534.262	4.92	20.846	555.108	770.212
5	1969-70	247.488	227.601	97.808	325.409	48.761	11.855	60.616	0	633.513	80.198	553.316	4.92	20.846	574.162	755.924
6	1970-71	358.973	227.601	97.808	325.409	48.761	11.855	60.616	0	744.998	80.198	664.801	4.92	20.846	685.647	730.794
7	1971-72	164.868	227.601	97.808	325.409	48.761	11.855	60.616	0	550.893	80.198	470.696	4.92	20.846	491.542	704.321
8	1972-73	79.264	277.512	127.52	405.038	48.761	11.855	60.616	-7.430	537.488	80.198	457.290	1.52	6.440	463.731	685.647
9	1973-74	213.726	291.909	143.92	435.834	45.628	12.856	58.484	9.220	717.263	96.450	620.813	3.74	15.846	636.660	666.830
10	1974-75	213.893	302.667	138.24	440.908	48.109	12.524	60.633	1.250	716.684	99.935	616.749	6.46	27.371	644.120	644.120
11	1975-76	526.273	306.720	135.16	441.885	49.908	15.760	65.668	10.640	1044.466	162.33	882.127	15.06	63.809	945.936	636.660
12	1976-77	34.345	283.339	115.39	398.737	50.469	6.264	56.733	-20.773	469.042	66.916	402.126	4.25	18.007	420.133	629.643
13	1977-78	127.451	307.228	141.39	448.624	49.606	9.796	59.402	14.022	649.499	103.34	546.157	6.71	28.430	574.588	629.012
14	1978-79	419.240	313.631	150.35	463.985	52.490	7.256	59.746	-5.693	937.277	99.064	838.213	13.63	57.750	895.964	620.331
15	1979-80	135.951	311.773	146.47	458.252	50.015	7.364	57.379	1.338	652.920	84.223	568.697	6.43	27.244	595.941	608.986
16	1980-81	319.987	319.558	149.14	468.707	50.511	7.028	57.539	-20.634	825.599	77.250	748.349	5.16	21.863	770.212	598.088
17	1981-82	245.755	305.305	144.46	449.766	48.819	10.746	59.565	-6.575	748.511	110.23	638.273	6.74	28.557	666.830	595.941
18	1982-83	177.845	309.612	145.74	455.357	47.610	7.069	54.679	-3.157	684.724	81.977	602.747	4.15	17.584	620.331	594.519
19	1983-84	170.570	292.754	138.83	431.587	43.980	6.062	50.042	8.595	660.794	76.298	584.497	5.78	24.490	608.986	591.602
20	1984-85	139.988	294.498	122.26	416.764	44.835	3.643	48.478	-7.104	598.125	64.368	533.758	2.84	12.033	545.791	580.811
21	1985-86	45.309	273.752	115.23	388.984	40.064	1.683	41.747	-3.817	472.223	53.392	418.831	3.70	15.677	434.507	574.588
22	1986-87	76.315	292.236	115.77	408.009	43.483	4.411	47.894	2.641	534.860	75.913	458.947	5.23	22.160	481.106	574.162
23	1987-88	87.404	227.601	97.808	325.409	40.615	5.289	45.904	-2.029	456.688	75.591	381.097	2.57	10.889	391.987	571.974
24	1988-89	157.045	259.555	110.49	370.051	43.473	8.562	52.035	-3.735	575.395	78.280	497.115	6.07	25.719	522.834	559.144
25	1989-90	99.022	267.787	114.08	381.871	39.379	8.118	47.497	18.740	547.130	81.230	465.900	5.76	24.405	490.305	555.108
26	1990-91	158.634	282.528	133.24	415.771	37.911	2.999	40.910	10.550	625.865	54.347	571.518	4.74	20.083	591.602	546.660
27	1991-92	221.918	255.561	133.830	389.392	37.820	5.078	42.898	8.984	663.191	61.508	601.683	6.45	27.329	629.012	545.791
28	1992-93	325.778	297.337	137.01	434.349	40.542	3.554	44.096	-6.574	797.649	76.007	721.642	2.16	9.152	730.794	522.834
29	1993-94	225.061	299.161	116.27	415.438	40.341	3.931	44.272	-8.199	676.572	72.223	604.348	5.97	25.295	629.643	516.825
30	1994-95	355.443	293.539	115.48	409.021	39.393	3.094	42.487	-1.223	805.728	60.185	745.544	2.45	10.381	755.924	503.422
31	1995-96	60.529	278.024	111.664	389.688	39.546	2.670	42.216	-15.254	477.178	58.851	418.328	3.91	16.567	434.894	491.542
32	1996-97	187.804	269.171	116.23	385.405	39.874	6.546	46.420	-2.414	617.215	94.410	522.805	5.63	23.854	546.660	490.305
33	1997-98	168.239	285.815	114.60	400.416	27.037	1.566	28.603	15.827	613.086	41.554	571.532	2.19	9.279	580.811	481.106
34	1998-99	292.724	295.565	133.64	429.210	23.676	4.987	28.663	6.686	757.283	69.232	688.051	3.84	16.270	704.321	463.731
35	1999-00	183.778	294.653	132.48	427.136	25.666	4.021	29.687	-12.596	628.005	64.463	563.542	1.99	8.432	571.974	454.054
36	2000-01	197.339	308.275	120.42	428.704	35.718	4.547	40.265	-5.114	661.193	85.190	576.003	4.37	18.516	594.519	452.356
37	2001-02	120.529	265.232	92.872	358.104	27.179	5.628	32.807	-5.434	506.006	74.411	431.595	4.90	20.761	452.356	434.894
38	2002-03	29.428	201.747	63.633	265.380	20.314	2.282	22.596	-1.872	315.532	26.972	288.559	4.88	20.677	309.236	434.507
39	2003-04	23.566	180.810	54.818	235.628	16.509	0.714	17.223	2.467	278.883	24.930	253.954	0.00	0.000	253.954	420.133
40	2004-05	59.894	248.098	98.377	346.475	19.693	1.050	20.743	-1.542	425.570	27.477	398.093	3.04	12.880	410.973	410.973
41	2005-06	215.950	270.701	113.81	384.511	23.346	4.711	28.057	15.332	643.850	66.608	577.242	4.92	20.846	598.088	391.987
42	2006-07	161.989	286.389	111.45	397.845	21.432	1.879	23.311	-6.663	576.482	38.184	538.298	4.92	20.846	559.144	309.236
43	2007-08	419.398	260.487	108.40	368.890	23.948	2.629	26.577	21.009	835.873	59.573	776.301	4.92	20.846	797.147	253.954
Average Discharge of		190.033	Result		Average Flow		573.064									
					75% Dependability		488.005									
					65% Dependability		523.982									
					50% Dependability		574.375									
Note	1. Figures shown in red in Col.14 (for years 1965-66 to 1971-72 and 2005-06 to 2007-08) assumed as average figures for the years 1972-73 to 2004-05, since observed data is not															
	2. Col.14 Figures for years 1972-73 to 2004-05 taken from Doc. No.C-III-D-81-82, Annexure-22, Page 165 to 166.													Average Flow = 573.064		
	3.Figures assumed in Col.4 & 5 for the years 1965-66 to 1971-72 in respect of Utilisation by Karnataka and A.P. are the minimum of the figures in years 1972-73 to 2007-08, except bad													75% Dep. Flow = 488.005		
	4.Figures used in Col.7 & 8 for the years 1965-66 to 1971-72 in respect of Utilisation in K-9 Sub basin by Karnataka and A.P. are assumed as Utilisation for the Year 1972-73. The subsequent years utilisations are gradually reducing, hence utilization													Difference = 85.059		
	5. Figures in Col.10 for the years 1965-66 to 1971-72 have been assumed as 0 for want of data															
	6. Figures assumed in Col.12 for the years 1965-66 to 1971-72 in respect of Gross flows of K-9 sub basin is that of the year 1972-73, because of the non availability of utilisation data of K-9 Sub basin for these years.															

It had not been possible to prepare a Chart for the period prior to 1965-66 as discharge data of Site No. C-24, Bawapuram is not available, since this site was established only in the year 1964. The utilization data for the period prior to 1971-72 for the States of Karnataka and Andhra Pradesh in K-8 sub-basin has not been available. The utilization data for these years has been assumed as explained in the notes to the Chart. For the years prior to 1972-73 contribution below Bawapuram has also been assumed as explained in the note. The storage change in the reservoirs has been taken into account while preparing the Chart for 43 years. The average yield of K-8 sub-basin comes to 573.064 TMC, at 75 per cent dependability it is 488.005 TMC, at 65 per cent dependability 523.982 TMC and at 50 per cent dependability 574.375 TMC. The difference between the average flows and the 75 per cent dependability flows comes to 85 TMC.

Thus, at 75 per cent dependability 488 TMC is available for distribution between Karnataka and Andhra Pradesh. KWDT-I had allocated 290 TMC (rounded off figure) to the State of Karnataka considering the needs for different projects. The allocation as per requirement of the State of Andhra Pradesh was made to the extent of

120 TMC (rounded of figure). The total of the two comes to 410 TMC.

The yield of K-8 noted above does not include the contribution of Vedavathi K-9. It is also to be noticed that in 74 years out of 100 years some water over and above 75 per cent dependability (2060 TMC) will also flow down along with remaining water at 75% dependability, which coupled with contribution of Vedavathi, would become a considerable amount which flows down to Andhra Pradesh. It would be evident from Column-3 of the above Chart which indicates the discharge at Site No. C-24 Bawapuram, the average flows of the 43 years come to 190.033 TMC. It is, thus, quite clear and evident that a large amount of water would still be flowing down to Andhra Pradesh from K-8 sub-basin after meeting the full requirement of the two States i.e. $290 \text{ TMC} + 40 \text{ TMC} = 330 \text{ TMC}$ for Karnataka and 120 TMC for Andhra Pradesh. It adds only 40 TMC extra allocation. Thus on an average there would still be enough discharges at Bawapuram.

While fixing the upper limit for utilization by the States of Karnataka and Andhra Pradesh from Tungabhadra Dam, a capping of 320 TMC and 127 TMC was placed on these States, respectively.

This would bring the utilization in K-8 sub-basin to 447 TMC. Now, the flexibility provided in utilizations bringing the amount of utilization a little over the amount of allocation, will not be necessary for the State of Karnataka since in the assessment of yield based on up-to-date fresh data, return flows and whatever increase otherwise, if at all, is included. The allocation to Karnataka, 330 TMC now commensurates to their allocation of 290 TMC+40 TMC, the additional allocation for the three major projects, namely, Upper Bhadra, Upper Tunga and Singatlur LIS. The return flows are included in the allocation now made. They are not to be provided for separately. Hence, there is no need of any flexibility for unknown quantity of return flows as was the case earlier. But so far as the State of Andhra Pradesh is concerned, its requirement remains the same i.e. 127 TMC (rounded off). No fresh requirement was made by the State of Andhra Pradesh for any project.

Therefore, the total utilization of the two States from Tungabhadra river, finally comes to 457 TMC, i.e. $290+40+127=457$ TMC as a result of which there still remains 31 TMC for flows to Andhra Pradesh at 75% dependability basis. This amount of water 31 TMC i.e. $488 \text{ TMC} - 457 \text{ TMC} = 31 \text{ TMC}$ is available, after meeting the

full requirement and further allocation of 40 TMC to the State of Karnataka for the above noted three major projects.

So far as the question of allocation to the three major projects of Karnataka, namely, Upper Tunga, Upper Bhadra and Singatlur LIS is concerned, the hurdles which were being felt now stand cleared by the fact that it is found that sufficient water is available for the additional allocation to Karnataka and the remaining water would not be depleted to become less than 31 TMC which the Andhra Pradesh apprehended would decrease in case further allocation is made to Karnataka. In this background we don't think it would be necessary to go into the details of the savings, which Karnataka came forward out of which they wanted to feed the new projects, which was objected to by Andhra Pradesh since the savings as alleged were not real according to Andhra Pradesh. It may be noted, they are proposed savings having not yet come into effect. However, that aspect is not necessary to go into any more.

The State of Andhra Pradesh projected its case to the effect that only 31 TMC was available to flow down even on considering the 75 per cent dependability at 486 TMC, as arrived at by Prof. Subhash Chander at page 172 of his affidavit. Therefore, the contention was

that even this whole 31 TMC, if allocated to Karnataka, it will not meet their additional requirements as sought by them and in that event the flows for Andhra Pradesh would become nil or negligible. But that is not the position as found by us and indicated in the preceding paragraphs. Even after meeting the additional requirements of Karnataka there still remains 31 TMC to flow down to Andhra Pradesh as was the position according to Andhra Pradesh earlier. In the changed scenario, as discussed earlier, the picture has changed and 31 TMC still remains available for flowing down to Andhra Pradesh plus the amount of water which would flow down in 74 years out of 100 years which is well reflected at Bawapuram gauging site as indicated in column 3 of the above Chart. Bawapuram is the first gauging site in the State of Andhra Pradesh which measures the flow of Tungabhadra after it enters into Andhra Pradesh from Karnataka. So it is quite evident that there is still considerable contribution of Tungabhadra to the mainstream of Krishna in Andhra Pradesh.

Yet another aspect is about overcrowding of the projects in K-8 sub-basin. It is vehemently urged that according to KWDT-I there should not be any overcrowding in K-8 sub-basin. It may be clarified here that overcrowding by itself would not be a matter of concern

unless it prejudicially affects the lower riparian States. In case not much water is left which may flow down to the lower riparian States, in that event allowing more projects consuming water which was to flow down, there may be an objection in increasing the number of projects consuming more water. But in the case in hand, we find after the assessment of yield on the basis of the fresh data that the amount of water, namely, 31 TMC which was already flowing down to Andhra Pradesh remains unaffected and that quantity of water would still remain available after the additional allocation to Karnataka State is met, in such a case it would not be called overcrowding of projects in the sub-basin. Addition of more projects in sub-basin or so called overcrowding would not be desirable in case there is depletion in the available water for lower riparian State. Therefore, the objection relating to overcrowding of projects in K-8 sub-basin does not hold good in the present case. As a matter of fact overcrowding of projects has less to do with count of number of projects, it is rather more relevant in relation to utilization of water. If, after additional utilization of water, the remaining part of water which flows down for lower riparian State, the same still remains available un-depleted, in

that event number of projects is not material nor it would be called overcrowding of projects.

Apart from what has been discussed above, we also find that the three projects are to serve the scarcity area of the State of Karnataka in respect of which efforts were made for allocation of water before KWDT-I also. As we have seen they have not been found to be not worth consideration, but consideration was deferred until further study regarding availability of water on the basis of fresh data was made. So far Singatlur LIS project is concerned it covers drought prone area in the districts of Gadag, Koppal and Bellary. The total area to be brought under irrigation is 67,584 hectares i.e. 1,67,000 acres. The inhabitants of that area subsist mainly on agriculture. The network of canals covers a length between 4 Kms. to 51 Kms. This area is in dire need of water for irrigation. The detailed project report of Singatlur has been placed on record as C-I-D-36 indicating the features and dire necessity of water for irrigation in that area.

UPPER BHADRA PROJECT:

Upper Bhadra Project had been proposed vide MYPK-8 primarily to provide irrigation facility to drought affected area of 4,10,000 acres of Chitradurga and Bellary districts. The talukas of the aforesaid districts are indicated at page 222 of the Report of KWDT-I where it is also observed that these areas are chronically drought affected areas. It is also indicated in the Report of KWDT-I at page 222, while considering this project, that the whole of Chitradurga and Bellary districts have been identified as drought affected areas by Indian Irrigation Commission (Report of Irrigation Commission 1972, Volume I, pages 422-423). The KWDT-I observed that “it cannot be said that the demand for this project is not worth consideration”. It also appears that a demand of 36 TMC was made before KWDT-I but later it was contended that the aridity and the economic backwardness of the area, justify implementation of this project at least for a utilization of 10 TMC. It is claimed that it would benefit about 17,06,964 persons of the State in Chickmagalur where average population growth is 2.2% with a density of 180 persons per sq. kilometer. The 70 per cent of the population is rural and depends on agriculture. Agriculture is their main occupation. Its command

area consists of 1,02,803 hectares in Kharif season and 40,950 hectares in Rabi season.

UPPER TUNGA PROJECT:

Under this project, irrigation facilities are mainly to be provided for Ranebennur, Haveri, Shirhatti and Mundargi Taluks of Dharwar District and Koppal Taluk of Raichur District. The irrigable area under this project is 3,20,000 acres and the cropped area as proposed before KWDT-I is 4,10,000 acres. It is also mentioned that the Taluks of Mundargi, Ranebennur and Koppal Taluks have been identified as drought affected by the Indian Irrigation Commission, page 423 of its Report, Volume-I.

We, therefore, find that there is every reason to provide water for irrigation under these three major projects, namely, Upper Bhadra, Upper Tunga and Singatlur LIS. Water is available for allocation to satisfy the need of these projects without prejudicially affecting the interest of Andhra Pradesh in the matter of availability of water which is presently flowing down to Andhra Pradesh as we have seen, it remains intact for the purpose. Areas which are in dire need of water and constitute drought prone areas hit by acute scarcity of water do

deserve consideration to mitigate their miseries in whichever part of the basin they may be. These are all in basin areas.

The heart of the economy of the riparian States of river Krishna is the agriculture. This cannot be imperilled on account of drought and famine and desertification on account of scanty and failing rains especially in K-8 basin. Hungry human is central to the rule of law. In the areas in question most of the agriculture depends on the monsoon. Further, in these States the largest population still depends on agriculture. New water technologies could go a long way in ensuring sustainable food production and livelihood security which was the objective behind the three projects in question.

No man is ever old enough to know better. There is always a scope for growing wiser. The persons at the helm of the affairs in any riparian State ought to rise above the limited interest of its inhabitants in a part of the basin. The principle of largest good for the largest number should not be overlooked adhering to limited interest ignoring larger public interest.

We, therefore, allow the additional allocation for the three projects, namely, Upper Bhadra to the extent of 10 TMC, Upper

Tunga to the extent of 12 TMC and Singatlur LIS to the extent of 18 TMC. So far as other smaller projects are concerned, suffice it to say that the State of Andhra Pradesh on its own has not seriously objected to those small projects. Therefore, no order in respect of such projects is required to be passed. The Issue No. 27 thus stands answered in the manner indicated above.



ISSUE NO. 21A

“Whether Tungabhadra Board be vested with the administrative control and regulation over the Tungabhadra Dam and its reservoir including head regulators of all the canal systems both on the left and the right sides and all its gates?”

The Tungabhadra project was envisaged by an agreement between the erstwhile States of Madras and Hyderabad in the year 1944. The right side of the Dam was constructed by erstwhile Madras State and the left side by Hyderabad State. Later, on enforcement of Andhra State Act, 1953, as a consequence of territorial changes thereafter, a part of the right side of the project fell in the erstwhile States of Mysore and Andhra Pradesh. By means of a Presidential Notification dated 29th September, 1953, Tungabhadra Board was constituted and the right side of the dam including sluices, power houses, common portion of the canal, tributaries and the off take sluices were placed under the control of Tungabhadra Board (for short ‘the Board’). The left side of dam and sluices and the left side power houses were placed in the control of erstwhile State of Hyderabad. Thereafter came into force State Re-organisation Act, 1956, as a result

of which the left side of the projects vested in erstwhile State of Mysore.

The Board was also re-constituted. After formation of the State of Andhra Pradesh, it administers and controls the right half of the dam, common portion of the Right Bank Low Level Canal and High Level Canals and the two power houses on the right side. The State of Karnataka administers and controls left side of the dam, Left Bank Low Level and High Level Canal and Munirabad Power House. The common portion on Right Bank Low Level Canal has a common portion between Andhra Pradesh and Karnataka measuring 250 kilometers out of the total length of 348 kilometers, which is under the control of the Board. In the Right Bank High Level Canal, a portion measuring 105.43 kilometers out of total length 196.43 kilometers is common under the control of the Board. The Left Side Canals are exclusively under the control of Karnataka. Board has no control over these exclusive portions of the canals in the territories of the respective States, namely, Karnataka and Andhra Pradesh.

The question regarding vesting of control over the entire dam and all the canals in Tungabhadra Board was also raised before KWDT-I on the basis of the pleadings of the State of Andhra Pradesh.

Issue No. IV(B)(b)(i) was accordingly framed, but KWDT-I felt that without legislative amendment, it might not be possible for the Tribunal to issue directions for vesting of the control over the entire Tungabhadra Dam and all the canals in the Tungabhadra Board and observed “we consider that control over the maintenance and operation of the entire Tungabhadra Dam and reservoir and spillway gates on the left and right sides should be vested in a single control body, but this may be done by suitable legislation”(page 52, column-2 of the Report of KWDT-I). The request of the State of Andhra Pradesh to the Central Government to amend the Presidential Notification dated 29th September, 1953 to unify the control of the two sides of the projects, the Central Government instead conveyed that issue was pending consideration before the Tribunal **(page 249, C-III-3B).**

KWDT-I allocated 151.749 TMC to Karnataka from the dam and 78.51 TMC to Andhra Pradesh totaling to 230 TMC.

Clause IX(E)(1)(C) (pages 97-98 of Further Report) permitted Karnataka to utilize 320 TMC in special circumstances over and above the outer limit of the restrictions provided in Clause IX(B)(1)(d) permitting Karnataka to utilize 307 TMC in Tungabhadra

sub-basins. This extra limit of 320 TMC was permitted only if, in any water year, excess water is available after meeting the allocations made under the Tungabhadra Dam and after storing the water for use in the month of June of the succeeding water year to the extent necessary, only then Karnataka is permitted to utilize such water in excess of reserve as mentioned in Clause IX(E)(1)(a)(i), (ii) and (iii) and these are to be utilized in Tungabhadra Right Bank Low Level Canal, Tungabhadra Right Bank High Level Canal, Tungabhadra Left Bank Low Level Canal and High Level Canal.

The Clause IX (E)(1) gives directions for utilization of available water between the two States, Karnataka and Andhra Pradesh, in the given quantities from the canals, indicated therein. Regulated discharges had also been provided for Rajolibunda Scheme and Kurnool-Cuddapah Canal. Sub-clause (2) of Clause IX(E) provides that the working tables of the utilizations of the water in the Tungabhadra Dam shall be prepared by the Board or any other Authority established in its place so that the States of Karnataka and Andhra Pradesh may utilize the water accordingly. This is one of the important functions assigned to the Board. As per provisions of Clause IX(E), in case of deficiency in any water year, it is to be shared

by all the projects proportionately which can be worked out. This function is also obviously to be performed by the Board. Limits of utilization for the State of Karnataka has also been prescribed which could maximum be to the extent of 320 TMC. These are some of the Board's functions besides other functions and the functions incidental thereof which need not to be enumerated here.

Tungabhadra Board ensures utilization by both the States in terms of the respective allocations made to the respective States by KWDT-I. Andhra Pradesh alleged that due to lack of control over left side of the dam and the headworks of the left bank canals, the Board could not effectively control utilization of water by Karnataka, as to whether it was within the limits of its pro-rata allocation or not. According to Andhra Pradesh, this inability to ensure effective control on utilization is pleaded in para 11 and 19 of the complaint filed by it and has specifically pleaded about the excess utilization by Karnataka from Tungabhadra Dam in C-III-1.

Karnataka contended that excess withdrawal is minimum and it was sorted out before the Tungabhadra Board and has also tried to justify the excess draws in the year 2000-01, 20001-02 and 2002-03.

The fact that the State of Karnataka drew more water than pro-rata allocation from the Left Bank Main Canal sluices found mention in a number of meetings of the Board. The inability of the Board to do anything in the matter was due to the fact that it had no control over the Left Bank Main Canal sluices which were operated by the State of Karnataka itself. C-III-3-B contains the minutes of the meeting of the Tungabhadra Board. The minutes of the meeting 170-175th are relevant on the point.

The State of Karnataka while cross-examining the witness of State of Andhra Pradesh, AW-1 B.P. Venkateswarlu had put it to him that final accounting of Tungabhadra Reservoir was done and unanimously signed by all the members. These are question Nos. 467 to 474 in the cross-examination of B.P. Venkateswarlu, C-III-D-76-77A. It was also suggested that there was thus no serious issue about the utilization of water in Tungabhadra Dam. The witness replied that signing of minutes by all the members does not mean that there is absence of problems as indicated by Andhra Pradesh. He further explained that signing of the final accounting is merely a part of the accounting process, but it does not mean that there has not been excess withdrawal by Karnataka from the Left Bank Canal. However,

the State of Karnataka tried to explain the excess withdrawals on account of distress situation which was partly compensated by release of water from Bhadra Reservoir. In the 175th meeting of the Board, it was pointed out on behalf of the State of Andhra Pradesh that a request was made to the State of Karnataka repeatedly for release of water on 1st April, 2003 which was not honoured and the releases were made only on 27th April, 2003. The case of the State of Andhra Pradesh is that the water was required for drinking purposes. Therefore, its timely supply was necessary. It is also their submission that this problem had arisen because of over-drawl by the State of Karnataka.

Rules 10 and 11 of the Tungabhadra Board Rules pertain to opening and closing of the canals and the procedure for releasing water which provides (a) when the water level in the reservoir corresponds to a storage of 2 TMC then all the canals have to be closed down irrespective of the date of closing fixed in the working table. This provision seems to be mandatory in view of the highest priority given to drinking water needs. Storage of 2 TMC is for meeting the drinking water needs and this assumes greater significance during the period of March to May i.e. towards the end of

the water year. This, according to Andhra Pradesh, was a gross violation of the rules by Karnataka by not releasing water despite repeated requests of Tungabhadra Board and the State of Andhra Pradesh; (b) The opening and closing of canals is to be made according to Gazette Notification issued by the Secretary, Tungabhadra Board. Even the Left Bank Canals are required to follow this procedure in terms of Rule 10(d). Any deviation, is firstly confined to the needs of drinking water and for saving standing crops; secondly this is permissible only after obtaining permission from the Board. According to Andhra Pradesh, this rule has been blatantly violated by Karnataka during the same 3 water years. According to Andhra Pradesh it is being possible for Karnataka to do so simply because Board has no control over the Left side of the dam and the Head Regulator as well as on the Left Bank of the reservoir. It is submitted that without control of the Board over the Left Side Canals and Head Regulator there is no means to ensure that the water is withdrawn by the Karnataka according to the working tables approved by the Board.

According to Andhra Pradesh the over-drawls by Karnataka from time to time resulted in negative inflows. The State of

Karnataka in regard to the above submission furnished a note of arguments on the point KAD-133 and it is submitted that the inflow into a reservoir is not directly measured but is computed by water budget formula. This includes consideration of outflows, evaporation losses and fluctuations in reservoir storage, which Karnataka had put in the form of a formula viz. $\text{Inflow} = \text{Outflow} + \text{Evaporation Losses} + \text{Change in Storage}$. On applying the above equation, if the resultant inflow is in the negative, the phenomenon is called negative inflow. The State of Karnataka replied on 1.9.2009 on the issue of negative inflows of Tungabhadra Dam raised by the State of Andhra Pradesh and highlighted that (i) In Tungabhadra Reservoir, negative inflows are occurring from the water year 1976-77, as discussed in the annual reports of Tungabhadra Board, (ii) Negative inflows are common in all the reservoirs particularly during lean months (iii) Causes for the negative inflows include erroneous area capacity table of the reservoir, erroneous estimation of outflows and incorrect calculation of evaporation losses, (iv) In Tungabhadra Dam, the area capacity table is susceptible to change continuously due to heavy sedimentation. Admittedly, in the last 5 decades, the Tungabhadra reservoir has lost up to 2004 about 22% of its capacity due to siltation,

(v) Outflows in the Tungabhadra dam are the sum of drawls from several systems viz. (a) spillways (b) RBHLC (c) RBLLC (d) LBMC and (e) HLC. Therefore, errors in estimation of the outflows in each of the system add up to a big total, (vi) Errors in outflow estimation made at the head of the canal occur due to measurement of velocity by indirect method. If the velocity is measured by direct method; such errors could be minimized, (vii) Having regard to the above (vi), the Tungabhadra Board in its 186th meeting (C-1-D-P-199) dated 21.9.2007 decided to install automatic gauge and flow recorder on all the systems.

The fact that there are negative flows is not denied. It is also recognized by the Board when it was suggested by it in one of its meeting that to check the negative flows, State of Karnataka should install automatic gauge and flow recorder. The purpose for such a direction obviously is that there may be correct recording of the outflows from the Left Bank under the control of the State of Karnataka. In reply to a question put to the learned counsel for the State of Karnataka by the Tribunal it was submitted that steps were being taken in that direction for installation of automatic guages and flow recorder and it was expected that it would be done by the first

week of June, 2010 for recording the flows on the Left Bank Main Canal and the Left Bank High Level Canal under the control of the Karnataka. We, however, feel that unless there is further control vested in the Board, installation of automatic gauge and flow recorder for recording the outflows from the Left Bank Canal may not be enough. The Board perhaps also needs to exercise some kind of control to further proceed in the matter to actually check the overdrawals after installation of the device to the satisfaction of the Board. Tungabhadra Reservoir is one system and we feel that it can run smoothly if one Authority has the control over the whole reservoir system and canals etc. The operation of the reservoir will then be more smoothly run. It will give a proper idea to one Authority controlling the whole project. This was also the view of KWDT-I as well (page 52-53 of KWDT-I Report).

REPORT/ DECISION

It was observed by the previous Tribunal that the control over the maintenance and operation of the entire Tungabhadra Dam and reservoir and spillway gates on the left and right sides should be vested in a single control body, but this may be done by a suitable legislation. It further observed that if a control body for the entire Krishna valley is established, the Tungabhadra Board should be

abolished and all the powers of the Tungabhadra Board may be vested in such control body.

Since all the parties have expressed their view that an Authority for the whole basin may be established to see that the provisions of the decision are carried out and since we propose to constitute such an authority we provide that on constitution of one Authority for the whole valley, the Tungabhadra Board shall be abolished and all the functions which are carried out by the Tungabhadra Board presently may be carried out by such single Authority along with other functions and duties assigned to it and incidental thereto. This will be in consonance with the view expressed by the previous Tribunal and it will also avoid functioning of two authorities in one basin. It will only be appropriate that one authority constituted for the whole basin may also discharge the functions and administration of the whole Tungabhadra Dam and the system. The Issue No. 21A is thus answered in the manner indicated above.

Mini Hydel Project of Karnataka**Issue No. 22A:**

“Whether the State of Karnataka is entitled to construct Mini-Hydel Project from the common pondage of the Rajolibunda Diversion Scheme without the consent of the State of Andhra Pradesh?”

Rajolibunda Anicut is constructed across Tungabhadra River forming common border between Karnataka and Andhra Pradesh on the left and right side respectively. Crest level of this anicut is 1090 ft. The diversion scheme (RDS) takes off from the backwater of Rajolibunda anicut. The sill level of the RDS offtake point is 1082 ft. The designed capacity of RDS is 850 cusecs.

The project has been planned as a Mini Hydel Scheme for generation capacity of 4.5 MW of power by diverting flood water from the Tungabhadra river when the flows are 15 cms (6”) above the crest level of the anicut. In order to ensure this, the electronic sensors are planned to be employed. The power canal takes off from a distance of 110 m above the RDS. The sill level of the power canal is 1083 ft. at offtake point (one foot above the sill level of RDS,

KAD-81). Referring to KAD-76, it is pointed out that there was an agreement between Karnataka and a private agency for installation of the project. Clause-8 whereof is relevant whereby the release of water shall be totally controlled by the Irrigation Department, Karnataka Power Corporation Limited, with the rights reserved to the Karnataka Government to vary the quantities of water and close the supply at its discretion and that the private agency should install a suitable mechanism or device to enable required discharge in the canal at the tail race. The water drawn into the power canal passed through the power house, after generation of power is conveyed through underpass with bed level of 1070.23 ft, which is about 10 ft. below the sill level of RDS canal. The water thereafter flows down and enters the Tungabhadra river in the downstream region of Rajolibunda Anicut.

REPORT/ DECISION

Mr. Rakesh Dwivedi learned senior counsel while making submissions on 14.7.2009 in respect of matters relating to K-8 sub-basin pointed out that out of the pondage of Rajolibunda Diversion Scheme, Karnataka has only a share of 1.2 TMC, whereas Andhra Pradesh has a share of 15.9 TMC. He raised objection to the proposed project of Karnataka viz. Mini Hydel Project which has to draw water

for running the project from the common pondage of the Rajolibunda Diversion Scheme. It is further submitted, referring to page No. 115 of KWDT-I Report that the command area of Karnataka is only 5,900 acres and that of Andhra Pradesh it is to the extent of 87,000 acres. The major storage in the pondage is for the State of Andhra Pradesh and its inhabitants of the area. Hence, Karnataka should not have acted unilaterally for Mini Hydel Project drawing water from the common pondage, which is certainly going to adversely affect the Rajolibunda Diversion Scheme. He has also drawn our attention to a judgment of the Supreme Court reported in [(2008) 7 SCC 788], A.L. Reddy's case, particularly a part of the judgment where it is observed "In a counter affidavit filed by the Central Water Commission (CWC) respondent No.1, it was stated that the Ministry of Water Resources and Central Water Commission has no role in the issue involved in the petition. It went on to state that the Mini-Hydel Project is likely to have an impact on the flow of Rajolibunda Diversion Scheme. It was also stated that the project was not referred to by the State of Karnataka to the Central Electricity Authority (CEA) for clearance."

Mr. Dwivedi has further referred to the evidence of AW-1 B.P. Venkateswarlu who has referred to a Report of an Expert Committee

constituted by Andhra Pradesh relating to the impact of the project on the interest of the Andhra Pradesh (C-III-D-77). The finding of the Committee was that the Mini-Hydel Project shall have an adverse impact on the Rajolibunda Diversion Scheme.

Mr. Dwivedi summarizes the objections to the Mini-Hydel Project as follows:

- (i) Rajolibunda Diversion Scheme, a joint project of Andhra Pradesh and Karnataka feeding bulk of water to Andhra Pradesh would not envisage any unilateral project by Karnataka in proximity of Rajolibunda Diversion Scheme;
- (ii) At 110 meters upstream of Rajolibunda Diversion Scheme Anicut, discharge of 4765 cusecs is a method of diverting more water from Rajolibunda Diversion Scheme pondage to the detriment of farmers of Andhra Pradesh covered under Rajolibunda Diversion Scheme.
- (iii) That an agreement of State of Karnataka with a private agency to operate and run Mini-Hydel Project would be motivated purely by maximization of its

profit by drawing more water for a longer period, particularly on account of the control of Head Regulator or the shutters of the power channel with private agency, there would be no control much less effective control upon such private entrepreneur to whom the whole scheme is handed over;

- (iv) The chances of diverting more water by private agency even during the period when Rajolibunda Diversion Scheme Anicut does not have surplus would prejudicially affect the Rajolibunda Diversion Scheme Canal;
- (v) Karnataka has not been able to show how they intended to safeguard the interest of Rajolibunda Diversion Scheme;
- (vi) That no power project or report or agreement to the private party has been filed by the State of Karnataka;
- (vii) That Rajolibunda Scheme Canal caters to the need of about 50,000 farmers for the purpose of irrigation and drinking water. It is a chronically drought prone area of Mahboobnagar District. In this background the

Rajolibunda Diversion Scheme cannot be risked to serve the purpose of generating power of 4.5 MW.

In course of hearing, it was pointed out by the Tribunal that though such water may be released to the river itself yet that might affect the operation of RDS. Accordingly, in view of this apprehension, the Tribunal had posed a question to the counsel for the State of Karnataka since recorded in order dated 18.10.2006 to the effect that: Is there any feasibility of lifting water to RDS main canal after power generation?

This was answered by the counsel for Karnataka, the extracts whereof are noted in its note KAD-81 filed on 5th October, 2009. In answer, it is contended that cill level of the underpass is at 1070.23 ft. and the bed level of RDS in this region is at 1079.77 ft. Therefore, lifting of water is impossible due to the gravity flow. However, this can be transferred only by the process of lift. In order to lift 850 cusec of water for a height of 18 ft. including head losses in the pumping system from the underpass at sill level 1070.23 ft. to the full supply level (FSL) of canal at 1086.77 ft., the power requirement was worked out. It would need 2314 H.P. = 1727 kilo watts.

It is submitted by Karnataka that on the basis of such calculation, the proposition is not feasible since 40% of the power generated by the project will be consumed for lifting the water. In addition, capital cost of lifting arrangement and headworks will make it economically unviable. The scheme is for generating 4.5 MW of power.

According to the State of Karnataka, the feasibility of the proposition can be ensured through electronic sensors, which will automatically stop the flow of water into the power canal as soon as the flow in the river falls to a level of 15 cms (6 inches) above the crest level of the Rajolibunda anicut and Karnataka proposed to take approval from CWC.

It may be noted that no project report has been placed before this Tribunal. The project is the outcome of an agreement between Karnataka and a private agency and Mr. Holla opposing IA No. 28 of 2006 had contended that in his own view it might take 2 years for the project to complete. However, except a graphic picture generated through computer, attached with its note KAD-81, nothing has been placed before this Tribunal on the basis of which such a project could be considered worth consideration in the terms of KWDT-1. Without

going into the details it may be concluded that we may not run after wishful thinking of the State of Karnataka which in its own view is the imagination of certain persons only for generation of 4.5 MW of power that too only for a limited period during the rainy season when sufficient water in the region above 15 cms of the crest level of RDS anicut which in fact would confine the operation only during the 2 or 3 months of rainy season and that too not throughout the season. Going by the yield, we also do not think that after utilization of water allocated to Karnataka and Andhra Pradesh through the upstream canals and projects sufficient water would be available for such a hefty project. Even without lifting process, the proposal does not appeal to us. There is every possibility of affecting the efficiency of the RDS as contended by Andhra Pradesh and has also been so opined by the Central Water Commission. According to the State of Andhra Pradesh the Mini Hydrel Project of Karnataka could be operated for 90 days in minimum and maximum up to 160 days. This possibility will put the Rajolibunda Diversion Scheme of Andhra Pradesh in a very vulnerable position.

It is noticeable that Karnataka proposed its project but without submitting any Project Report except a computer generated imagery

and certain data conceived by it. The water that would be drawn for Mini Hydel Project would avoid a diversion system and join the mainstream downstream of the anicut. Thus the water discharged after generation of the power would not be utilized for the purposes of Rajolibunda Diversion Scheme and for irrigation of its command areas.

The crest level of the anicut is 1090 ft. Sill level of Rajolibunda Diversion Scheme offtake point is 1082 ft. with design capacity of 850 cusecs, whereas the sill level of the power canal is 1083 ft. only i.e 1 ft. above the sill level of Rajolibunda Diversion Scheme. The power canal takeoff from a distance of 110 m. above Rajolibunda Diversion Scheme and the water drawn after generation of power is conveyed through an underpass with bed level of 1070.23 i.e. about 10 ft. below Rajolibunda Diversion Scheme sill level, which has an impact/effect of enhancing the force of drawal i.e. discharge force/capacity.

The discharge of the power canal is 4765 cusecs as against 850 cusecs in the RDS. Such a situation would not save or protect the operation of Rajolibunda Diversion Scheme or intake of Rajolibunda Diversion Scheme even if water flows 15 cms. above the anicut. This

would have a grave impact in diminution of discharge measurement or capacity i.e. cusecs in the RDS as it becomes apparent to us in the absence of any study or material being placed before us by Karnataka except oral submissions that this would not affect diversion in Rajolibunda Diversion Scheme. The suggestion that the intake in the power canal will operate only when the water flows 15 cms above anicut by reasons of installation of automatic device system does not seem to be of any help in such a situation once power canal sucks water at a discharge capacity at 4765 cusecs as against 850 cusecs of Rajolibunda Diversion Scheme.

The arrangement is with a private agency. Though Karnataka assured of Government control but no agreement or other material has been shown as to how a private agency is bound and how Government will exercise control over the operation of the Mini Hydel Project by a private agency where major interest of State of Andhra Pradesh in the Rajolibunda Diversion Scheme is involved. Water is to come only from common pondage.

The feasibility of the hydel project for generation of 4.5 MW of power and only for a limited period during the rainy season when sufficient water in the region of 15 cms above the crest level of

Rajolibunda Diversion Scheme anicut seems to confine operation only during the 3 months of rainy season and does not seem to be a reasonably viable proposition, having a serious impact on the effectivity of Rajolibunda Diversion Scheme system.

Having regard to the water availability dependent on releases from Tungabhadra Dam does not seem to inspire us to accept the proposal of Karnataka for Mini Hydel Project as worth consideration, in as much as the water so released is restricted and earmarked for RDS. In case the Mini Hydel Project operates at that point of time, the released water will not be fully available to Rajolibunda Diversion Scheme since part used in the Mini Hydel Project will be released in the main river depriving RDS of the release meant for it.

The Rajolibunda Diversion Scheme system is serving chronically drought prone areas of Mahboobnagar District. On a comparative scale, the irrigation need of the farmers of this district seriously requires priority against the supposed generation of 4.5 MW power that too for a limited period in an apparently unviable project.

For all these reasons aforesaid, we decide and hold that Karnataka is not entitled to construct the Mini Hydel Project from the common pondage of the Rajolibunda Diversion Scheme system.

The Issue No. 22A is thus decided in the negative.

Control over Rajolibunda Diversion Scheme:

Issue No. 22:

“Whether Tungabhadra Board be vested with the control and administrative control over the Rajolibunda Diversion Scheme including its Head Works and the common portion of its canal and the Mini-Hydel Project within the State of Karnataka and issue necessary direction/recommendation to Union of India?”

Rajolibunda Diversion Scheme (RDS)

Rajolibunda Diversion Scheme (RDS for short) is a weir constructed across Tungabhadra river by the erstwhile State of Hyderabad. After the Re-organisation of States of Karnataka and Andhra Pradesh in 1956, it has become a common project of the two States. This weir across the river Tungabhadra forms common boundary between the two States and is located at 152 Km.

downstream of Tungabhadra Dam. Headworks of RDS and Head reach of the canal up to around 42.6 Km. with anicut of 5900 acres are located within the State of Karnataka. From around 42.6 Km to 143 Km of the canal with an ayacut of 87000 acres falls within the State of Andhra Pradesh. In June, 1959, these two States agreed to an arrangement for maintenance and regulation of the Headworks and common portion of the canal. Under this agreement, the Headworks were to be regulated by an officer of Karnataka in consultation with the Executive Engineer nominated by Andhra Pradesh. It was agreed that there would be a full supply discharge of 850 cusecs at the canal head and out of this, 770 cusecs would be made available to Andhra Pradesh at the Karnataka border. In November, 1959, it was further agreed by both the States that the liabilities would be shared in the same ratio as per allocation of water in the scheme.

KWDT-1 Allocations under RDS:

KWDT-1 on the basis of joint statements dated 25.01.1971 of the two States allocated water under Clause XI(C) of Final Order providing “Thus benefits of utilizations under the Rajolibunda Diversion Scheme be shared between the States of Karnataka and Andhra Pradesh as mentioned herein below: Karnataka – 1.2 TMC

and Andhra Pradesh – 15.9 TMC” (page 489 APAD 23). Under Clause IX(E) of the Final Order, KWDT-1 made provision for 7 TMC of water for RDS by way of regulated releases from Tungabhadra Dam out of 17.1 TMC water allocated to both the States. This was done with a view to ensure supply of water of 17.1.TMC to the farmers under RDS in drought prone area.

In paras 18 and 34(iii) of its complaint, Andhra Pradesh has raised the issue of bringing RDS under the control of Tungabhadra Board. In paras 4.11 and 4.12 of its reply Karnataka has merely referred to the observations of KWDT-1. In paras 72 to 80 of the Rejoinder, Andhra Pradesh has pleaded about excess drawals by Karnataka during 1976-77 to 2004-05, as well as the construction of Mini-Hydel Power Plant by Karnataka without the consent of Andhra Pradesh.

The data exchanged between the States before this Tribunal for the period 1995-96 to 2004-05 shows that the State of Karnataka irrigated 6,128 to 12,724 acres of land against planned ayacut of 5900 acres. In the case of Andhra Pradesh, the range was from 11,934 to 52,152 acres against the planned ayacut of 87000 acres (page 14 of C-III-D-40).

Mr. B.P. Venkateshwarlu AW-1 examined by Andhra Pradesh in his affidavit (C-III-D-76, para 15) highlighted the problems faced by Andhra Pradesh expressly stating that Karnataka drew excess water and Andhra Pradesh was unable to realize its allocation. The data exchanged by the States were analyzed in Table-15 (page 53) C-III-D-76 with reference to pages 5 to 34 of C-I-D-109 and pages 19-35 of C-III-D-32.

During cross-examination, Karnataka relied on C-1-D-114, which is a statement showing monthly working table of the project. This table does not reflect the releases at the Head Regulator of RDS (Q.712 to 715 and 727, pages 186 to 189 of C-III-D-80A). However, even this document shows that Andhra Pradesh has not realized its allocations since 1985-86 and Karnataka has made excess drawals.

In terms of 1959 agreement between the two States, Karnataka has to maintain the common portion of the canal in its territory. However, the expenditure is to be shared by both the States. Evidence on record shows that the canal is in utter disrepair resulting in its reduced carrying capacity (Q. 748 to 754, pages 195-196, cross-examination of AW-1). Since ayacut of the State of Karnataka is lying in the head reach of the RDS canal, it is able to draw much in

excess of its allocated share of 1.2 TMC, while Andhra Pradesh having 93% of the share is said to be unable to realize its share due to bad condition of the canal in the common portion, though Karnataka is duty bound to maintain the head reach, it failed to do so.

Ultimately, by document C-1-D-P-186 dated 5.7.2005 the Government of Andhra Pradesh, gave administrative sanction for Rs.72 crores for modernizing RDS canal falling in Karnataka and Andhra Pradesh. Andhra Pradesh had also paid a sum of Rs. 5 crores to Karnataka towards arrears for maintenance of RDS (C-1-D-P-187). It further appears that Karnataka had issued tenders for modernization of canals in December, 2007/January,2008 (Q. 783 to 787, pages 205-206, cross-examination of AW-1).

RDS is a common project serving needs of both Karnataka and Andhra Pradesh and the major part of supply of water from the head Regulator is meant for Andhra Pradesh. The Karnataka share is very small. In view of the consistent excess drawals by Karnataka and its failure to maintain the common portion of RDS canal falling in Karnataka in terms of the 1959 agreement, these are factors indicating towards the necessity to extend the control of Tungabhadra Board over the RDS. In a way RDS is connected with the Tungabhadra

Project on account of 7 TMC of water earmarked for it from Tungabhadra Dam. Major part of this i.e. 6.51 TMC out of 7 TMC water is meant for Andhra Pradesh. But since the Head Regulator falls in the territory of Karnataka and is under the control of Karnataka, there is a real problem of ensuring that the water released from Tungabhadra Dam reaches the ayacut under RDS in Andhra Pradesh. Timely maintenance of the Head Regulator and the canal as well as the proper operation of the Head Regulator is a pre-condition for ensuring that Andhra Pradesh is able to realize its allocation under the RDS.

Karnataka has no interest in maintenance of the headworks and the common portion of the canal under RDS, since its share of benefits under the project is very small i.e. only about 7 per cent to an extent of 5900 acres but Karnataka is able to realize its share being in the head reach. Karnataka unnecessarily linked the payment of maintenance charges to the sharing of capital cost, which resulted into prolonged correspondence. Karnataka is duty bound to upkeep the system by properly maintaining the headworks and common portion so as to deliver 770 cusecs to Andhra Pradesh at the border. The issue of payment towards maintenance charges/capital cost taking

substantial time and the same is not sorted out despite the request of Andhra Pradesh at highest level as evident from letter dated 29.12.2003 by Chief Minister of Andhra Pradesh. Consequently, the farmers under RDS, which is a drought prone area in Mahaboobnagar district, are put to irreparable suffering necessitating headworks of RDS including common portion of the canal to be brought under the control of Tungabhadra Board. The Board is already having a role in releasing 7 TMC of water from Tungabhadra Dam in a regulated manner to RDS in order to realize the respective allocations of 1.2 TMC and 15.9 TMC to Karnataka and Andhra Pradesh. Therefore, no prejudice will be caused to Karnataka if the common portion of the canal are brought under the control of Tungabhadra Board.

KWDT-1 recorded in its report that there were excess drawals by Karnataka. However, the issue relating to vesting of control over RDS in Tungabhadra Board could not be resolved since the KWDT-1 felt that it had no power to direct the said States in the absence of binding law made by Parliament. This lacuna has since been met by the Amendment Act (45 of 1980) inserting Section 6(A) in the Inter State River Water Disputes Act, 1956, enabling the Central Government to frame a scheme or schemes for making provision for

all the matters necessary to give effect to the decision of a Tribunal, with an over-riding effect on such schemes with the expression that “Every scheme framed under this section shall have effect notwithstanding anything contained in any law for the time being in force (other than this Act) or any instrument having effect by virtue of any law other than this Act.” By reason of the non-obstante clause provided in the 1856 Act, any such schemes framed by the Central Government would over-ride any other law including Section 66(1) of the Andhra State Act, 1953.

Andhra Pradesh had also pointed out as to how Karnataka was attempting to construct a Mini Hydel Project in the immediate vicinity of RDS diverting water @ 4765 cusecs which has the capability of inflicting adverse impact on realization of its share by Andhra Pradesh in the RDS.

Andhra Pradesh also contended that 55 per cent of the irrigated areas on the right side fell in Andhra Pradesh while the rest lie in Karnataka. The situation, as pleaded by it, warrants constitution of an independent body to look after timely completion of the project, its maintenance and to over-see distribution to the States so far as RDS is concerned. RDS being a joint project, having its headworks located in

Karnataka providing 93 per cent utilization for Andhra Pradesh, it is, therefore, necessary to bring the control of headworks of RDS including common portion of the canal, if permitted, under the control of an unified Authority for looking after its maintenance and over-see distribution of benefits to the States.

Having regard to the discussions made above and in view of the general view we have already taken in relation to Issue No. 21A, it seems justified and necessary to exercise administrative control and regulation over the RDS system, particularly in view of the fact that the canals are not being properly maintained, on the basis of allegation of negligence on the part of Karnataka.

Since we have already taken a view in deciding Issue No. 21A that the situation is such that it calls for vesting of administrative control and regulation of the entire basin in a common authority. In our view, in the spirit of our decision, the administrative control and regulation over the RDS system should also be vested in one unified authority looking over the whole basin. As we have already held on coming into force of the one unified authority, the Tungabhadra Board is to be abolished, there is no occasion to pass any order for vesting of control in Tungabhadra Board. The one unified authority

shall also have the power to look after the matters relating to Rajolibunda Diversion Scheme including maintenance of canals.

While deciding Issue No. 22A, we have held that Mini Hydel Project cannot be constructed by the State of Karnataka. Therefore, there is no scope for vesting of control with regard to the Mini Hydel Project in the Tungabhadra Board/any other unified Authority.

Issue No. 22 is thus decided in the affirmative in part, in so far it is held that there may be one unified authority to look into the operation and working of Rajolibunda Diversion Scheme. The Authority may be one for the whole basin. The rest of the issue is decided in negative.

Issue No. 24:

“Whether the State of Andhra Pradesh is permitted to construct new Parallel High Level Canal at higher contour from the foreshore of Tungabhadra Reservoir to enable it to fully utilize its allocated share of water in Tungabhadra Project?”

The storage capacity of Tungabhadra reservoir is said to have reduced from 132.47 TMC to 104.34 TMC, resultantly there is a loss

of 28.13 TMC of storage capacity. This phenomenon was detected during the hydrographic survey of Tungabhadra Dam. It is submitted on behalf of the State of Andhra Pradesh that since the availability of water for utilization in the reservoir has reduced, the State of Andhra Pradesh is not able to utilize its allocation in full.

The previous Tribunal had allocated 230 TMC to Karnataka and Andhra Pradesh under Tungabhadra Dam including 18 TMC towards evaporation loss. It means that the water which remained available for utilization in the projects by the two States was to the extent of 212 TMC. On the basis of the evidence of AW-1 B.P. Venkateswarlu, the witness for the State of Andhra Pradesh, it is submitted that during the decade from 1995-96 to 2005-06, the average utilization from Tungabhadra Dam came down to 155.29 TMC. One of the main reasons, which is sought to be projected for decrease in utilization is due to siltation in the reservoir reducing its capacity to the extent of 28.13 TMC. To us, it appears that the decline in utilization during the decade mentioned above cannot be totally attributed to reduced capacity of Tungabhadra reservoir on account of siltation. It is to be noticed that out of 230 TMC allocated by KWDT-I to the two States, only 212 TMC was available for utilization in the

projects. The difference between 212 TMC and 155 TMC comes to 57 TMC. The siltation in the Tungabhadra reservoir cannot be said to be totally responsible for decrease in utilization which is near about two times of the loss of capacity. There can be some other reasons, whatsoever they may be. Yet another thing which is noticeable is that the loss of 28.13 TMC in the capacity of the Tungabhadra reservoir will not only affect the State of Andhra Pradesh, but the State of Karnataka will also be partly affected by the decrease in capacity due to siltation. It is about this loss of capacity of Tungabhadra reservoir, in part, that the State of Andhra Pradesh proposes to construct new Parallel High Level Right Bank Canal at a high contour from the foreshore of the reservoir.

Mr. Rakesh Dwivedi, learned senior counsel for the State of Andhra Pradesh, while making the submissions furnished notes of arguments, APAD-24. We may just find out as to what kind of Parallel High Level Canal is being thought of, to be constructed by the State of Andhra Pradesh so as to meet the deficiency occurred on account of siltation. They seem to have in their mind a canal which would be 266 kilometers long, out of which 87 kilometers falls in the State of Karnataka and 179 kilometers in Andhra Pradesh. The object

is to discharge 12,000 cusecs through the canal for which 20 to 25 TMC would be drawn for the Parallel High Level Canal in about 20 days during floods. The water is to be ultimately stored in the reservoir in Pennar basin of the State of Andhra Pradesh and also to be utilized in Anantapur and other areas in Andhra Pradesh.

For the purpose of preparing the project report, it is said that a request was made to the State of Karnataka to permit investigation, in connection with which some correspondence also took place, as contained in C-III-3(B) at pages 263 to 266. It is further submitted that this issue was also brought in the meetings of the Tungabhadra Board but State of Karnataka showed reluctance to permit any pre-feasibility study as desired by the State of Andhra Pradesh. The State of Andhra Pradesh tried to lure Karnataka that the project will be for the benefit of both the States and both will be able to retrieve the loss occurred on account of siltation. Karnataka does not seem to have been impressed by the case taken up by the State of Andhra Pradesh that the interest of both the States would be served by the canal.

It appears that the State of Karnataka also raised objections to this suggestion in C-III-2 to the effect that it is not a water dispute and that the water in Tungabhadra Dam is not intended to cater the needs

of Anaparthi which lies outside the basin. It is also their case that the flood water flows for 15 to 20 days in a year, may be available only till development of irrigation projects upstream of Tungabhadra Dam. It was also indicated that storage sites being available only in Pennar basin, Karnataka would not be in a position to utilize any water from flood flow canal and the entire benefit is intended for Andhra Pradesh only.

The State of Andhra Pradesh has tried to show many benefits, if such a canal is constructed. It is submitted that from the flood waters the drought prone areas would be served though may be in Pennar basin, and it is submitted that a study is required to be made about the feasibility of this project for which co-operation of State of Karnataka would be necessary since about 87 kilometers canal would fall in Karnataka. It is further submitted that Karnataka is not prejudiced by such a study as proposed by Andhra Pradesh. It is also indicated on the basis of toposheet study that there is a possibility to construct a balancing reservoir of about 5 to 6 TMC capacity enroute Parallel High Level Canal which will be of great use to Karnataka, but this too does not seem to have impressed Karnataka. Their case seems to be that no such en route balancing reservoir is possible from 15 to 20

days flood flows in a year. From the submissions made on behalf of Andhra Pradesh, it is clear that the stress is more for the benefit of Pennar basin and the area lying in that basin.

So far as the objection of the State of Karnataka that it does not amount to water dispute, we are not impressed by this argument. The request of Andhra Pradesh is liable to be allowed or not is a different matter, but it cannot be said that it does not involve water dispute. This objection is thus held untenable.

It is submitted that presently all that the State of Andhra Pradesh wants is that a direction may be given to the State of Karnataka to allow Andhra Pradesh to make a pre-feasibility study about such a project, though however, the issue we find is framed directly for permission to construct new Parallel High Level Canal at higher contour from the foreshore of Tungabhadra Reservoir so as to enable it to fully utilize its allocated share of the water in Tungabhadra Project. But from the submissions made, as observed earlier, more stress is upon the drought prone area in Pennar basin and to store the water there in Pennar basin. The intended utilization of water in Pennar basin after having a storage there, has nothing to do with utilization of allocated share of Andhra Pradesh in Tungabhadra

Reservoir. We also find that there is no such concrete project so far. According to Andhra Pradesh itself, admittedly, no pre-feasibility study has been done nor any report is prepared. Everything seems to be only in mind and there is nothing tangible to support this kind of project which is basically said to be, to make good the loss of the capacity of Tungabhadra Reservoir on account of siltation.

We may have already noticed that the share in the loss of capacity of the reservoir, in so far Andhra Pradesh is concerned, would not be a total 28 TMC but much less as the rest is to be borne by Karnataka as well.

We now may try to find out as to what is the amount of loss because of the siltation which the State of Andhra Pradesh wants to retrieve by constructing Parallel High Level Canal at a higher contour. It may be noted here that the loss is to the extent of 28.13 TMC in total, out of which roughly about 17 TMC may have to be borne by the State of Andhra Pradesh and the rest by the State of Karnataka. We then find that the grievance is in respect of loss of availability of water in the Right Bank High Level Canal. In the Right Bank High Level Canal, Andhra Pradesh is allocated 29.5 TMC and the State of Karnataka 17.5 TMC. According to the table of year-wise drawals of

Karnataka and Andhra Pradesh under Tungabhadra Right Bank Canals at page 2 of APAD-24, it shows that the utilization of Andhra Pradesh in the Right Bank High Level Canal of Tungabhadra Reservoir on an average is 26.1284 TMC. The shortfall seems to be only near about 3 TMC and out of the allocation of 17.5 TMC to Karnataka in Right Bank High Level Canal, its average utilization is shown as 15.969 TMC. Here also we find that the shortfall is only near about 2 TMC. The Parallel High Level Right Bank Canal, as conceived by Andhra Pradesh, would only support the utilization from Right Bank High Level Canal by Andhra Pradesh. It would be a relief to Andhra Pradesh only to the extent of near about 3 TMC.

To conceive such a large project by constructing an Inter-State canal of the length of 266 kilometer and that too to utilize only flood waters in 15 to 20 days in a year, does not inspire confidence of genuineness of such a project in the mind of the State of Andhra Pradesh. It is not necessary that every year there must be floods and in case whenever floods would be there the water is to be drawn from the reservoir during flood period of 15 to 20 days only in a year. It is also nowhere to be found as to how the Parallel High Level Canal at a higher contour would be raised and at what base or platform and what

method is there in mind to siphon the water from the reservoir to the Parallel High Level Canal. It is though said that it is to take off from the right bank of Tungabhadra Dam with FSL of + 497.0 m. Another thing which strikes is that if there is flood water, in whichever year it may be available, if not taken into Parallel High Level Canal within 87 kilometers inside Karnataka, then too all this flood water would otherwise also flow down to Andhra Pradesh only. It may either go by a canal or through overflows and releases from the Reservoir.

So far as the aspect of retrieving the loss on account of siltation is concerned, it may be observed that siltation is a very natural and obvious process in the reservoirs. It is a recognized factor which is taken into consideration while making the project and dead storage is provided to take care of siltation. It is submitted that the siltation which took place in Tungabhadra Reservoir was above the expected level. In paragraph 3 of APAD-24, it is stated that the anticipated siltation was 430 M.C. ft. per year at the time of project formulation in place whereof it actually works out to 561.96 M.C. ft. per year. The margin between the expected and the unexpected siltation does not seem to be very high, and to the extent of expected siltation @ 430 M.C. ft. per year, it is quite obvious that care must have been taken

while preparing the project. We do not think that for that small difference of expected and unexpected siltation such a huge scheme of Parallel High Level Canal, 266 kilometer long, would be conceived and specially when the canal would be operational only for 15 to 20 days in a water year, again only in case there is a flood water available.

The purpose on the other hand seems to be more to take the water outside the basin and to cater the need of outside basin areas, alleged retrieval of siltation loss appears to be a mere pretext. The State of Karnataka cannot be faulted with when it says that it would not be benefited with storage in Pennar basin. The State of Karnataka admittedly showed reluctance for such a study in the meetings of the Tungabhadra Board. If the State of Karnataka does not see any interest in the project, we don't think there would be any good reason to issue any such direction to it to permit Andhra Pradesh to make such a study for this project, purpose of which is also more than vague and unclear.

Mr. Dwivedi submitted that there are two more alternatives if Parallel High Level Canal is not permitted. One of the suggestions is to raise the FRL of the Tungabhadra Dam by two feet i.e. from 1633

to 1635 feet, as suggested by Mr. Venkateswarlu. It also does not deserve any consideration on the merits. Height of a reservoir, like Tungabhadra Dam, is not a casual matter. There has to be a proper study about increasing the height of a reservoir, whether it would be possible or not and that what shall be the impact of extra storage on the dam structure is yet another aspect which must be considered seriously by experts. Such an out of cuff suggestion seems to be quite non-serious, which can hardly be entertained.

Yet another suggestion which has been made is about widening of the Right Bank High Level Canal which would increase its capacity from 4000 cusecs to 6500 cusecs and also construction of online storages to store water during monsoon. The canal capacity once increased, would be available not only during the flood period, but will remain there for the whole year throughout. It would not be wise and feasible to allow such a proposition which would increase the drawal capacity of the canal and the arrangement in operation may become vulnerable. We feel that if the rain water during the period of floods flows down to the lower riparian State and to the other basin it may be utilized there in whatever manner it may suit to the lower riparian State. We do not think it is possible to permit to construct

new Parallel High Level Canal at higher contour from the foreshore of Tungabhadra Reservoir. It may have adverse impact on the arrangements which have already been made and they are well in operation.

In view of the discussion held above, the Issue No. 24 is decided in negative.

Issue No. 17:

“Whether sub-basin wise and project wise restrictions should be placed on the storages and utilization as pleaded by respective parties?”

The main purpose for placing such restrictions on utilizations or storages in the upper riparian States is that the lower riparian State may not be left without sufficient availability of water for its projects. The upper riparian States may not feel free to utilize or to store any amount of water which may result in deprivation of legitimate share of the lower riparian States.

We find that the KWDT-1 has placed such restrictions on utilizations in K-8 sub-basin as well as in K-5 sub-basin over the utilizations from river Bhima, a tributary of the river Krishna. The

States of Maharashtra and Karnataka favour removal or relaxation of such restrictions, whereas State of Andhra Pradesh is in favour of such restrictions to continue. The State of Andhra Pradesh, on the other hand also wants some further restrictions on the utilizations against the States of Maharashtra and Karnataka.

As a general proposition all that can be said is that, if necessary, depending upon the situation as prevailing, restrictions can be placed on the utilization and storage so that the lower riparian State may not suffer the brunt of scarcity on account of over-utilization or wanton use of water by the upper riparian States. It also helps in beneficial use of water. The wasteful utilization by any State or in any project is despised by those who have the responsibility of water management and ultimately by those at whose cost over-utilization or wasteful utilization is indulged into, being placed in an advantageous position. But it does not mean that it is necessary to place such restrictions on utilization of each and every project, sub-basin or stream.

KWDT-I observed that to safeguard the interest of Andhra Pradesh it is necessary that Tungabhadra sub-basin and Bhima sub-basin must contribute to the mainstream of river Krishna. State of Andhra Pradesh has not much generation of water in the State itself.

It has to depend upon the flows from upper riparian States which must flow down to provide water for its utilization, for which it is legitimately entitled to. Similarly, if some restrictions are necessary to be imposed on the State of Maharashtra so as to allow some water to flow down to the State of Karnataka that aspect may also become a matter of consideration. There may be some situations in which even the lower riparian State may be placed under some restrictions in the matter of utilization, in any particular tributary, mainstream or in any project. One of the examples may possibly be where it may be considered necessary that some minimum water has to flow in the tributaries or in the mainstream for ecological and environmental purposes. It will depend upon the situation in sub-basin to sub-basin or project to project, to find out whether restrictions are required to be placed or not.

REPORT/ DECISION

In the decision of KWDT-I we find that firstly, there is a general restriction on total quantity of water, up to limit of which, a State is allowed to utilize the water and not beyond that limit. Such restrictions are as utilization of 565 TMC by the State of Maharashtra, 700 TMC by the State of Karnataka and 800 TMC by the State of Andhra Pradesh with of course, return flows in respect of which some

provisions have been made. We then find that there are sub-basin wise restrictions as regard to K-8 and K-5 sub-basins. Yet another restriction would be in respect of the mainstream or tributaries. But generally such restrictions would not be required unless they are necessary and specifically provided for.

One of the questions is, as to whether the restrictions which have been placed by the KWDT-1 may be removed, maintained or modified or not. It would depend upon the particular facts involved in the matter. We find that some restrictions can be placed, keeping in mind the availability of water at a particular site or in a particular sub-basin. Later, in the changed circumstances, for example, it is found on the re-assessment of the yield that there is an increase in available water for utilization, in such a situation the restrictions which have been placed may be modified. If more water is available, some more projects may be permitted over and above the existing ones. In that event, restrictions would also require consequential modifications in the limits put upon utilization. We have already held earlier that in new situations, which entail such changes, the equities as existed earlier stand changed due to lapse of time and other factors and circumstances. Therefore, in changed circumstances, the legitimate

changes and modifications in restrictions cannot be unreasonably resisted. As a matter of fact, further availability of water may result in relaxation in the restrictions. The limits of restrictions may be changed or modified or if not required may even be removed altogether. As observed earlier also, it all depends upon particular facts and circumstances of the matter under consideration.

While advancing arguments relating to restrictions placed on utilization of water on the upper riparian States, the learned counsel for the State of Andhra Pradesh referred to APAD-17 and also specifically took us through the specific restrictions placed by KWDT-1 on utilization of water in certain basins. He further referred to the clause (IX) (B) (i) (d) and clause (IX) (B) (ii) of the report of the KWDT-I indicating the details of the restrictions placed. The learned counsel has also made a reference to APAD-12 which contains Appendix A at page 62 enumerating the conditions and restrictions in the final order of KWDT-I. After making reference to the details, submissions have been made regarding justification to place such restrictions since the lowest riparian State gets water for utilization from the upper riparian States. There is no doubt about such reasons which had been given by KWDT-I that main stream of

river Krishna must have sufficient water to flow down to the State of Andhra Pradesh to meet its requirement. This reason still continues to hold good. But in the changed circumstances, the whole thing may have to be relooked since we have found that more water is available to allocation as a consequence whereof, obviously, there may be deviations in the cappings and restrictions which may have to be placed on the utilization by the upper riparian States and there may be relaxations in the restrictions already placed. The restrictions would specifically be considered and provided for, if necessary, in the Chapter in which we propose to deal with distribution of water including the surplus flows.

Issue No.17 is answered in the manner indicated above.

There are a few issues relating to Almatti Dam. We, however, propose to take up first, the issue No.14. It is quoted below:-

Height of Almatti Dam:

Issue No.14:-

“Whether Karnataka is entitled to storage of water up to the level of 524.256 m in the Almatti Dam or the height of the Almatti Dam be restricted at 515 m as claimed by Andhra Pradesh or 512 m as claimed by Maharashtra?”

The height of a dam is generally relevant in relation to quantum of water which is required for utilization in a project.

In a nutshell, according to the State of Andhra Pradesh, the State of Karnataka is entitled to utilize only 160 TMC as per allocations made by KWDT-1 for Upper Krishna Project, hereinafter referred to as UKP. Though not admitted, yet in case the State of Karnataka is entitled to utilize 173 TMC, for that purpose also, height of the Almatti Dam need not be more than 515 m. In any case, according to the State of Andhra Pradesh, the operation of Almatti Dam at a height of 519.6 m is much more than what is required for utilization of 173 TMC.

The State of Maharashtra also pleads that height of Almatti Dam and FRL at 519.6 m is much more than the requirement of Almatti Dam Project, the height need not be more than 512 m.

The case of the State of Karnataka is that as per its requirement, its utilization has to go up, to the tune of 303 TMC for which 130 TMC is further to be allocated. Obviously, the States of Maharashtra as well as Andhra Pradesh are opposed to the height of FRL at

524.256 m as it would result in catastrophic situation for both the States.

Before we go into the merits of the matter, the background of the planning of Almatti Dam with FRL 524.256m and the background in which it developed into UKP Stage-III may be seen. The river Krishna is the second largest river in India. It is a mainly rain fed river passing through three States, namely, the State of its origin i.e. the State of Maharashtra, the State of Karnataka and the State of Andhra Pradesh. Its yearly water yield is very high, still it is not possible for the river Krishna to provide for irrigation to all the areas of the three States where water may be required most, due to the fact that such areas are drought prone areas. In the northern part of the State of Karnataka, the Districts of Bijapur, Bagalkot, Gulbarga and Raichur lie in rain scarcity area. The rain is meagre and uneven. In these Districts, only rainfed agriculture is possible but due to low rainfall, generally it results in agricultural failure with meagre crop yields making it difficult for the farmers to sustain themselves and their families. The scanty and erratic rainfall with a limited number of rainy days, the moisture deficit fluctuates from year to year depending upon the quantum and timing of rainfall. The Imperial Gazetteer of

India – Hyderabad State says: “Raichur, Gulbarga and Lingasugur are the districts which are generally the first to suffer from a failure of rains and are more liable to famine than any other part of the State. Failure of the monsoon-rain means the failure of Kharif harvest which produces about half the staple food grains for the people and if it is late or autumn rainfall fails, the rabi crops also suffer which means that besides linseed and wheat, the cultivator loses the whole of the white Jawar, which forms the largest food grain crop of the State.” Again, we find that Mysore State Gazetteer, records about Bijapur district “The fact that this district is highly susceptible to drought and famine and is known as a scarcity area will make a chronological account of the bad seasons in this district.....” (C-III-D-3 page 3).

The soil of the area indicated above, is very fertile but that cannot be exploited due to ill distributed and inadequate rainfall. It is not easy for the population of this area to subsist being drought area. As a matter of fact, it is a two-way injury which is being caused due to inadequate rains, one that drought results in frequent paucity of food grain or means of subsistence of the agriculturists and the other part of the injury is that despite the soil being fertile, its exploitation much less full exploitation is not possible. Therefore, an area which can

turn into a flourished area with healthy economy remains an area of scarcities, poor economy and puts the agriculturists of the area, who are in a good number, in woes and miseries.

A dam and reservoir for such an area, is the remedy for the ills of the region. In the case of Narmada Bachao Andollan, reported in (2000) 10 SCC page 664 at pg. 761, paragraph 226, it is observed “..... Dams serve a number of purposes – it stores water, generates electricity and releases water throughout the year and at times of scarcity. Its storage capacity is meant to control floods and the canal system which emanates therefrom is meant to convey and provide water for drinking, agriculture and industry. In addition thereto, it can also be a source of generating hydropower. Dam has, therefore, necessarily to be regarded as an infrastructural project.....” The dams thus provide an assured source for supply of water for irrigation in times of needs and sustain the agriculture which is, without any doubt, the heart of the economy of the States which ought not to ignore the DAP and DPAP areas particularly which have fertile land.

The Upper Krishna Project (UKP) was originally conceived by the erstwhile State of Hyderabad along with Lower Krishna Project

known as Nagarjun Sagar Project. This project could not start because it involved submergence in Bijapur District, which was then a part of Bombay Presidency. After reorganization of the States in Nov., 1956, Gulbarga and Raichur Districts, which were to be benefited under this project, came to be situated in the Mysore State (now Karnataka State). Therefore, it was easier for Mysore State to investigate and take up the Upper Krishna Project (UK) (C-1-D-12 page 50).

The old Hyderabad State had conceived construction of a reservoir on river Krishna near Narayanpur to irrigate areas in Gulbarga and Raichur Districts. Since Bijapur District had also to be provided with irrigation facilities, the Upper Krishna Project was modified so as to provide two storage reservoirs – one at Narayanpur and another at Almatti on the upstream site (C-I-D-12 page 50).

Almatti Dam was proposed to be utilized for impounding bulk storage requirement and the lower dam i.e. Narayanpur Dam, was to be utilized mainly as a diversion dam with small storage and a weir. In all, 20.84 lac acres of agricultural land was proposed to be irrigated under the Upper Krishna Project providing a FRL of 524.256 m. This

irrigation was to be provided not only by flow method but also by flow-cum-lift canals. (C-III-D-3 page 5).

Since bulk of irrigation supplies was to be let down from the dam at Almatti Lake, it was also proposed to take advantage of these flows for power generation of about 150000 KW, for which a dam power house with 5 units of 30000 KW each was to be installed. The UKP with Almatti and Narayanpur dams with all the canals was conceived as one single project utilizing 442 TMC of Krishna waters. (C-III-D-3 pages 5 & 6).

In order to derive maximum benefits at the earliest, an alternative of executing project in stages was envisaged. In the first stage, the construction of reservoir at Narayanpur for irrigation to an extent of 6 lac acres with an annual utilization of 103 TMC under the Narayanpur left bank canal was proposed and a project report was sent to the Govt. of India.

The Govt. of India granted financial sanction for starting Narayanpur and Almatti Dams in 1964 and also suggested the shifting of Narayanpur Dam to Sidhapur, about 5 to 6 kms upstream, where the length of the dam would be much less i.e. about 1 km. At this

stage, it may be noted that the Narayanpur Dam as envisaged initially was too long i.e. 10 to 12 kms (7 to 8 miles) in length. To make up the loss in storage due to shifting of dam upstream, it was suggested that the height of Almatti Dam may be raised, as it would provide additional storage at a very little cost (C-I-D-282 page 19). The State of Karnataka thus shifted the dam site from Narayanpur to Siddapur though it is still known as Narayanpur Dam.

Accordingly, the UKP Stage-I, was approved in 1963 for utilizing 119 TMC. At that stage, its height was to correspond to EL 500.2 m with spill way crest level at EL 500 m and 12.2 m high gates. It was, however, revised in the year 1978 and the spillway solid crest was to be raised to EL 509 m from EL 500 m, the installation of 3.2 m high radial gates of partial height on solid crest at EL 509 m was to achieve FRL of 512 m as approved earlier. Under the revision, the construction of Almatti Dam up to the height of EL 523.8 m as maximum water level storage in Stage-II flood impinging at 512.2 m with crest at EL 509 m came to be 519.8 m and free board 4.00 m (CI-D-12 page 15 - C1-D-1 p. 131/135). At that time, construction of Almatti Dam spillway and power dam portion from EL 523.820 m to 528.25 m was also proposed. The UKP was initially proposed to be

executed in two stages – Stage-I and Stage-II. Stage-I Project was approved by the Planning Commission initially on 20.12.1963. This project was to utilize 103 TMC of water. Later, Stage-I was revised in 1966-67 involving irrigation for additional 10.50 lac acres of land with cropped area of 11.34 lac acres and annual utilization of 119 TMC including reservoir losses (C1-D-1 page 133).

It appears that UKP was further revised in 1986-87 and approved by the Planning Commission vide letter dated 24.9.1990 (C-I-D-12 page 50). In this revision, almost all components, as approved in April, 1978, remained the same. There had not been any objection from any corner about embedded part for high radial gates in the Almatti Dam and construction of dam in spillway and power dam portion from EL 523.8 m to EL 528.25 m. Almatti Project was proposed to be a multipurpose project and ultimately it became a three stage project for providing irrigation to drought prone districts of Bijapur, Raichur, Gulbarga and Bagalkot as well as for providing power. For the purposes of component of power generation, it was proposed to keep the water level in the Almatti Dam Reservoir at EL 519.600 m limiting the actual irrigation utilization to 173 TMC only.

Thus, the revised Stage-I of the Project proposed utilization of 119 TMC and Stage-II contemplated to utilize 54 TMC additional water to irrigate a further area of 1,97,120 hectares by raising the FRL Almatti Reservoir to 519.600 m. Stage-III of the project proposed to utilize 130.9 TMC more by increasing FRL of the reservoir to 524.256 m (C-I-D-12).

In support of its case, the State of Karnataka produced Mr. D.N. Desai as its witness. In his affidavit C-I-D-118, he averred that the UKP with Almatti Dam and Narayanpur Dam proposed to utilize 173 TMC. The height of the Almatti Dam, as originally envisaged in MYPK-III, was with FRL 524.256 m. The excerpts of MYPK-III have been filed by Andhra Pradesh as C-III-D-3. He further stated that more land was proposed to be brought under irrigation, thus requiring total utilization of 303 TMC with irrigation of extra 5,30,475 hectares situated in drought prone districts of Raichur, Gulbarga, Bijapur, Koppal and Gadak.

The framework of the gates at Almatti Dam up to 524.256 m was erected during pendency of OS No.2 of 1997. Later, in pursuance of the order of Supreme Court, the height of the radial gates was cut

down to 519.6 m from 524.256 m. The State of Karnataka filed UKP Stage-II Report before the Central Water Commission, proposing to utilize 173 TMC. The Central Water Commission by means of letter dated 23.5.2000 addressed to the TAC for according technical clearance. The TAC conditionally cleared UKP Stage-II on 31.5.2000 (C-III-2B page 456) for FRL of 519.6 m for utilization of 173 TMC. It has already been indicated above that the State of Karnataka had installed the radial gates to store water in the Almatti Dam up to FRL 524.256 m which was cut to lower its height i.e. FRL 519.6 m, at which the Almatti Dam is presently operating.

In the Complaint of the State of Karnataka C-I, it is averred in paragraph 1 that the State of Karnataka and its inhabitants have been or likely to be prejudicially affected by - - - - -

REPORT/ DECISION

“(b) The executive action of the respective Governments of the State of Andhra Pradesh and of Maharashtra in refusing to agree to the raising of the height of Almatti Dam from 519.6 m to 524.256 m as proposed and planned by the State of Karnataka.”

So, the real grievance in respect of Almatti Dam was that as planned by the State of Karnataka, the height of the Almatti Dam at 524.256 m was being objected to by the States of Maharashtra and Andhra Pradesh.

So far as the State of Maharashtra is concerned, it has been mentioned in paragraph 1(ii) as under:-

- “(ii) The action of the Govt. of Karnataka in planning and constructing Almatti Project to a height which has already and will submerge Maharashtra territory by the waters from the dam to the detriment of the State and its inhabitants without the consent of the State of Maharashtra to such submergence.
- (iii) The action of Govt. of Karnataka in proceeding ahead with construction of a Hippargi Barrage Project and by its waters submerging Maharashtra’s territory without the consent of the State of Maharashtra to such submergence.
- (iv) The action of the Govt. of Karnataka in constructing and planning several projects including raising of the height

of the Almatti Dam above 519 m and utilizing the waters of the river on the assumption that Scheme-B would be available and/or beyond its allocation of 700 TMC of water given by KWDT.”

It is then stated in the complaint of the State of Maharashtra in paragraph 3 under the caption “Specific Matters and Dispute” as under:-

“(iii) Re: Almatti Dam –

The ground level of Maharashtra – Karnataka border on the Krishna River is 518 m. To prevent submergence of Maharashtra territory and project head works and choking of river channels due to siltation from Almatti Project of Karnataka, the FRL of Almatti has to be maintained to a level not above 518 m. The Govt. of Karnataka has not only proceeded ahead and constructed Almatti Dam on Krishna River to store water up to FRL 519.6 m but also stored water up to that level during the water year 2002-03, submerging Maharashtra territory without consent of the State of Maharashtra.”

The complaint then quotes the observations of the Hon'ble Supreme Court in O.S.No.2 of 1997 as follows:-

“(xx) - We make it clear that there is no bar for raising the height of dam at Almatti up to 519.6 m subject to getting clearance from the appropriate authority of the Central Government and any other statutory authority required under the law.”

It is then averred that all that Hon'ble Supreme Court observed was that Karnataka could raise the height of Almatti Dam up to FRL 519.6 m and that after the decision of Hon'ble Supreme Court, Maharashtra Govt. wrote to the Chairman of Central Water Commission that the storage level of Almatti may not be cleared beyond FRL 512.2 m as that may result in submergence of Maharashtra territory unless Maharashtra consented for it. In reply to the complaint of Karnataka, the State of Maharashtra in C-I-4 has mainly stressed upon the fact that the storage at FRL 519.6 m is not required by Karnataka to utilize its allocation and this would cause submergence in the territory of Maharashtra.

The objections raised by the State of Andhra Pradesh in its complaint regarding Almatti Dam are that Karnataka had resorted to execution of Almatti Dam to store water far in excess of its entitlement and requirement. The whole project styled as Upper Krishna Project is unauthorized and in contravention of Krishna Water Dispute Tribunal (KWDT) Award and other statutory provisions. It was also mentioned in para 2 that in the suit filed by the Andhra Pradesh, O.S.No.2 of 1997, before Hon'ble Supreme Court, a prayer for mandatory injunction was made directing the State of Karnataka to undo all its illegal and unauthorized actions regarding projects including Almatti Dam, Upper Krishna Project, Stage-II etc. According to Andhra Pradesh, Karnataka was entitled to utilize 160 TMC in Almatti Dam and Narayanpur Project. It also made grievance against the clearance given for construction of Almatti at FRL 519.6 m. It is then stated in paragraph 10 "Karnataka has, in any event, no right to increase the height of the dam beyond the height of 519.6 m. Such action, if permitted, would spell disaster to the lower riparian State of Andhra Pradesh. All the down-stream irrigation projects, which have been planned to utilize 75% dependable waters of the river Krishna, in accordance with the award, would fail. Such action

would also be in violation of International Water Policy. Karnataka ought not to be permitted to take any such action.

We then find that in the reply of the State of Andhra Pradesh to the complaint of Karnataka, C-1-2 it is stated in paragraph 48 at page 27 that Karnataka has taken up the construction of Almatti Dam without complying with the mandatory requirements like dam break analysis and environmental clearance etc. It is also averred that raising the FRL to plus 524.256 m to utilize about 442 TMC, as against the allocated 160 TMC for Upper Krishna Project is to deny the rightful share of State of Andhra Pradesh. It is further averred in the same paragraph 48 “It is evident during the recent years that the State of Andhra Pradesh is not getting even its allocated water till such time as Almatti Reservoir is filled with present FRL+519.60 mts.” It is further stated that Karnataka has clandestinely constructed Almatti Dam with TBL+528.75 mts to enable it to use 442 TMC.

In paragraph 53 of its reply, C-I-2, it is stated that the State of Karnataka proposed to raise the height of Almatti Dam with an intention to utilize alleged surplus water which was never allocated to

it nor any such allocation is feasible. In fact, on the contrary, raising the height of Almatti would adversely affect the interests of the State of Andhra Pradesh as it would deny dependable flows to the State of Andhra Pradesh.

In paragraph 54, it is again averred that execution of Almatti Dam would store water in excess of the entitlement of the State of Karnataka. It is against the statutory provisions like Environmental Protection Act, 1986, the Forest Conservation Act, 1980 and the Guidelines issued by the Central Water Commission from time to time. Hence, Andhra Pradesh had to file a suit O.S.No.2 of 1997 before the Supreme Court praying for mandatory injunction to the State of Karnataka to undo its illegal acts.

In para 56, after reiterating what has been stated earlier, it is further stated “The State of Karnataka is seeking to further increase the height of the dam, which it is not entitled to, either in law or in equity. All executive actions of the State of Karnataka in this regard seriously and prejudicially affected the rights of the inhabitants of the lowest riparian State of Andhra Pradesh. The State of Karnataka, therefore, should not be permitted to increase the height of the dam.”

In paragraph 59, it is averred that the clearance dated 14.10.2000 given by the Ministry of Environment & Forest to raise the height up to + 519.6 m is on incorrect premises.

So far as the adverse affect on the rights of the inhabitants of Andhra Pradesh is concerned, once again it is stated in paragraph 60 at page 35 of C-I-2, “The upper riparian State of Karnataka has adversely and prejudicially affected the rights of the inhabitants of the lowest riparian State of Andhra Pradesh. The State of Karnataka should not, therefore, be permitted to impound water at Almatti beyond the crest level.” Once again, it is found as stated in paragraph 61 apart from other averments, “The State of Karnataka has, in any event, no right to increase the height of the dam beyond the height of 519.6 m. Such action, if permitted, would spell disaster to the lowest riparian State of Andhra Pradesh. All the downstream irrigation projects, which have been planned to utilize 75% dependable waters of the river Krishna, in accordance with award, would fail.”

Thus, precisely, the grievance against the raising of the height of Almatti Dam is that of submergence of the territory of Maharashtra and that of the State of Andhra Pradesh, that if the height is allowed to

be raised and more water is stored and utilized by the State of Karnataka, the inhabitants of the State of Andhra Pradesh, which is the lowest riparian State, would suffer since the projects as planned at 75% dependability in accordance with the decision of KWDT-I would fail resulting in disaster to the State of Andhra Pradesh.

Here it may be mentioned, however, that we have already found that the success rate of Andhra Pradesh is more than 75%. It is with FRL 519.60 m at Almatti Dam.

Mr. Nariman, learned Sr. Counsel, appearing for the State of Karnataka, submits that the project planned as per MYPK-III, which is the original project report furnished before the previous Tribunal, shows that the project was originally designed for FRL 524.256 m. All parties were aware of this fact that the project was proposed with FRL 524.256 m. He then refers to pages 211 and 212 of the Report of the KWDT-I. We find it mentioned at page 211 of the report, some details about UKP saying that it had been conceived to harness the waters of river Krishna to irrigate famine stricken areas of Bijapur, Gulbarga and Raichur Districts of Mysore State. It also mentions that the Project Report was prepared in 1960 with two storages at

Naryanapur and at Almatti to irrigate a total area of 12 lac acres utilizing 206 TMC of water. It was proposed to be executed in three stages. It is also mentioned that the project was modified during July, 1963 and 226 TMC was to be utilized in the project. In column 1 at page 212 of the report of KWDT-I, it also finds mentioned that UKP was modified to irrigate an area of 20.84 lac acres utilizing 442 TMC and there is a reference of project report MY PK-III excerpts of which have been filed as C-III-D-3 by the State of Andhra Pradesh.

Ultimately, at that stage, utilization of 103 TMC in UKP was protected by KWDT-I and demand to the extent of 52 TMC was held to be worth consideration. It is then pointed out by Mr. Nariman that at page 9 of C-III-D-3, the proposed height of FRL is clearly indicated as 524.256 m. To explain the implication of a project being considered as worth consideration, Mr. Nariman refers to the observations made by KWDT-I in column 1 of page 79 of the report to the effect "Our examination of the project report and other relevant documents has a very limited purpose and it is to determine what are the reasonable needs of the three States so that an equitable way may be found out for distributing the remaining water between the three States. It is, of course, always to be borne in mind that the allocation

of waters though based on consideration of certain projects being found to be worth consideration are not on that count to be restricted and confined to those projects alone.

Mr. Nariman submitted that the allocation as then made by the previous Tribunal is by no means final. It is further submitted that there was still scope to consider the further needs of the State of Karnataka and the availability of water and in case more water would be available to satisfy the needs, the allocation can be increased and in this connection has drawn our attention to the observation made by KWDT-I at the top of page 74 of the further report while dealing with clarification No.XXI, which reads as under:-

“However, we may add that this project is to be executed by stages and if it is found that in future more water is available for distribution between the three States, the claim of Karnataka for allocating more water for this project may receive favourable consideration at the hands of Tribunal or authority reviewing the matter. Almatti Dam is under construction and may serve as carry-over reservoir.”

It is submitted that now FRL 524.256 is very much needed and 303 TMC of water is required to satisfy the irrigation need of the drought prone areas of the Districts of Bijapur, Gulbarga and Raichur etc. It is submitted that it was planned to serve those drought prone areas since long. It has already been a long wait for the inhabitants of the area falling in the above noted districts and with availability of more water there is no reason that Karnataka may not be free to raise the height of Almatti Dam to FRL 524.256 m for utilization of 303 TMC. It is further submitted that whichever authority may be constituted to oversee the working out of the decision of this Tribunal, may monitor the operation of Almatti Dam at FRL 524.256 m so that there may not be any over utilization as apprehended. He has then referred to some of the observations made by Hon'ble Supreme Court in the suits filed by the States of Andhra Pradesh and Karnataka and submitted that it is not open for Andhra Pradesh to object to the raising of the height of Almatti Dam and that it should be below 519 m.

Mr. Nariman then referred to the affidavit of the witness produced on behalf of Karnataka, Mr. D.N. Desai, C-I-D-118, who has stated about the needs of the State of Karnataka for irrigation in the drought prone areas, namely, the areas in the districts of Bijapur,

Gulbarga and Raichur. He has also given further details of the areas and the necessity to provide irrigation in the DPAP and DAP areas.

Mr. Desai in para 2.1 of his affidavit stated about the present population of Karnataka being 288.34 lakhs which is more than double of the population in 1971 census. It is further indicated that about 32.9% of the population is that of farmers and 39.9% is that of farm labourers. They all depend upon agriculture. He also refers to the observations made by KWDT-I as quoted in para 3.11 of his affidavit. Our attention has also been drawn by the learned counsel to the averments made in paragraph 5.4 of the affidavit of Mr. D.N. Desai where it is averred that as per observations of KWDT-I, the scarcity areas are entitled to special attention in the allocation of waters (page 21 of the Report of KWDT-I) and page 20 of the report of the KWDT-I, where the Tribunal has referred to drought affected Districts of Karnataka, Maharashtra and Andhra Pradesh including Bijapur, Bellary, Raichur, Dharwar, Gulbarga, Chitradurga and Tumkur. Other details are stated therein as also the geographical area of the three States and the percentage in which drought affected area lies in each State and it is indicated that drought affected area in Karnataka is the largest being 54% of the total geographical area of

the basin. The demands of the State of Karnataka are indicated in paragraph 6.3 of the affidavit of Mr. D.N. Desai and also the demand as it relates to additional utilization of 130.90 TMC in K-2 sub-basin. It is submitted that for the purpose of utilization of 130.90 TMC it is necessary to raise the FRL up to 524.256 m. It is also pointed out from the statement of Mr. Desai as to how the planning has been done from time to time and ultimately as planned in 2005, the utilization in Upper Krishna Project was intended to be 303.9 TMC to serve the Talukas coming under the drought zone. It is further stated that criteria for evapo–transpiration and adequacy of rainfall noted by the KWDT-I continue to guide the riparian States in the Krishna basin.

Insofar as it relates to the initial requirement of utilization of 442 TMC, at FRL 524.256 m indicated in MYPK-III(1970), it is submitted that at that time when the estimate of utilization of water was made, the methods to assess, as available now, were then not available. Hence, there may be some over estimation of requirement of 442 TMC but it has been modified on considering the better available material on the point. It is submitted that in this view of the matter, not much can be built up to oppose the height of FRL at 524.256 m and utilization of 303 TMC in UKP Stage-III.

On the point of submergence, Mr. Nariman referred to the report of Narmada Water Tribunal (KAD-20). It is submitted that as per the observations made at page 34 of the report, as a matter of law, the question of submergence of land, of compensation, rehabilitation etc. is really one aspect based on the doctrine of equitable apportionment and has also referred to certain decisions on the point. We also find that it observed in column 1 at page 34 that the question of submergence is merely incidental or consequential to question of apportionment of waters. Our attention has also been drawn to the observations by Eduardo Jimenez de Arechaga, as quoted in the report of Narmada Water Tribunal, KAD-20 (supra), to the effect “the occurrence of substantial or considerable injury is an essential condition for setting restriction to territorial sovereignty - - - . Examples of substantial injuries are diversion of water causing an appreciable decrease of river level affecting navigation, considerable and harmful pollution of water course, diversion seriously affecting existing or projected irrigation works, or considerably diminishing productive capacity of hydroelectric dams and constructive irrigation works causing floods into the territory of an upstream country.” Further, it also mentions about compensating the injury which can be

settled. As a matter of fact in the case in hand, some correspondence between the States of Maharashtra and Karnataka has been referred to where some mention about compensation was also made but the things seem to have been left half way and nothing substantial could come out of it nor that aspect remains important for the purposes of dealing with the present controversy except that at one stage such a recourse of compensation was taken note of by the parties. It may only lead to the conclusion that any injury, if caused, can also be remedied by compensation rather than to abandon the project itself.

While dealing with the question of prior consent, Mr. Nariman has again drawn our attention to page 35, col. 2 of Narmada Water Tribunal Report (KAD-20), where it is observed that “in the Lake Lanoux Arbitration⁷² the Arbitral Tribunal clearly stated that there was no international law or rule or principle providing that a State proposing to undertake works must previously obtain the consent from the co-riparian States as the condition precedent to use waters within its own territory. In other words, a riparian State does not have what, in effect, would amount to a right of veto over the proposed development of the common river by a co-riparian State.” Another passage of the Arbitral Tribunal is quoted in the Report of Narmada

Water Tribunal case at page 35, col. 2 (pages 128 and 130 of the Arbitral Tribunal) “In effect, in order to appreciate in its essence the necessity for prior agreement, one must envisage the hypothesis in which the interested States cannot reach agreement. In such a case, it must be admitted that a State which is normally competent has lost its right to act alone as a result of the unconditional and arbitrary opposition of another State. This amounts to admitting a ‘right of assent’, ‘a right of veto’, which at the discretion of one State paralyses the exercises of territorial jurisdiction of another.” - - - - “But international practice does not so far permit more than following conclusions: The rule that States may utilize the hydraulic power of international watercourses only on condition of a prior agreement between the interested States cannot be established as custom even less as a general principle of law.”

The Tribunal in the case of Narmada Water Tribunal, KAD-20, further took note of the observations of Herbert Arthur Smith (Treatise on “Economic Uses of International Rivers” at page 151):

- (2) No State is justified in taking unilateral action to use the waters of an international river in any manner which

causes or threatens appreciable injury to the lawful interests of any other riparian State (emphasis supplied by us);

- (3) No State is justified in opposing the unilateral action of another in utilizing waters in such action neither causes nor threatens any appreciable injury to the former State;
- (4) Where any proposed employment of waters promises great benefits to one State and only minor detriment to another, it is the duty of the latter State to acquiesce in the employment of proposed waters, subject to full compensation and adequate provision for future security;
- (5) Where any proposed employment of waters by one State threatens to injure the legitimate and vital interests of another, the latter is justified in offering an absolute opposition to the employment proposed, but any difference as to the existence or non-existence of such a vital interest should be regarded as justifiable dispute suitable for arbitration, judicial settlement, or reference to the Council of League of Nations. If the Tribunal or the

Council finds that such a vital interest in fact exists, no economic or other advantage to the former State can justify it in proceeding with the works proposed. If, on the other hand, the tribunal or the Council finds that no vital interests are affected, the works should be allowed to proceed upon payment of compensation and upon such other terms as the Tribunal or the Council may consider just.”

Considering these decisions and other material on the subject, Mr. C.B. Bourne, had summed up the position under the law, in (1965) Canadian Year Book of International Law (pages 187 & 227), as quoted in the Report of Narmada Water Tribunal (supra) and referred to by Mr. Nariman “One may conclude, therefore, that the International Law has not yet conferred on a riparian State the right to veto developments of other riparians, whether or not those developments will cause him serious harm, and that a State may ultimately act unilaterally in the development of its portion of an international river, subject to the risk of being liable to or violating the lawful rights of co-riparians under the International Law.”

A general proposition, as it emerges from the opinion expressed by some authors and in arbitral decisions, referred to above, is that a State has a right to develop its water resources unhindered by any interference by co-riparians who cannot be allowed to enjoy wide powers to veto any project or development of the other riparian State. It is only in those cases where some vital interest of the other co-riparian State is affected or substantial injury is caused then alone a valid or lawful objection can be raised. Mere apprehension or frivolous objections would not come in the way of any State undertaking any project or development of water management within its State. It is, therefore, necessary for the objector State to establish its legal right and vital or substantial injury to it. In case project of another co-riparian State is executed, mere pretence of injury, which is not established, would not come in the way of the project undertaken.

Further, the mere fact that a damage is caused to a riparian State, irrespective of its extent, by any unilateral action of an other riparian State is unlawful and must be prevented or compensated does not appear to be a sound principle while applying the doctrine of equitable apportionment or equitable utilization. What is required to

be prevented or taken to be prohibited is such unilateral action on the part of a riparian State, which causes legal injury to the other riparian which results in the deprivation of its equitable share which may also change in the changed circumstances.

Moreover, in larger public interest, even where the benefit from the unilateral action, of a riparian State outweighs the harm likely to be suffered by the lower riparian, it may not be interfered with. The harm/benefit balancing test is also an integral part of the doctrine of equitable apportionment of common stream water.

In the present case, the State of Maharashtra raised objection to the increase in the FRL of Almatti Dam to 519/524 m only on the ground that it would cause submergence in the territory of Maharashtra. We may examine this aspect of the matter if there is any real likelihood of submergence or it remains only a fanciful apprehension deserving no serious consideration.

The State of Maharashtra has examined Mr. S.Y. Shukla on the point of submergence in the territory of Maharashtra in case the Almatti FRL is at 519.6 m. In his statement Mr. Shukla has admitted that there will be no submergence in the State of Maharashtra as a

consequence of increase in FRL of Almatti Dam but for the effect of siltation which has set in Almatti Reservoir. He made studies in that regard and stated that due to siltation in Almatti Reservoir to the extent of 1.6 m at the border between Maharashtra and Karnataka, there will be submergence in the territory of Maharashtra. Besides, the statement of Mr. Shukla who had followed and applied Gole Method, an expert opinion of Prof. Garde, C-II-D-I, is also relied upon by the State of Maharashtra. According to this report, there was considerably high siltation in Almatti Dam.

The State of Karnataka examined its expert witness, Prof. Ranga Raju, on the point of siltation. There were divergent opinions. The matter was being hotly contested as to the correctness of the report of Prof. Garde and estimation of siltation by Mr. Y.S. Shukla on the one hand and the evidence of Prof. Ranga Raju on the other hand. In these circumstances, this Tribunal considered it appropriate to get the matter investigated by means of a scientific survey to ascertain the siltation and the extent thereof, as may have been deposited in Hippargi Barrage and the Almatti Dam. In this connection, this Tribunal passed an order dated Oct. 16, 2008 in exercise of its power u/s 9(2) of the Inter State River Water Dispute Act requiring the State of

Karnataka to carry out the survey to find out the actual siltation/sedimentation as may have taken place in Almatti Reservoir by employing modern methods for carrying out such an operation, by hydrographic survey or any other similar or better scientific method, as may be available. In pursuance of this order, the State of Karnataka engaged M/s Tojo Vikas International (Pvt.) Ltd. to carry out the topographic and hydrographic surveys for sedimentation studies at Almatti Reservoir and Hippargi Barrage. It had first submitted its report in Aug., 2009 but this exercise had to be gone through again on account of certain defects in conducting the survey, pointed out by the other two States. But since there was still some discrepancy in measurement of water level to the extent of 0.095 m, the Tribunal vide order dated 25.11.2009 directed the agency, namely, M/s Tojo Vikas International (Pvt.) Ltd. to file a supplementary report reconciling the discrepancy. Accordingly, the earlier report was revised and the supplementary report was finally filed in December, 2009. This report cleared the position regarding siltation.

According to the opinion of Prof. Garde, on which the State of Maharashtra had placed explicit reliance, the annual silt load was to the extent of 26.05 mmt (million metric tons) which, according to

Prof. Ranga Raju, was 5.90 mmt. Again, the annual silt volume (million cubic meter), as found by Prof. Garde, was 18.61 whereas according to Prof. Ranga Raju it was 3.17. There, thus existed a vast gap between the estimated assessment of silt between the two experts. In the hydrographic survey, annual silt load was found to be 18.45 mmt and annual silt volume as 9.51. This survey report has not been disputed by any party.

On the basis of supplementary report of M/s Tojo Vikas International (Pvt.) Ltd. regarding amount of siltation, the State of Karnataka filed a study on 29.3.2010 regarding submergence with height of Almatti Dam at 519.6 m. Mr. Andhyarujina, learned Senior Counsel, appearing for the State of Maharashtra, on being specifically put to him, stated that no objections to the study were to be filed. According to the study, there was to be no back water effect or submergence on account of very little siltation in the Hippargi and Almatti Dam. The findings of survey are to be found at pages 33/34 of the Report of M/s Tojo Vikas International (Pvt.) Ltd., C-I-D-388, submitted in Dec., 2009. It is a study considering the life of reservoir as 15 years as mentioned in para 2 of the report at page 35. In Almatti Reservoir, percentage of loss of gross storage at FRL is recorded to be

3.58, percentage of loss in dead storage zone is 16.41 and the percentage of loss in live storage zone is 1.43. It may be mentioned that these values were a little lower in the report submitted earlier. According to the findings, annual percentage loss of live storage works out to 0.10% as against national average of 0.31% (Central Water Commission Publication No.113/2001). It is not necessary to go into further details of the report and the findings. It is to be mentioned that no objection to the supplementary report filed in Dec., 2009 was filed by any party including the State of Maharashtra.

State of Karnataka was, however, required to get a study made applying the relevant data of sedimentation etc. as found by M/s Tojo Vikas International (Pvt.) Ltd. in the report of Dec., 2009 with FRL of Almatti at 524.256 m. It has been filed with I.A.No.121 of 2010 (C-I-D399). No objections to C-1-D-399 have been filed and it was stated on behalf of the State of Maharashtra that they do not propose to file any objection to the same. According to the findings recorded in C-1-D-399, sedimentation does not extend to the territory of Maharashtra at all and in Table 2 page 10 it is indicated that there is no rise in water level from pre-dam stage in the State of Maharashtra, in period of 100 years operation of the reservoir. On the other hand, it

shows that at the border, at the chainage (kilometers) 202.40, the water surface level is less by 0.03 m. At page 12 of the study, it is indicated that the lowering of the FRL at Almatti offers no advantage to Maharashtra. So far as flood levels are concerned, they continue to be the same as at pre-dam level.

As indicated earlier, Maharashtra has filed no objection to the study referred to above. On the other hand, during the course of arguments, it furnished MHAD-48 pointing out the difference between the two reports of M/s Tojo Vikas International (Pvt.) Ltd. i.e. one filed in Dec., 2009 to which no objections have been filed by Maharashtra and the earlier report without reconciling the discrepancy in level to the extent of 0.095. In para 6 of MHAD-48, Maharashtra has suggested certain measures, which it is requested, may be ordered by the Tribunal to be taken by Karnataka in the light of report of Dec., 2009 by M/s Tojo Vikas International (Pvt.) Ltd. The suggestions are:

(I) For reducing sedimentation in the reservoir:

- (a) The storage in Almatti Reservoir should be built up gradually by suitable operation of the gates so that the full reservoir level is attained not earlier than mid

August. For this purpose advance scientific techniques, meteorological and satellite inputs maybe used. This will reduce sedimentation in the upper reaches of Almatti/Hippargi reservoir, which lie in Maharashtra.

- (b) Karnataka should operate the river sluice gates of Almatti Dam as frequently as possible and mandatorily during the period when the water is released through the crest gates.
- (c) These and other measures may be carried out under supervision of the Standing Committee referred to in para 7 below.

(II) For monitoring of situation regarding backwater and sedimentation:

- (a) The gauge discharge relationship established at Kurundwad gauging station of Central Water Commission should be checked every three years by the Central Water Commission in association with the States of Maharashtra and Karnataka. If there is any change, the causes thereof should be ascertained.
- (b)
- (c)
- 7....

Then, it suggests some other measures as well for sedimentation survey of the stretch of river Krishna on the upstream of Hippargi barrage every three years and complete reservoir sedimentation survey every five years and wants that further study should be undertaken about soil loss etc. Then it is suggested in para 7 that Standing Committee may be constituted as indicated therein. The decision of this Committee regarding measures to be implemented shall be made final and binding on both the States. In para 8 it is stated that such other directions as the Tribunal may deem fit and proper to eliminate the chance of submergence in Maharashtra, may be given and ultimately it is stated that the suggestions are without prejudice to the case that the reservoir level of Almatti Dam and Hippargi Barrage should be reduced to 516.00 m.

At the outset, we may point out that looking to the study C-1-D-399 furnished by the State of Karnataka to the Tribunal on the basis of the report of M/s Tojo Vikas International (Pvt.) Ltd. of Dec., 2009, there is no scope for any such apprehension of sedimentation to the extent that the territories of Maharashtra may be submerged. Such apprehensions, which were sought to be made out on the basis of the evidence of Mr. Y.S. Shukla and the report of Prof. Garde, cannot be

acceptable. The hydrographic survey conducted by M/s Tojo Vikas International (Pvt.) Ltd. shows, and which is not disputed, that there is very little sedimentation and the study made thereon (C-I-D-399) further shows that there is no rise in the bed level barring at one or two places insignificantly, nor there is any rise in the water level in the territory of Maharashtra. The apprehensions are unfounded. Therefore, it is not a case where any vital interest or any legal and substantial injury can be said to be caused or apprehended by allowing the State of Karnataka to raise the FRL up to 524.256 m. Otherwise, it would amount to vesting the State of Maharashtra with veto in the matters of planning and development of water management by the State of Karnataka within the State. We do not think in these circumstances, any specific directions are required to be given as suggested by the State of Maharashtra in MHAD-48. We would, however, hasten to add that whatever steps may be necessary for both the States to be taken to further reduce the sedimentation, if possible, may be resorted to and periodical survey regarding sedimentation should be undertaken by the State of Karnataka, once in five years.

In the result, we find that the objection of Maharashtra to the raising of FRL of Almatti Dam to 524.256 m is not substantiated. The

State of Karnataka cannot be denied raising of the FRL of Almatti Dam to 524.256 m on the alleged ground of submergence of the territories of Maharashtra nor any such question as to consent of Maharashtra in raising the FRL arises.

We may now consider the objections raised by the State of Andhra Pradesh against raising of the height of Almatti FRL to 524.256 m. In this connection, we have already made a reference to the averments made by the State of Andhra Pradesh in paragraph 2 of its complaint stating that the State of Karnataka was constructing the Almatti Dam with a view to impound waters far in excess of its entitlement and requirement. The Upper Krishna Project is unauthorized and in contravention of the decision of KWDT-I and other statutory provisions. Hence, Andhra Pradesh had to file a suit O.S.No.2 of 1997 before the Supreme Court. In paragraph 3 of the complaint, it is averred that even for construction of Almatti Dam up to FRL 519 m, requisite clearance from the competent authority under various statutes was necessary. It has already been noticed earlier that as per the case of Andhra Pradesh, the State of Karnataka was entitled to utilize only 160 TMC. About the clearance dated 18.7.2000 granted by Ministry of Environment and Forest (MOEF), it was only

up to the level + 512.2 m including 3.2 m spillway gate over the crest. This clearance was also subject to certain conditions which have not been fulfilled. So far as the clearance dated 4.10.2000 by MOEF is concerned, according to Andhra Pradesh it appears to have been mechanically granted in view of the decision of the Supreme Court dated 25.4.2000. It is then averred in paragraph 10 of the complaint, as indicated earlier also, that Karnataka has no right to increase the height of the dam beyond the height of 519.6 m. "Such action, if permitted, would spell disaster to the lower riparian State of Andhra Pradesh. All the downstream irrigation projects which have been planned to utilize 75% dependable waters of the river Krishna, in accordance with the award would fail. Such actions would also be in violation of National Water Policy. Karnataka ought not to be permitted to take any such action." It is the case of the State of Andhra Pradesh that height of Almatti Dam should be restricted with its FRL up to +515 m which together with the storage at Narayanpur is sufficient to utilize its allocated quantity of 160 TMC under UKP.

Thus, according to the averments made in the complaint, all that has been asserted is that if Karnataka is allowed to raise the height of Almatti Dam, more than 515 m or beyond 519.6 m, it would

be disastrous for the downstream projects of the State of Andhra Pradesh. But we find that no further details of any tangible and substantial nature have been given nor indicated in the complaint or in its reply to the complaint of Karnataka. It is nowhere to be found as to which project and in which sub basin would be affected in raising of FRL of Almatti Dam up to 524.256 m. The averments in the complaint are only of a general nature and vague. During the course of arguments, learned Counsel for the State of Andhra Pradesh has furnished a copy of notes of his arguments, APAD-16. It is submitted that by maintaining FRL at 519.6 m, there will be diminution in the flows to the Andhra Pradesh. Statement of Mr. Rammurthy, a witness produced on behalf of State of Andhra Pradesh has been referred to, C-3-D-98, para 17 at page 25, stating that due to reduction of 1 TMC in flow into Andhra Pradesh, there would be a loss of Rs.1.73 crores per annum by way of loss of power at Srisalam Dam and further loss of Rs.7.98 crores per annum by way of loss of agriculture. This loss would accrue by maintaining the height of Almatti Dam at FRL 519.6 m and utilization of 173 TMC by Karnataka.

However, we find that the State of Andhra Pradesh has raised a specific objection against raising of height of Almatti Dam up to FRL

524.256 m and the proposed utilization of 303 TMC. It is submitted that there is no feasibility of any additional allocation for UKP. It is further submitted that before KWDT-I also, a clarification was sought by the State of Karnataka for additional allocation for UKP in reference whereof, namely, clarification No.XXI, pages 73 and 74 of the further report, have been referred, where the KWDT-I observed, “However, we may add that this project is to be executed by stages and if it is found in future that more water is available for distribution between three States, the claim of Karnataka for allocating more water for this project may receive favourable consideration at the hands of the Tribunal or authority reviewing the matter.” It is then submitted that its witness Prof. Subhash Chander has found that there is no increase in 75% dependable yield of water. Therefore, proposed utilization in excess of allocation made by KWDT-I deserves no consideration since no water is available for the purpose. It is submitted that KWDT-I had observed that if in future more water is found available, in that event, the demand of Karnataka for allocating more water could be favourably considered.

There is then some objection as to C-I-D-12, the Project Report of UKP-III, that it is not admissible in evidence. It is further submitted

that no expert evidence was led to justify the project report. It is submitted that some questions were raised and served upon the State of Karnataka, in the background of the order passed by this Tribunal on 18.5.2007 only dispensing with the formal proof of project reports. It is submitted that these questions were not replied by the State of Karnataka. Therefore, CI-D-12 is not admissible. We find not much substance in this objection as raised by the State of Andhra Pradesh since letter containing objections against C-I-D-12 was replied to by the State of Karnataka by its letter dated 7.07.2007 a copy of which has been furnished to the Registry on 9.7.2007 bearing endorsement of receipt of the copy on behalf of the States of Andhra Pradesh and Maharashtra. No material has been brought to our notice that any further clarification was sought by the State of Andhra Pradesh after having received the reply dated 7.7.2007 from the State of Karnataka to their objections by letter dated 8.6.2007.

As a matter of fact, the witness of the State of Karnataka Mr. D.N. Desai, in his affidavit has stated about UKP-III and intended utilization of 303 TMC for which purpose 130 TMC additional water was required over and above 173 TMC. The Project Report UKP Stage-III, C-1-D-12, read with the statement of Mr. Desai makes it

clear that such a project like UKP Stage-III has very much been there and State of Karnataka did put forward a demand for additional allocation for the said project.

The State of Andhra Pradesh then dwells upon the merits of the project report and the data utilized therein and objects to the claim of Karnataka that 517 TMC of surplus water is available for distribution in Krishna basin. It is not necessary to go through the material which is sought to be referred to show that there has not been increase in yield of river Krishna, as per the evidence of Prof. Subhash Chander. We feel that we may straightaway mention that a fresh series of 47 years, based on the fresh data, has been prepared by this Tribunal which is now being taken into consideration and acted upon. We have already held earlier that there is an increase in yield of river Krishna and water is available for distribution amongst three riparian States which includes the surplus water. There can be no serious doubt in the mind of anyone that the liberty which was given to the State of Andhra Pradesh to utilize surplus water did not vest any right in Andhra Pradesh to such water. We have already made a reference of this aspect of the matter with observation that even Andhra Pradesh does not dispute the position as indicated above. It is also undisputed

that the surplus water is also to be distributed amongst all the three riparian States and it cannot be permitted to be utilized by the State of Andhra Pradesh alone. Apart from this amount of surplus flows, which could be to the tune of about 330 TMC as per KWDT-I at 75% dependability, some more water has been found to be available for distribution as discussed under the issues decided earlier. Therefore, it will be a futile exercise to dwell upon the question that no water is available for distribution as per the statement of Prof. Subhash Chander which is the main basis of the argument of the State of Andhra Pradesh.

From the facts narrated in the earlier part of the discussion under the issue in question, it is evident that construction of Almatti Dam was conceived during the period of Nizam of Hyderabad. Ultimately, it was in 1970 that stage-III was conceived with FRL at 524.256 m. The drought prone areas of Bijapur, Gulbarga, Raichur etc. were intended to be served by storing the water at FRL 524.256 m. It is not something which has suddenly cropped up. So far as need part is concerned, it can hardly be denied that there is dire need of providing water for irrigation to the drought prone areas mentioned above. We have already adverted to this aspect of the matter in the

discussion made earlier. The drought prone area intended to be served is within the basin. The availability of water is also there. The previous Tribunal had also recommended that in case of availability of water, the demand of Karnataka for UKP may be favourably considered. Yet another important thing which deserves to be noted is that Karnataka has built up storage capacity up to FRL 524.256 m in Almatti Dam. It may store 100 TMC more. With all these things existing as indicated above, there is hardly any valid reason not to allow the State of Karnataka to go ahead with its project UKP-III. We have already discussed earlier that a co-riparian State will have no right to veto the project or water management of other co-riparian State unless, of course, there is some substantial and vital injury to such a co-riparian State.

Coming to the question of substantial injury or vital damage to co-riparian State, the main plank of the State of Andhra Pradesh is that with FRL at 519.6 m and particularly with 524.256 m, the inflows in Andhra Pradesh would dwindle to the extent that its downstream projects would badly suffer. We have already observed earlier that in what manner downstream project will suffer is not elaborated much

less such sufferance has been identified in the complaint. It is also not indicated as to which of the project would suffer, everything has been left vague with general comments. Some details of adverse affect are indicated in some other documents which we will consider in the following paragraphs.

We may now straightaway come to C-III-D-7. At page 111 of C-III-D-7, there is a Chapter with caption "Injury sustained by State of Andhra Pradesh in irrigation and power sectors due to increase in the height of Almatti Dam" and in the first paragraph, which deals with dwindling inflows, it is stated, "The State of Andhra Pradesh has been suffering due to dwindling inflows into Nagarjunasagar Dam and Prakasam Barrage consequent on the construction of Almatti Dam in the year 2000 by the State of Karnataka. The inflows at Jurala project, Srisaillam Dam, Nagarjunasagar Dam and Prakasam Barrage from the year 2000-01 to 2004-05 are tabulated and enclosed as Annexure-I." It will be of interest to see Annexure-I at page 116,

C-III-D-7, which we would like to reproduce as under:-

(ANNEXURE-I to C-III-D-7)

TABLE SHOWING INFLOWS IN TMC AFTER THE CONSTRUCTION OF ALMATTI DAM

Month	Jurala Project					Srisaïlam Project				
	2000-01	2001-02	2002-03	2003-04	2004-05	2000-01	2001-02	2002-03	2003-04	2004-05
June	22.93	4.936	1.9933	1.9971	6.30	22.71	3.30	4.47	1.32	9.97
July	130.908	46.429	3.2825	2.9266	5.54	123.12	22.91	2.64	4.84	4.44
August	74.072	117.182	94.2559	40.9341	320.68	93.3	99.26	107.13	42.70	346.15
September	101.431	91.537	15.3657	37.9166	53.78	116.46	143.15	5.89	39.13	62.45
October	129.145	177.749	41.142	21.2051	68.31	171.85	273.39	66.96	38.38	74.97
November	9.89	9.4354	6.3	4.4235	5.98	10.53	7.63	-1.51	0.75	7.55
December	6.721	7.6822	8.2588	7.0336	7.20	5.89	4.14	8.74	2.62	5.24
January	4.798	7.059	8.7874	5.6711	4.43	3.4	4.07	6.96	5.85	0.90
February	4.542	4.8353	2.4103	5.6745	3.71	3.64	-1.41	6.65	4.70	2.76
March	4.919	2.921	7.2458	3.8198	3.06	2.85	-13.02	8.03	4.90	-4.38
April	6.633	1.7365	4.0744	2.7413	2.33	4.6	-1.98	5.46	2.94	2.45
May	4.394	2.6828	3.1613	10.083	1.13	4.56	2.06	2.52	9.44	-1.26
	500.383	474.1852	196.2774	144.4263	482.45	562.91	543.5	223.94	157.57	511.24

Month	Nagarjunasagar Project					Prakasam Barrage				
	2000-01	2001-02	2002-03	2003-04	2004-05	2000-01	2001-02	2002-03	2003-04	2004-05
June	8.39	5.54	5.12	-0.17	-0.10	21.74	7.90	3.73	0.2	1.38
July	43.59	20.39	23.03	-0.25	-0.04	46.77	21.78	19.15	3.0	2.61
August	67.27	69.64	36.52	1.13	113.06	157.94	29.15	28.61	15.73	23.75
September	85.64	52.38	47.94	13.42	62.53	46.25	30.74	24.84	14.01	33.94
October	192.24	186.70	21.13	10.31	84.69	42.52	61.72	22.84	18.98	34.92
November	40.84	12.94	37.51	38.07	35.96	32.29	24.94	18.09	17.19	23.95
December	27.17	22.13	11.29	36.32	28.07	20.93	13.55	3.72	11.97	18.08
January	28.89	27.26	8.79	9.51	24.97	17.41	16.9	2.19	4.72	10.1
February	55.94	44.79	7.87	18.48	25.15	19.37	12.93	2.18	3.79	4.11
March	37.01	72.55	6.50	0.67	35.32	22.52	23.17	0.05	4.6	5.71
April	13.38	15.91	25.98	18.82	5.26	14.11	16.23	2.14	2.16	2
May	7.83	3.41	-0.43	3.11	13.95	4.72	2.85	1.91	4.06	5.81
	608.19	533.64	231.25	149.42	428.82	446.57	261.86	129.45	100.41	166.36

It indicates monthwise inflows into Jurala Project for the years from 2000-01 to 2004-05. Next, inflows into Srisaïlam Project, Nagarjunasagar Project and Prakasam Barrage have been indicated and lastly the total of the 12 months is indicated under each project for each year. The total inflows in Jurala in the year 2000-01 is shown as 500.383 TMC. Next year, i.e. 2001-02, it is 474.185 TMC. In the year 2002-03 and 2003-04, it dwindles down to 196.278 TMC, 144.425 TMC respectively. But again, there seems to be revival trend when in the year 2004-05 the total yearly inflow is shown as 482.450 TMC. Same trend is to be found in other projects as well e.g. the total inflow in Srisaïlam project for the year 2000-01 was 562.91 TMC, in 2001-02 it was 543.51 TMC, in the years 2002-03 and 2003-04 it dwindled down to 223.94 TMC and 157.57 TMC respectively. Again, we find there is recovery trend in the year 2004-05 when the inflows are shown as 511.24 TMC. Same trend is found in respect of Nagarjunasagar where again after dwindling flows in the years 2002-03 and 2003-04 there is a recovery trend, the inflows being 428.82 TMC in 2004-05. We do not think the figures relating to Prakasam Barrage would be of much relevance as it would be affected by upstream utilizations but the fact is that after the two dwindling lean

year of 2002-03 and 2003-04, there is again a recovery trend in 2004-05 where the inflows revived to 166.36 TMC from 100.41 TMC in the previous year.

It is to be noted that the years 2002-03 and 2003-04 have been acutely lean years when the yield was much too less and it had affected all the activities relating to storage and utilizations and functioning of the projects. Therefore, no exception can be taken if in these two years the inflows into the Andhra Pradesh projects dwindled. That is the position in respect of all the States. It cannot be attributed to the construction and operation of Almatti Dam. This conclusion is fortified by the fact that in all the projects, the inflows in the year 2004-05 had considerably increased. It may be mentioned here that the increasing trend continued and later there have been high inflows into the projects of Andhra Pradesh. Table Annexure-I to C-III-D-7, page 116 has been enlarged by adding relevant data of more number of years from the Statement-2 filed by the parties on the prescribed format.

It is prepared for the years from 1972-73 to 2007-08. This chart as prepared is reproduced below:-

Effect of raising of FRL of Almatti to 524.256 m on filling up of SSP and NSP after Commissioning of Almatti Dam (2000-01) and Reduction of inflow into SSP by 109 TMC

26.10.2010									(TMC)
Sl.No	Year	Srisailem Project(SSP)			Nagarjunasagar Project (NSP)			Reduced inflow into SSP due to reduction by 109 TMC	Remarks
		Gross storage 308.02 TMC			Gross storage 408.24 TMC			due to reduction by 109 TMC	
		Live storage 250.00 TMC			Live storage 202.47 TMC			with Almatti @ 524.256 m.	
		Inflow	Outflow =	Spills+	Inflow	Outflow =	spills +		
			use+spill	sluice		use+spills	sluice		
	See Note 1	Col.5	Col.17(c)	Col.15+16	Col.5	Col. 17(c)	Col.15+16	Col.(iii) - 109 TMC	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
1	1972-73				574	549	315		
2	1973-74				1513	1442	1182		
3	1974-75				1541	1533	1196		
4	1975-76				2657	2647	2331		
5	1976-77				1348	1326	1097		
6	1977-78				1262	1206	794		
7	1978-79				1985	1982	1530		
8	1979-80				1486	1479	914		
9	1980-81				1569	1587	1032		
10	1981-82				1786	1751	1094		
11	1982-83				1012	982	251		
12	1983-84				1695	1660	977		
13	1984-85	1024	961	582	943	953	196		
14	1985-86	677	645	275	646	613	1		
15	1986-87	628	651	209	673	660	0		
16	1987-88	544	506	34	558	542	0		
17	1988-89	1624	1611	1138	1531	1541	787		
18	1989-90	1033	1000	472	985	966	208		
19	1990-91	1488	1486	849	1422	1416	500		
20	1991-92	1639	1615	1010	1530	1522	672		
21	1992-93	947	927	385	924	887	56		
22	1993-94	1299	1313	688	1243	1252	238		
23	1994-95	2022	2000	1416	1886	1870	888		
24	1995-96	529	518	61	539	513	3		
25	1996-97	1191	1132	588	1070	1038	284		
26	1997-98	1208	1189	655	1088	1068	315		
27	1998-99	1887	1845	1372	1683	1681	849		

28	1999-00	974	1009	436	894	865	88		This Table is prepared on line of Ann 1 of C III D 7 Page 116.
1	2000-01	701	641	136	608	627	0	592	
2	2001-02	562	555	138	533	518	0	453	
3	2002-03	221	238	47	231	232	0	112	
4	2003-04	157	149	34	149	148	0	48	
5	2004-05	512	477	19	428	403	0	403	
6	2005-06	1867	1826	1084	1705	1608	906	1758	
7	2006-07	1745	1734	905	1524	1562	791	1636	
8	2007-08	1737	1705	756	1538	1480	661	1628	
Note: 1		Data of Col.(iii) to Col. (viii) are taken from C-III-D-33(A),C-III-D-112 and C-III-D-113							
2		AP has worked out the reduction of inflows to an extent of 121 TMC if FRL of almatti is at 519.6m and 230 TMC, if FRL is at 524.256m (Page 114 of C-III-D-7). Thus, net reduction of inflow into SSP comes to 230-121=109 TMC due to raising of FRL of Almatti to 524.256 m.							

It is to be noticed that after the year 2004-05, this chart shows the inflows into Srisailem Project to the extent of 1867 TMC. In 2006-07, it is 1745 TMC and in 2007-08 it is 1737 TMC. In Nagarjunasagar, the position is that in the year 2005-06, inflows are to the tune of 1705 TMC, 2006-07 to the extent of 1524 TMC and in the year 2007-08 it is 1538 TMC. The above fact demonstrates that construction of Almatti Dam and storage therein at FRL 519.6 m had no impact on the inflows to Andhra Pradesh; rather it is to be found that they are almost in tune with the inflows prior to the construction of Almatti Dam which fact is evident from Columns (iii) and (vi). The Srisailem Dam became operational later and the figures of inflows are available w.e.f. 1984-85 and it is to be found that the inflows in several years have been to the tune of more than 1000 TMC. Same

position is reflected in the last three years of the chart in respect of Nagarjunasagar project as well. We also notice that in many years, inflows had come down to near about 500 TMC or so. We, therefore, find that Annexure-I at page 116 of C-III-D-7 does not lead to the conclusion that by construction of Almatti Dam, inflows into Andhra Pradesh projects have dwindled. It is true if some water is stored and utilized upstream, it may have some impact but as demonstrated by the chart which is given above, it has made no material difference much less affecting allocated share of Andhra Pradesh.

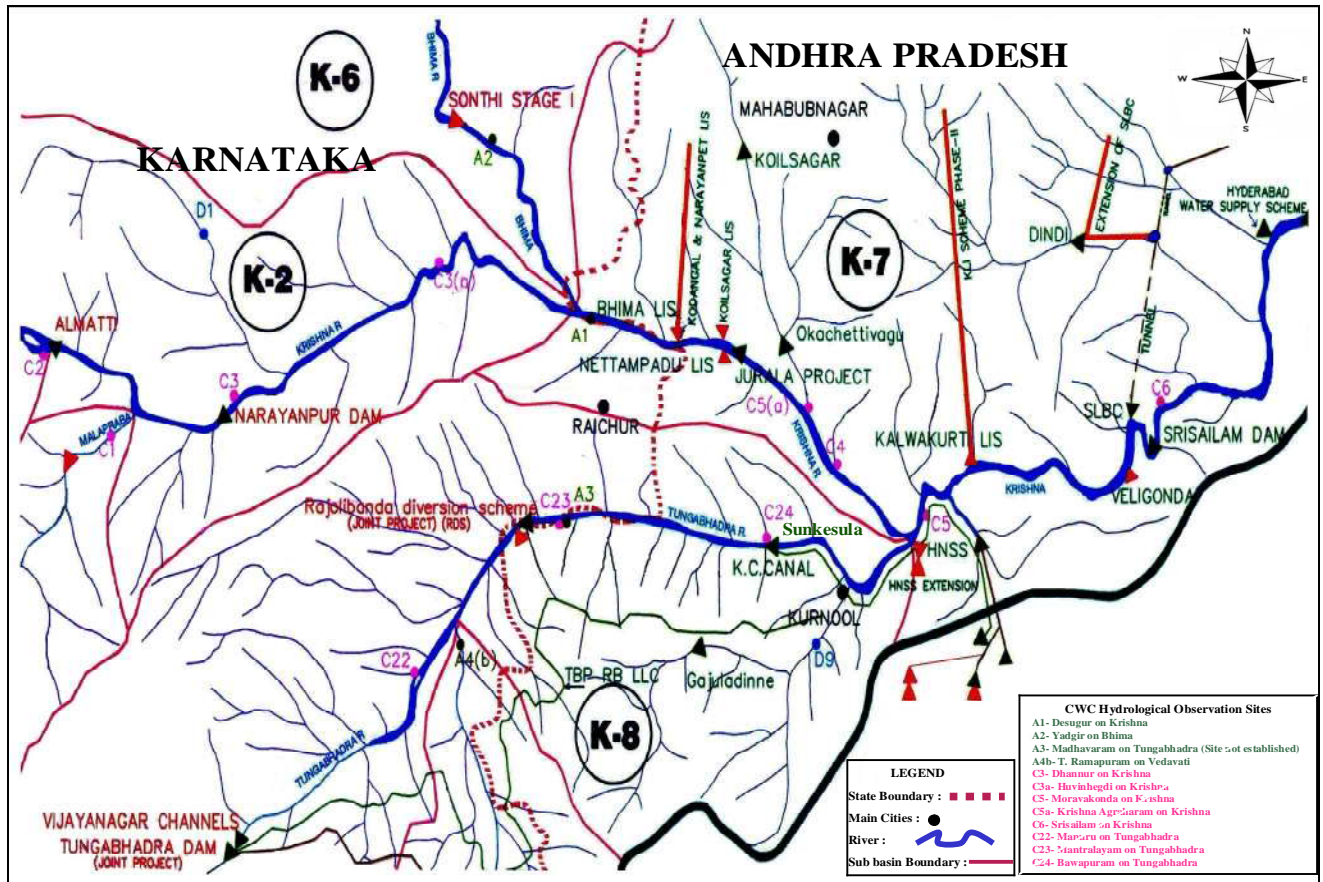
Then we find that the State of Andhra Pradesh, in support of its case that inflows into Andhra Pradesh stream would dwindle, has dealt with this matter at page 126 of C-III-D-7. Para 10.0 at page 132 sums up the result of the Study. According to the study, the inflows from Karnataka to Andhra Pradesh would be to the extent of 230 TMC in a dependable year with FRL 515.00 m utilizing 155 TMC and with utilization of 173 TMC with the same height of FRL, the inflow would be 215 TMC. It is then indicated in sub-para (c) of paragraph 10.0 that with FRL 519.6 m, the inflows from Karnataka would come down to 109.5 TMC and the reduction of inflows in that event would

be 121 TMC and with FRL 524.256 m inflow from Karnataka shall be nil. Thus, there will be a reduction of inflows to Andhra Pradesh, as worked out, to be 230 TMC. Annexure-III at page 148 of C-III-D-7 is referred to for the above conclusions. The chart, Annexure-III shows reduction of flows to Andhra Pradesh to the extent of 230.2 TMC with FRL 524.256 m. This is how calculations have been worked out by Andhra Pradesh. But factual position at the gauge site appears to be entirely different. It may also be worth mentioning that according to the witness of Andhra Pradesh Dr. M.S. Reddy, the reduction of inflows to Andhra Pradesh from Karnataka would be to the extent of 70 TMC with FRL 519.6 m considering the demand of 173 TMC (C-III-D-97 page 4). The State of Andhra Pradesh though is not accepting the studies of its own witness and according to C-III-D-7, as indicated above, loss of inflow to Andhra Pradesh would be to the extent of 121 TMC with FRL 519.60 m.

Therefore, without going into the merits of the findings of Dr. M.S. Reddy or the merits of the conclusion arrived at by Andhra Pradesh in C-III-D-7, page 132, we may consider these alleged reductions in inflows in the background of the discharge data at the

site maintained by Central Water Commission, at the border of Andhra Pradesh. For the purposes of finding out the inflows into Andhra Pradesh from the main stream of river Krishna, the relevant gauging sites would be A-2 Yadgir at river Bhima. It is the last gauging site maintained by Central Water Commission, before the confluence of river Bhima with river Krishna near the border of the State of Andhra Pradesh. The other site is C-3 but it appears that this site was maintained from 1968-69 to 1975-76. Thus, discharge data at that site is available for 8 years only. It is just below the Narayanpur Dam and above the point of confluence of river Krishna with Bhima. While closing the site C-3, a new site in its place was opened which is numbered as C-3(a) which is much below the Narayanpur Dam and the earlier site C-3 and quite near to the confluence point of river Krishna and Bhima. It appears that just below the confluence of two rivers Krishna and Bhima, there was a site A-I which seems to have been closed down much earlier and the data from 1965-66 to 1974-75 was available and again data is available from the year 1981-82 to 1984-85 i.e. for a period of four years. The site was closed down w.e.f. 1.12.1984 and a new site C-5(a) has been established. The new

site opened in place of A-I, i.e. C-5(a), is now the first operational gauging site of Central Water Commission in Andhra Pradesh after the river Krishna enters into Andhra Pradesh. So, presently, the gauging site C-5(a) would show the flows which have entered into Andhra Pradesh from the main stream of Krishna in Karnataka after its confluence with Bhima. The gauging site C-5(a) is below Jurala Project in Andhra Pradesh. Therefore, discharge data at C-5(a) plus utilization at Jurala project would indicate the amount of water which flowed down into the State of Andhra Pradesh from the main stream of river Krishna after confluence with Bhima. The discharge data of the site C-3(a) of river Krishna and at the site A-2 at the river Bhima would indicate their contribution separately to the river Krishna before their confluence. The two figures of C-3(a) and A-2 would approximately tally with discharge data figure at C-5(a) plus utilizations at Jurala. We place below a part of the map which has been prepared by the Tribunal showing the main stream tributaries and the gauging sites. This part of the map is reproduced on the next page (page 654) which would better clear the picture.



A chart of the discharge data at the gauging sites C-3 and C-3 (a) at river Krishna and A-2 at river Bhima and at discharge site A-1 at Deosugur on Krishna in Karnataka just at the border at the confluence site as well as discharge data at C-5(a) and the average utilization at Jurala has been prepared from the data as available from the water year books maintained by the Central Water Commission.

This chart is placed below:-

Inflow into Andhra Pradesh in Krishna and Bhima Rivers

TMC

Sl. No.	Water Year	Discharge Site at C-3, Dhannur on Krishna (Kar.)	Discharge at Site C-3(a), Huvinhedgi on Krishna (Kar)	Discharge at Site A-2, Yadgir on Bhima (Kar)	Discharge at Site A-1, Deosugur on Krishna (Kar)	Actual Utilisation From Jurala Project in A.P	Discharge at C-5(a) Krishna Agraharam on Krishna (A.P)	C-5 (a) + Jurala (Col.8 +Col.7)	
1	2	3	4	5	6	7	8	9	
1	1965-66			358.853	1376.249	Jurala Projects Actual Utilisation data available from 1998-99 (Commissioned in 1996)	Discharge Observation started on 30-08-1981		
2	1966-67			281.735	1073.342				
3	1967-68			524.536	1499.924				
4	1968-69	158.790		297.590	911.270				
5	1969-70	647.797		544.234	1437.994				
6	1970-71	1108.333		408.155	1339.156				
7	1971-72	688.895		323.350	1044.900				
8	1972-73	382.964		117.156	526.453				
9	1973-74	766.044		508.414	1439.223				
10	1974-75	711.699		416.960	1152.079				
11	1975-76	992.502		724.720	No Observation.				
12	1976-77	Site shifted to C-3 (a) Huvinhedgi from 01-06-1976.	789.393	460.170					
13	1977-78		581.516	307.595					
14	1978-79		766.946	424.144					
15	1979-80		765.377	458.488					
16	1980-81		840.526	302.435					
17	1981-82		837.665	466.543			1309.647	1358.769	1358.769
18	1982-83		614.759	153.160			853.592	696.618	696.618
19	1983-84		809.308	535.689			1389.211	1370.600	1370.600
20	1984-85		522.623	271.358			887.388	878.418	878.418
21	1985-86		401.740	139.387	Site closed from 1-12-1984 following opening of C-5 (a) Krishna Agraharam.		630.933	630.933	
22	1986-87		369.039	131.759			560.515	560.515	
23	1987-88		336.514	126.709			479.962	479.962	
24	1988-89		731.898	496.772			1311.836	1311.836	
25	1989-90		489.568	372.570			824.528	824.528	
26	1990-91		680.056	532.864			1268.929	1268.929	
27	1991-92		862.739	327.650			1234.285	1234.285	
28	1992-93		470.851	96.445			656.006	656.006	
29	1993-94		717.525	183.778			1068.871	1068.871	
30	1994-95		1139.924	373.524			1503.913	1503.913	
31	1995-96		352.935	100.965			508.638	508.638	

32	1996-97	482.293	295.372			911.826	911.826
33	1997-98	777.913	185.296			1108.388	1108.388
34	1998-99	584.282	746.977		13.694	1470.187	1483.881
35	1999-00	604.023	123.990		15.152	794.052	809.204
36	2000-01	284.425	135.079		17.009	487.308	504.317
37	2001-02	281.388	87.722		19.144	455.913	475.057
38	2002-03	164.567	31.102		17.162	226.721	243.883
39	2003-04	125.473	59.823		18.739	133.525	152.264
40	2004-05	364.271	96.631		26.940	496.913	523.853
41	2005-06	945.128	488.615		32.346	1640.828	1673.174
42	2006-07	946.399	501.151		22.079	1628.044	1650.123
43	2007-08	766.118	269.310		20.520	Site Downgrade d to Gauge Site	-
44	2008-09	408.379	167.251		NA		-
Total		19815.559	13956.026		202.785	23706.528	23909.313
Average		600.471	317.182		20.279	911.790	932.068

The Col.4 shows the discharge data at C-3(a) at river Krishna which site was started in 1976-77. The average discharge is 600.471 TMC up to the year 2008-09. The Col. 5 shows discharge data at site A-2 at river Bhima and the average flows from 1965-66 to 2008-09 come to 317.182 TMC. So, the total flow at the two sites put together, namely, A-2 plus C-3(a), comes to about 918 TMC. The Col. 7 shows the average utilization of Jurala Project as 20.279 TMC. The Col. 9 shows discharge at C-5(a) and by adding utilization at Jurala, the average comes to 932.033 TMC.

It is to be noticed that there are no projects between the gauging site C-3(a) and the border of the State of Karnataka nor upto C-5(a) except Jurala project in Andhra Pradesh. By way of confirmation, we find that the average figures of A-2 plus C-3(a) together come to 918 TMC which almost tallies with the discharge data at C-5(a) plus

utilization at Jurala which is 932 TMC. The minor difference of a few TMC is immaterial. It can rather be attributable to some small contribution by very minor streams in between these States.

There is thus no scope of any doubt that as per the discharge data maintained at different gauging sites by Central Water Commission, the inflows from main river Krishna into Andhra Pradesh after confluence of river Bhima, on an average is around 932 TMC. It is based on the observed data. For the sake of argument, even for a moment if reduction of flows to the extent of 230 TMC at Almatti with FRL 524.256 M is accepted and reduced from the average inflows of 932 TMC, still the available inflows into Andhra Pradesh would come to 702 TMC. It belies the case of Andhra Pradesh that with FRL 524.256 m at Almatti Dam, the inflows into Andhra Pradesh would reduce to nil.

So as to visualize the position of total availability of water to Andhra Pradesh, it may be seen that around 190 TMC flows down from Tungabhadra to Andhra Pradesh as is evident from the discharge data at Bawapuram gauging site (relevant chart attached earlier) and the generation of water within the State of Andhra Pradesh is

somewhere around 350 TMC to 400 TMC. Thus, the total availability of water in Andhra Pradesh comes to around 1300 TMC after reducing the flows by 230 TMC on an average as against its allocated share of 800 TMC.

From the facts and figures indicated above, it is clear that even with FRL 524.256 m at Almatti, in any case, more than 700 TMC would be flowing down to Andhra Pradesh from Karnataka, on the assumption of loss of water to Andhra Pradesh to the extent of 230 TMC, which fact is far from established. There may be some reduction in the inflows, undoubtedly, but it has no material impact on the inflows into Andhra Pradesh from upper riparian States. Raising of the height of FRL to 524.256 m does not cause any damage or injury whatsoever to the State of Andhra Pradesh. There is no question of any serious damage or vital injury to Andhra Pradesh by raising the FRL to 524.256 m. The injury in terms of money which is sought to be shown by means of APAD-16 and in the statement of Mr. Rama Murthy, that question would arise only if enough water was not available to Andhra Pradesh to realize its allocated share. It would, therefore, be needless to convert such alleged injury per TMC in terms of money. The data which has been used in the discussion held above

is observed discharge data on the sites maintained by Central Water Commission. Their own witness Mr. Subhash Chander has stated that observed data is truth. That being the position, we cannot ignore the truth.

We have already found that it was a longstanding planning since the times of Nizam of Hyderabad for constructing the dam to serve the drought prone areas of Bijapur, Gulbarga, Raichur etc. Even the Gazette Notification mentions so. The drought prone area requires water and it is within the basin, is not disputed. Therefore, need of the State of Karnataka is well-established. We also find that water is available for utilization in a project to cater to the need of the drought prone area. The KWDT-I also had observed that if more water is available, it may be allocated to Karnataka for meeting the requirement of UKP. So far as the storage for the required amount of water is concerned, it is already available with Karnataka in Almatti Dam at FRL 524.256 m. It is an undisputed fact that there is no other storage or reservoir in any of the three States to store water. It is readily available in Almatti Dam. It is also a fact not in dispute that over and above the allocation of 2060 TMC plus the return flows, there is still a large amount of water which is either utilized by

Andhra Pradesh under the liberty given by KWDT-I to use it without acquiring any right or claim over such water till the matter is reviewed. And whatever remains unutilized goes into the sea.

The water is becoming a very scarce commodity. It is to be conserved and utilized to the drop if possible. It cannot be allowed to flow into the sea unutilized. All efforts are made to provide more water as may be possible for beneficial uses. The trend is now also picking up to utilize water as far as possible even at a lower dependability and to some extent it has been adopted in the present case as well. These are compelling circumstances coupled with the fact that a higher FRL of 524.256 m is not causing any injury or damage much less substantial or vital damage to the upper or the lower riparian States. There cannot be any other possibility but to allow the State of Karnataka to raise the height of FRL to 524.256 m. The hurdle of submergence raised by Maharashtra and that of nil inflows into Andhra Pradesh by raising the FRL to 524.256 m, are not substantiated much less established. Therefore, such grounds of the upper and lower riparian States, if allowed, would act as veto to topple the project UKP-III, which is to serve the needy drought prone areas in Karnataka lying within the basin of river Krishna. It is a

longstanding need which must be attended to, especially in the facts established and the circumstances indicated above. We, therefore, find that there is no reason to hold that Karnataka cannot operate Almatti Dam with FRL 524.256 m.

There may be some minor problems here and there about delayed supply of water to Andhra Pradesh which may affect to some extent kharif crop in the upper reaches of Andhra Pradesh. Such minor things may be sorted out by providing some regulated releases during the months of June and July. The details of the kharif crop which is affected by the delayed inflows from Krishna have not been given. We find that after river Krishna enters into Andhra Pradesh, there is only one project in the upper reaches, namely, Jurala Project. Its total allocation is around 35 TMC. For the early period of the crop, some amount of water, say 8 to 10 TMC, as per needs as may be assessed by the Authority, may be released by Karnataka to Andhra Pradesh in the months of June and July. This may tie over the problem, if any, about late availability of water for crops in upper reaches of Andhra Pradesh due to FRL at 524.256 m at Almatti. So far as the availability of water lower down the stream is concerned, we find Srisailem Dam and Nagarjunasagar Dam have carry-over

capacity jointly to the extent of 150 TMC. The water of carry-over storage can well be utilized in times of need in case there is delayed inflow of water. We hasten to add that we are not holding that there is any such delay but only to meet out such eventuality that we observe that carry-over storage may be used, which we have already seen is not properly utilized and there have been several instances where the water has been drawn from Nagarjunasagar Dam and Srisailem Dam from below the MDDL, in huge quantities, even after the State of Andhra Pradesh had achieved its allocated share of 800 TMC. Therefore, judicious utilization of the carry-over storages will take care, in case of any possibility of some delayed availability of water for whatever reason.

REPORT/ DECISION

In view of the discussion held above, we decide the issue in affirmative to the extent that State of Karnataka is entitled to storage of water up to the level of 524.256 m in Almatti Reservoir and in negative to the extent that height of Almatti Dam may be restricted at 515 m as claimed by Andhra Pradesh or 512 m as claimed by Maharashtra.

KRISHNA WATER DISPUTES TRIBUNAL

THE REPORT

OF

THE KRISHNA WATER DISPUTES TRIBUNAL

WITH THE DECISION

IN THE MATTER OF WATER DISPUTES REGARDING THE
INTER- STATE RIVER KRISHNA AND THE RIVER VALLEY
THEREOF



REPORT/ DECISION
BETWEEN

1. The State of Maharashtra
2. The State of Karnataka
3. The State of Andhra Pradesh

VOLUME IV
(Pages 663 – 811)

NEW DELHI

2010

COMPOSITION OF
THE KRISHNA WATER DISPUTES TRIBUNAL

CHAIRMAN

Shri Justice Brijesh Kumar,
(Former Judge, Supreme Court of India)



MEMBERS

Shri Justice S.P.Srivastava,
(Former Judge, Allahabad High Court, Uttar Pradesh)

Shri Justice D. K. Seth,
(Former Judge, Calcutta High Court, Kolkata)

ASSESSORS;

1. Shri R.S. Prasad
(Former Chairman C.W.C.).
5. Shri Suresh Chandra
(Former Chairman C.W.C.)

Representatives of the State Governments before
the Krishna Water Disputes Tribunal

1. For the State of Karnataka

Advocates

Shri F.S. Nariman, Sr.Advocate
Shri Anil B. Divan, Sr.Advocate
Shri S.S.Javali, Sr.Advocate
Shri Uday Holla, Advocate General
Shri Ashok Harnahalli, Advocate General
Shri Basava Prabhu S. Patil, Advocate
Shri Mohan V. Katarki, Advocate
Shri Brijesh Kalappa, Advocate on record
Shri R.S. Ravi, Advocate
Shri S.C.Sharma, Advocate
Shri R.S.Pappu, Advocate
Shri Ranvir Singh, Advocate
Shri Gurudatt Ankolekar, Advocate

Assisted by the following officials and consultants
as informed by Shri Brijesh Kalappa, Advocate on
Record through his letter dated 20.12.2010 (received on
21.12.2010):

Shri A.K.M.Nayak, Principal Secy., Water Resources Deptt.
Shri L.V.Nagarajan, Principal Secy., Water Resources Deptt.

Shri D.Satyamurthy, Principal Secy., Water Resources Deptt.
Shri K.G.V.Murthy, Addl.Secy., Law Deptt.
Shri N. Vijayaraghavan, Chief Engineer (Inter-state Waters), WRDO
Shri M.Bangaraswamy, Chief Engineer (Inter-state Waters), DRDO
Shri D.N.Desai, Principal Advisor
Shri Sriramaiah, Technical Advisor
Shri T.S.Narayana Swamy, Dy. Advisor
Shri H.Seshadri, Dy. Advisor
Shri B.R.Vijaya Kumar, Superintending Engineer (ISW)
Shri A.B.G.Hiremath, Asstt.Executive Engineer
Shri K.Vijaya Kumar, Asstt.Executive Engineer
Smt.M. Shamala Devi, Asstt.Executive Engineer

2. For the State of Maharashtra

Advocates

Shri T.R.Andhyarujina, Sr.Advocate
Shri U.U.Lalit, Sr.Advocate
Shri D.M.Nargolkar, Advocate on record
Shri Ashish Chugh, Advocate
Shri Shoumik Ghosal, Advocate

Assisted by the following officials and consultants as
informed by Shri Deepak M. Nargolkar, Advocate on
Record through his letter dated 23.12.2010:

Shri V.V. Gaikwad, Secretary, Water Resources Department
Shsri E.B. Patil, Secretary, Water Resources Department

Shri H.K. Tonpe, Chief Engineer & Joint Secretary
Shri N.L. Gawale, Chief Engineer & Joint Secretary
Shri A.R. Kore, Chief Engineer & Joint Secretary
Shri S.K. Ghanekar, Superintending Engineer
Shri S.V. Awati, Executive Engineer
Shri K.G. Devali, Executive Engineer
Shri D.G. Mogane, Executive Engineer
Shri S.G. Joshi, Executive Engineer
Shri C.N. Hangekar, Executive Engineer
Late Shri S.T. Deokule, Advisor and Consultant
Shri S.N. Huddar, Advisor and Consultant
Shri K.S. Shankar Rao, Advisor and Consultant

3. For the State of Andhra Pradesh

Shri Dipankar P. Gupta, Sr. Advocate
Shri D. Sudershan Reddy, Sr. Advocate
Shri Rakesh Dwivedi, Sr. Advocate
Shri G. Veera Reddy, Advocate
Shri E. Raveendra Rao, Advocate
Shri M.R.S. Srinivas, Advocate
Shri T.N. Rao, Advocate on record
Shri S. Santosh Kumar, Advocate
Shri M. Ramulu Reddy, Advocate
Ms. Preetika Dwivedi, Advocate
Shri Anant Prakash, Advocate

Assisted by the following officials and consultants
as informed by Shri T.N. Rao, Advocate on Record
through his letter dated 22.12.2010:

Shri S.K.Joshi, IAS, Principal Secy. to Govt., I & CAD Deptt.
Dr.P. Rama Raju, Ph.D, Chief Engineer, Inter State & Water Resources
Dr. M.S.Reddy, Principal Advisor to Govt.
Shri N.Gopal Reddy, Chairman, Technical Advisory Committee
Shri B.P.Venkateswarlu, Member Technical Advisory Committee
Shri K.V.Ram Mohan, Member, Technical Advisory Committee
Prof. Subhash Chander, Sr.Consultant
Shri V.V.S. Rama Murthy, Consultant
Shri M.A.Raoof, Supdtg. Engineer, IS&WR
Shri M.Visveswra Rao, Ex. Engineer (Hydrology)
Shri P. Rama Krishna Murthy, Dy.Director (Krishna)
Shri N.Satyanarayana, Dy.Director (Krishna Tribunal)
Shri C.R.K. Reddy, Ex.Engineer (New Delhi)

I N D E X

(Important Issues and Points)

<u>Sl.No</u> :	<u>Particulars</u>	<u>Page</u> <u>No.</u>
1.	Introduction	1
2.	History of the case – Decision and Findings of the previous Tribunal	6
3.	Review Proceedings – References and Clarifications	69
4.	Proceedings before the Supreme Court in the original suits	107
5.	Complaints of the States in the present Proceedings and Preliminaries of the present Proceedings and the Issues	136
6.	Co-operation amongst riparian States – An essential element	160
7.	Question Re.- The Proviso to Section 4(1) of the Act against reopening of the settled disputes	169
8.	Question raised relating to implications arising from Section 6(1) of the Act	205
9.	Findings on the Issues	211
10.	Availability of Flows & availability of Water – Exercises before this Tribunal	214
11.	Series of 47 Water Years 1961-62 to 2007-08	260
12.	Percentage factor of Dependability	305
13.	Inevitable Wastage	331

14.	Success Rate	390
15.	Re. – Scheme-B – Issue No. 5	434
16.	Diversion Outsides the Basin – Issue No. 6	473
17.	Tungabhadra sub-basin and related disputes	488
17(a)	Projects of Karnataka – Upper Tunga Singatlur, Upper Bhadra and others – Issue No. 27	515
17(b)	Control of Head Regulator and Canal system of Left and Right Sides of Tungabhadra Dam – Issue No. 21(A)	549
17(c)	Mini Hydel Project – Issue No. 22A	561
17(d)	Administrative control over Rajolibunda Diversion Scheme – Issue No. 22	572
17(e)	Parallel High Level Canal – Issue No. 24	581
18.	Height of Almatti Dam – Issue No. 14	597
18(a)	Conditions – If violated by Karnataka in raising the height of Almatti Dam – Issue No. 15	663
19.	Supply of Drinking Water for Chennai City	705
20.	Minimum in-stream flow and flow required for environment and ecology	723
21.	Distribution and apportionment of available waters	743
22.	Machinery for implementation of the Decision of Tribunal – Issue No. 21	792
23.	Decision and Order of the Tribunal	800

A P P E N D I X

Particulars

Pages

Appendix-I	Krishna Waters Decision – Implementation Board	1- 23
Appendix-II	The Map of the Krishna Basin	24



We now consider the question raised by the State of Andhra Pradesh regarding fulfillment of conditions by the State of Karnataka while raising the height of Almatti Dam. An issue has been framed on this point which is as follows:-

Issue No.15:-

“Whether State of Karnataka had violated the conditions required for raising the height of Almatti Dam? If so, to what effect?”

The grievance against raising of the height of Almatti Dam to 519.60 m was on account of apprehension of Maharashtra that there would be submergence of the territory of Maharashtra and Andhra Pradesh apprehended that on construction of oversize canal and with raised height of Almatti Dam, more water than their allocation shall be utilized by the State of Karnataka to the detriment of the State of Andhra Pradesh.

The project in question is known as Upper Krishna Project Stage-II Multipurpose Project. The Central Water Commission prepared a note for consideration of Technical Advisory Committee of

Ministry of Irrigation, Flood Control And Multipurpose Projects. The matter was considered by the Committee on 31.5.2000 in which the representatives of Andhra Pradesh and Maharashtra pointed out their objections. Ultimately, the project was accepted by the Advisory Committee subject to the following conditions which are enumerated below:-

- (i) Clearance of forest, environment and R & R plan from the respective Central Ministries.
- (ii) The FRL will be restricted to 519.60 m and there would be no physical capacity to store more water above 519.60 m.
- (iii) The operation of the project would be such that there will not be any submergence in territory of Maharashtra.
- (iv) Canal capacity would be restricted to water requirements as per the demand table and considering 10% extra for rush irrigation and the design FSL should ensure irrigation in the command under Stage-II.
- (v) The utilization shall not exceed 173 TMC under Stage-I and II of Upper Krishna Project.

- (vi) Finalization of cost estimate of the project with FRL 519.60 m and firming of the other economic parameters of the project.

(CIII-2B page 456/457 – CII-3C page 120)

It appears that environmental clearance was accorded to Upper Krishna Project Stage-II which was communicated to the State of Karnataka by letter dated 4.10.2000 from Govt. of India, Ministry of Environment & Forests. While according clearance, strict compliance of terms and conditions was provided for in Part-A of the letter – specific conditions. Under condition No.(ii), it was required that dam break analysis and disaster management plan should be submitted within six months and condition No.(iv) required to undertake soil loss study in the streams flowing to the reservoirs and reservoir sedimentation survey at an interval of five years. Amongst other things, it was also provided that such studies for selected storm events may be done routinely every year and the first reservoir sedimentation survey may be conducted within a year to provide benchmark information followed by two surveys during the next ten years. There are some other general conditions in Part-B. (CII-3C page 131).

The Planning Commission vide its letter dated 13.12.2000 addressed to the Secretary, Planning Department, Govt. of Karnataka, conveyed that Upper Krishna Project Stage-II was considered acceptable for investment in the State Plan of Karnataka subject to the conditions indicated in the letter. The condition No.2 required compliance to the conditions as stipulated in the Ministry of Environment and Forests' letter dated 4.10.2000. This condition No.2 said in the end "Failure to non-fulfillment of the conditions will automatically lead to cancellation of the clearance." It also said that there should be no submergence in the territory of Maharashtra and the FRL shall be restricted to 519.6 m and further that utilization shall not exceed 173 TMC. The condition No.6 mentions about the letter of the Managing Director, KBJNL, it is quoted below:-

“(6) As certified vide letter No.MD/DBJNL/Planning/2000 dated 4.12.2000 from the Managing Director, KBJNL and as recommended by the Central Water Commission vide their letter No.11/3/2000-PA(S)/1378 dated 5.12.2000, no forest land is to be required or used for implementation of this project including the construction of the dam, thereby not requiring “Forest Clearance” and

no tribal population is to be displaced due to this project; besides the details of R&R have been gone into by the Ministry of Environment & Forests while according environmental clearance.”

(CII-3C page 127).

On behalf of the State of Maharashtra, it is submitted that Karnataka failed to comply with conditions subject to which sanction and clearance was given to Karnataka to raise the height of Almatti Dam to 519.6 m. Mr. Deepanker Gupta, learned Senior Counsel of the State of Andhra Pradesh, refers to the notes of his arguments, APAD-16, at page 31, where violations of the conditions imposed by TAC of the Planning Commission and the environmental clearance are said to have been violated. The six conditions as imposed have been reproduced at page 31 of APAD-16 and it is noted that out of the said six conditions, Karnataka violated condition Nos.(ii), (iv) and (v). However, during the course of arguments on 11.5.2009, the learned Senior Counsel pressed about violation of condition Nos.(ii) and (v) leaving out condition No.(iv). It is submitted that Karnataka has exceeded the utilization beyond 173 TMC against the specific condition put by the authorities. It is further submitted that dam break

analysis was to be furnished by the State of Karnataka within six months on 4.3.2001 but it was not submitted within time but much later sometime in Feb., 2002. It may also be pointed out that the learned Counsel for the State of Andhra Pradesh while continuing his argument on the next day, i.e. 12.5.2009, submitted that objection regarding violation of condition No.(iv), which was withdrawn the previous day, is not withdrawn and the objection (iv) remains.

He also objected to the dam break analysis having been undertaken by Central Water Commission. According to the findings of the dam break analysis, there was no apprehension of inundation in the downstream area beyond the banks of the river. The dam break analysis has also been attacked on merits. It is also submitted that, admittedly, no survey regarding sedimentation was carried out in the first year of the filling of the reservoir nor twice in next ten years as required. It is also submitted that the clearance and permission was accorded on certain conditions. It is also submitted that while according clearance and the approval, the authorities were influenced by the order of the Supreme Court passed in April, 2000. Ultimately, it is submitted that due to non-compliance of the conditions, the clearance is rendered *nonest* as under the conditions it was provided

that non-compliance may automatically lead to cancellation of the clearance.

The State of Karnataka submitted that dam break analysis, as required under the conditions, was got done by the Central Water Commission. Since the report was received sometime in Feb., 2002, it was promptly submitted to the Ministry. It is further submitted that mere technicality of lapse of time of six months within which time dam break analysis was to be submitted, cannot lead to the consequence that the report loses to have any value as canvassed on behalf of the State of Andhra Pradesh. The delay occurred by a few months only, since it was received late. It is further submitted that the dam break analysis was got done through an independent and reliable agency. Hence, there should be no reason to raise any grievance or doubt on that account. We also find that some effort has been made on behalf of the State of Andhra Pradesh to question the correctness of the report but we do not think it would be a matter to be examined on merits by this Tribunal. It has been indicated earlier also that according to the dam break analysis report, there was to be no inundation in the downstream area beyond the banks of the river. It shall be confined within the banks.

It is then submitted that disaster management plan was also not submitted by the State of Karnataka which is a statutory requirement under Rule 5(iii)(a) of the Environment Protection Rules, 1986.

The State of Karnataka in its reply to the complaint of Andhra Pradesh, CIII-2, in paragraph 3.14 at page 18, denied that the condition as stipulated in letter dated 4.10.2000 regarding dam break analysis has not been fulfilled. It is also indicated that as per dam break analysis report there being no prospect of inundation, the disaster management plan was not insisted upon by the Ministry of Environment & Forests nor any further or adverse comments by Ministry of Environment & Forests were received on the half-yearly monitoring report submitted by Karnataka on 24.11.2004 regarding requirement of compliance with dam break analysis and disaster management plan. It was communicated to the Ministry of Environment & Forests as quoted at page 19 of CIII-2 as under:-

“The dam break analysis of Almatti and Narayanpur Dam has been carried out by Central Water Commission, and the report is made available by Central Water Commission vide letter No.CWC/DPAG/FE&SA/21/2001/165 dated 15.2.2002.

According to the report, there is no inundation in the downstream area beyond the banks of the river. The inundation would be only beyond the normal course of the river and confined within the banks.”

The submission on behalf of Karnataka is that in the above circumstances, when no inundation was to take place according to the dam break analysis, no question of the next step of preparing disaster management plan arose.

It appears that on a few occasions, Karnataka did exceed the utilization beyond 173 TMC against the condition subject to which approval was granted to raise the FRL to 519.6 m. It is also there that Karnataka had not made any survey about sedimentation in the first year nor in the next ten years which was required to be conducted twice during the next ten years period. The fact is that sedimentation survey has been got done only in 2008/2009 after the orders were passed by this Tribunal for sedimentation survey. It is also true that no significant sedimentation has been found as per report of the survey finally submitted in December, 2009. This fact has been

mentioned only to indicate about the position as found existing, regarding sedimentation, presently.

So far as the argument which has been advanced on behalf of State of Andhra Pradesh that in view of violation of conditions in the letter dated 4.10.2000, the clearance would automatically stand cancelled, in reply to the said contention, it is submitted that there is no such provision for automatic cancellation of clearance, rather the letter dated 4.10.2000 provided that non-fulfillment of the conditions will automatically only lead to cancellation of the clearance. Prima facie, the submission does not appear to be without any force that there is a difference between two expressions, namely, “- - -will automatically lead to cancellation” which cannot be equated with ‘automatic cancellation’ of the clearance. The expression “automatically lead to cancellation” only means that there can be suo motu move, without intervention of anything else which may lead to cancellation of clearance. The cancellation is not automatic. The expression used in condition No.2 does not mean that the clearance would automatically stand cancelled. The non-fulfillment of any condition by itself is enough to proceed suo motu in the matter which may ultimately result in cancellation of clearance. The expression of

condition No.2 is not that non-fulfillment of a condition will lead to 'automatic cancellation of clearance'. The 'automatic' is only the move which may lead to cancellation. The use of words 'lead to' between the words 'automatic' and 'cancellation' leaves a gap in between 'automatic – cancellation'. Some distance remains to be traversed before actual cancellation takes place. It may, if nothing else, at least require passing of an order of cancellation.

We find that it is nobody's case that the clearance has been cancelled so far. We are also not aware as to whether authorities had ever considered about cancellation of the clearance on the grounds pointed out by the State of Andhra Pradesh and in the light of the denial made by the State of Karnataka.

But, in our opinion, all this now goes in the background since the concerned authorities under the Statutes or otherwise, as may be provided, may have to consider the matter afresh in the light of the fact that FRL of Almatti Dam has been allowed at 524.256 m by this Tribunal under Issue No.14.

The reasons for allowing the FRL at 524.256 m have already been indicated in the discussion held under Issue No.14. But it does

not dispense with the statutory requirements under different Statutes or otherwise laid down for the purposes of technical clearance of a project. It will not serve any purpose to keep on harping any more on the question of clearance at FRL 519.60 m. It is now to be considered at FRL 524.256 m. It will be a fresh consideration. On being approached by the State of Karnataka for clearance of Almatti Project with FRL 524.256 m, the concerned authorities under different Statutes or otherwise, as may be required, would no doubt, expeditiously consider the same, more particularly since interest of the people of the basin and utilization of more water and less wastage is involved. All that we have found under Issue No.14 is that there is need of additional water to the State of Karnataka for its project UKP Stage-III and that a storage is also readily available for the purpose in the Almatti Dam and that the required amount of water is also available without any injury being caused to the upper or the lower riparian States. Let fresh consideration of clearance take place by the Authorities, on being moved by the State of Karnataka.

The issue thus stands disposed of in the manner indicated above.

Issue No.10:

“Whether, it is lawful for the State of Karnataka to construct dams or barrages or weirs which may or likely to submerge the territories of Maharashtra without its consent?”

This issue has been framed as a general proposition without particularly mentioning about any project or construction of dams, barrages or weirs. It all depends upon the given facts and circumstances of each project which is to be considered on its own facts. So far as a particular project is concerned, this question was involved in Issue No.14 which related to UKP State-III for raising the FRL of Almatti Dam to 524.256 m. After considering the facts and circumstances, it has been held that the State of Karnataka could go ahead with FRL 524.256 m at Almatti Dam. It has been held that no submergence was likely to take place in the State of Maharashtra on the basis of the report of the hydrographic survey conducted about actual sedimentation in Hippargi Barrage and Almatti Dam.

The question of consent has also been dealt with while deciding Issue No.14. No such question would, however, arise where no vital

interest or substantial legal injury is involved to the upper or the lower riparian State. Depending upon the facts, the injury, if at all, may sometimes be such that it may not be possible to compensate or which may outweigh the benefit which may occur on construction of the project, that is to say, where there may be more harm than the benefit by constructing the project, it may then be a different question. In other cases the situation may be vice versa. So, the factual position will be important in each case.

This issue thus stands disposed of in view of the discussion and the manner indicated above.

Issue No.11:

“Whether, the construction of Almatti Dam 2. Hippargi Barrange and 3. Bhima Barrage has caused or is likely to cause submergence of the territory of Maharashtra? If so, what orders or directions should be made therefor?”

In so far as this issue is concerned, it virtually stands disposed of in view of the discussion held and findings recorded in Issue No.14. It may, however, be mentioned that no submissions have been advanced in respect of Bhima

Barrage. The Tribunal had therefore, considered only about the height of Almatti Dam and Hippargi Barrage as pressed by the States of Maharashtra and Andhra Pradesh.

The issue stands disposed with findings on Issue No.14 that no submergence is going to take place in the territory of Maharashtra.

Issue No.12:

“Whether, the State of Andhra Pradesh is entitled to use the surplus waters of River Krishna by way of permanent construction of large-scale projects and reservoirs?”

As a matter of fact, to a great extent, this issue loses its relevance. The controversy relating to large and permanent projects had arisen in the background of the fact that KWDT-I had given permission to the State of Andhra Pradesh to use the surplus water, temporarily, as may be flowing down from the upstream of River Krishna to Andhra Pradesh. Otherwise, all such water would have gone waste to the sea. The Tribunal had framed Scheme-B providing for utilization of all the water including surplus in some given proportion with a provision for sharing of deficit also. The Scheme-B

could not materialize. The materially changed situation permitted review of the apportionment of the waters of River Krishna. The temporary utilization of surplus water by Andhra Pradesh, permitted by KWDT-I was not to continue for ever. This question has been considered in the earlier part of the report also holding that no right in the surplus water vested in Andhra Pradesh by virtue of permission given by KWDT-I to temporarily utilize surplus flows. Now, by this decision, the surplus flows are also being distributed. That being the position, it is now open to Andhra Pradesh and to any other State to have large-scale project of permanent nature as well, for utilization of that part of the surplus flows, if any, which may now fall in the share of Andhra Pradesh and the other States.

No such restriction now operates for utilizing that part of the surplus flows, allocated by this Tribunal to any particular State, by means of having permanent and large-scale projects.

The issue thus stands finally disposed of in the manner indicated above.

Issue No.13:

“Whether, contentions against the storages in Almatti Dam up to RL 519.6 m are barred by constructive res judicata or res judicata?”

We find that in view of the findings recorded and answer given to Issue No.14, allowing FRL of Almatti Dam at 524.256 m, this issue which relates to the height of FRL at 519.6 m, is rendered infructuous. It would be only a futile exercise to consider the question relating to FRL at 519.6 m. The FRL at 519.6 m is inherently included in the height of FRL at 524.256 m.

The futile exercises need not be undertaken. The issue stands disposed of in the light of the above observations.

Issue No.8:

“Whether on augmentation of water in river Krishna by diversion from any other river would entitle the contesting States to claim greater share in augmented water?”

The shares which stand allocated at present are based on the total availability of water in the river Krishna. It is very obvious that in case more water becomes available resulting in augmentation in the

yield of river Krishna by reason of the fact that waters from any other river is diverted to river Krishna, it would result in availability of more water in river Krishna. If more water is available, it is to be put to use for beneficial purposes. In such a situation, it would be open to any of the riparian State or for that matter the contesting States, as in this case, to claim share in the augmented water. On distribution of the augmented water, shares of the States as presently stand would also increase. It may also be pointed out that any State would be entitled to claim greater share in the augmented water but how much out of the augmented water is to be allocated may have to be considered by the concerned authority and allocation in the augmented water may be made accordingly.

In connection with the above matter, we find that there is a clear provision in the final order passed by KWDT-I. The relevant clause is clause (XIV)(B) at page 101 of the final order. It is quoted below:-

“Clause (XIV)(B) :- In the event of augmentation of the waters of the river Krishna by the diversion of the waters of any other river, no State shall be debarred from claiming before any

authority or Tribunal even before the 31st May, 2000 that it is entitled to greater share in the waters of the river Krishna on account of such augmentation nor shall any State be debarred from disputing such claim.”

The above provision made in the final order of KWDT-I makes is more than clear that in case of diversion of water from any other river to river Krishna, all the riparian States or the contesting States can extend a claim for a greater share on account of augmentation of the waters in the river Krishna.

REPORT/ DECISION

It may only be noted here that as it regards to the proposed diversion of 80 TMC of Godavari waters from Polavaram Project, there is already an agreement amongst the States that 45 TMC shall go to Andhra Pradesh, 21 TMC to Karnataka and 14 TMC to the State of Maharashtra (MHAD-3).

In the result, the issue is answered in affirmative.

Issue No.9:

“Whether the State of Maharashtra should be permitted to transfer any portion of Krishna water to Godavari basin?”

The State of Maharashtra wanted to divert some water of river Krishna to Godavari basin. It is true that as a general proposition there is no such prohibition for diversion of water outside the basin nor it would be illegal. But, at the same time, it has to be seen that the in-basin requirements are not overlooked. The in-basin requirements are to be met first unless there is any such acute and emergent requirement which otherwise cannot be managed except by diversion outside the basin. One of the factors which is to be considered in such cases is that there is no other alternate source or possibility to meet the requirement of outside basin need.

One of the most important factors is the nature of the need for which water is sought to be diverted outside the basin. In the present case, we find that the State of Maharashtra requires 4 TMC for L.I. Scheme of Godavari in G-4 Sub-basin. The purpose is for irrigation and the crop pattern, which has been shown amongst other items, includes sugarcane, grapes, chikoo, vegetables, wheat and gram etc. (CII-D-10 page 191).

The other requirement for Godavari basin is also for 4 TMC for L.I. Scheme for transfer to Godavari basin (G-2). It is also for the purposes of irrigation and the same pattern of crop, namely,

sugarcane, grapes chikkoo, chillies, turmeric, pulses, wheat and vegetable etc. has been indicated (CII-D-10 page 197).

We do not find any justifiable reasons, as may have been established for diverting the water of river Krishna to Godavari basin. For the purposes of irrigation and the crop, which includes items like sugarcane, grape, chikkoo, vegetables etc. along with wheat and pulses.

The issue is, therefore, answered in negative.

Issue No.25:

“Which of the projects or works of the riparian States need to be protected or permitted based on their utilization as per clause XIV(A) of the final order or otherwise and whether the unutilized allocated water of riparian States be equitably distributed amongst the riparian States by following the principles of equitable distribution?”

In the earlier part of this report, we have already made it clear that the allocations made by KWDT-I on the basis of 75% dependability are maintained. No project or allocation to any project or basin, as the case may be, has been disturbed and the position as

under the decision of KWDT-I is maintained. So far as the utilization part is concerned, in that connection also it has been found that all the States have almost achieved utilization of their allocations in the recent years.

The water series of 47 years, which has been prepared by the Tribunal which is Chart No.5 to this report, shows that the State of Maharashtra had utilized 563.59 TMC in the year 2005-06. Thus, it is clear that it has achieved capability of utilizing its full allocated share. In the subsequent two years, the utilization has been 551.65 TMC and 527.7 TMC respectively. The State of Karnataka had utilized 695.97 TMC in the year 2006-07. It is also very close to the allocated quantity of its share. So far as the State of Andhra Pradesh is concerned, its utilization has been over 1000 TMC. In this scenario, it cannot be said that any significant amount of water on account of unutilized share would be available for equitable distribution amongst all the riparian States. This is the factual state of affairs, prevailing as of now.

On behalf of the State of Andhra Pradesh, an effort had been made to canvass before us that utilizations as on 31.5.2000 should

stand freezed and whatever amount of water may be available as unutilized share allocated to any State that may be distributed amongst all the three riparian States. The basis of this argument was that as per clause XIV(A), the decision of KWDT-I could be reviewed after that date, namely, May 31, 2000, and it was further provided that review or revision which may take place after May 31, 2000 shall not as far as possible disturb utilization that may have been undertaken by any State within the limits of its allocation. By no stretch of imagination this provision would lead to the conclusion that unutilized part of the allocated water would revert back to the kitty for distribution to all the States after May 31, 2000.

The decision of KWDT-I was made reviewable but review was not mandatory. All that the provision said was that the decision of KWDT-I might be reviewed or revised after May 31, 2000, that is to say, it might be reviewed or revised or may be there was no review or revision, at all. It nowhere provided that whatever was done or not done stood freezed or that it was mandatory to review or revise the order. It is also not deducible from clause XIV of the final order that if capability of utilizing full amount of share of a State is not attained by May 31, 2000, that capability could not be achieved after that date,

namely, May 31, 2000. It was not a cut off date. To take an example, in case there was a project under construction and near completion as on May 31, 2000, but that project could not be completed before May 31, 2000 then it must be abandoned because unutilized part of the water could not be utilized after May 31, 2000 in that project and must be distributed, if the argument of the State of Andhra Pradesh is to be considered. We, therefore, find that the contention raised on behalf of the State of Andhra Pradesh is not tenable.

As a matter of fact, the position stands clarified by the decision of KWDT-I itself. In this connection, we may refer to clause VIII(B) of the final order of KWDT-I. The relevant clause VIII(B), at page 95 of the final order of KWDT-I, is quoted below:-

“Clause VIII(B):- Failure of any State to make use of any portion of the water allocated to it during any water year shall not constitute forfeiture or abandonment of its share of water in any subsequent water year nor shall it increase the share of any other State in subsequent water year even if such State may have used such water.”

The above provision is quite clear to indicate that if any State is unable to utilize its full allocated share by any water year, it would not mean that the unutilized part of the allocated share stands forfeited in subsequent years. In the present case, we have seen that even though full utilization capability could not be built up by the States of Maharashtra and Karnataka by May 31, 2000, but as seen earlier, they have been able to achieve it now and in view of clause VIII(B) their share of unutilized water could not be forfeited nor they can be debarred from utilizing that part of the allocated water in respect of which they have attained capability to utilize even after May 31, 2000.

Issue No.25 is thus answered in the manner that all the projects and works of the riparian States, as provided for by KWDT-I, stand protected and none of them is being disturbed by this decision. The second part of the issue relating to equitable distribution of unutilized allocated water amongst the riparian States is decided in negative.

Issue No.16:

“Whether directions should be issued to the States of Karnataka and Maharashtra for enforcing flood control measures?”

The State of Maharashtra being apprehensive of inundation and submergence in its territory with coming up of the Almatti Dam with FRL 519.6 m pleaded that Karnataka should be issued certain directions to enforce flood control measures. The learned Senior Counsel while arguing the matter furnished a copy of notes of his arguments, MHAD-21. It is submitted that the water stored above FRL 518 TMC in Almatti Dam would cause enhanced water levels during the floods in the river Krishna as a result of which a large part of territory of Maharashtra would submerge causing a lot of damage. The State of Karnataka refuted the claim and apprehension of the State of Maharashtra about floods and submergence in the territory of Maharashtra.

The case of the State of Karnataka was that the backwater effect of Almatti Dam does not go beyond the territory of Karnataka itself; it is confined within the territory of Karnataka. It was also the case of Karnataka that sometimes sudden and larger releases, without any forewarning by the State of Maharashtra, through its dams causes flood in Karnataka. However, it is not necessary to go into that controversy and coming straight to the issue, it may be pointed out

that the position as of now stands totally clarified as discussed in the following paragraph.

According to the evidence led by the State of Maharashtra, its witness Mr. Y.S. Shukla, had stated that with FRL 519.6 m, backwater effect shall not go beyond the territories of Karnataka but for the siltation which has taken place in Almatti Dam adversely affecting the territories of Maharashtra. We have already discussed this matter in detail in issues dealt with earlier, particularly under Issue No.14. With a view to ascertain the extent of siltation in Almatti Dam by reason of which floods and submergence may take place in the territory of Maharashtra, hydrographic survey was got conducted through an agency M/s Tojo Vikas International Pvt. Ltd. According to the report of the said agency, there was very little sedimentation which had no effect in the territory of Maharashtra. The study was conducted with Almatti FRL 519.6 m. The State of Karnataka applying the findings of the report of M/s Tojo Vikas International Pvt. Ltd. on Almatti Dam with FRL 524.256 m conducted a study which has been filed as CI-D-399. According to this study, there is no apprehension of any kind of backwater effect or submergence of the territory of Maharashtra with FRL 524.256. On

the other hand, at some places water level is reported to have some minor reduction here and there. No objections to the study CI-D-399 had been filed by the State of Maharashtra. Ultimately, considering the whole matter, this Tribunal has already allowed Almatti FRL with 524.256 m holding that it shall cause no injury much less any vital or substantial legal injury to either of the two States, namely, Maharashtra and Andhra Pradesh.

In this light of the matter, the issue is decided in negative.

However, the States of Maharashtra and Karnataka shall timely exchange the relevant data about the reservoir levels of the two States as well as the inflows and inflow forecast and the releases, regularly. It will also help in assessing the likely flood situation, if any, by release of water from the dam guiding the States as to when and how much water may be released.

Issue No.18:

“Whether storages of projects of upper riparian States to be determined to meet their allocation?”

The storage capacity is determined while planning a project so as to meet the requirement of the project. Various factors are taken into consideration while determining the capacity of the storage for a particular project. Generally speaking, the storage capacity should be commensurate with the requirement of the project but sometimes there may be some storages having larger capacity without causing any vital or substantial legal injury to any co-riparian State. However, the fact remains that storages should not be of disproportionately higher capacity as compared to the requirement of the project.

The State of Karnataka has complained about the storage capacity of Maharashtra which, according to it, is much more than its requirement. The learned Counsel has also furnished a note of his arguments, KAD-89. Annexure-I to this note is an excerpt from an American decision of Supreme Court of Utah, 16 Utah-125, 51P.146. It is observed in this case that the reservoirs should have capacity within reasonable limits, it cannot be totally unrestricted. Another excerpt has been annexed as Annexure-B to the note from “Water Law” by David H. Getches (3rd Edn., 1997) at page 38, where the author has observed that the storages ought to be governed by the general rule of reasonableness. Perhaps, there cannot be any dispute

about the aforesaid proposition. Since unreasonably oversized reservoirs would not be conducive to the interest of the lower riparian States but a little tilting this way or that, may not matter much.

The State of Karnataka has disputed the claim of the State of Maharashtra that it has storage capacity of 483 TMC and not 599 TMC as was given out earlier by Maharashtra. The State of Maharashtra had sought the correction of the storage capacity by deducting 72 TMC which was the requirement on account of minor irrigation and there was also some calculation mistake of 55 TMC of Ujjani which was doubly accounted. It is, however, submitted on behalf of the State of Karnataka that even if the storage capacity of Maharashtra is taken to be 483 TMC, that is also in excess because Maharashtra's share in any case would not exceed more than 630 TMC and if capacity – utilization ratio is taken as 1:1.5, the storage capacity exceeds much above the requirement. We, however, fail to appreciate the argument. In the earlier part of the discussion in this report, we have considered capacity-utilization ratio @ 1.40 TMC. Accordingly, the utilization of Maharashtra with storage capacity of 483 TMC, may come to around 600 TMC. Maharashtra has been allocated 560 TMC by KWDT-I plus 25 TMC on account of return

flows, the total comes to 585 TMC. Therefore, even if utilization capability goes a little above 600 TMC also, it may perhaps not be termed as so unreasonable which may be opened to any serious objection much less when Karnataka has not been able to show any vital or serious legal injury on account of the alleged larger storages of Maharashtra to the extent as discussed above.

The State of Andhra Pradesh has also been generally submitting that Maharashtra has storage capacity larger than its requirement as a result of which the water, which should flow down for utilization of the State of Andhra Pradesh, is not available to it. May be, there are some reservoirs in Maharashtra having capacity more than required to meet the requirement of the project. In this connection, high success rate of the State of Maharashtra has also been pointed out by the State of Andhra Pradesh which, according to the State of Andhra Pradesh, shows that Maharashtra has larger storages. A few examples have also been given. As a matter of fact, we have already considered this aspect of the matter in the issues dealt with earlier. There may be other circumstances also than merely having a storage of larger capacity, achieving higher rate of success. For example, in a high rainfall area or where there is prolonged monsoon, the replenishment may be quick

and prolonged, increasing the success rate. In any case, it has not been pointed out as to which of the project in the State of Maharashtra may reduce its reservoir capacity.

The main attack has been in respect of the storage capacity of Almatti Dam in Karnataka. According to the State of Andhra Pradesh, the requirement of Karnataka was only 160 TMC from Almatti Dam for UKP but the reservoir capacity was much more. Hence, there was always an apprehension that water more than allocated for the project may be utilized. We do not think it would be necessary to go into that aspect of the matter any more after the discussion and the findings recorded by us while dealing with Issue No.14. It has been held that Karnataka is entitled to have a storage in Almatti Dam up to the height of FRL at 524.256 m for utilization of 303 TMC. Needless to repeat that Andhra Pradesh has been achieving its success rate at more than 75% with the height of Almatti at 519.6 m. It was not deprived of any part of its allocated share. It has also been found that even with the height of FRL at 524.256 m at Almatti, there would be ample inflows into the State of Andhra Pradesh from the upstream of river Krishna.

In the light of the discussion held above, as a general proposition, it is held that capacity of reservoir should be determined taking into consideration the requirement of the project but in the case in hand, there is no occasion to determine the storage capacity of any reservoir, more particularly in view of the fact that the State of Andhra Pradesh is realizing its allocated share of 800 TMC.

Issue No.18 thus stands disposed of in the manner indicated above.

Issue No.19:

“Whether the upper riparian States can construct over the year storages/carryover storages?”

At the very outset, as a general proposition, it may be observed that any State can construct over the year storages provided a suitable site for the same is available as well as the amount of water to store into it. There cannot be any such prohibition against the upper riparian States to have carryover storages. It may be a matter to be examined in given facts of a particular case as to whether a carryover storage may be permitted in the upper riparian State or not. In case construction of such a carryover storage causes any legal and vital

injury of substantial nature to the lower riparian State, which cannot be compensated or which may result in more damage and harm than the benefit which may accrue by having a carryover storage in the upper riparian State, there may be an impediment in the way of an upper riparian State to construct a carryover storage, but not otherwise. All this depends on consideration of many factors in a given case. All eventualities cannot be dealt with in an issue of general nature.

Issue No.19 is answered in affirmative subject to the observations made in the discussion held above.

Issue No.7:

“Whether storage in Almatti Dam should be regulated to have timely releases to safeguard the loss of kharif crop, if any, in the State of Andhra Pradesh without affecting the success rates of Almatti and Narayanpur dams?”

According to the State of Andhra Pradesh, the Almatti Reservoir is an oversized reservoir with FRL +519.6 m which is not required for utilization of 155 TMC or 173 TMC in Upper Krishna Project. The oversized reservoir and higher FRL obstruct flows into

Andhra Pradesh during the months of June and July, as a result of which if Andhra Pradesh has to postpone the crop calendar it would affect the kharif crop. Due to want of water during the initial cropping period, the crop will spoil. And in case of delayed sowing, on availability of water, it will be exposed to vagaries of cyclones at the time of harvesting. It is submitted that it would lead to great economic loss to the farmers of Andhra Pradesh.

Learned Counsel for the State of Andhra Pradesh has submitted notes of his arguments, APAD-16, and refers to paragraph 15 at page 24 of APAD-16. It is submitted that in case the height of Almatti Dam is maintained at 519.6 m, in that event, State of Karnataka may be directed to release water to Andhra Pradesh in the regulated manner. The further submission is that according to the table 26 at page 76 of CIII-D-I, as per the study of Indian Institute of Sciences, Bangalore, regarding reservoir operation, the Almatti reservoir will achieve FRL 519.6 m sometime in the second week of August. It is submitted that this height is not necessary to be maintained throughout. In case water is released after the second week of August, it is submitted that the kharif crop of Andhra Pradesh will badly suffer. Therefore, direction should be given to the State of Karnataka

to release water for inflows into Andhra Pradesh before second week of August. So far as the State of Karnataka is concerned, it does not rely upon the table 26, CIII-D-I, referred to by Andhra Pradesh.

As a matter of fact, we have considered this aspect of the matter under Issue No.14 which relates to FRL 524.256 m in the Almatti Dam, as well as the question of inflows in Andhra Pradesh. On consideration of all facts and circumstances, it has been held that with FRL 524.256 m, possibly there may be some delay in availability of sufficient water initially for kharif crop in Andhra Pradesh. Therefore, it has already been provided that during the months of June and July, State of Karnataka shall release 8 to 10 TMC from Almatti Dam for inflows into Andhra Pradesh so that the irrigation requirement in early part of the kharif crop is met. We have already recorded reasons for making such provision for regulated releases in the months of June and July.

Issue No.7 is thus decided in affirmative to the extent that the regulated release would be made by the State of Karnataka from Almatti Dam to the extent of 8 to 10 TMC during the months of June

and July since State of Karnataka has been allowed to raise the height of FRL at 524.256 m in Almatti Dam.

Issue No.28:

“Whether there should be timely and periodical releases to enable the State of Andhra Pradesh to realize its allocation or designed success rate of its projects, without affecting success rate of projects/allocation of upper riparian States?”

So far as the question raised in the above noted issue is concerned, it also stands answered in the issues decided earlier in this report. It has been found under the chapter dealing with the success rate at page 341 that the success rate of Andhra Pradesh is little more than 75% even with height of Almatti Dam at 519.6 m. It has also been held that the State of Andhra Pradesh realizes the amount of allocated share of water i.e. 800 TMC in more than 75% of years. Therefore, there is no occasion for any periodic releases to the State of Andhra Pradesh so as to enable it to realize its allocations or designed success rate. It may be mentioned that regulated releases have been provided for under Issue Nos.14 and 7 so that the State of Andhra Pradesh, if need be, may be able to meet its initial requirement for the

kharif crop in the upper reaches of Andhra Pradesh. But we do not find any reason to make any provision for periodic releases to Andhra Pradesh to achieve realization of its allocation of 800 TMC, which amount of water the State of Andhra Pradesh, it has been held, realizes commensurating with designed success rate of 75%.

In the light of the discussion held above, we decide Issue No.28 in negative.

Issue No.20:

“Whether the water disputes raised by Andhra Pradesh in sub-paras (ix), (x), (xi) & (xii) of para 34 of the complaint dated Jan. 20, 2003 are barred by res judicata, constructive res judicata, issue estoppel and/or under any other provisions of law?”

So far as this issue is concerned, it perhaps no more survives in view of the findings which have already been recorded on other issues. Under Issue No.14, it has already been held that Karnataka is entitled to construct Almatti Dam with FRL 524.526 m. In that view of the matter, there is no occasion to consider the question regarding height of Almatti Dam with FRL 519.6 m.

So far as the question in sub-para (b) of para (i) of para 34 relating to dam break analysis etc. is concerned, this matter has already been considered under Issue No.15 and it has been found that dam break analysis, which was got done by the State of Karnataka through Central Water Commission, was filed a few months beyond the period of six months provided for filing the said analysis. The question about disaster management plan is also mentioned in the discussion held under Issue No.15 and ultimately it has been held that the concerned statutory authorities or the other authorities, as may be, should now consider the question of clearance of the of the project UKP Stage-III, Almatti Dam, with FRL 524.256 m. Again, in so far as it relates to safeguarding the interest of lower riparian State and its inhabitants, as the State of Andhra Pradesh had apprehended reduced inflows in Andhra Pradesh and that the kharif crop might be adversely affected due to lack of water during the early period of the crop in the months of June and July, these matters have already been considered under Issue Nos.14, 7 and 28. The point raised in sub-para (ii) also stands disposed of under Issue No.14. The Almatti Dam is already operating with FRL 519.6 m.

The point raised in sub-para (iii) regarding administrative control of Tungabhadra reservoir and the RDS including its head works, these matters have also been considered under Issue Nos.21A and 22 where it has been found that the administrative control of all the projects and schemes may vest in only one authority as may be constituted. On constitution of such an authority, the functions and duties of Tungabhadra Board would also vest in such an authority. Until the constitution of such an authority, the Tungabhadra Board will continue with the functions which are being discharged by it.

The question raised in sub-para (iv) also stands decided under Issue No.24 not permitting construction of a new canal at a higher contour than the existing high level canal by the State of Andhra Pradesh.

In view of what has been indicated above, no question of application of res judicata or constructive res judicata arises and all these matters have been decided on merit under different issues.

In the result, Issue No.20 is decided in negative.

Issue No.23:

“Whether the restrictions imposed on the State of Maharashtra by Bachawat Tribunal by clause IX(A) and by clause X be removed as pleaded by Maharashtra?”

We find that clause IX(A) places restrictions on the State of Maharashtra that it shall not use in any water year more than 7 TMC from the Ghataparbha K-3 Sub-basin and shall not use more than 90 TMC from the mainstream of Bhima from the 1st June next after the date of publication of the decision of KWDT-I and from the year 1990-91 the State of Maharashtra is not to utilize more than 95 TMC from the mainstream of river Bhima.

In so far as clause X is concerned, the restriction is that the State of Maharashtra shall not divert more than 67.5 TMC out of its allocated share outside Krishna basin, in any water year, from the river supplies in Upper Krishna (K-I Sub-basin) or Koyna Hydel Project or any other project. The other restriction is that it would not divert more than 54.5 TMC for the projects collectively known as Tata Hydel Works in Upper Bhima K-5 Sub-basin.

The State of Maharashtra pleads for removal of these restrictions. Learned Counsel for the State of Maharashtra has also furnished notes of his arguments on the point, MHAD-11, justifying the demand to remove the restrictions. There is a demand of allocation of more water for Koyna Project. However, in connection with the above, suffice it to say that we have already held under Issue No.17 that it is permissible to place restrictions on utilization of water by any State but all this may depend upon the facts and circumstances of each sub-basin and the project involved. We have also found that since there is increase in the yearly yield of river Krishna, the States may be distributed some more water considering the volume of available water and the demands made by the respective States. In such a situation, some changes may take place in the restrictions which have been placed on utilization of water on different States. Therefore, it has been held by us that the question of restrictions and the extent to which restrictions are to be placed, relaxed or removed, shall be considered along with the equitable distribution of water, now available for the purpose amongst the riparian States.

This issue thus stands disposed of, subject to the order which may be passed regarding restrictions, while considering the

distribution of water now available for the purpose amongst the riparian States.

Issues No.26 and 29 since relate to the same subject matter, they are being considered and disposed of together.

Issue No.26:

“Whether there should be regulated releases of 5 TMC each by the upper riparian States to enable the State of Andhra Pradesh to supply drinking water to Chennai city?”

Issue No.29:

“Whether the State of Andhra Pradesh is misusing the Agreement between Andhra Pradesh, Maharashtra and Karnataka dated October 28,1977 by expanding the open lined channel from Srisaïlam to Pennar from 1500 cusecs to 11150 cusecs and by locating the off-take point in such a manner as to use the channel for irrigation contrary to the said agreement, if so, its effect?”

The subject matter of the two issues quoted above relates to supply of drinking water to Chennai, through an open lined channel, to have a carrying capacity of 1500 cusecs of water. Each of the

riparian State agreed to contribute 5 TMC for the purpose. The question which falls for consideration is whether or not, the State of Andhra Pradesh has constructed a channel having a capacity to carry 11150 cusecs instead of 1500 cusecs and it is utilizing the water so carried in the channel for the purposes of irrigation by changing the off-take point by misusing the agreement. In case it is so, the effect of the same is also to be considered. The other question is about the regulated releases of 5 TMC which is to be contributed by each State.

The learned Senior Counsel for the State of Maharashtra submits that according to the Agreement dated 28.10.1977, entered into between Andhra Pradesh, Karnataka and Maharashtra and Tamilnadu and the Government of India, 15 TMC of water was permitted to be drawn by the State of Tamilnadu from Srisailem reservoir during the period 1st July to 31st October, through an open lined channel from Srisailem to Pennar to carry only 1500 cusecs. The arrangements for the conductor system were to be agreed upon by Andhra Pradesh and Tamilnadu. It is further submitted that the open lined channel between Srisailem and Somasila from the point of off-take to be agreed upon by Andhra Pradesh and Tamilnadu, was not to be utilized for irrigation or other consumptive purposes. The

contention is that it was on the aforesaid conditions that the States of Maharashtra and Karnataka had agreed to contribute 5 TMC each from their allocations. A note of arguments has also been furnished, MHAD-22, by the learned Counsel for Maharashtra. The State of Karnataka has also made its submissions and raised questions similar to those raised by the State of Maharashtra alleging violation of conditions of agreement by Andhra Pradesh.

It is contended that the State of Andhra Pradesh has grossly violated the condition of the agreement by constructing a canal with a capacity of 11150 cusecs from Srisaïlam to Somasila on the Pennar. It has also been submitted that there is yet another violation of a condition on the part of the State of Andhra Pradesh, since it is utilizing 29 TMC under Telgu Ganga Project for which the water is being carried only through the canal which was, according to the Agreement, to have a capacity to carry only 1500 cusecs for drinking water to Chennai. A place known as Chennamukkapalli has been fixed as off-take point which is 175 kms away from Srisaïlam reservoir, whereas off-take point should have been anywhere around the Srisaïlam reservoir.

According to the learned Counsel, Mr. Andhyarujina, the Agreement has been blatantly violated and the conditions which were placed to ensure that Andhra Pradesh would carry the contribution of Maharashtra and Karnataka only for providing water supply to Chennai city and that it would not be utilized for irrigation purposes have been flouted. For these reasons, it is ultimately submitted that Maharashtra should not debit 5 TMC from its share to contribute for drinking water supply to Chennai. Referring to the cross-examination of Mr. Ramamurthy, a witness of State of Andhra Pradesh, it is submitted that this fact is admitted that a canal of larger capacity has been constructed which carries 5000 cusecs including 3500 cusecs for Telgu Ganga Canal System. In reply to question No.1510, it has further been admitted that off-take point is Chennamukkapalli from where 1500 cusecs would be let into the Pennar river in the downstream to be picked up by Somasila reservoir. The reply of the witness to question No.1511 at page 552 of CIII-D-98(A) is "Instead of having two canals, one canal for Madras Water Supply with 1500 cusecs and another canal carrying surplus water with 3500 cusecs, a combined canal of 5000 cusecs is planned up to Chennamukkapalli

and from there the canal beyond Chennamukkapalli carries 1500 cusecs to be delivered to Chennai.”

It is submitted by the learned Counsel that the off-take point should be straight from Srisailem to Somasila dam instead of fixing the off-take point at Chennamukkapalli to circumvent the straight route for the purposes of utilizing water for irrigation. It has been put to the witness in his cross-examination that it was against the agreement, but he denied saying that the agreement was with some reservations and accordingly the States of Andhra Pradesh and Tamilnadu had to decide the exact point from where water is to be supplied or the manner in which it is to be supplied. The witness in reply to question No.1512, page 252, stated that off-take point at Chennamukkapalli was fixed to regulate the flow of water.

It may now be seen as to what are the terms of the Agreement and the obligations of the parties. In this connection, Inter-State Agreement dated 14.4.1976, Annexure 1.1 to CIII-D-12, may be perused. It says that the Government of Maharashtra, Karnataka and Andhra Pradesh agree to spare 5 TMC each out of their respective shares of the Krishna water to enable State of Tamilnadu to draw 15

TMC per annum from a convenient location, for water supply to Madras City.

The third paragraph of the Agreement dated 14.4.1976 provides that the Officers of the Department of Irrigation, Government of India, and that of the three concerned States and that of Tamilnadu, would meet to decide the location from, and the manner in which the Government of Tamilnadu, would draw waters for Madras City. In the last paragraph, it is provided that the expenditure etc. and conveyance system leading up to the point from where Tamilnadu would draw 15 TMC would be decided between the State Governments concerned under the guidance of the Officers of the Government of India, where necessary. This agreement is signed by the Minister for Irrigation And Law & Judiciary (probably for the State of Andhra Pradesh) and by the Governor of Tamilnadu, by Minister of State of Irrigation for Karnataka, by the Chief Minister of Andhra Pradesh and Minister for Agriculture & Irrigation, Government of India. It is to be noted that the Chief Minister of Andhra Pradesh had appended his signature on the Agreement dated 14.4.1976 on 17.4.1976 subject to reservations indicated in his letter of that date.

The letter of the Chief Minister of Andhra Pradesh dated 17.4.1976 is Annexure-1.2 at page 2 of CIII-D-12. The letter is addressed to the Union Minister of Agriculture & Irrigation, Government of India, referring to his letter dated 14.4.1976 regarding water supply to Madras City. In his letter dated 17.4.1976, the Chief Minister of Andhra Pradesh wrote “I am returning the Agreement after appending my signature subject however to the following reservation which I have found it necessary - - -”. It is then indicated that under clause (3) of the Agreement, only the State from which water was to be supplied to Tamilnadu alone and the State of Tamilnadu have to decide other details including the exact point from which water had to be supplied or the manner in which it had to be supplied. Thus, it is evident that Agreement dated 14.4.1976 was not fully acceptable to the State of Andhra Pradesh though the Chief Minister had appended his signature on the Agreement on a later dated i.e. 17.4.1976 but with reservations.

It is also clear that so far as the question of contributing 5 TMC by each of the three States for drinking water supply to Madras City is concerned, all parties had agreed to that proposition. They all, also seem to have agreed to the extent that the State which had ultimately

to make the supply, may be decided according to clause (3) of the Agreement. There seems to be no reservation about it. But thereafter, there is a deviation from the Agreement dated 14.4.1976 at the instance of the State of Andhra Pradesh about the other details relating to the supply and the manner in which it was to be made as well as the exact off-take point, which according to Andhra Pradesh would be a matter to be decided between the State through which the supply was to be made and the State of Tamilnadu.

This position is reiterated by letter dated April 28, 1976 written by the Chief Minister of Andhra Pradesh to Union Minister for Agriculture and Irrigation, Government of India. However, the States of Maharashtra and Karnataka wanted to retain the conditions in the agreement and they also wrote about it to the Minister for Irrigation, Government of India. (CII-D-3A).

Later, it appears that an Agreement was drafted on Oct. 28, 1977 signed by the Secretary, Department of I&P, Govt. of Andhra Pradesh, Commissioner & Secretary, Department of Public Works & Electricity, Govt. of Karnataka, Dy. Secretary, Department of Irrigation, Govt. of Maharashtra and Commissioner & Secretary, P.W.D., Govt. of Tamilnadu, besides Secretary to the Government of

India, Ministry of Agriculture and Irrigation (Department of Irrigation). By this Agreement, it was provided that 15 TMC of water shall be drawn by Tamilnadu from Srisaillam reservoir during the period from 1st July to 31st October through an open lined channel from Srisaillam to Pennar designed to carry a discharge not exceeding 1500 cusecs. It also said that the arrangements for the conductor system shall be as agreed upon by Andhra Pradesh and Tamilnadu. Under condition No.(iv), the channel between Srisaillam and Somasila, from the point of off-take to be agreed upon by Andhra Pradesh and Tamilnadu, shall not be utilized for irrigation or other consumptive purposes. It also says that Central Government shall ensure that withdrawal of water from Srisaillam does not exceed 15 TMC and that it is utilized only for water supply to Madras City and for no other purpose. In the end, however, it is stated that the Agreement was subject to formal ratification by the respective States.

It appears that the Agreement was later ratified but with reservation by the State of Andhra Pradesh. As indicated earlier, the stand of Andhra Pradesh had been that once it is decided as to from which State Tamilnadu is to draw supplies of 15 TMC of drinking water, it would be a matter between that State and the State of

Tamilnadu about the details of carrying the water and the off-take point etc. It is also their case that Andhra Pradesh was entitled to utilize surplus water even outside basin as per decision of KWDT-I and that no restriction could be placed on that.

It also appears that later on, an Agreement was entered into on April 18, 1983 which is Annexure 1.5 at page 6 of CIII-D-12, between the States of Andhra Pradesh and Tamilnadu signed by the Chief Minister of Andhra Pradesh and the Chief Minister of Tamilnadu. There are some conditions relating to details as to the manner in which water was to be transmitted from Andhra Pradesh, Srisailem to Tamilnadu for Madras City Drinking Water Scheme. One of the conditions is that Govt. of Tamilnadu shall utilize the Krishna water exclusively for drinking water supply and not for any other purpose. The transmission losses were to be restricted to 3 TMC. There are clauses relating to bearing of expenditure by the two States for the purposes of construction of lined canal, its maintenance and other necessary structures etc. The take-off point has been agreed as Chennamukkapalli. Schedule-A indicates the manner in which water is to be carried in the channel up to the Tamilnadu border.

The above noted agreement does not contain any such condition that the open lined channel shall be designed to carry a discharge not exceeding 1500 cusecs or that the channel shall not be utilized for irrigation or other consumptive purposes as were the conditions in the unratified Agreement dated 28.10.1977. We also find a Schedule-C at page 13 of CIII-D-12, as agreed upon between the States of Andhra Pradesh and Tamilnadu, according to which water not exceeding 1000 cusecs is to be discharged for Tamilnadu in each of the months of July to October. The total supply at the border is indicated to be 8 TMC during July to October. The next supply is for the months of January to April in the same manner, that is to say, water not exceeding 1000 cusecs is to be discharged each of the four months.

The main attack on behalf of the States of Maharashtra and Karnataka is that the State of Andhra Pradesh violated the conditions of the Agreement dated 28th Oct., 1977 in as much as it constructed a channel with a carrying capacity of 11500 cusecs in place of 1500 cusecs and further that it carries water for irrigation purposes for Telgu Ganga Project at Pennar. The off-take point, as agreed to be at Chennamukkapalli, is also objected to. It is on these grounds that it is submitted that Maharashtra and Karnataka should not be required to

contribute 5 TMC in each water year for drinking water supply scheme for Madras City.

On a perusal of the documents, which have been referred to above, it appears that the basic agreement amongst the three parties is dated 14.4.1976. The main subject of agreement is for supply of 15 TMC to Tamilnadu for Madras City Drinking Water Scheme. Each riparian State of river Krishna was to contribute 5 TMC out of its allocated share. There seems to have been no dispute ever, on this point. It is also clear that the Chief Minister of Andhra Pradesh had appended his signature on the Agreement dated 14.4.1976 on 17.4.1976 with a reservation about para 3 of the Agreement dated 14.4.1976, a mention of which has been made earlier. The State of Andhra Pradesh in no way opposed the agreement about contribution of 5 TMC by each of the three States and transmission of the said amount of water to Tamilnadu for Madras City Drinking Water Scheme. Its only contention was that once it is decided as to from which State the State of Tamilnadu will draw the water, the details of carrying the water and related matters should be left to the two States, namely, the State from where supplies were to be drawn and the State of Tamilnadu. This reservation was conveyed through the same letter

dated 17.4.1976 through which it was conveyed that the signatures were appended to the Agreement dated 14.4.1976 with the above noted reservation. This position was reiterated by Andhra Pradesh by letter dated 2.6.1976, addressed to the Union Minister of Agriculture and Irrigation.

Such conditions which are said to be violated by the State of Andhra Pradesh are only to be found in the Agreement dated 28.10.1977 but this Agreement was subject to formal ratification by the respective States as per terms of the agreement itself and perhaps obviously so, since we find that it was signed by the Officers of the three States and that of the State of Tamilnadu and Secretary to the Government of India, Ministry of Agriculture and Irrigation. On behalf of the State of Maharashtra it is signed only by the Dy. Secretary, Department of Irrigation, Govt. of Maharashtra. In the light of the provision for ratification in the Agreement dated 28.10.1977, it appears to have been ratified but the State of Andhra Pradesh had stuck to its reservation as was indicated in the letter dated 17.4.1976. Therefore, it appears that the States of Andhra Pradesh and Tamilnadu entered into an agreement with details about the manner in which 15 TMC was to be transported to Madras, about construction of

the canals and sharing of the expenditure etc. All those details are to be found in the Agreement dated 18.4.1983 at page 6 of C-III-D-12.

The case of Maharashtra is that such conditions, as are said to be violated, were included in Agreement dated 28.10.1977 so as to ensure that the water contributed by the States of Maharashtra and Karnataka reaches the destination for the purposes of drinking water scheme for the city of Madras. There may not be any intermingling of the purpose, for which water was to be carried through the open lined channel and the channel meant for transmitting 15 TMC to Tamilnadu may not be utilized for carrying water for irrigation purposes outside the basin from Srisailem Reservoir on that pretext. It was apprehended that the water carried through multipurpose channel may be diverted for purpose other than for which agreement was entered into, hence these conditions were provided. The anxiety of the State of Maharashtra is no doubt appreciated but we find that those specific conditions in the Agreement dated 28.10.1977 were in the unratified agreement and the ratification was made by State of Andhra Pradesh with reservation.

We feel if such risk would not be there, as apprehended by the States of Maharashtra and Karnataka, there is, of course, no reason to

object to the supplies for Madras City Drinking Water Scheme in the manner as arranged under the agreement between Andhra Pradesh and Tamilnadu. We find that at that stage, no machinery was set up or envisaged to oversee the proper implementation of the decision of KWDT-I. In the present case, we are having a machinery to implement the decision and directions of this Tribunal. Such a machinery would also oversee that all the States duly perform their obligations under the decision of the Tribunal. That being the position, there remains no scope for the apprehension that water contributed for Madras City Drinking Water Scheme may be diverted somewhere in between and that may not reach the destination at all or that the channel may be used for unauthorized purposes.

The essence of the whole matter was that all the three States had agreed to contribute 5 TMC each out of their allocation for the cause of drinking water scheme for the city of Madras. Need of water for drinking purposes is an indispensable human requirement. There has never been any reservation on this basic agreement, on the part of any State. Other provisions of the unratified agreement dated 28.10.1977 about the details of working out of the scheme were secondary in nature.

The State of Karnataka submitted that so far as its contribution of 5 TMC is concerned, it could well be adjusted from its unutilized allocated water flowing down to Andhra Pradesh. However, it is also submitted by Mr. Holla, learned Counsel appearing for the State of Karnataka, that once the State of Karnataka is able to utilize its full share, it would not mind contributing 5 TMC from its share for Madras City Drinking Water Scheme. We have found that State of Karnataka has achieved its capability to utilize its full share. That being the position, the stage has now come when State of Karnataka must contribute 5 TMC out of its allocated share for Madras City Drinking Water Scheme, as it is to be contributed by the States of Maharashtra and Andhra Pradesh as well. Rather all the three States must continue to make their contribution of 5 TMC each and they must also ensure that water reaches its destination.

We further provide that all the three States shall inform each other and to the State of Tamilnadu, the date and the quantity of water released by it for Madras City Drinking Water Scheme. In case the water is not available for drawal to Tamilnadu for Madras City Drinking Water Scheme, it would immediately report about it to all the three States and also to the machinery to be set up for

implementation of the order and direction of this Tribunal with the request to the machinery to look into the matter and ensure the supply of the required amount of water for Madras City Drinking Water Scheme. With this arrangement, the other matters like the oversize capacity of the canal or the off-take point etc. relegate to insignificant background to which much importance cannot be attached, rather the purpose should be to achieve the object of the Agreement under which for a good cause, mainly to provide drinking water, the three States had agreed to contribute 5 TMC each.

REPORT/ DECISION

We would, however, like to add and make it clear that whatever capacity of the canal may have been built up by the State of Andhra Pradesh, it shall not be used except to carry 15 TMC of water meant for Madras City Drinking Water Scheme and for the present, the water out of surplus flows as have been permitted by KWDT-I without accrual of any right. But on equitable distribution of the surplus flows, the State of Andhra Pradesh would be entitled to utilize and carry only that amount of surplus flows through this channel which may be allocated to it, if at all, by this Tribunal, besides carrying 15 TMC and no more.

Now, coming to the question of regulated releases, from Schedule-C at page 13 of CIII-D-12, it is evident that water not exceeding 1000 cusecs is to be discharged and delivered at the border of Tamilnadu in the months of July to October and then again from January to April. In November and December and again in May and June, no discharge is to be made for the purpose. It is, therefore, provided that there shall be regulated release of 10 TMC in the months from July to October and 5 TMC in the other set of four months i.e. from January to April. Each State would contribute 3.30 TMC each in equal quantity distributed in the months of July, August, September and October and 1.70 TMC distributed in four equal instalments in the months of January, February, March and April.

Both the issues No.26 and 29 stand decided in the manner indicated above.

Minimum in stream flow and flow required for Environment and Ecology.

It is increasingly being recognized that maintaining a certain minimum flow in the river during the lean season months for ecological consideration is necessary and a provision should be made for the same.

The water resource engineering so far developed sees water purely from the point of storage, transfer and allocation for supplies. It does not recognize that in all river basins from a holistic perspective one may not see any surplus water because every drop performs some ecological service all the time.

REPORT/ DECISION

It may be noted that in the World Bank Report (1992), it was pointed out as follows – “This ecological destruction is the consequence of excessive extraction of water for irrigation from Amu Dariya and Syr Dariya rivers which feed the Aral Sea. The total river run off into the sea changed from an average 55 cusec/km/year in the 1950s to zero in the early 1980s If current trends continue unchecked, the sea will eventually shrink to a saline lake, 1/6th of its 1960 size.”

The allocation of shares in the waters, taking into account the total yield of the river, keeping in view the ecological aspect, must envisage a separate share for the maintenance of in-stream flows in the river to protect not only the river itself but the aquatic life, flora, fauna and prevent salinity.

It should not be lost sight of that mighty river ought not to be reduced to a shallow stream and its water is not utilized in a manner which results in choking its breath and ultimately in the disappearance of the river itself.

Eco-system consists of complex webs of mutual causal interdependence amongst physical and biological components, processes and stressors. They are dynamic and not static and do not necessarily tend towards stable equilibria, exhibiting non linear threshold effects.

The conventional piecemeal, top-down presumptive regulatory approach is badly mis-matched to the demands of contemporary ecological understanding.

Management methods and regulatory requirements will necessarily vary from place to place and basin to basin and will require high degree of inter-agency, inter-governmental and public-private co-ordination and collaboration.

Conventional fixed rule approaches are extremely blunt, inflexible and limited tools that are poorly matched to the subtle complexes and ever changing demands of ecological management.

Considering the complex and dynamic character of the problem, there cannot be timeless rules and framing of such rules is impossible.

Ecological disaster has to be prevented. Common river, more than often, becomes the life-blood of the inhabitants of the lower riparian States. The trans-boundary river, therefore, should be used in an equitable, reasonable and optimum manner. In order to achieve sustainable water resource with maximum public benefit, it should be managed in a comprehensive, integrated, environmental friendly way, fulfilling the social functions expected from water resources.

Eco systems do not recognize political boundaries. Therefore, if we are to adequately address problems in water sheds which cross political boundaries, we must walk across these boundaries.

Life, health and ecology have greater importance to the people as compared to any other thing. Water is the most important of the elements of nature. River valleys have been the cradles of civilization from the beginning of the world.

We see around us growing evidence of man-made harm in many regions of the earth. Dangerous levels of pollution in water or earth, major and undesirable disturbances to the ecological balance of the bio-sphere, destruction and depletion of irreplaceable resources and gross deficiencies harmful to the physical, mental and social health of man in the man-made environment particularly in the living and working environment is apparent.

The States must remain alive to their responsibility to ensure that the activities and exploitation of their own resources

within their jurisdiction are amply controlled and do not cause damage to the environment or the ecology of other States.

Whenever a problem of ecology is brought before the court, it is bound to bear in mind Article 48-A and Article 51-A(g) of the constitution. The court should not refuse to give effect to the Directive Principles and the Fundamental Duties and is not to shrug its shoulder and say that priorities are a matter of policy and so it is a matter for the policy making authority. The least that the court may do is to examine whether appropriate conditions are borne in mind and irrelevancies excluded. Noticing the above, the Hon'ble Apex Court, in its decision in the case of Sachidanand Pandey and Others (1987 (2) SCC 295), had indicated that in appropriate cases, the court may go further but how much further, must depend on the circumstances of each case. It was also pointed out that the court may always give necessary directions.

It may be useful to notice here at this stage that the provisions contained in Article 48-A of the constitution and the Directive Principle enjoins that the State shall endeavour to

protect and improve the environment and to safeguard the forest and wildlife of the country. The provisions contained in Article 51-A(g) which proclaims it to be the fundamental duty of every citizen of India enjoins to protect and improve the natural environment including forest, lakes, rivers and wildlife and to have compassion for living creatures.

Today the societies interaction with nature is so extensive that environment (including ecology) has assumed a proportion affecting a large chunk of humanity.

In 2001, the Government of India constituted the Water Quality Assessment Authority (WQAA), which in turn constituted in 2003, a Working Group (WG) to advise the WQAA on 'minimum flows in rivers to conserve the ecosystem'. The WG of WQAA reviewed the existing EFA practice and suggested that due to a variety of reasons, including the high hydrological variability, difficult tradeoffs between the environment and agriculture expensive waste treatment, disputes for water between States etc., the practices adopted in other countries for assessment of EF are unlikely to be applicable in India. The working Group of WQAA also

suggested that only a simple method (like tennant) may be adopted for estimating 'minimum flows' to be maintained in the rivers in India. These flows would primarily serve the purpose of maintaining prescribed water quality standards.

While the need for maintaining certain minimum flows in the rivers had all long been felt, no guidelines are available in India for the purpose. Some effort in this connection was made by the WQAA which had submitted a report of its working group to the Government of India, Ministry of Water Resources, Central Water Commission in the year 2007.

The working group of WQAA referred to above indicated that both, the water and water quantity characteristics have effects on eco-system and although the minimum flow guidelines may clearly focus on water quantity, the water quality factors should not be ignored.

Even the National Water Policy of 2002 suggests priority to the maintenance of ecology recognizing the importance of the water allocation on ecology.

The examples of environmental flows requirement were indicated to be flows to maintain the physical habitat flows, to maintain suitable water quality flows, to allow passage for migratory fish, flows to maintaining soil moisture levels, flows to maintain soil/ fresh water balance, flows to recharge the aquifers, flows that maintain biodiversity and ecosystem etc.

The state of Karnataka submitted a note on minimum flows (KAD-115) on 17.3.2010. In this note, after considering various aspects, the state of Karnataka prayed that preferentially a specific quantity of water may be allocated for meeting the requirement at each contact point, referred to in the note for allocating the minimum flow of a quantity of 15 TMC specifically pointing out that even in distress years the minimum flows ought to be ensured.

According to the State of Karnataka the maintenance of minimum flow in the rivers or tributaries flowing within the boundaries of a basin State should be the responsibility of that State and each basin State was required to be directed to maintain the requisite minimum flows in the interstate river which included the main river Krishna and its major important

tributaries-Bhima and Tungabhadra, at the contact points near about the interstate border. In the Krishna basin, it was indicated that the two contact points between Maharashtra and Karnataka were one at Kurundwad in Maharashtra. The other suitable contact point was referred to be at river Bhima at Takali.

So far as the State of Karnataka and Andhra Pradesh were concerned, the contact points were indicated to be one at Huvinhedgi in Karnataka and at Yadgir on the river Bhima. The other contact points indicated were on the river Tungabhadra at Bawapuram site in Andhra Pradesh.

REPORT/ DECISION

The State of Andhra Pradesh had come up with a case that maintaining minimum flows as close to natural levels as possible ought to be ensured for various reasons given in its note marked APAD-59. Taking into account the flushing flows as well as the minimum flows required for other purposes this lower riparian State quantified it at a figure of about 198 TMC

However, so far as the minimum environmental flow required was concerned the lowest riparian state suggested that

on the calculations and data observed by CWC in the upstream sites of Vijayawada on the basis of 10 daily virgin flow data it should be 32.5 TMC for environmental flows and protection of ecology. A quantity of 165.25 TMC of minimum flow, according to it, was also required for other objectives.

From the stand taken by the state of Karnataka and the state of Andhra Pradesh there can be no manner of doubt that both these states realize the importance of the minimum flows for protecting of the environment and ecology and have no objection for the same.

So far as the state of Maharashtra is concerned, though in principle the stand taken by it on this aspect of the matter is not inconsistent with the stand of the other two riparians, yet it has opposed any provision for maintaining the minimum flows on the only ground that the river Krishna is not a perennial river. It has asserted that some of the tributaries of river Krishna get completely dry in the lean season and in view of the restrictions placed by the Bachawat Tribunal (KWDT-1) on the utilization of the available water no burden could be cast upon this state to maintain the minimum flows.

So far as the stand taken by the state of Maharashtra is concerned opposing the stand of Karnataka and Andhra Pradesh, suffice it to say that this stand is belied not only by the findings returned by the KWDT-1 but also the observations on the spot made by the working group which had submitted its report to WQAA to which a reference has already been made here in above.

It may be noticed that KWDT-1 (Bachawat Tribunal) had indicated in un-equivocal terms that during the dry season though the discharges in the Krishna river through its various tributaries, which include Bhima and Tungbhadra which are in themselves major inter-state rivers, are very low yet as the rivers are fed by under ground springs, they are not completely dry.

Broadly speaking, 'environmental flows' indicate the flows required to meet the ecological needs while 'minimum flows' indicate the flows required for the environment plus flows needed for other purposes viz human use such as bathing, washing, religious needs etc. Incidentally, the terms of reference of this Working Group of WQAA include

“Recommended criteria to be followed for minimum flow in different types of rivers from environmental and other considerations”. However, the terms ‘minimum flows’ and ‘environmental flows (EF)’ or ‘environmental flow requirements (EFR)’ are generally used to convey the same meaning (just as ecology and environment) and that is the way these have been used in the report of the working group to advise on the minimum flows in rivers (July 2007).

The Working Group of WQAA in its Report, considered the practices and guidelines at global level, problems in implementing other country’s guidelines in India, studies undertaken etc. In the 4th meeting of the Working Group held on 18th February 2005, it was decided (i) to adopt methodology similar to Tennant Method for recommending the minimum flows (ii) Naturally occurring minimum flows with 99% exceedance can be taken as the minimum flows required for maintaining the in-stream environment. A range of minimum flows may be recommended as flushing flows during the flood period. The flows to be recommended may be expressed as percentage of 75% dependable annual flows (iii) Since the

Himalayan rivers carry large snow melt component during summer months, the recommendations may be different for rivers originating in the Himalayas and for Other Rivers.

The Working Group of WQAA carried out minimum flow studies in various Indian rivers including Krishna and Godavari. With a view to determine pristine flows in the rivers, such sites were selected for minimum flow study, which were not affected by upstream regulation and man-made changes. In case, such effects are pronounced, the flow data needs to be corrected in order to obtain the flow data for near virgin conditions. For Krishna Basin, the sites selected for the minimum flow study were Sadalga at Dudhganga, Huvinhedgi at Krishna, Yadgir at Bhima and Agraharam at Krishna. For the selected sites, the following studies were carried out:

- 1) Flow duration curves of 90, 95 and 99%.
- 2) Flow Frequency Curve
- 3) Frequency analysis of the following minimum flow variables:
 - a) Minimum flow volume
 - b) Minimum flow discharge

- c) Minimum flow stage
- d) Minimum flow duration

It was seen that the minimum 10-daily flows with 99% exceedance expressed as a percentage of the 75% dependable annual flow varies from zero to 0.62% at the four sites of Krishna river. Similarly, the annual peak flow varies from 747 to 1002%.

In conclusion, the Working group of WQAA recommended the following for the Non-Himalayan or Other Rivers:

“Minimum flow in any ten daily period to be not less than observed ten daily flow with 99% exceedance. Where ten daily flow data is not available, this may be taken as 0.5% of 75% dependable annual flow expressed in cubic meters per second.

Adopting the methodology recommended by the Working Group of WQAA the minimum flows required in Krishna Basin was worked out taking 0.5% of the 65% annual dependable flows. For this, Krishna Basin has been divided

state-wise and river-wise in to 7 reaches for the purpose of assigning minimum flows. These are as follows:

A. Bhima Sub-Basin

- 1) Origin (Khadakwasla Dam) in Maharashtra to Maharashtra-Karnataka Border (Begumpur Barrage).
- 2) Maharashtra-Karnataka Border (Begumpur Barrage) to Karnataka-Andhra Pradesh Border (Confluence of Bhima with Krishna)

B. Tungabhadra Sub-Basin

- 3) Origin (Upper Bhadra dam) to Tungabhadra Dam in Karnataka
- 4) Tungabhadra Dam to Karnataka-Andhra Pradesh Border (Confluence of Tungabhadra with Krishna).

C. Krishna Sub-Basin

- 5) Origin (Koyna Dam) to Maharashtra-Karnataka Border (B 6a Kurundwad CWC Site)
- 6) Maharashtra-Karnataka Border to Karnataka-Andhra Pradesh Border (Confluence of Bhima with Krishna and Tungabhadra with Krishna)

7) Karnataka-Andhra Pradesh Border to Sea.

From the annexed Table, it is clear that in the seven reaches of Krishna Basin, the least requirement of minimum flows is 60 cusec in the reach from the Khadakwasla Dam to the border between Maharashtra and Karnataka on river Bhima and the highest comes to 365 cusec in tail portion of the Krishna leading to the sea in Andhra Pradesh.

The normal date of withdrawal of southwest monsoon in the Krishna Basin is between the 1st October and 15th November (KWDT-1 Report, page 16). As such, there would be some flow in the Krishna and its tributaries during October and November and these months are not likely to go dry.

The dire need to maintain minimum flows, therefore, would arise in the period of December to May.

The apportionment of the water between the three States done by KWDT-II is from 65% of the dependable flows. The fourth share of the water is meant for the Environment. As

such, it was considered to work out the minimum flows also at 65% dependability to meet out the environmental requirement as used in the formula devised by the Working Group and utilized by this Tribunal. For this, the 104 years Sub-basin wise Gross Flow Series prepared by Dr. Subhash Chander in C III D 81/82, Annexure 15 to 27 were utilized and 65% dependable flows calculated for each sub basin and the same were brought on par with the 65% dependable flow of 2295 TMC arrived at by this Tribunal by using the multiplication factor of $2295/2116=1.085$.

Reach-wise minimum flows, in cusecs, were worked out by multiplying the 65% dependable flow of each reach with 0.5/100. The value of discharges in every reach, in cusecs, has been provided in Col 9 of the Table. Reach-wise and State-wise volumetric requirements (in TMC) have also been worked out in order to have a rough idea of the total quantity involved and shown at the end of the Table.

As indicated in the annexed table referred to hereinabove, in the Bhima river basin i.e. K-5 the State of Maharashtra shall ensure the release of 60 cusecs flow from Khadakwasla dam up

to Begampur barrage and shall further ensure a flow of 105 cusecs from Koyna dam to the border of Maharashtra and Karnataka.

So far as the State of Karnataka is concerned, it shall ensure a flow of 70 cusecs from Begampur barrage in K-6 sub-basin up to the confluence of Bhima river with Krishna river.

Further in K-8 sub-basin, the State of Karnataka shall maintain a flow of 90 cusecs from Upper Bhadra Dam to Tungabhadra dam and a flow of 100 cusecs from Tungabhadra dam upto the confluence of Tungabhadra with Krishna river.

Apart from the above in K-2, K-3, and K-4 sub-basins, the State of Karnataka shall maintain a flow of 215 cusecs from Maharashtra and Karnataka border to Andhra Pradesh border upto the confluence of Bhima with Krishna.

The State of Andhra Pradesh shall ensure a flow of 365 cusecs from the confluence of Krishna to

Tungabhadra upto Prakasham barrage and thereafter the sea.

Thus, in all the State of Maharashtra shall ensure a flow of approximately 2.574 TMC to the lower riparian State of Karnataka and the State of Karnataka shall ensure a flow of 7.410 TMC to the lowest riparian Andhra Pradesh and the State of Andhra Pradesh shall ensure a flow of 5.894 TMC upto the sea. All this shall be in accordance with the releases from the places/points as indicated in the annexed table referred to hereinabove.

The three states shall have to provide and maintain above discharge of running waters in their territories of the rivers. Tentative sources of water to be released for meeting out the minimum flows during non-monsoon period have been indicated in the annexed Table.

However, the state governments may have the liberty to provide the water as per their convenient resources from time to time. The Table also provides the monitoring points where the Implementation Board can check up whether the required quantity of flow in the river is being maintained or not.

Minimum Flows In Krishna Basin

[illegible]

**DISTRIBUTION AND APPORTIONMENT
OF AVAILABLE WATER:**

We have already dealt with the two limbs of Issue No.2 which relate to the available flow of water in river Krishna and the dependability at which it was to be quantified for apportionment. The last limb of Issue No.2 relates to distribution and apportionment of the flow of river Krishna. We have already observed while dealing with Issue No.2 and at some other places earlier in this report that this third limb of Issue No.2 relating to distribution and apportionment of flow of river Krishna would be considered later. Having considered all other issues and the questions having bearing on the point in hand, we now proceed to consider the distribution and apportionment of the available water.

The availability of water is limited but demands of the riparian States are unlimited. All the demands, as projected by the three States, are not possible to be satisfied since the available water falls much too short of their plans and requirements as projected in the master plan of the three States. Even KWDT-I had found that the demands, as then extended by all the three States, totalled to more than 4000 TMC. The planning of the States is only wishful planning

against the reality of availability of yield of river Krishna. It seems there is competitive planning between the States. Therefore, the demands for the allocation are to be curtailed on account of constraints of available flows of river Krishna for utilization.

Some of the needs indicated in the plan may be genuine but sans water, huge planning becomes unrealistic. We must plan according to the available resources. It becomes a little complicated to discern out of heap of projects, which one is genuine or urgent and necessary to be provided for.

The total demand of State of Maharashtra as per its plan, CII-3F, comes to 1168 TMC. It includes future plans as well. The total demand of the State of Karnataka based on its Master Plan, CI-D-6 is more than 1400 TMC. So far as the State of Andhra Pradesh is concerned, its total demand comes to 2224.72 TMC as per Technical Advice Committee Report, CIII-D-101. It may though be pointed out here that in so far as demand based on Technical Advice Committee of the State of Andhra Pradesh is concerned, this report has been allowed to be placed on record with some reservations as indicated in the order of the Tribunal dated 26.8.2008. Nonetheless, what is intended to be pointed out here, is that the parties have their ambitious

plans to demand water a total whereof comes to well around 4800 TMC, if not double of the distributable water as found by us, falls short not by any large margin.

In such a scenario as indicated above, the distribution of water of Inter-State riparian river becomes more difficult and complicated. If there was any straight jacket formula applicable to all situations, things perhaps may have been easier e.g. if the total yield had to be distributed equally, there would have been no difficulty but it is not possible to apply such a formula. Needs of the people of different sub-basins of a river valley differ. The area of different States falling in the basin may differ. The drought prone area in different States falling in the basin may differ. In certain circumstances, a State may have to divert water for use outside the basin. There are variety of reasons as a result of which no uniform formula can be applied. Therefore, the best way, which has been found for distribution of water of an inter-state river is to apply principle of equitable distribution amongst the riparian States.

By and large, principle of equitable distribution of waters is almost uniformly adopted all over the world. But this principle of equitable distribution also does not have any straight jacket formula

since each river basin is unique and equities may differ in different parts of a basin. The subject matter of equitable apportionment is the manner in which benefits and burdens are tried to be equalized, as far as practicable and possible, looking to the reasonable demands in the interest of the population of different areas of the basin. The imbalances have to be mitigated and it is to be ensured that any State, generally the upper riparian State, may not have any unfair advantage over the lower riparian States which are situated in a comparatively disadvantageous position. It may have a touch of distributive justice. Again, no State may suffer only for the reason that its drainage contribution to the total yield of the river is less than that of the other States, as it must not lead to the conclusion that the State with lesser generation of water in the basin, may proportionately be allocated lesser share in the flows of the river.

Running water across the riparian States cannot be taken to be fixed property of any State like a dry land. It is always considered as *res communis* together with the air, the sea and the seashore. The waters of a river as a whole runs in and out continuously. Inhabitants of the basin area depend upon the running flow/storage of the water for their needs. It has to be ensured that it is fairly managed. In the

matter of equitable apportionment, some guidelines must be there for balancing benefits against injuries, by use of water, to the other State. It should be a principle of care and share.

The competing interests of riparian States have to be balanced in a reasonable and equitable manner. The doctrine of equitable apportionment is though the best principle to apply in the matter of sharing of river waters running through different States in one country but there is no fixed or uniform formula or rule, that can be applied. On many occasions, various circumstances and factual position cannot be ignored and preferences may have to be applied in a rationalized manner. As to what amounts to a reasonable and equitable share is a question of fact to be determined in each particular case in the light of all the relevant factors. Priority in the uses of waters may differ between one basin and another as also between one part of basin and another.

The domestic uses rank first in order of priority which includes need for drinking water. Priorities may vary with the season and may vary as between arid and well-watered areas. Some authors and those working in the field have tried to provide ranking of competing uses

of water. The requirement for drinking water has top priority defeating any other interest. The next priority is that of irrigation, as other things may wait but not food production. Drinking water and food are both necessary for survival. The other important priority is about generation of power since uses of many devices and gadgets have become part of present day life and it is also required to help out in agricultural operations and for the inhabitants of the villages as well. The priorities may also change with times e.g. navigational use may have had higher position in the list of priorities when means of transport by use of different kind of power or surface transport had not developed but in the present scenario it is bound to slip down to a lower position. Some efforts seemed to have been made to prioritize the items as follows:-

- (a) Domestic use;
- (b) Navigational use;
- (c) Flood control use;
- (d) Hydroelectric use;
- (e) Agricultural and irrigation use;
- (f) Competing priority between:-
 - (i) Irrigation vs. Drinking water;

- (ii) Rural vs. Urban demand;
- (iii) Irrigation/power generation vs. Flood moderation;
- (iv) Cost of construction of uses vs. Maintenance of minimum flow;
- (v) Irrigation vs. Fish culture;
- (vi) Wet crop vs. Aqua culture;
- (vii) Rice cultivation vs. Irrigated dry crop;
- (viii) Irrigation vs. Hydropower generation;
- (ix) Peak demand of hydropower generation vs. Peak demand for irrigation and ;
- (x) Tourism vs. Hydropower.

The question of relative priorities and competing interest, as indicted above, have to be adjusted taking into consideration the principles of reasonableness and equity and also taking into account peculiarities of basin-wise scenario.

The State of Maharashtra also pleaded for distribution of surplus water on well-established principles of legitimate economic and social needs of each of the States in such a manner as to provide maximum benefits to the habitants of the State. A note of arguments, MHAD-5 has also been furnished. A reference to the “Law of

International Drainage Basins”, edited by A.H. Garretson & others, has been made, particularly to Chapter-II dealing with equitable utilization where an international drainage basin has been defined as a geographical area extending over two or more States determined by watershed limits of system of waters including surplus and underground waters flowing into a common terminus. It is further observed: “Thus, while a physical entity, such a drainage basin extends across or along the boundaries of two or more States which are normally determined by political considerations, without regard to their possible effects upon the natural economic unity of the region.”

REPORT/ DECISION

A reference to Helsinki Rules of International Law, MHAD-7, has been made, particularly to Chapter-II, Article V, which says that reasonable and equitable shares be determined in the light of relevant factors of each particular case e.g. geography of the basin, its drainage area, hydrology of the basin in particular the contribution of water by each basin State, the past and the existing utilization of waters of basin, economic and social needs of each basin State, the population dependent upon the waters of the basin in each basin State, the comparative cost of alternative means, availability of other resources and adjusting conflicts amongst the uses. It also says that it is to be

considered that as to what extent, needs of a basin State may be satisfied, without causing substantial injury to a co-basin State. All relevant factors are to be considered together and a conclusion reached on the basis of whole consideration.

The learned Counsel appearing for the State of Maharashtra also took us through the observations made by KWDT-I in its report at pages 93-96 where it is observed : “There is no mechanical formula of equitable apportionment applicable to all rivers. Each river system has its own peculiarities. In arid regions, the principal need may be for irrigation, while in humid regions there may be more need for power plants, municipal water supply, navigation and preservation of fisheries.” It is again observed at page 138 of the report of KWDT-I : “Instead of laying down a rigid order of priority, a pragmatic and flexible solution is more appropriate. The question whether one use should prevail over another should be decided on a consideration of all relevant factors in each particular case. “ It further goes on to say, “There is no fixed order of priority for other uses. Irrigation may become the major use of the world’s rivers, but it does not follow that it should occupy a preferred position in every river basin over hydro electric power. The relative importance of the two uses in the river

system should be examined to ascertain which of them should prevail over the other.” It is submitted that for the purposes of equitable apportionment, relevant factors would be basin population, irrigation facilities, need for drinking water and livestock and so on and so forth.

So far as factors like drainage contribution by each State, the population within the basin, the extent of irrigated and unirrigated area and drought prone and scarcity areas etc. are concerned, these factors may not individually be decisive but certainly have a relevance collectively to assess the overall situation about the needs of the area and the extent to which such needs can be catered to. The extent of availability of water is definitely a factor which weighs most in allocation of share to each State. In this connection, we may see the facts which had been placed before KWDT-I for taking into consideration in allocation of water to the riparian States. The KWDT-I has given a very detailed description of relevant factors as found at pages 13 to 19 of the report. We may, however, peruse a chart at page 172, which, it appears, was provided by the State of Maharashtra in its MR No.26 dated July 25, 1973, which is reproduced below:-

State	Population (millions)	%age	Culturable area (in T Hectares)	%age	Scarcity area sq. miles	%age	Drainage contribution TMC	%age	Equitable %age
1	2	3	4	5	6	7	8	9	10
Andhra Pradesh	12.06	31.20	5,429	26.40	1,929	31.30	336.6	16.34	21.74
Mysore	14.50	37.40	9,270	45.43	6,113	31.30	760.9	36.94	37.77
Mahara-Shtra	12.15	31.40	4,749	28.17	8,940	55.70	962.5	46.72	40.49
	38.71	100.00	20,448	100.00	16,982	100.00	2,060.0	100.00	100.00

REPORT/ DECISION

According to the above noted extract of the statement, which was submitted by the State of Maharashtra, the Mysore State, as it then was, had the highest population in the basin being 14.50 million constituting 37.40% of the basin population. Population of Andhra Pradesh and Maharashtra was indicated to be 12.06 million and 12.15 million which constituted 31.20% and 31.40% respectively. Culturable area in thousand hectares in the whole basin is shown to be 20,448 thousand hectares out of which 45.43% was in Karnataka, 28.17% in Maharashtra and 26.40% in Andhra Pradesh. The scarcity area in Maharashtra is the highest being 55.70% followed by

Karnataka 31.30% and Andhra Pradesh 13%. So far as drainage contribution is concerned, the highest contribution was shown that of Maharashtra being 962.5 TMC, Karnataka 760.9 TMC and Andhra Pradesh 336.6 TMC at 75% dependability and the percentage of drainage contribution has been indicated in column 9 as 46.72%, 36.94% and 16.34% of the States of Maharashtra, Karnataka and Andhra Pradesh respectively.

The argument which was advanced on behalf of the State of Maharashtra to allocate the water in proportion to the factors indicated above was not accepted. The State of Karnataka had also projected similar view and both the States had submitted that no more water should be allocated to Andhra Pradesh except the protected utilization but KWDT-I considered the contentions and observed that the demands of Andhra Pradesh could not be simply shut only for the reason that the extent of their protected utilization was 749.16 TMC. Total protected use of the three States was to the extent of 1693.36 TMC. Hence, what remained to be allocated was only 366.64 TMC. However, despite the fact that Andhra Pradesh had maximum protected utilization, still considering the needs, around 50 TMC was further allocated to Andhra Pradesh making its total allocation to the

tune of 800 TMC. While doing so, the KWDT-I observed that though Andhra Pradesh had been allocated enough water but that was due to the historical reasons as these utilizations have been coming down since a long time. But it was felt that need of Telengana part of the State of Andhra Pradesh had yet to be addressed. Therefore, more allocations were made.

We have already seen that the State of Karnataka was allocated 700 TMC and the State of Maharashtra 560 TMC. The KWDT-I was conscious of the fact that the State of Andhra Pradesh was allocated much more water but the reason was that it had developed its water use system since quite a long time before, so historical reasons weighed in protecting and allocating 749 TMC for Andhra Pradesh.

As regards the States of Maharashtra and Karnataka, the Tribunal observed at page 174 of its report : “.....in spite of their need for water, could not or did not utilize the waters of river Krishna in the past to the extent they would have been held entitled to do so had an equitable distribution taken place at some earlier date.” Hence, their share was less than that of the State of Andhra Pradesh.

The protected utilization of Maharashtra was 439.6 TMC and that of Karnataka it was 504.55 TMC.

The three States have indicated the present position about basin population etc. and in that connection, affidavit of Shri Deokule, the witness of the State of Maharashtra, may be referred to (CII-D-119), where at page 5, in paragraph 3.2, he gives a table said to be based on National Commission on Population – May 2006/Revised December, 2006. It is Table No. 1. The same is reproduced below:-

Table 1

(Basin population in lacs)

Sl.No.	Year	Maharashtra		Karnataka		Andhra Pradesh	
		Population	Annual Growth factor	Population	Annual Growth factor	Population	Annual Growth factor
1.	1991	185.14		219.96		193.24	
2.	2001	225.18	1.01977	258.82	1.01640	229.54	1.01736
3.	2006*	309.91		327.78		283.34	

* Projected

According to Table 1 quoted above, the basin population of the State of Karnataka is the highest being 327.78 lakhs, next it is Maharashtra

its basin population being 309.91 lakhs and that of Andhra Pradesh it is 283.34 lakhs. In this chart, annual growth of population in Maharashtra is also shown to be the highest.

Table No.3 in paragraph 3.4.1 of the affidavit of Shri S.T. Deokule, said to be compiled on the basis of the Central Water Commission in Water Data Book 2005, showing position of irrigated areas is reproduced below:-

(Area figures in thousand hectares -2001-2002 –Provisional)

Sr. No.	Name of the State	Geographical area	Net sown area	Gross sown area	Net irrigated area	Gross irrigated area	Percentage of net area irrigated Col.(6/4) x100	Percentage of Gross area irrigated Col.(7/5) x100
1.	2	3	4	5	6	7	8	9
1.	Maharashtra	30771	17619	22381	2975	3938	17	18
2.	Karnataka	19179	10031	11670	2565	3089	26	26
3.	Andhra Pradesh	27507	10410	12756	4238	5549	41	44
4	India	328726	141346	190276	55877	76443	40	40

According to the table given above, in Andhra Pradesh 41% of the net area is shown in Col.8 to be irrigated and that of the Karnataka it is 26% and 17% that of State of Maharashtra. The gross and the net irrigated area in Andhra Pradesh is shown to be the highest. As per the table, the figures relate to 2001-02 and they are provisional.

There is yet another table No.4, as given in paragraph 3.5 of the affidavit of Shri Deokule, regarding population dependant on agriculture for livelihood referring Census Inf. India 2001 for the year 1991 and 2001 is reproduced below:-

Sr.No.	State	Year 1991			Year 2001		
		Agricultural Labourers	Cultivators	Total	Agricultural Labourers	Cultivators	Total
1.	Maharashtra	1569876	2794427	4364303	2094159	3721260	5815419
2.	Karnataka	3241526	3036153	6277679	4074558	3643800	7718358
3.	Andhra Pradesh	3066384	2133027	5199411	3644598	2174150	5818748

According to the Table above, number of cultivators in Maharashtra is the highest being 3721260. The next is State of Karnataka with number of cultivators being 3643800. The number of cultivators in

Andhra Pradesh is 2174150 only. It is thus submitted that looking to the number of farmers, Maharashtra has the highest number of farmers and the next is Karnataka and Andhra Pradesh has the lowest.

On the basis of above facts, State of Maharashtra claims higher share in the water to be distributed.

So far as the State of Andhra Pradesh is concerned, its case is that despite realizing the need for Telangana part of Andhra Pradesh, as observed by KWDT-I at page 177/178 of its report, no allocation was made for projects like Upper Krishna Project Extension to Andhra Pradesh, Bhima Project and Tungabhadra Left Bank Canal Extension, as indicated in col.1 of Table No.1 at page 189 of the report of KWDT-I which would have enabled Andhra Pradesh to provide irrigation facility to scarcity area of Mahboobnagar District in backward Telangana region. But we may point out here that KWDT-I had allocated 17 TMC for Jurala Project which lies in Mahboobnagar. Further its case is that water scarcity and drought prone areas in Andhra Pradesh need water and that Govt. of India prepared a report on Drought Prone Area Programme (DPAP) and Desert Development Programme (DDP) in 2002 and identified Districts and Blocks affected by drought. In Andhra Pradesh, 94 blocks had been

identified for DPAP and 16 blocks for DDP. These areas lie within and outside basin as well.

It is also submitted that water needs to be allocated for fluoride affected areas and at page 10 of the affidavit of the witness of Andhra Pradesh Shri V.V.S. Rama Murthy, in paragraph 5.2.1, it is stated that in Andhra Pradesh there are 12068 habitants who are fluoride affected. The highest number of fluoride affected inhabitants is in Anantapur where there are 1491 such persons, in Warangal 1382 and in Nalgonda and Prakasam 1122 persons in each of these districts. It is because of bad quality of water. But the total population of the aforesaid districts is not indicated.

The State of Andhra Pradesh also places reliance on the observations made by KWDT-I at page 126-127 of the report to submit that needs of the inhabitants outside the basin are also to be considered since the relevant consideration should be the interest of the State as a whole and all its inhabitants. It cannot be confined only to the basin area of the State. In this connection, it is submitted that Rayalaseema region lies in Pennar basin and a large area of Rayalaseema region depends on Krishna water. This region is chronically drought prone with no independent source of water. In

Table-3, page 12 of the affidavit of Shri Rama Murthy, the proposed utilization, out of remaining water, is indicated totaling to 227.50 TMC. These schemes, seven in number, include schemes outside Krishna basin like Telugu Ganga Project, Handri Niva Sujala Sravanti, Galeru-Nagari Sujala Sravanti and Veligonda Project. Only three schemes, which seem to be in basin are SLBC, Kalwakurthy Lift Irrigation Scheme and Nettempaddu Lift Irrigation Scheme, which require 30 TMC, 25 TMC and 22 TMC respectively.

So far as the drought prone area is concerned, Andhra Pradesh in Annexure-3 of APAD-60, has shown 67650 sq.km. covered under the DPAP and 17079 sq.km. under DDP but what we find is that Annexure-3, annexed with APAD-60 is not confined to the drought affected area within the basin but it includes areas outside the basin as well. Hence, the need projected for drought prone area is for outside and inside basin both.

So far as State of Maharashtra is concerned, it has shown its area covered under DPAP to the extent of 50242 sq.km. as per MHAD-9. This whole area is within Krishna basin. It is indicated to be 72.38% of the total drought prone area of Maharashtra. This area mainly lies in the districts of Pune, Satara, Sholapur, Ahmed Nagar,

Beed and Omanabad and for this purpose they proposed Krishna Bhima Stabilization Project with 115 TMC of water to be transferred from K-1 Sub-basin to drought prone area in K-5 and K-6 Sub-basins. It is also indicated that they have planned and revised five other projects at 50% dependability, namely, Revised Urmodi, Nira Deogarh, Bhama Askhed, Gunjani at Velhe and Sina Nimgaon. Maharashtra also demands 25 TMC for power generation as per its master plan, C-II-3F, paragraph 5.3, page 52 and MHAD-5, page 6. It will require westward diversion for Koyna Hydro Project.

State of Karnataka has furnished KAD-32 showing its DPAP area to the extent of 52375 sq.kms. The area lies in the Districts of Belgaum, Bidar, Chikmagalur, Chitradurga, Devangere, Dharwar, Gadak, Gulbarga, Hasan, Haveri and Tumkur, besides some other areas. All this area of 52375 sq.kms. lies within basin. This area is out of total drought prone area of 62592 sq.kms. in the State of Karnataka.

It has been indicated earlier that the State of Andhra Pradesh has shown its drought prone area together with that lies both in Krishna basin and outside but the State of Karnataka has furnished a chart along with KAD-32 which shows the drought prone area of

Andhra Pradesh as 45.493 sq.kms. in Krishna basin in the State of Andhra Pradesh. The total area covered under DPAP/DDP is indicated as 89109 sq.kms. in whole of Andhra Pradesh. This chart is shown to have been prepared on the basis of the statement enclosed with the letter dated 8.8.2008 received from the Advocate on Record of Andhra Pradesh sent to the Advocate on Record of Karnataka.

So, the position as it emerges, in so far as it relates to the drought prone area in Krishna basin is that the State of Maharashtra has 50242 sq.kms. covered under DPAP. The State of Karnataka has an area of 52375 sq.kms. in Krishna basin covered under DPAP and the State of Andhra Pradesh has drought prone area covered under DPAP and DDP measuring 45493 sq.kms. in Krishna basin. The highest drought prone area in Krishna basin is in the State of Karnataka whereas State of Andhra Pradesh has smallest drought prone area in Krishna basin as compared to Maharashtra and Karnataka.

In the background of the facts and figures, as indicated in the preceding paragraphs, the needs of the States in the Krishna basin may be considered. These facts relate to population of three States in basin area, their number of farmers, drainage contribution, drought prone

area, the extent of irrigated area in each State etc. and the allocations already made.

As a matter of fact, all the three States prepared their master plan in their own way and generally it was indicated that their needs and requirements for the projects are to be found in their master plan. The Tribunal had directed the parties to cull out the schemes and projects for which the States had projected their requirements. A list of number of projects was handed down requiring huge volume of water. We even find that some requirements are for the need in the year 2050 or so. Some of the schemes are said to be under construction without any sanction or approval of the concerned authorities. In any case, high figures of demand have been furnished by the States as indicated earlier also but the availability of limited water for distribution is 'our main constraint'. Not many needs or requirements as projected can be met or even be addressed to. If we go by the plans of the States for the purposes of their requirements, it has been seen that Andhra Pradesh has projected its needs to the extent of 2224.72 TMC. The requirement of State of Maharashtra is to the extent of 1168 TMC and that of the State of Karnataka is more than 1400 TMC. It all may be near about 4800 TMC. It is true that

one single factor does not count much in allocating the water of an Inter-State river but all the factors indicated earlier taken together have a cumulative effect in assessing the needs and scope of allocation for the projects of a particular State.

As against the requirement, we must now find out as to how much water is available for distribution. In this connection, we may refer to our finding to the second limb of issue No.2 under which a water series of 47 years has been prepared to assess the availability of water in river Krishna. Presently, we are concerned with two figures, namely, the availability of average flows which comes to 2578 TMC and availability at 65% dependability which figure comes to 2293 TMC. It has also been held that it would be appropriate to distribute and apportion the water at 65% dependability, that is to say, the distributable water amongst the three States is found to be 2293 TMC. It has also been found that while distributing the available water at 65% dependability, the allocations as made by KWDT-I at 75% dependability are not to be disturbed. The allocation at 75% dependability, which was found to be 2060 TMC by KWDT-I and the return flows to the extent of 70 TMC are maintained, as allocated by KWDT-I. Thus, $2060 \text{ TMC} + 70 \text{ TMC} = 2130 \text{ TMC}$ already stands

apportioned and distributed by the previous Tribunal. The available water at 65% dependability is found to be 2293 TMC. Thus, the dependable flows as available for distribution presently at 65% dependability are to the extent of 163 TMC (2293 TMC minus 2130 TMC=163 TMC).

So far as the surplus flows, available for distribution are concerned, it is to be noted that the average flows of 47 years' water year series come to 2578 TMC. So, 2578 TMC minus 2293 TMC = 285 TMC, it is the amount of available surplus flows. We have already discussed earlier that the previous Tribunal had allowed 150 TMC to the State of Andhra Pradesh for the purposes of carryover storage in Nagarjunasagar Dam and Srisailem Dam. This permission granted to Andhra Pradesh to have carryover storages to the extent of 150 TMC was till the review of the decision of the previous Tribunal. The permission to store 150 TMC for carryover storages was over and above 800 TMC which had already been allocated to the State of Andhra Pradesh against dependable flows. The whole amount of dependable flows stood allocated. Therefore, 150 TMC for carryover storages in Andhra Pradesh was out of the surplus flows and not out of any dependable flows. This arrangement has not been disturbed.

That being the position, out of the surplus flows of 285 TMC, there remains only 135 TMC for further allocation after having allowed 150 TMC to Andhra Pradesh for carryover storages.

The net result is that now the water available for distribution and apportionment is 163 TMC out of dependable flows at 65% dependability and 135 TMC out of surplus flows at average availability. We may now proceed to consider the claims of the parties for distribution and apportionment. First of all, we take up the case of the State of Karnataka.

“A” - So far as the State of Karnataka is concerned, we find that two specific issues had been framed touching the matter of allocation for certain projects of Karnataka. Issue No.14 is to the effect ‘as to whether State of Karnataka is entitled to storage of water up to the level of 524.256 m in Almatti Dam or that the height of Almatti Dam be restricted to 515 m or 512 m’. It has been held that Karnataka is entitled to have a storage of water up to the level of 524.256 m. Detailed reasons have been given and full discussion has been held while dealing with issue No.14. Need to have a storage for the areas, which are to be provided water from the Almatti reservoir with height up to

524.256 m, has been upheld. The State of Karnataka has been found to be entitled to utilize 303 TMC from Almatti Reservoir, that is to say, its utilization has increased from 173 TMC to 303 TMC i.e. by 130 TMC. Therefore, 130 TMC is allocated to Karnataka under Upper Krishna Project Stage-III. Out of this 130 TMC, 25 TMC shall be available to Karnataka at 65% dependability and the remaining amount of water, i.e. 105 TMC, out of the surplus flows.

“B” - The other issue is issue No.27. It related to the allocations to Karnataka mainly for the projects Upper Tunga, Singatlur and Upper Bhadra, besides some other smaller projects requiring small amount of water. Under issue No.27, it has been held that Karnataka is entitled to allocation for the three projects mentioned above, namely, Upper Tunga, Singatlur and Upper Bhadra. For the project Upper Bhadra Stage-I, 10 TMC has been allowed, for Upper Tunga 12 TMC and for Singatlur 18 TMC. The total allocation thus comes to 40 TMC for the aforesaid three projects. Reasons and need to allow such allocations have been fully discussed under issue

No.27. This 40 TMC would be drawn by the State of Karnataka out of dependable flows at 65% dependability.

All these above noted projects, including Upper Krishna Project Stage-III, are to serve drought prone areas of the State of Karnataka.

“C” - In view of the fourth share for maintaining the minimum flows, further 7 TMC is provided to Karnataka for maintaining minimum flows out of the 65% dependable flows.

The minimum flows are to be maintained according to the details indicated in the table in the preceding chapter dealing with minimum flows.

Now we come to consider the case of distribution of flows to the State of Maharashtra.

“A” - Amongst the foremost demand of the State of Maharashtra is for 25 TMC for Koyna Project, which involves west ward diversion. It is for the purposes of generation of hydro electric power. As a matter of fact, the State of Maharashtra pleads for removal of the restriction placed on

west ward diversion in Clause X of the Further Report at page 99 which provides as under:-

“Clause X (1) - The State of Maharashtra shall not out of the water allocated to it divert or permit the diversion of more than 67.5 TMC of water outside the Krishna river basin in any water year from the river supplies in the Upper Krishna (K-1) sub-basin for the Koyna Hydel Project or any other project.

Provided that the State of Maharashtra will be at liberty to divert outside the Krishna river basin for the Koyna Hydel Project water to the extent of 97 TMC annually during the period of 10 years commencing on the 1st June, 1974 and water to the extent of 87 TMC annually during the next period of 5 years commencing on the 1st June, 1984 and water to the extent of 78 TMC annually during the next succeeding period of 5 years commencing on the 1st June, 1989.”

It is thus evident that Maharashtra was diverting about 97 TMC for Koyna Hydel Project which has been restricted to 67.5 TMC in a gradual manner indicated above. The State of Maharashtra prayed for removal of this restriction, in other words it pleads for allocation of 25

TMC so as to restore its generation of power with 97 TMC. A request for removal of the restriction has been made in the complaint of Maharashtra, C-II-1, page 7. It is indicated that the State of Andhra Pradesh had objected to the westward diversion in its complaint, C-III-1, paragraph 26, on the ground that it would reduce the flows in the main river to the detriment of the inhabitants of the State of Andhra Pradesh. So far as the State of Karnataka is concerned, it is submitted that it did not raise any objection to in its complaint CI-1 about the request of Maharashtra to lift the restriction on the westward diversion.

REPORT/ DECISION

The reason for placing restriction on westward diversion by KWDT-I are indicated at page 131 onwards in the report of KWDT-I. It appears that there was an Inter-State Conference on July 27, 1951, where Shri V.T. Krishnamachari, laid stress upon increasing the food production and its supplies in the shortest possible time and he had also referred to the report of the Irrigation Commission made 50 years before, emphasizing the need for irrigation development. It was indicated that the food problem of India could be solved only on such basis, i.e. development of irrigation in the country. But, at the same time, it is also to be noted that Shri Krishnamachari in his address also

said, “The shortage of power in Bombay City and surrounding areas should also be regarded as an urgent problem.” Ultimately, a Memorandum of Agreement appears to have been drawn in the conference, agreeing for diversion for Koyna Hydel Project to the extent of 67.5 TMC.

The contention of the State of Maharashtra is that the basis of placing restriction on west ward diversion for Koyna Hydel Project is a thing of the past. Shri Krishnamachari had highlighted greater need of irrigation now 60 years ago. We also notice that Shri Krishnamachari had referred to such a need having been stressed still 50 years earlier, by the Irrigation Commission, that is to say, now more than 100 years ago. It is pointed out on behalf of State of Maharashtra that during all this period, things stand drastically changed. In the year 1951 or the period prior to that, it was a period of severe food scarcity and famines but there has been a green revolution later and India is now self-sufficient on the food front. We find, no doubt, there has been tremendous increase in agricultural production and the position stands much improved and better as of now but the fact which cannot be ignored is that the population of India has also increased leaps and bounds during all this period and

the requirement of water for irrigation cannot be undermined. Water has to be available for irrigation and the production of food to keep pace with trend of increasing population.

Nonetheless, the position on the food front stands much changed and those conditions do not prevail any more as existed in 1951 or around that period when in the year 1963, as referred to at page 135 of the report of KWDT-I, the then Prime Minister, had written to the Chief Minister of Maharashtra that instead of diverting water for power production, it was more important to use it for irrigation as the power, for that matter, could be had from various sources. The above noted view was expressed in the letter after a statement was made in the Lok Sabha by the Minister of Irrigation on March 23, 1963, emphasizing the need of developing irrigation but at the same time also the need to generate and provide cheap power to develop the economy of certain areas of Maharashtra which cannot be developed except through industry based on cheap power (page 135 KWDT-I Report).

The State of Maharashtra, to emphasize that food situation has now much changed as compared to the earlier period, has referred to the observations made by the Supreme Court in one of the cases

(Narmada case) reported in (2000) 10 SCC 664 at page 764, paragraph 239, which is quoted below :-

“239. Since long the people of India have been deriving the benefits of the river valley projects. At the time of independence, foodgrain was being imported into India but with the passage of time and the construction of more dams, the position has been reversed. The large scale river valley projects per se all over the country have made India more than self-sufficient in food. Famines which used to occur have now become a thing of the past...”

It is a question of competitive need between irrigation and power generation in the State of Maharashtra. There was vehement opposition by the other two riparian States to the request of Maharashtra to allow diversion of more water for Koyna Hydel Project. The KWDT-I while dealing with this aspect, page 137 of its report, took into consideration the observations of various authors and quoted from The Economic Uses of International Rivers, 1931, by H.A. Smith “The chief practical function of law consists in regulating the conflicts of different interests. In order to do this it must make

some attempt to appraise and rank them in order of value, laying down that in a given situation one interest is to be preferred over another.”

Referring to Helsinki Rules, Article VI, KWDT-I the report pointed out that there is no inherent preference of one use over another. While referring to R.E. Clark, *Water and Water Rights* (1967) Vol. II, it was observed, “The preference of one use to another differs from basin to basin and from one part of a basin to another, and it may even vary within the same basin or sub-basin as conditions change and the relative importance of the use develops with time.” It then observed that there was no general rule of universal application establishing an order of priority for different uses either in international law or in the national law. It also observed relying on the *Law of International Drainage Basin* (1967) by A.H. Garretson and others that instead of laying down a rigid order of priority, a pragmatic and flexible solution is more appropriate. The question whether one use should prevail over another should be decided on a consideration of all relevant factors in each particular case.

On behalf of the State of Andhra Pradesh, it is submitted that the latest position about equitable apportionment is found in the

Resolution of Berlin Conference (2004) - Water Resources Law. The learned Counsel has referred to the definition clause in Article 3 of the Resolution defining the expression 'vital human needs' at Sl. No.20 of the definitions, 'Vital human needs' means waters used for immediate human survival, including drinking, cooking and sanitary needs, as well as water needed for immediate sustenance of a household'. Our attention is then drawn to Art. 13 of the Resolution which says that equitable and reasonable use is to be determined on consideration of all relevant factors in each particular case and Art. 14 provides that the allocation would be first to satisfy vital human needs which shall have an inherent preference over any other use (APAD-19 page 22). It is further submitted by the learned Counsel for the State of Andhra Pradesh that some alternate source can well be adopted for production of power instead of water e.g. thermal power plant, nuclear power or to have pumped storages.

The State of Karnataka also submits that according to National Water Policy, the preference is to be given for drinking water and then to irrigation before allocating for hydro power. Learned Counsel for the State of Karnataka submits that the population has increased therefore, necessity of food production has also increased and unless

irrigation is fully developed, no allocation be made for generating hydro power. The State of Karnataka also challenges the 'peaking need' demand of the State of Maharashtra as projected by it. Facts and figures have also been challenged to make out the point. The State of Maharashtra has stressed upon its peaking requirement for at least six to seven hours everyday but it is much less, with the available amount of allocated water and restrictions imposed.

One of the submissions made on behalf of the State of Andhra Pradesh is that there is no change in the situation as it prevailed at the time of allocation at 75% dependability. Their case that in case there is no increase in the availability of water, there is no occasion to consider more allocation for the purposes of power generation.

The State of Maharashtra has denied the allegations that any alternate source of energy can be substituted in place of hydro power generation at Koyna Hydrel Project. It is submitted that coal is in shortage and nuclear power is also no substitute which is highly costly as compared to the cost factor of hydro power especially at Koyna Hydro Project. So far as pumped storages are concerned, it has been submitted that in most of the places, this experiment of pumped storages has failed. It is also submitted on behalf of State of

Maharashtra that pumped storage itself requires a huge amount of electricity to operate it.

In the above background, the submission is that so far as Koyna Power Project is concerned, it has natural geographical advantage. Its site is peculiarly suited for hydro power generation because of the availability of high drop to move the turbines. There is no dispute that it is naturally well suited site for power generation. Mr. T.R. Andhyarujina submits that whole infrastructure is available and no further investment is to be made. Only with availability of some more water, the plant will work to its capacity producing sufficient electric power to satisfy the peaking need of the State. Mr. Andhyarujina further submits that the witness for the State of Andhra Pradesh produced on the point, namely, Mr. M.S. Reddy, has not given answer to the question put to the witness about likely prejudice to be caused to the State of Andhra Pradesh by westward diversion. He refers to cross-examination of Mr. M.S. Reddy, C-III-D-83-84-A, page 370 Question No.1070 “I am asking you that presently with the allocations made by Bachawat Tribunal, how is Andhra Pradesh prejudiced by the westward diversion projected to the extent of 119.8 TMC?” Ans: “I am very clear on this aspect. I have not looked at westward

diversion from Andhra Pradesh point of view at all. I have only looked at the point of view that westward diversion just for the purpose of producing electricity should be avoided, if possible. It is not that one of the States is prejudiced.” Thereafter, the witness admits that Maharashtra has unique advantage of having a high head for generating power from the western Sahyadri Mountain Range favourable for producing hydro electricity at cheap rates. The witness in reply again stated that it would not be an appropriate consideration for westward diversion.

We have already seen that by and large the views of different authors and even the view of KWDT-I is that though there is an order of priority for equitable apportionment, but there is no rigid or fixed principle nor straight jacket formula to be applied in every case, every situation and in every basin. The facts and circumstances of each case have to be examined and considered. We also feel that picking one purpose in isolation and totally ignoring other relevant factors altogether would result in extreme rigidity. It is true that in Berlin Conference, inherent preference for vital human needs has been emphasized. Such a preference, as sought to be provided, is well understandable. There cannot be any bigger need than that of human

sustenance. People cannot be deprived of drinking water and food. Nonetheless it has to be examined as to whether proper and sufficient attention has been paid to that aspect of the matter or not, in each case. It may perhaps be too much to say that each drop of water available in a basin must be utilized for irrigation alone before any other need is addressed to or unless every inch of land it provided with irrigation and no part of land is left unirrigated, no other need be considered. We are here concerned with the competitive need between irrigation use not drinking water and hydro power generation for which water may have to be diverted outside the basin. Perhaps absolute rigidity is not to be read in any such provision on the subject.

In case sufficient and proper attention has been already given to the irrigation need, a little share to other needs would not be absolutely prohibited. There has to be a reasonable balance in the use of available water keeping in mind different needs. Yet, another thing is that if the position as prevailed, at the time when restriction was imposed on westward diversion and 25 TMC was disallowed to be diverted, still continues, there would obviously be no occasion to make any provision otherwise. It is rightly submitted on behalf of State of Andhra Pradesh that with the position remaining the same, no

change would be permissible but all that we have to see is as to whether the same position is prevailing or not, or for that matter, a new situation has emerged which was not under consideration at the time when the previous order was passed. We may have to examine, with the lapse of time and otherwise, there is change in the scenario as it was then prevailing, or not.

In connection with the above, we find that in the year 1951, in the Inter-State Conference, while emphasizing preference for irrigation, the situation on the food front was acutely bad. The Hon'ble Minister had made a reference to develop irrigation as was proposed even fifty years prior to that by the Irrigation Commission, that is to say, sometime in the beginning of the 20th Century. During that period, India had faced famines and irrigation system was highly underdeveloped. Even in the sixties, India had not been in a comfortable position. But thereafter, during this period of around thirty years or so, namely, after occurrence of what is generally called as Green Revolution, the position has tremendously changed. The food production has increased manifolds though the population has also increased no doubt. The irrigation has developed and much more area has been covered under irrigation projects during all this period. The situation as prevailing then and as it is now, are

incomparable on the better side of it on the food front. The equities have changed. Therefore, same parameters cannot be applied as had been applied in 1950s or during the period when matter was under consideration before KWDT-I. It is needless to go into the statistics since it does not require so. It is a different matter that public distribution system may require streamlining so that food reaches to the people and it may perhaps be also necessary to check that food available is not wasted and smuggled out of the country.

Another change in the situation is that now more water is available for distribution. The yield has increased as would be evident from the series of 47 years prepared before this Tribunal. The dependability factor has also been changed making more water available for apportionment. The surplus water is also being distributed. The situation is much changed as compared to confining the allocation at 75% dependability. This factor also contributes to the emergence of a new situation now under consideration.

The KWDT-I had allocated in all 560 TMC to the State of Maharashtra plus return flows making total availability to Maharashtra 585 TMC. Out of that amount of water, 67.5 TMC was earmarked for Koyna Hydel Project and 52 TMC for Tata Hydel

Project Works etc. totalling to 122.5 TMC out of 585 TMC. The present allocations, which we have made to the States, have changed the position. Maharashtra, in view of the increased availability of water, is being allocated 43 TMC out of dependable flow at 65% dependability including the allocations for irrigation purposes in the districts of Satara, Ahmed Nagar, Sholapur and Pune, which are all scarcity areas, besides, 35 TMC for irrigation purposes out of surplus flows. The total further allocation thus comes to 78 TMC. Total allocation to Maharashtra at different dependability comes to 666 TMC in all. Thus, out of 43 TMC allocated from dependable flow, if 25 TMC is allowed to be diverted for Koyna Hydel Project, there is still addition of 18 TMC from the dependable flows at 65% dependability for irrigation plus 35 TMC from the surplus flows again for the irrigation purposes. This is also a new situation which has emerged. By allocating 25 TMC for Koyna Hydel Project, there will be no decrease in the allocations already made by KWDT-I at 75% dependability, rather despite the westward diversion, there will still be more water available to Maharashtra for irrigation purposes. As a matter of fact, 53 TMC more would be available to it to cater to the need of scarcity areas. The net result would be that out of total

allocation of 666 TMC, after further westward diversion of 25 TMC for Koyna Hydrel Project, there will still be 519 TMC available for irrigation at different dependability, of course, at 75% dependability as well. According to the allocations by the KWDT-I, only 463 TMC was available for irrigation purposes to the State of Maharashtra. In this view of the matter, there is definite change in the position as now prevailing and this new situation, which has arisen, takes shape of a new case or a new matter for consideration which was not under consideration before KWDT-I. As indicated earlier equities have now changed.

It is true that due importance has to be given to the vital human needs as here we are concerned with irrigation for the purposes of food production but the fact which deserves to be noted is that it is nowhere laid down that not a single drop is to be allocated for any other purpose unless all the areas as available is irrigated for food production. Sufficient care has been taken about irrigation requirements, it has not been ignored, it has been duly taken into account. Allocating 519 TMC for irrigation out of 666 TMC is substantial compliance of order of priority or inherent preference for

vital human needs. Such provisions are to be made workable on practical and reasonable basis.

There has to be a reasonable planning so that vital human needs are reasonably or predominantly met and other needs are not absolutely ignored. While considering different factors, place, purpose and circumstances in which water is needed, is a very important consideration. The requirement is for peaking need of Mumbai and the area around it. It is well known that Maharashtra is an industrial State. It is also well known that it is commercial hub of India. The multinational trading is on the increase a lot of which centers around Maharashtra, especially Mumbai. Therefore, after providing for irrigation to the extent of more than 500 TMC as compared to 463 TMC as it was earlier, diversion of 25 TMC over and above 519 TMC for irrigation cannot be said to be distribution for any unreasonable requirement or by passing the inherent priority. Drinking water, of course, may be an exception but we are presently considering the competing needs of irrigation and hydro power generation, to a limited extent as indicated above in the new situation which has emerged due to various factors. May be, things may have been different if place was other than Mumbai. All places are not

alike. Needs may differ from place to place and the activities carried on there.

In the above circumstances, we allow diversion of 25 TMC for Koyna Hydel Project in the State of Maharashtra out of 65% dependable flows.

“B” - Allocation for irrigation needs :

1. Krishna Project in K-1 Sub-basin - 15 TMC out of the 65% dependable flows.
2. Kukadi Complex in K-5 Sub-basin – 3 TMC out of the 65% dependable flows.
3. Revised Urmodi Project in K-1 Sub-basin - 10 TMC out of surplus flows.
4. Nira Deogarh in K-5 Sub-basin - 13 TMC out of surplus flows.
5. Bhama Askhed in K-5 Sub-basin - 7 TMC out of surplus flows.
6. Gunjani at Velhe in K-5 Sub-basin – 4 TMC out of surplus flows.

7. Sina Nimgaon – revised in K-5 Sub basin – 1 TMC out of surplus flows.

“C” - Minimum Flows:

For maintaining minimum flows in the stream - 3 TMC out of 65% dependable flows.

All these allocations are in the drought prone scarcity areas of Maharashtra.

The net result is that 43 TMC is allocated out of 65% dependable flows and 35 TMC out of surplus flows totaling to 78 TMC plus 3 TMC for minimum flows out of 65% dependability. In all, it comes to 81 TMC. It covers the drought prone areas, and in part the area, which was proposed to be provided for by undertaking Krishna Bhima Stabilization Scheme.

Andhra Pradesh :

- ‘A’ - The State of Andhra Pradesh was allowed carryover storage in Nagarjunasagar and Srisailem Dam by KWDT-I predominantly for mitigating the intensity of suffering during 25% of the years. This arrangement was till the order of

KWDT-I was reviewed. We have already discussed in the earlier part of this report, about this arrangement. On consideration of all facts and circumstances, we hereby allocate 150 TMC for carryover storage in Nagarjunasagar Dam and Srisailem Dam to the State of Andhra Pradesh. Out of 150 TMC, 30 TMC shall be out of dependable flows at 65% dependability and 120 TMC out of the surplus flows.

‘B’ -One of the grievances of the State of Andhra Pradesh had been that even though necessity for scarcity area in Telengana was felt, still sufficient allocation was not made by KWDT-I for that area. Considering overall position, we hereby allocate a further 9 TMC to Andhra Pradesh out of 65% dependability for Jurala Project in K-7 Sub-basin in Mehboobnagar which will serve the drought prone area falling in Telengana.

‘C’ -State of Andhra Pradesh has also laid great stress for allocation of water for Telugu Ganga Project in K-7 Sub-basin. It serves outside basin area in Karnool district but it is vehemently urged that this area is in dire need of water with no other independent and alternative source. No doubt Andhra Pradesh is already

utilizing about 43% of its allocation outside the basin, return flows of which are a total loss to the Krishna basin. The States of Maharashtra and Karnataka vehemently opposed any further allocation to Andhra Pradesh and much less for utilization outside the basin. However, considering the situation as prevailing in that area, we allocate 25 TMC for Telugu Ganga Project in K-7 Sub-basin out of the surplus flows. The Telugu Ganga Project, it is informed, is not an approved project. Therefore, we provide that allocation is subject to approval of the project by the appropriate authorities and environmental clearance and other clearances under different statutes as may be applicable.

The net result is that Andhra Pradesh is allocated 39 TMC out of dependable flows at 65% and 145 TMC out of surplus flows totaling to 184 TMC.

‘D’ -For maintaining the minimum flows in the stream - 6 TMC out of 65% dependable flows has been provided.

So, the allocation to Andhra Pradesh is in all 190 TMC at different dependabilities. The total Statewise allocation finally comes to as follows:-

Maharashtra : 585 TMC at 75% dependability, with Return flows.

46 TMC at 65% dependability, including 3 TMC for minimum flows.

35 TMC out of surplus flows.

Total : 666 TMC

Karnataka : 734 TMC at 75% dependability, with Return flows.

72 TMC at 65% dependability, including 7 TMC for minimum flows.

105 TMC out of surplus flows.

Total : 911 TMC.

Andhra Pradesh: 811 TMC at 75% dependability, with Return flows.

45 TMC at 65% dependability, including 6 TMC for minimum flows.

145 TMC out of surplus flows.

Total : 1001 TMC

The total of all the above allocations for the three States comes to 2578 TMC.

The third limb of Issue No.2 thus stands answered accordingly, in the manner indicated in the preceding paragraph.

The next question that arises is as to how and in what manner the three States would be utilizing the allocated shares and as to what would be the consequential modifications in the restrictions imposed on utilization by the States of Maharashtra and Karnataka in different sub-basins would be provided for and indicated in the chapter containing the order and directions.

Issue No.21:

“Is any machinery or scheme be set up to make available and regulate allocation of water to the States concerned or otherwise to implement the decision?”

A decision rendered by Water Dispute Tribunal, constituted under the Inter-State River Water Dispute Act, 1956, on publication in Official Gazette, is final and binding on the parties.

In connection with the above, we may refer to Section 6(1) of the Inter-State River Water Dispute Act, 1956, which is quoted below:-

“6(1) - The Central Government shall publish the decision of the Tribunal in Official Gazette and the decision shall be final and binding on the parties to the dispute and shall be given effect to by them.”

The above noted provision not only provides about finality and the binding nature of the decision of the Tribunal but it further provides that the decision is to be given effect to by the parties to the dispute. Therefore, primarily, it is the duty of each State to the dispute to act in accordance with the decision rendered by the Tribunal. The decision given by the Tribunal is to be followed and given effect to by the

parties without there being anything else to happen or to be provided for. But for the purposes of better implementation of the provisions made in the decision, it may be helpful to have a machinery to do so. It may be helpful to the parties to the dispute also as they would be getting assistance in giving effect to the decision. We find that under sub-section (1) of section 6A of the Act, the Central Government has also been authorized to frame a scheme, if it so chooses to do, for implementation of the decision of the Tribunal. This provision is, however, without prejudice to the provisions of section 6 of the Act.

It is felt that with a view to have a proper and better compliance of the provisions of the decision, a machinery be set up for the purpose. It is in this light that the issue under consideration has been framed. It will be pertinent to mention here that all the parties to the dispute favour setting up of such a machinery. The State of Karnataka has even furnished a draft scheme, KAD-127, making a number of suggestions regarding constitution of an authority and its functions etc. The State of Andhra Pradesh has mentioned about having a monitoring mechanism in paragraphs 12.2 and 12.3 at page 20 of APAD-27.

It is thus found desirable that a machinery should be set up which may oversee that the parties to the dispute conduct themselves in the matter of storage, releases and utilization etc. as per their allocations and in consonance with the decision of the Tribunal. Keeping this aspect in view, we hereby set up a machinery for implementation of the provisions of the decision which would be known as “Krishna Waters Decision – Implementation Board”. A detailed scheme has been framed for the constitution and functioning of the Board which is appended as Appendix-I to the decision of the Tribunal.

REPORT/ DECISION

A perusal of Issue No.21, as framed and quoted above, shows that first part of it, apart from other things, relates to “....regulate allocation of water to the States concerned”. It is more relatable to Scheme-B on implementation of which, the allocations may vary from year to year depending upon the availability of water in each year. So the allocations may also keep on varying.

The other part of the issue is “- - - or otherwise to implement the decision.” While framing the scheme, the Tribunal is concerned with the latter part of the issue, i.e. about setting up of a machinery to implement the decision of the Tribunal. It has nothing to do with

regulating the allocation of water to the States. It has simply to implement the decision and directions as have been issued by the Tribunal. How best the provisions of the decision can be implemented without being deviated from or being flouted, would be the sole concern of the machinery. It would ensure smooth compliance of the decision, with least problems and in the spirit of cooperation amongst the States. The Krishna Waters Decision – Implementation Board would endeavour to create a feeling of cooperation amongst the States and to maintain it which will provide an appropriate atmosphere to the parties to easily comply with and to give effect to the provisions of the decision which they are bound to do, as per provisions of section 6(1) of the Act, quoted above.

We would like to clarify and emphasize that the machinery set up and the scheme framed is to facilitate the implementation of the decision and it is not an essential or mandatory legal requirement for the decision of the Tribunal becoming effective and operational. With a view to clear any doubt, it is held that the decision of the Tribunal shall become effective and binding amongst the parties to the dispute, independent of any machinery or scheme set up for its implementation. This position is very much clear by virtue of the

provision contained under section 6(1) of the Act, which we once again repeat, mandates to the parties to give effect to the decision of the Tribunal.

Any scheme or machinery set up for implementation of the decision is an additional outside support or facility provided to the parties for the smooth functioning of the whole scheme of allocation and utilization of water of river Krishna and other related matters. Therefore, even if there is some delay in setting up of the machinery for implementation, namely, — Krishna River Decision — Implementation Board, the parties would be bound to give effect to the provisions of the decision irrespective of any such machinery or not.

It is hereby also provided that the Central Government and the State Governments shall nominate the Members of the Board as early as possible on publication of the decision in the Official Gazette, say not later than three months thereof. It is further provided that first meeting of the Board or, if necessary, some more initial meetings shall be convened by the Central Government (Ministry of Water Resources) in New Delhi at the earliest.

It will be pertinent to refer to the observations made by KWDT-I while considering Issues No.IV(B)(b)(i) and (ii) at pages 52 and 53 of its report, relating to vesting of the control and administration of Tungabhadra Dam, its Reservoir and the main canal on the left side and also that of Rajolibunda Head Works, in the Tungabhadra Board. In this connection, KWDT-I took note of the fact that Mysore Government had the control and administration on the left side and the Tungabhadra Board on the right side of Tungabhadra Dam and Reservoir. It was considered appropriate that the control on both sides may vest in a single control body. On establishment of a single body for the entire Krishna valley, such powers may vest in it, as exercised by Tungabhadra Board. The Tungabhadra Board, it was observed, may then be abolished. It was also considered desirable that the Rajolibunda Diversion Scheme be also administered by the single body established for the whole Krishna valley.

Since it was considered desirable and appropriate to have one single body for the whole Krishna basin, with which we also agree, it has been provided in the scheme that all functions, as detailed therein relating to Tungabhadra Dam right and left side both and Rajolibunda

Diversion Scheme, shall vest in the 'Krishna Waters Decision – Implementation Board'.

On coming into being of the said machinery, namely, 'Krishna Waters Decision – Implementation Board' and the functions of the Tungabhadra Board being vested in it, the Tungabhadra Board constituted by a Notification No.DWII-22(129) dated 29th Sept., 1953 issued by Government of India, Ministry of Irrigation & Power u/s 66(1) of the Andhra State Act as well as the Notification No.DWVI-4(9) dated the 10th March, 1955, issued by the Government of India, Ministry of Irrigation & Power, under sub-section (4) of Section 66 of the Andhra State Act, reconstituting the Board, shall cease to be operative.

The machinery as set up, viz. the 'Krishna Waters Decision – Implementation Board' and appended as Appendix-I, forms part of the decision.

Issue No.30: Since none of the State could indicated any site in the basin for construction of any such storage, no question to consider the issue any further arises.

Before we move to pass the order, it is a great pleasure to acknowledge the able assistance of the Learned Senior Counsel appearing on behalf of all the three States, being ably assisted by other learned counsels and the officers of the respective States and the staffs. It all required devotion and very hard work on their part. The arguments of the Learned Senior Counsels and the materials placed by them helped us immensely in preparing this Report and the Decision.

The valuable help that we got from the Assessors assisted by the Executive Engineer cannot go unnoticed. They have worked hard and always extended their help in preparation of the report readily and unreservedly.

The personal staff and the officers and staffs of the Registry have unhesitatingly extended their full cooperation and support in accomplishing this work. Without the cooperation and the able assistance from all, it would not have been possible to prepare this report and to give decision.

We express our deep appreciation to all concerned and thank them all.

O R D E R

Clause-I

In view and on the basis of the discussions held and the findings recorded on the issues hereinbefore, the following order is passed in so far as it deviates from, modifies, amends and reviews the decision and the order passed by the KWDT-1.

Clause-II

That for the purposes of this case, so as to assess the yearly yield of the river Krishna afresh, on the data now available, an yearly water series for 47 years has been prepared, accordingly the dependable yield is determined as follows :-

- | | | | |
|-----|----------------------------|---|----------|
| (a) | Average yield | - | 2578 TMC |
| (b) | Yield at 50% dependability | - | 2626 TMC |
| (c) | Yield at 60% dependability | - | 2528 TMC |
| (d) | Yield at 65% dependability | - | 2293 TMC |
| (e) | Yield at 75% dependability | - | 2173 TMC |

Clause-III

That it is decided that the water of river Krishna be distributed amongst the three States of Maharashtra, Karnataka and Andhra Pradesh on 65% dependability of the new series of 47 years i.e. 2293 TMC.

Clause-IV

That it is decided that the allocations already made by KWDT-1 at 75% dependability which was determined as 2060 TMC on the basis of old series of 78 years plus return flows, assessed as 70 TMC in all totalling to 2130 TMC, be maintained and shall not be disturbed.

Clause-V

That it is hereby determined that the remaining distributable flows at 65% dependability, over and above 2130 TMC (already distributed), is 163 TMC (2293 TMC minus 2130 TMC = 163 TMC).

Clause-VI

That it is hereby decided that the surplus flows which is determined as 285 TMC (2578 TMC minus 2293 TMC = 285 TMC) be also distributed amongst the three States.

Clause-VII

That the balance amount of water at 65% dependability i.e.163 TMC and the surplus flows of 285 TMC is distributed as given below:

State of Karnataka

Allocation at 65% dependability	65 TMC
Allocation out of surplus flows	105 TMC
Total	170 TMC
Flows made available for Minimum flows in the stream out of 65% dependability	7 TMC
Grand Total	177 TMC

State of Maharashtra

Allocation at 65% dependability	43 TMC
Allocation out of surplus flows	35 TMC
Total	78 TMC
Flows made available for Minimum flows in the stream out of 65% dependability	3 TMC
Grand Total	81 TMC

State of Andhra Pradesh

Allocation at 65% dependability	39 TMC
Allocation out of surplus flows	145 TMC
Total	184 TMC
Flows made available for Minimum flows in the stream out of 65% dependability	6 TMC
Grand Total	190 TMC

Clause-VIII

That the total allocations at different dependabilities including those made by KWDT-1 at 75% dependability with return flows are given below :

State of Karnataka

Allocation at 75% dependability with return flows	734 TMC
Allocation at 65% dependability	65 TMC
Allocation out of surplus flows	105 TMC
Total	904 TMC
Plus 7 TMC provided for Minimum flows	7 TMC
Grand Total	911 TMC

State of Maharashtra

Allocation at 75% dependability with return flows	585 TMC
Allocation at 65% dependability	43 TMC
Allocation out of surplus flows	35 TMC
Total	663 TMC
Plus 3 TMC provided for Minimum flows	3 TMC
Grand Total	666 TMC

State of Andhra Pradesh

Allocation at 75% dependability with return flows	811 TMC
Allocation at 65% dependability	39 TMC
Allocation out of surplus flows	145 TMC
Total	995 TMC
Plus 6 TMC provided for Minimum flows out of 65% dependability	6 TMC
Grand Total	1001 TMC

Clause-IX

That since the allocations have been made at different dependabilities, the party States are directed to utilize the water strictly in accordance with the allocations. And for that purpose they are further directed to prepare or caused to be prepared ten daily working tables and the Rule Curve and shall furnish copies of the same to each other and on its coming into being, also to the 'Krishna Waters Decision – Implementation Board'.

Clause-X

That on change in availability and the allocation of more water, at different dependabilities, the restrictions placed on the States on

utilizations in some sub-basins would consequently change. The changes in the restrictions are in keeping with the dependabilities at which allocations have been made. These restrictions, as given below, shall be strictly adhered to by the concerned States :-

1. a) Maharashtra shall not utilize more than 98 TMC in a 65% dependable water year (it includes 3 TMC allocated for Kukadi Complex) and 123 TMC in an average water year from Bhima sub-basin (K-5).
- b) Maharashtra shall not divert more than 92.5 TMC (including that allowed by KWDT-1 and further 25 TMC now allocated) from K-1 Upper Krishna sub basin for Koyna Hydel Station for west-ward diversion in a 65% dependable or average water year.
- c) Maharashtra shall not utilize more than 628 TMC in a 65% dependable water year and not more than 663 TMC in an average water year.
- d) Maharashtra shall not divert any water out of basin except (b) above from K-1 sub-basin.

2.
 - a) Karnataka shall not utilize more than 360 TMC from K-8 Tungabhadra sub-basin in a 65% dependable water year (it includes allocation of 40 TMC for Upper Tunga, Upper Bhadra and Singatlur Projects) or in an average water year.
 - b) Karnataka shall not utilize more than 198 TMC in a 65% dependable water year and not more than 303 TMC in an average water year from Upper Krishna project (it includes allocation of 130 TMC for UKP Stage-III with reservoir level of Almatti Dam at 524.256 m).
 - c) Karnataka shall not utilize more than 799 TMC in a 65% dependable water year and not more than 904 TMC in an average water year.
3. That the State of Andhra Pradesh shall not utilize more than 1001 TMC as per allocation made in Clause-VIII above in an average water year. (It includes further allocation of 9 TMC for Jurala Project, 25 TMC for Telugu Ganga Project and 150 TMC for carry over storage in Srisailem and Nagarjunasagar Dams).

So far as the remaining water is concerned, as may be available, that may also be utilized by the State of Andhra

Pradesh subject to any part of it being stored/trapped in future and/or till the next review or reconsideration by any Competent Authority under the law.

4. The above restrictions are inclusive of evaporation losses.

Clause-XI

That all the three States are hereby directed that for the purposes of drinking water supply for Chennai city, each State shall contribute 3.30 TMC in equal quantity distributed in the months of July, August, September and October and 1.70 TMC distributed similarly in four equal instalments in the months of January, February, March and April.

Clause-XII

That all the three States shall release in all 16 TMC of water for maintaining minimum instream flow and for environment and ecology, in the manner and the quantity as indicted in Table to the discussion held on the subject of minimum flows.

Clause-XIII

That it is hereby directed, as provided in the discussion held while dealing with Issue No. 14, that the State of Karnataka shall release 8 to 10 TMC of water to the State of Andhra Pradesh from

Almatti Reservoir in the months of June and July, as regulated releases.

Clause- XIV

That it is hereby provided that on the constitution of the 'Krishna Water Decision – Implementation Board' the administrative control and regulation over Tungabhadra Dam and its Reservoir including Head Regulators of all the canal systems both on the left and the right sides and all its gates as well as the administrative control of Rajolibunda Diversion Scheme shall vest in the Board and the notifications dated 29th September, 1953 and the 10th March, 1955 issued under Section 66(1) and (4) respectively of the Andhra State Act, 1953 shall cease to be operative.

Clause-XV

That besides the gauging sites as indicated in Clause-XIII in the final order of the KWDT-1, the 'Krishna Waters Decision – Implementation Board' may set up or caused to be set up more gauging sites as the Board may consider necessary. No existing site nor any site established hereinafter shall be abolished or down graded except in consultation with the Board.

Clause-XVI

At any time after 31st May, 2050, order may be reviewed or revised by a Competent Authority or Tribunal, but such review or revision shall not as far as possible disturb any utilization that may have been undertaken by any State within the limits of allocation made to it.

Clause-XVII

Nothing contained herein shall prevent the alteration, amendment or modification of all or any of the Clauses by agreement between the Parties.

Clause-XVIII

The scheme which has been framed for implementation of this decision and the decision and directions made by KWDT-I, which have not been modified or reviewed by this Tribunal has been appended as Appendix-I to this decision and forms part thereof . The Board constituted to carry out the functions and duties provided for in the scheme shall be called ‘Krishna Waters Decision – Implementation Board’. It shall be constituted as early as possible. The Central Government and the State Government shall nominate the

Members of the Board at the earliest, in any case, not later than three months from the date of publication of the decision. The Board shall function as per the provisions of the scheme.

Clause-XIX

That a Map which has been prepared before this Tribunal and brought on record as TD-1 vide orders dated 30th July, 2009 and 9th August, 2009 of this Tribunal has been appended as Appendix-II to the decision.

Clause-XX

That the order or directions as contained in this order shall be read in reference and context with the preceding discussions and the findings recorded on different issues alongwith the reasoning thereof.

It is further provided that any direction given or provision made under any Issue or otherwise, not finding mention in this order shall also be complied with by all the parties as a part of the decision and this order.

Clause-XXI

The Governments of Maharashtra, Karnataka and Andhra Pradesh shall bear their own costs of appearing before the Tribunal. The expenditure of the Tribunal shall be borne and paid by the aforesaid three States in equal shares except the expenditure incurred in Hydrographic Survey in Hippargi Barrage and Almatti Dam conducted by M/s Tojo Vikas International Pvt. Ltd. which shall be borne by the States of Maharashtra and Karnataka in equal shares.

Clause-XXII

This decision and order shall come into operation on the date of publication in the official gazette under Section 6 of the Inter-State River Water Disputes Act, 1956.

Clause-XXIII

The provisions made in the decision/order passed and the decision and directions given by KWDT-I which have not been amended, modified or reviewed by this order shall continue to be operative.

(JUSTICE D.K. SETH)	(JUSTICE S.P. SRIVASTAVA)	(JUSTICE BRIJESH KUMAR)
MEMBER	MEMBER	CHAIRMAN

APPENDIX-1

KRISHNA WATERS DECISION – IMPLEMENTATION BOARD.

1. There shall be a permanent “Krishna Waters Decision – Implementation Board”, ‘hereinafter referred to as the Board’ which will have five Members out of which one Member each shall be appointed by the three riparian States and the remaining two Members shall be nominated by the Central Government (Government of India).
2. The riparian States shall appoint Members on deputation or on re-employment basis, a person who should be a High ranking Engineer not below the rank of Chief Engineer or has held the office of Chief Engineer having experience in the field of Irrigation Engineering, Hydrology and Water Management.
3. The Central government shall nominate two Members for the “Krishna Waters Decision – Implementation Board” who shall be High ranking Engineer having experience in the field of Irrigation Engineering, Hydrology and Water Management

from Central Government services or any organization under the Central Government, one of whom shall be holding or has held the post not below the rank of Joint Secretary and the other not below the rank of Additional Secretary to the Government of India. The latter shall be the Chairman of the Board. The nominated Members shall be either on deputation or on re-employment but shall be from any State other than the riparian States of the Krishna river basin and shall have no connection, direct or indirect, with any of the three States.

4. The services of the Members including the Chairman of the Board as well as Officers and employees of the Board shall be subject to the Service and Disciplinary Rules applicable to the Central government Officers and employees except the Members and other Officers and employees serving on deputation who shall be governed by the Service Rules and Disciplinary Rules of the parent cadre of the concerned State.
5. On any vacancy occurring in the offices of the Members of the Board, the Central government or the concerned State government, as the case may be, shall appoint on deputation or

re-employment basis a suitable person as against the vacant office.

Provided that in case of temporary absence due to illness or for any cause whatever the Central government or the State government by whom he was appointed, as the case may be, appoint, on deputation or re-employment basis or on officiating basis a suitable person as Acting Member during such illness or absence and such Acting Member shall, while so acting, have all the powers and perform all the duties and will be entitled to indemnities of the Member, in whose stead he so acts.

6. The Members of the Board shall have a tenure upto 'five years' each but not beyond the age of 70 years, whichever is earlier.
7. The Board will hold meetings regularly. The data collected as envisaged hereinbelow shall be placed before it in its meetings for appropriate orders/ directions and necessary action.
8. The Board shall record its directions/guidelines by a resolution at a meeting in which the Chairman and the Members are present as provided hereinafter.

9. The Board in its meeting in which all its members are present shall frame its Rules of business, categorize any part of the business of the Board as of a formal or routine nature.
10. The permanent “Krishna Waters Decision – Implementation Board” with five Members as aforesaid shall be for implementing and carrying out effectively the decision/ orders and directions issued by the this Tribunal including the decision/ orders and directions issued by K.W.D.T.-I which have not been reviewed or modified by this Tribunal.
11. This “Krishna Waters Decision – Implementation Board” shall be a body corporate having perpetual succession and common seal and could sue or be sued and can hold and dispose of properties.
12. No Member, Officer or employee of the Board shall be liable for loss, injury or damage resulting from an action taken by such Member, Officer or employee in good faith and without malice even though such action is later on determined to be unauthorized.

13. The purpose and function of the permanent “Krishna Waters Decision – Implementation Board” shall also be to establish and maintain cooperation between the riparian States to the development of waters in the Krishna river in particular within the limits prescribed by this Tribunal and to ensure compliance of its orders and the directions including the orders and directions of K.W.D.T.-I which have not been reviewed or modified by this Tribunal.
14. Any question which arises between the riparian States concerning any activity by a riparian State which is claimed by a riparian State to be against the decision and direction of this Tribunal or of the order and direction issued by K.W.D.T.-I which have not been reviewed or modified by this Tribunal, having an adverse effect on that State shall be examined by the Board which will first endeavour to resolve the question amicably but in case no amicable settlement is possible the Board shall solve the question raised by a resolution, by majority, giving reasons in a meeting where all the Members are present and that resolution/direction shall be communicated to the riparian States and will be binding on them.

15. That the Board shall also be authorized to look into 'any such activity suo moto, on the part of any State which appears to be against the decision and direction of this Tribunal or order and directions issued by KWDT-I which have not been reviewed or modified by this Tribunal and such activity of any State adversely affecting the interest of the other States. All other provisions of para 12 shall be applicable in suo moto action taken by the Board.
16. The quorum to constitute a meeting of the Board for routine business shall be the Chairman or the other nominated Member by the Central Government and the two Members out of the three appointed by the riparian States.
17. The Board shall further ensure that the Dead Storage shall not be depleted except in an unforeseen emergency or acute urgency. If so depleted, it will be replenished in accordance with the conditions of its initial filling.
18. The Board shall proceed to determine the questions raised with the following definitions in mind for the purposes of this scheme:

- (i) The term 'tributary' of a river means any surface channel, whether in continuous or intermittent flow and by whatever name called, whose waters in the natural course would fall into the river, e.g. a tributary, a torrent, a natural drainage an artificial drainage, a nadi, a nallah, a nali. The term also includes any sub-tributary or branch or subsidiary channel, by whatever name called, whose waters, in the natural course, would directly or otherwise flow into that surface channel.
- (ii) 'Reservoir Capacity' means the gross volume of water which can be stored in the reservoir.
- (iii) 'Dead Storage Capacity' means that portion of the Reservoir Capacity which is not used for operational purposes and 'Dead Storage' means the corresponding volume of water.
- (iv) 'Live Storage Capacity' means the Reservoir Capacity excluding Dead Storage Capacity, and 'Live Storage' means the corresponding volume of water.
- (v) "Flood Storage Capacity" means that portion of the Reservoir Capacity which is reserved for the temporary

storage of flood waters in order to regulate downstream flows, and 'Flood Storage' means the corresponding volume of water.

(vi) 'Surcharge Storage Capacity' means the Reservoir Capacity between the crest of an uncontrolled spillway or the top of the crest gates in normal closed position and the maximum water elevation above this level for which the dam is designed, and 'Surcharge Storage' means the corresponding volume of water.

(vii) 'Conservation Storage Capacity' means the Reservoir Capacity excluding Flood Storage Capacity, Dead Storage Capacity and Surcharge Storage Capacity, and 'Conservation Storage' means the corresponding volume of water.

(viii) The term 'Agricultural Use' means the use of water for irrigation, except for irrigation for household gardens and public recreational gardens.

(ix) The term 'Domestic Use' means the use of water for:-

- (a) drinking, washing, bathing, recreation, sanitation (including the conveyance and dilution of sewage and other wastes), stock and poultry and other like purposes;
 - (b) household use including use for household gardens and public recreational gardens; and
- (x) Industrial purposes (including mining, mining and other like purpose and industrial waste); but the term does not include agricultural use or use for the generation of hydroelectric power.
- (xi) The term “Non-consumptive Use” means any control or use of water for navigation, floating of timber or other property, flood protection or flood control, fishing or fish culture, wild life or other like beneficial purposes, provided that exclusive of seepage and evaporation of water incidental to the control or use the water (undiminished in volume within the practical range of measurement) remains in, or is returned to the same river or its tributaries.

(xii) The term “Interference with the Waters” means -

(a) Any act of withdrawal therefrom; or

(b) Any man-made obstruction to their flow which adversely affects or causes prejudice to any riparian State or causes a change in the volume (within the practical range of measurement) of the daily flow of the waters.

Provided however an obstruction which involves only an insignificant and incidental change in the volume of the daily flow, for example, fluctuations due to afflux caused by bridge piers or a temporary by-pass, etc., shall not be deemed to be an interference with the waters.

(xiii) “Damage” includes -

(a). Loss of life or personal injury;

(b). Loss of or injury to property or other economic losses;

(c) Environmental harm; and

(d) The costs of reasonable measures to prevent or minimize such loss, injury, or harm.

(xiv) “Drainage basin” means an area determined by the geographic limits of a system of interconnected waters, the surface waters of which normally share a common terminus.

(xv) “Ecological integrity” means the natural condition of waters and other resources sufficient to assure the biological, chemical, and physical integrity of the aquatic environment.

(xvi) “Environment” includes the waters, land, air, flora, and fauna that exist in a particular region at a particular time.

(xvii) “Environmental harm” includes -

(a). Injury to the environment and any other loss or damage caused by such harm; and

(b). The costs of the reasonable measures to restore the environment actually undertaken or to be undertaken.

(xviii) “Flood” means a rising of water to levels that have detrimental effects on or in one or more basin States.

(xix) “Flood control” means measures to protect land areas from floods or to minimize damage therefrom.

(xx) “Hazardous substances” means substances that are bio-accumulative, carcinogenic, mutagenic teratogenic, or toxic.

(xxi) “Management of waters” and “to manage waters” includes the development, use, protection, and control of waters.

(xxii) “Pollution” means any detrimental change in the composition or quality of waters that results directly or indirectly from human conduct.

(xxiii) “Vital human needs” means waters used for immediate human survival, including drinking, cooking, and sanitary needs, as well as water needed for the immediate sustenance of a household.

For the expression not defined hereinabove, the Board shall take into consideration the definitions provided in the related Indian Standard Code (I.S. Code).

19. The Board shall employ a Secretary who shall be an Engineer having experience in Hydrology and water management. The appointment shall be on deputation or on re-employment basis not beyond 65 years of age.
20. The Board shall appoint either directly or on deputation or on re-employment basis other officers/ employees in such numbers as may be found necessary to efficiently carryout the functions of the Board.

REPORT/ DECISION

On the vesting of the functions and duties of the Tungabhadra Board in the “Krishna Waters Decision – Implementation Board”, the existing staff of Tungabhadra Board may be retained as employees of the “Krishna Waters Decision – Implementation Board” as per requirement and need.

21. The Board shall appoint a qualified and experienced Accounts Officer on deputation or on re-employment basis not beyond 65 years of age.
22. The Board shall ensure that the following data in respect to the flows and utilization of the waters of river Krishna are recorded and exchanged between the riparian States and a copy of the

same shall also be furnished by the States to the Board in the same manner.

- (a) Daily gauge and discharge data relating to the flow of the river at all observation sites duly established by the Central Water Commission and the States.
- (b) Daily extractions for the releases from the various reservoirs maintained by the riparian States.
- (c) Daily withdrawals at the heads of all canals including link canals operated by the riparian States.
- (d) Daily escapages from all canals including the link canals.
- (e) Daily deliveries from link canals.
- (f) That the party States namely State of Maharashtra, State of Karnataka and the State of Andhra Pradesh shall prepare the Rule Curves for operation of their Reservoirs of all major projects using more than 3 TMC in a water year. All party States shall regularly prepare 10 daily Working Tables in every water year. The Rule Curves and the 10 daily Working Tables shall be prepared

keeping in view the allocations made to and restrictions imposed on the riparian States at different level of dependability and on an average basis.

23. It shall also be ensured that the States furnish the copies of the Working Tables at 10 daily basis and the Rule Curve to each other. The States shall also furnish such copies to the Board. The Board may vet the Rule Curve and the 10 daily Working Tables to check and ensure that they are prepared in consonance with the provisions of the decision of this Tribunal and the decision and directions of KWDT-I which have not been amended, modified or reviewed by this Tribunal. In case it is found that the 10 daily Working Tables or the Rule Curve does not conform to the decision, order and the directions of this Tribunal or the decision and directions of KWDT-I which have not been amended, modified or reviewed, the Board may make necessary modifications which shall be binding on all the parties.

24. The Board shall be charged with the power and shall be under a duty to do all things necessary and sufficient and expedient for the implementation of the order/ directions of this Tribunal

including the decision/ orders and directions of K.W.D.T.-I which have not been reviewed or modified by this Tribunal with respect to –

- (i) storage, apportionment and regulated control of the Krishna waters,
- (ii) regulated releases from the reservoirs as directed by this Tribunal including the decision and directions of K.W.D.T.-I which have not been reviewed or modified by this Tribunal.
- (iii) any other matter incidental to the carrying out and implementation of the order/ direction of this Tribunal including the decision and directions of K.W.D.T.-I which have not been reviewed or modified by this Tribunal.
- (iv) The Board shall make use of the data of the gauging sites already established or as may be established by the Central Water Commission or cause to be established either by itself or through the Central Water Commission.

- (v) Record shall be kept of the flow of the Krishna river at all stations considered necessary by the Board.

25. The Central Water Commission or any riparian States shall not abolish or downgrade any existing gauging sites except in consultation with the Board.
26. The Board shall ensure that the capping and restrictions imposed by this tribunal or directed by the K.W.D.T.-I which have not be reviewed or modified are adhered to by the riparian States and shall check that the flow as directed is maintained.
27. The Board shall collect from the States concerned data for the areas irrigated by Krishna waters in each season of withdrawals for irrigation, domestic, municipal and industrial or any other purposes and of water going down the river from the project.
28. In case, however, it is found that any State is not following the instructions of the Board or is violating the directions or the decision of the Tribunal or any State over utilizing or fails to make regulated releases the Board may depute any of its

responsible Officer/ Engineer for the purposes of the joint operation of any reservoir.

29. The Board shall determine the volume of water flowing in the river Krishna and its tributaries in a water year i.e. 1st June to 31st May.
30. The Board shall check from time to time the volume of water stored by each State in its reservoirs and other storages and may for that purpose adopt any approved and tested device or method.
31. It shall be ensured by the concerned States that the following reports of the water accounts are prepared and submitted to the Board for consideration:-
- (a) South West monsoon 1st June to 30th September.
 - (b) Full water year 1st June to 30th May.
32. The control over the maintenance and operation of the entire Tungabhadra dam and all the canals on the Right and Left side of the Bank as well as reservoir and the spillway gates on the entire Left and Right side including the operation of

Rajolibunda Diversion Scheme (RDS), shall be the responsibility of the Board. The Board shall carry out the contour surveys of the entire reservoir from time to time with a view to ascertain whether its storage capacity has been reduced due to silting and prepare revised capacity tables if necessary. The Board shall have the charge for the works on or connected with the Tungabhadra project and all the powers of the Tungabhadra Board shall vest in the Board.

33. The Board shall prepare and transmit to each of the three riparian States before the end of the current water year (1st June to 31st May of the next year) an Annual Report covering the activities of the Board for preceding year and to make available to the Central Government and to the Government of each of the riparian States on its request any information within its possession in time and always provide access of its records to the Central government and to the government of each riparian States and their representatives.
34. The Board shall keep a record of all its meetings and proceedings, maintain regular accounts and have a suitable office where documents, records, accounts and gauging data

shall be kept open for inspection by the Central government and the Government of each of the riparian States or their representatives at such time and under such regulations as the Board may determine.

35. The Board shall determine the place of its headquarters and locations at Central and suitable places for its Regional and Sub-regional Offices as the need be.
36. The resolution of the Board on all matters referred to hereinabove shall be binding on all the parties.
37. The Board shall be funded by the Government of India and all capital and revenue expenditure as may be required shall be incurred.
38. The Board shall in the month of September each year prepare detailed estimate of the amount of money required for the twelve months i.e. for the following financial year for the purposes of its own establishments and as may be required to carry out its functions and duties under the scheme.
39. The Board shall on or before 15th of October forward such detailed estimate to the Government of India, Ministry of Water

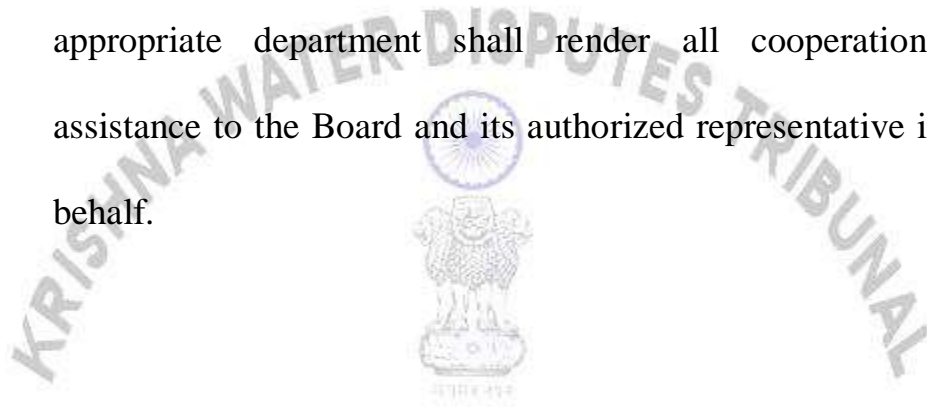
Resources and the Chief Secretary of all the three riparian States.

40. The Central Government shall pay to the Board the amount for the purpose indicated above before or by the last date of February of the ensuing year.
41. The Central Government will get reimbursement of the expenditure incurred by it on the Board from the three States i.e. the State of Maharashtra, the State of Karnataka and the State of Andhra Pradesh in equal shares or it may, if so, think fit realize the estimated amount in advance from the aforesaid three States.
42. The Board shall maintain detailed and accurate accounts of all the receipts and disbursement and shall after the close of each financial year prepare an annual statement of accounts and shall send the copies thereof to the Comptroller & Auditor-General of Government of India (CAG), Accountant-Generals as well as the concerned Chief Secretaries of the three riparian States. The form of the annual statements of the accounts shall be such as may be prescribed by the Rules framed by the Board. The

accounts maintained by the Board shall be open for inspection at all reasonable time by the Central government and the governments of the party States through their authorized representatives. The Board shall make disbursement from its funds only in such manner as may be prescribed under Rules framed by it. It may, however, incur such expenditure as it may think fit to meet any emergency in the discharge of its function.

43. The Board shall get its accounts audited every year by the Comptroller & Auditor-General of Government of India (CAG) or through any other agency as may be nominated by CAG.
44. The Board shall prepare its Annual Report covering the activities of the Board including the audited Account Report for the preceding year and submit the same to each party State. After approval of the Board in its meeting it will also be submitted to the Central government.
45. The Board or its any other duly authorized representative shall have power to enter upon any land and property upon which any project or development of any project, or any work of gauging, evaporation or other hydrological station or measuring

device has been or is being constructed, operated or maintained by any state for the use of Krishna water. Each state through its appropriate department shall render all cooperation and assistance to the Board and its authorized representative in this behalf.



(JUSTICE D.K. SETH) (JUSTICE S.P. SRIVASTAVA) (JUSTICE BRIJESH KUMAR)

MEMBER

MEMBER

CHAIRMAN

