

VANSADHARA WATER DISPUTES TRIBUNAL

THE REPORT

OF

THE VANSADHARA WATER DISPUTES TRIBUNAL

WITH THE DECISION

**IN THE MATTERS OF WATER DISPUTE REGARDING
THE INTER-STATE RIVER VANSADHARA AND
THE RIVER VALLEY THEREOF**

BETWEEN

THE STATE OF ODISHA

AND

THE STATE OF ANDHRA PRADESH

VOLUME-II

(Pages 166-365)

**NEW DELHI
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DISCUSSIONS AND FINDINGS IN RESPECT OF ISSUE NO.1: MAINTAINABILITY OF THE REFERENCE

8.1 Several issues have been framed in the proceeding and reference to the same was made hereinbefore at an appropriate place. In view of the pleadings of the State of Andhra Pradesh in the Statement of Case and the Reply Statement filed thereto by the State of Odisha, an issue, being Issue No.1, was framed in the proceeding to the following effect:

“Whether, the reference dated 19.03.2010 of the Union of India, under Section 5(1) of the Inter State River Water Disputes Act, 1956 with regard to the water disputes emerging from the complaint dated 28.07.2009 filed by the State of Andhra Pradesh is not maintainable?”

This issue is required to be treated as a first issue as discussions, findings and the decision thereon would have an effect on the complaint filed by the State of Andhra Pradesh against the State of Odisha on the basis of which Central Government made a Reference of the disputes raised in the said complaint for the decision of this Tribunal.

8.2 In the reply Statement filed by the State of Odisha to the Statement of Case of the State of Andhra Pradesh, a specific plea is raised by the State of Odisha regarding the maintainability of the

complaint of the State of Andhra Pradesh. It is stated in the said complaint that in view of the unilateral decision taken by the State of Andhra Pradesh for construction of a side weir with a flood flow canal, objection was raised by the State of Odisha before the Central Government contending, inter alia, that such side weir, if allowed to be constructed, would prejudicially affect the interests of the State of Odisha to the extent of the contentions raised in that regard before the Central Government. In paragraph 2.1 of the reply statement, it was stated by the State of Odisha that on 14.2.2006, it, being aggrieved by the persistent non-cooperation of the State of Andhra Pradesh, filed a complaint under Section 3 of the Inter-State River Water Disputes Act, 1956 seeking constitution of a Tribunal for adjudicating the water disputes arising from the construction of the side weir project at Katragada on the right bank of the inter-State River Vansadhara, which according to the State of Odisha, would deprive drinking water requirement in 18 villages and irrigation requirement in 30,000 acres of land situated on the left bank of inter-State River Vansadhara lying in the territory of the State of Odisha. One other objection that was raised was that the diversion of the water through the side weir project would eventually dry up the existing river bed on the left side which would consequently shift the river besides affecting the ground water table. It is also stated in the said reply statement that the Central Government failed to constitute a Tribunal despite filing of the aforesaid complaint by the State of Odisha and, therefore, a Writ Petition was filed before the Supreme Court under Article 32 of the Constitution of India seeking appropriate directions. The Supreme Court by judgment dated 6.2.2009 allowed the Writ Petition filed by the

State of Odisha by directing the Central Government to constitute a Water Disputes Tribunal within a period of six months from the date and refer to it the dispute relating to the construction of the side channel weir and flood flow canal project at Katragada on the River Vansadhara by the State of Andhra Pradesh for diversion of the waters of the said river which could possibly adversely affect the supply of water from the said river to the State of Odisha.

8.3 It is also contended that only subsequent to the passing of the aforesaid order by the Hon'ble Supreme Court on 6.2.2009, a complaint was filed on 28.7.2009 by the State of Andhra Pradesh, under Section 3 of the Act, seeking reference of the water dispute in respect of Neradi Barrage. It is also stated that the Government of India constituted the Tribunal by issuing a Notification dated 24.2.2010 under Section 4(1) of the Act and then, by Reference dated 19.3.2010, the Central Government referred to the Tribunal for adjudication "the water dispute regarding the inter-State river Vansadhara and the river valley thereof, emerging from letter Nos.Irr-III (RVN) 10/05.4.809/WR, dated 14.2.2006 and 29881/PW:IS/2006 dated 28.7.2009 from the Governments of Orissa and Andhra Pradesh respectively." After referring to the aforesaid facts, the State of Odisha took a plea that the said Reference on the complaint of the State of Andhra Pradesh is not maintainable as the mandatory condition required to be fulfilled before making of the reference of a complaint is not complied with by the Central Government. Issue raised was that there was no negotiation between the State Governments as required and mandated under Section 4 of the Act and even the Central Government did not act as a

mediator and facilitator after filing of the complaint by the State of Andhra Pradesh and, therefore, no opinion or satisfaction could have been formed by the Central Government that the dispute raised by the State of Andhra Pradesh could not be settled through negotiation. It is also pointed out that in fact, no discussion was conducted between the two States subsequent to the filing of the said complaint and, in fact, the State of Odisha was not even made aware of the complaint dated 28.7.2009 until a copy of it was sent along with the reference letter dated 19.3.2010 and that there being non-compliance of statutory mandatory requirement, the reference is vitiated. It is sought to be submitted by the State of Odisha that the State of Andhra Pradesh gave up the concept of construction of the Neradi Barrage in the year 2005 when it started planning a side weir project at Katragada and, therefore, there could not have been any request for raising a dispute before the Tribunal with regard to the construction of the Neradi Barrage. Counsel for State of Odisha also submitted that before the Supreme Court, the specific stand of the Andhra Pradesh Government that there is no water dispute with regard to construction of Neradi Barrage and that in fact, there are mutual inter-State agreements arrived at between the two States and consequently, in view of such a stand being taken by the State of Andhra Pradesh, the Supreme Court ordered for constitution of a Water Disputes Tribunal for adjudicating and deciding the dispute between the two States only in respect of construction of side weir and not in respect of proposed construction of Neradi Barrage and, therefore, the reference by the Central Government also on the basis of the complaint filed by the State of Andhra Pradesh is not maintainable and without jurisdiction.

8.4 The State of Andhra Pradesh, however, contended that the complaint made by the State of Andhra Pradesh is legal and valid and, therefore, the Central Government was justified in considering the said complaint along with the complaint filed by the State of Odisha and thereafter forming an opinion that a water dispute exists between the two States with regard to the water of Vansadhara River and its river valley. It is also the case of the State of Andhra Pradesh that the proposal of construction of side weir is pending construction of Neradi Barrage and, therefore, both are inter-connected and has to be dealt with conjointly. According to the State of Andhra Pradesh, the Central Government has wide powers to refer the complaint of Andhra Pradesh being so empowered under Section 4 read with Section 5 of the Act and that satisfaction of the Central Government being subjective, the same cannot be challenged. It is also contended that the Constitution of the Tribunal and the Reference made thereto for adjudication on the dispute regarding the water of the River Vansadhara and its river valley is legal and valid.

8.5 Mr. Anil B. Divan, learned Senior Counsel, appearing for the State of Odisha, reiterated the contentions raised in the reply statement filed by the State of Odisha and pointed out that there were no negotiations between the two disputing States after filing of the complaint by the State of Andhra Pradesh and, therefore, no opinion could have been formed by the Central Government on the complaint made by the State of Andhra Pradesh. He also pointed out that there is no denial by the State of Andhra Pradesh that Odisha received a copy of the complaint filed by Andhra Pradesh only when the same was

annexed with I.A.No.2/2010, which was an application filed by the State of Andhra Pradesh before the Tribunal praying for direction to the State of Odisha for acquiring an area of land measuring 106 acres which was agreed upon in order to facilitate the construction of the Neradi Barrage. It was also submitted by him that there was no water dispute in respect of the Neradi Barrage which was also the case of the State of Andhra Pradesh before the Supreme Court and reiterated in the counter affidavit, except in respect of some technical issues and design of the Barrage. He also submitted that what was directed by the Hon'ble Supreme Court was for constituting a Water Disputes Tribunal and referring to the said Tribunal the dispute with regard to the construction of side weir channel at Katragada, which is allegedly explicit and evident on a bare reading of the directions of the Hon'ble Supreme Court, and that was also particularly in view of the fact that both the State of Andhra Pradesh and the Central Government stated before the Supreme Court that there was no other water dispute with regard to the Neradi Barrage. Learned counsel also submitted that the Tribunal should exercise its jurisdiction vested on it as it is exercising authority as a substitute to the Court as provided under Section 11 of the Act as the condition precedent for formation of opinion by the Central Government has not been adhered to, although it is mandatory under Section 4 of the Act.

8.6 The aforesaid submissions of the learned Senior Counsel appearing for the State of Odisha were refuted by Mr. C.S. Vaidyanathan, learned Senior Counsel representing the State of Andhra Pradesh, and also by Mr. Wasim A. Qadri, learned counsel appearing for

the Central Government. It may be stated herein that since the aforesaid preliminary objection was taken by the State of Odisha with regard to the maintainability of the Reference made by the Central Government on the basis of the complaint filed by the State of Andhra Pradesh, therefore, it was considered appropriate that the Central Government who had made the aforesaid Reference to this Tribunal should also be given an opportunity of hearing and an opportunity of making its submissions so that the said issue could be decided more effectively.

8.7 Mr. Qadri, learned counsel appearing for the Central Government, submitted that the satisfaction of the Central Government was formed on the basis of the complaints filed by the two respective States and the said satisfaction was in accordance with the provisions of Sections 3, 4 and 5 of the Act. He submitted that a conjoint reading of Sections 3, 4 and 5 of the Act along with Rule 3 of the Inter-State Water Disputes Rules, 1959 would make it crystal clear that it is left to the discretion of the Central Government to arrive at a conclusion that the water dispute cannot be settled by negotiations and to form an opinion in that regard. It was pointed out that the Act empowers the Central Government and the Central Government, if it so desires, may (a) convene one or more inter-State meetings to come to such conclusion; (b) may take into account the efforts made by the party-States themselves to settle the disputes by negotiations as mentioned in their respective Complaints; (c) may take into account the negotiations conducted by it in the pre-complaint stage between the party-States on the same water disputes to arrive at such conclusions; or (d) may take

into account a combination of aforesaid factors to arrive at such conclusion. He pointed out from the facts of the case that the Central Government was satisfied that the dispute could not be settled by negotiation and, therefore, order was passed by the Central Government constituting the Tribunal and referring all the disputes with regard to the water of Vansadhara River and its river valley.

8.8 The counsel, during the course of his arguments, has taken us through the contents of various Minutes of Meetings recorded during the course of discussions and negotiations that had taken place with regard to the nature and methodology to be adopted for construction of the Neradi Barrage. It was submitted by him that the Central Government was also a party and also took part in the prolonged negotiations that had taken place between the two States to settle the issue acting as the facilitator and since no outcome emerged out of such negotiations and meetings held on the issues, prior to or after Reference was made by the two States, there was sufficient and clear reason for the Central Government to form an opinion that the issues cannot be settled by negotiations.

8.9 Mr. C.S. Vaidyanathan, learned Senior Counsel, submitted that the plea taken regarding the maintainability of the Reference at the instance of the State of Andhra Pradesh is baseless. He submitted that the Reference made by the Central Government on the basis of the complaint of the State of Andhra Pradesh is valid. The learned counsel drew our attention to the contents of the complaint dated 13.2.2006 wherein what the State of Odisha in paragraphs 5 and 6 had stated under the heading “Specific matters in the dispute” and “Matters

connected with or relevant to the water dispute”. The prayer was to “refer to the Tribunal the water dispute and matters connected or relevant to the water disputes emerging from the said letter of complaint.” According to him, the contention of the learned counsel appearing for the State of Odisha that the State people would be deprived of the drinking water in 18 villages and irrigation requirement of 30,000 acres of land on the left bank of the inter-State River Vansadhara was not based on correct facts. It was submitted that while making such statements, no justification nor particulars and details are furnished and, therefore, the said statement remained unsubstantiated. The contention of the State of Odisha that the side weir project would eventually dry up the existing river on the left side resulting in shifting of the course of the river and affecting the ground water-table was also stated to be baseless and not borne out by any technical study and, according to him, the contents of the study reports carried out on construction of Neradi Barrage proved to the contrary.

8.10 In the light of the aforesaid submissions of the counsel appearing for the parties, let us consider the legality, correctness and validity of the issue raised regarding maintainability of the Reference on the basis of the complaint filed by the State of Andhra Pradesh. In order to appreciate the contentions and to enable the Tribunal to come to a definite conclusive finding, it would be necessary to refer to a few provisions of the Inter-State River Water Disputes Act, 1956.

The expression “water dispute” is defined in the Act under Section 2(c) as follows:

“2. In this Act, unless the context otherwise requires: -

(a)

(b)

(c) “water dispute” means any dispute or difference between two or more State Governments with respect to –

(i) the use, distribution or control of the waters of, or in, any inter-State river or river valley; or

(ii) the interpretation of the terms of any agreement relating to the use, distribution or control of such waters or the implementation of such agreement; or

(iii) the levy of any water rate in contravention of the prohibition contained in section 7.”

8.11 The aforesaid definition makes it crystal clear that a water dispute is a dispute or a difference between two or more State Governments with respect to the use, distribution or control of the waters of or in any inter-State river or river-valley thereof. The State of Odisha through their complaint requested for determination of the yield and apportionment of shares of the Odisha in respect of waters of Vansadhara River. The complaint filed by the State of Odisha was about proposed diversion of water either through the Neradi Barrage or through the side weir which would disturb the agreement arrived at between the two States to share the water equally.

8.12 These issues were raised by the State of Odisha in their complaint and also in the Statement of Case filed before the Tribunal. The issue that is raised is regarding the maintainability of the Reference made by the Central Government on the basis of the complaint filed by

the State of Andhra Pradesh and, therefore, the said objections and contentions are required to be examined in the background of the statutory provisions of the Inter-State River Water Disputes Act.

8.13 Section 3 makes a provision in respect of filing of complaints by the State Governments as to water disputes. It reads thus:

“3. If it appears to the Government of any State that a water dispute with the Government of another State has arisen or is likely to arise by reason of the fact that the interests of the State or of any of the inhabitants thereof, in the waters of an inter-State river or river valley have been, or are likely to be, affected prejudicially by-

(a) any executive action or legislation taken or passed, or proposed to be taken or passed, by the other State; or

(b) the failure of the other State or any authority therein to exercise any of their powers with respect to the use, distribution or control of such waters; or

(c) the failure of the other State to implement the terms of any agreement relating to the use, distribution or control of such waters, the State Government may, in such form and manner as may be prescribed, request the Central Government to refer the water dispute to a Tribunal for adjudication.”

What are the circumstances under which a complaint could be filed by a State Government are indicated in this provision.

8.14 Section 4 of the Act, on the other hand, deals with the provision and the manner and procedure for constitution of a Tribunal.

Section 4(1), which has some relevance to and some bearing on the facts of the present case is extracted herein-below:

“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;”

8.15 Section 5 of the Act, while laying down the provisions for adjudication of water disputes, in Sub-Section (1) thereof provides that:

“When a Tribunal has been constituted under Section 4, the Central Government shall, subject to the prohibition contained in section 8, refer the water dispute and any matter appearing to be connected with, or relevant to, the water dispute to the Tribunal for adjudication.”

8.16 In accordance with the aforesaid provisions, therefore, a State Government is entitled, under Section 3 of the Act, to make a request to the Central Government to refer a water dispute as defined to a Tribunal for adjudication, if it appears to that State Government that such a water dispute has arisen or likely to arise. The water dispute, as defined in Section 2(c) of the Act, should amount to affect or should likely to affect the interests of the complainant State or its inhabitants in respect of the waters of such inter-State river or river

valley and should have arisen or is likely to arise by virtue of the action or inaction postulated by Sub-Sections (a), (b) or (c) of Section 3 of the Act. So, what is contemplated under Section 3 is 'arising of a water dispute' and not a dispute with regard to a particular project dealing with water in the said river which is proposed to be undertaken by any State Government and that water dispute must adversely or prejudicially affect the interests of the complainant State or the interests of its inhabitants in the waters of an inter-State river or river valley.

8.17 Section 4(1) deals with the constitution of a Tribunal under the Act of 1956. The essential ingredients which are provided in the aforesaid provision are that (i) a request under Section 3 of the Act should have been received by the Central Government from a State Government in respect of any water dispute; and (ii) after receiving such a request, the Central Government should have formed an opinion that the water dispute in respect of which such request has been received cannot be settled by negotiation. Once the aforesaid conditions are satisfied, it becomes mandatory for the Central Government to constitute a Water Disputes Tribunal for the adjudication of the water dispute(s) in respect of which a request has been made.

8.18 The Hon'ble Supreme Court in the case of *T.N. Cauvery Neerppasana Vilaiporulgal Vivasayigal Nala Urimai Padhugappa Sangam v. Union of India*, (1990) 3 SCC 440, laid down the following principle in para 18, with regard to the ambit of Section 4 of the Act.

“18. Section 4 indicates that on the basis of the request referred to in Section 3 of the Act, if Central Government is of the opinion that the water dispute cannot be settled by negotiation, it is mandatory for the Central Government to constitute a Tribunal for adjudication of the dispute.”

8.19 Section 5 deals with the provisions and the manner in which a Reference could be made by the Central Government to the Water Disputes Tribunal. It provides that after a request is made by the State Government under Section 3 of the Act to the Central Government to refer the water dispute to a Tribunal for adjudication, a Tribunal is constituted by the Central Government under Section 4(1) of the Act provided it forms an opinion that the dispute cannot be settled by negotiation. The Central Government, under Section 5(1) has to make reference of the water dispute and while doing so, it could refer any matter appearing to be connected with or relevant to the said dispute to the Tribunal for adjudication. It is to be noted that the power of constitution and reference of a dispute to a Water Disputes Tribunal is absolutely that of the Central Government and no statutory fetter or restraint is put to the aforesaid absolute power of the Central Government restricting the nature of other connected or relevant matters which could be referred to the Tribunal.

8.20 Let us now analyse the factual position of the dispute in the context of the aforesaid provision of the Act. Needless to state that both the States have been negotiating and were having discussions with regard to construction of the Neradi Barrage at an appropriate place on the River Vansadhara. The place which was selected for such construction of the Neradi Barrage was located within the common

boundary of both the States of Odisha and Andhra Pradesh and, therefore, before any such construction of barrage as contemplated could be made, negotiation for arriving at a settlement and agreement was necessary. In the present case, both the States were discussing between themselves the issue at the level of its officers and even at the level of its Ministers and Chief Ministers and, at times, in the presence of the officers of the Central Water Commission and the Union Ministry of Water Resources, which, more or less, acted as a facilitator. Several agreements regarding construction of Neradi Barrage have been arrived at between the two States through negotiations, starting from 1961 and upto 2005.

8.21 The State of Odisha in paragraph (f) of the complaint referred to the broad agreement arrived at by the two States with regard to their dispute over water of river Vansadhara. It stated thus:

“(f)..... Finally, the Governments of Orissa and Andhra Pradesh agreed on 30th September 1962 to share the waters of Vansadhara river and its valley. The agreement signed by Additional Chief Engineer of Orissa and Additional Secretary, PWD of Andhra Pradesh, as evidenced by minutes of discussions is : *“From the data available it has been estimated that the yield of Vansadhara river at Gotta Reservoir is 115.00 TMC. The requirements of Andhra Pradesh for Gotta Irrigation Project and Neradi anicut is 47.4 TMC. The total quantity of water for the existing irrigation in Andhra Pradesh is about 7 TMC so the total requirements of water of Andhra Pradesh for the existing irrigation and projects which are now being taken up is 54.5 TMC. The requirements of water for the projects in Orissa State has been roughly estimated to be 55 TMC... Thus the yield of Vansadhara Basin is just sufficient to meet the requirements of both the*

States. The water of Vansadhara basin may consequently be utilized by both Andhra Pradesh and Orissa States on a fifty : fifty basis... It is agreed that the projects in Andhra Pradesh can be taken up immediately on this basis.” This agreement which has been acted upon by the Governments of both the States of Orissa and Andhra Pradesh, constitutes a law of the case.”

8.22 Therefore, it is established that the agreement was with regard to water sharing and utilization. Whether it is construction of Gotta Reservoir, or construction of Neradi Barrage or construction of Side Weir, the same are the various projects through which water of Vansadhara River was sought to be diverted and utilised as per the entitlement of the State of Andhra Pradesh according to the broad agreement regarding water sharing. The dispute is with regard to manner and method of diversion and utilization of water of river Vansadhara by the two States. According to the decision of the Supreme Court also the dispute is not restricted only to the construction of side weir at Katragada.

8.23 The Senior Counsel for the State of Odisha submitted before the Supreme Court that despite all efforts, a negotiated settlement has eluded the parties and on the other hand, the State of Andhra Pradesh has continued with the construction of work of side channel weir and flood flow canal project at Katragada. It is in light of the above position that the State of Odisha approached the Supreme Court with the petition under Article 32 of the Constitution. In paragraph 43 of the judgment, the Supreme Court has observed about construction of the side channel weir with flood flow canal and also of Neradi Barrage. In

that context, the Supreme Court has also observed that the water dispute primarily relates to diversion of water of the river Vansadhara to the State of Andhra Pradesh. In the matter under consideration, diversion of water of the river is through barrage or side weir, which is said to be an alternative one and only a stop gap arrangement.

8.24 Even in March 2009, the Central Water Commission invited the State of Odisha and the State of Andhra Pradesh for discussion with regard to the construction of Neradi Barrage by issuing a letter on 3.3.2009. The subject of the letter is Vamsadhara Project Stage-II (Neradi Project) - A.P. This letter was sent to both the State Governments intimating the States that there has not been any further headway in resolving the issues relating to Vamsadhara Project Stage-II. The letter further stated that therefore, it was decided to hold an inter-State meeting under the Chairmanship of the Member of the Central Water Commission on 18.3.2009. The Engineers-in-Chief of both the States were requested to attend the said meeting.

8.25 At this stage, it may be mentioned that Vamsadhara Project Stage-II comprises construction of a barrage across Vamsadhara River at Neradi (about 48 km upstream of Gotta) with irrigation sluices on the right and left flanks to irrigate areas both in Andhra Pradesh and Odisha respectively. The mechanism of the right side canal was also part of the said Scheme. However, it transpires from the Detailed Project Report, Volume I, prepared in the year 2006 that Phase-II of Stage-II envisages the construction of a side channel weir as the concurrence from the Odisha Government for the construction of Neradi Barrage was getting delayed. It was also mentioned in the said Project Report that the said

Side Channel Weir is an alternative to construction of Neradi Barrage and is envisaged as a temporary measure to draw the Andhra Pradesh share of water for filling the proposed Hiramandalam Reservoir. The proposal is to construct a Side Channel Weir, located on the right flank of Vansadhara River at Katragada village where the river is hugging right flank in the Andhra Pradesh territory to draw the flood waters. Therefore, the said Project Report makes it abundantly clear that the invitation to attend the inter-State meeting by letter dated 3.3.2009 was for resolving the issues relating to Vamsadhara Project Stage-II constituting both construction of Neradi Barrage as also construction of Side Channel Weir at Katragada.

8.26 A reply to the aforesaid letter was sent by the Engineer-in-Chief of the Government of Odisha vide letter dated 13.3.2009 intimating that a judgment is delivered by Hon'ble Supreme Court of India on 6.2.2009 regarding the Writ Petition filed by the State of Odisha and in view of the said judgment, the Government of Odisha does not seek to attend the proposed inter-State meeting by CWC being called on 18.3.2009. It was also stated in the said letter that Odisha would prefer to present its case regarding the dispute pertaining to Stage II, Phase II of Vansadhara Project before the Tribunal after the same is created by the Central Government.

8.27 It is thus crystal clear that the aforesaid invitation issued by the Central Water Commission to attend the meeting with regard to construction of Neradi Barrage being part of Phase II of Stage II Project also includes the proposal to construct side weir project. The State of Odisha declined to attend the said meeting and to take part in the

discussion. It is thus established that the State of Odisha was reluctant to further negotiation and discussion either with regard to the construction of Neradi Barrage or with the proposed construction of the side weir and desired that since a Tribunal was being constituted, they would submit their case before the Tribunal. Consequent thereof, there was no other alternative left with the Central Government but to take a decision with regard to constitution of Water Disputes Tribunal as all efforts for a negotiated settlement either regarding the construction of the Neradi Barrage or the construction of side weir and a flood flow canal at Katragada had failed.

8.28 It is established from the records that the scope of having a negotiated settlement became a failure and non-existent and, therefore, after receiving a copy of the order of the Hon'ble Supreme Court and upon going through the entire records of the minutes of the meetings, the Central Government formed an opinion that the dispute with regard to the water of River Vansadhara could not be settled through negotiations and, consequently, after forming such an opinion, which is also apparent from the records maintained by the Central Government, the decision was taken for reference of the disputes raised with regard to the water dispute of Vansadhara River and its river valley.

8.29 Despite the fact that negotiations had taken place between both the States continuously approximately for about 45 years or so, no effective and final decision/agreement could be arrived at for construction of Neradi Barrage. Being so situated, the State of Andhra Pradesh suggested construction of a side weir with a flood flow canal at

Katragada merely as a stop-gap and temporary measure so as to tide over its difficulty in making water available for drinking and agricultural purposes to the inhabitants of the State of Andhra Pradesh. Therefore, construction of side weir at Katragada is an off-shoot and actually a temporary alternative to the construction of Neradi Barrage. If the Neradi Barrage could and would have been constructed, there was no necessity of having a side weir with a flood flow canal which was also designed to be operative only for 55 days in a year and that also during the period of monsoon and also during the days of high flood. The side weir is connected to a flood flow canal and when water is available in the river to the extent of more than 4,000 cusecs, then only the side weir was planned to be functional. The specific stand of the State of Andhra Pradesh is that as and when Neradi Barrage is constructed, the side weir at Katragada would get submerged and then the State of Andhra Pradesh does not intend to use the said side weir any more for the purpose of supplying drinking water and water for agricultural purposes. It is thus established that both projects are inter-connected for use and management of the water of the river Vansadhara and its river valley and they are part of a composite and integrated programme. The State of Andhra Pradesh has reiterated its position in the reply filed to the Statement of Case of the State of Odisha that side weir is not a new project but it is actually a new component by way of temporary measure so as to make available water to its inhabitants to give immediate benefits which will ultimately get submerged once the barrage is finally functional.

8.30 Now, coming back to the legal issue, it is established from the record that the Central Government received a copy of the order of the Hon'ble Supreme Court directing it to constitute a Water Disputes Tribunal and to refer the dispute with regard to the water of Vansadhara River to the Tribunal. However, in the operative portion of the said judgment, it is recorded as follows:

“47. It is now almost three years since the complaint was made by the State of Orissa but the Central Government has not taken any action in the matter. In this scenario, the prayer made by the State of Orissa does not appear to be unreasonable since the dispute between the two States does not confine itself to the construction of the Side Channel Weir and the Flood Flow Canal, but primarily it involves the unilateral decision taken by the State of Andhra Pradesh to divert the river waters to the State of Andhra Pradesh, which could possibly disturb the agreement to share the waters of the river equally.”

8.31 It is established from the aforesaid observations and directions of the Hon'ble Supreme Court that the dispute between the two States does not confine itself to the construction of the side channel weir and the flood flow canal, but primarily it involves the unilateral decision taken by the State of Andhra Pradesh to divert the river waters to the State of Andhra Pradesh which could possibly disturb the agreement to share the waters of the river equally. Be it stated that such agreement was arrived at during discussion and negotiation regarding construction of Neradi barrage. The aforesaid observation provides that the dispute between the two States is more than only the construction of the side channel weir and the flood flow canal, but it is also with regard to diverting the river waters to the State

of Andhra Pradesh. Reference was also made to the agreement between the two States to share the waters of the river equally. In the context of the aforesaid, the Hon'ble Supreme Court held that there has to be a reference of the dispute relating to the construction of the side channel weir and flood flow canal project at Katragada on River Vansadhara by the State of Andhra Pradesh for diversion of the waters of the said river which would adversely affect the supply of water from the said river to the State of Odisha. The Hon'ble Supreme Court came to the aforesaid finding after recording the submission of the counsel appearing for the State of Andhra Pradesh before it who had made a submission, one of which was also recorded that construction of the side channel weir and flood flow canal at Katragada and Neradi Barrage was undertaken after a series of meetings and discussions held between the Chief Ministers of the two States and at several inter-State meetings and, in particular, the meeting held on 5.12.2006 wherein the State of Odisha agreed for a mathematical model study of the side weir and the meeting in that connection was scheduled to be held on 18.12.2006 at Pune at the instance of the Central Water and Power Research Station, Pune. Further submission of the counsel was also recorded to the effect that despite the best efforts of the State of Andhra Pradesh, owing to the non-cooperation on the part of the State of Odisha, the construction of the side channel weir and flood flow canal of Neradi barrage were stalled. Therefore, it is apparent that construction of side weir at Katragada with a flood flow canal is intrinsically connected with construction of Neradi Barrage and one part of it cannot be decided without deciding the other aspect of the matter. Both the aforesaid projects deal with diversion of water of

inter-State River Vansadhara and its river valley and, as a matter of fact, the said decision to have such a diversion by constructing a barrage on the river Vansadhara was agreed to at various points of time but also disagreed with regard to various other details. When a decision was taken that a River Water Disputes Tribunal would be constituted so as to also comply with the direction issued by the Hon'ble Supreme Court in order to adjudicate and decide the feasibility and permissibility of construction of side weir at Katragada with a flood flow canal, necessarily the issue which is intrinsically connected therewith, namely, construction of Neradi Barrage, was also required to be considered by the same Tribunal to arrive at a just, composite and legal decision.

8.32 This view which is taken is also fortified by the contents of the complaint filed by the State of Odisha before the Central Government. In the column under the Grievances of Odisha, amongst others, it is stated thus:

“3..... The interests of the State of Orissa and its inhabitants in the waters of the Inter-State river Vansadhara and its valley have been (or likely to be) affected prejudicially by:

xxxxxxxxxx

(iv) the failure of the Government of the State of Andhra Pradesh to implement the terms of the Inter-State agreements, understandings, etc. relating to the use, distribution and control of the waters of Inter-State river Vansadhara and its valley.”

8.33 Then under the heading “Specific Matters in the Dispute” at Sl.No.5, it was stated thus:

- “(a) On a fresh scientific assessment, what is the entire quantity of available water in the Inter-State river Vansadhara and its valley at Katragada and Gotta barrage?*
- (b) Should the States of Orissa and Andhra Pradesh share equally (“fifty : fifty”) the entire quantity of water available in the Inter-State river Vansadhara and its valley – as agreed to earlier in 1962?*
- (c) xxxxxx*
- (d) Whether the acts and omissions of the Government of the State of Andhra Pradesh are in breach of the Inter-State agreements, understandings, etc. with regard to Inter-State river Vansadhara and its valley?”*

8.34 These averments contained in the complaint filed by the State of Odisha make it crystal clear that the inter-State agreements arrived at and their implementation are part of the dispute. Therefore, those agreements relating to construction of Neradi Barrage would also be a bone of contention in the dispute pending before the Tribunal and that is the reason why it is held that these facets of the dispute are inter-connected.

8.35 As and when a Tribunal is so constituted under Section 4 of the Act, the Central Government is empowered under Section 5 of the Act to refer the water dispute and any matter appearing to be connected with, or relevant to, the water dispute to the Tribunal for adjudication. The dispute with regard to the utilisation and use of the water of River Vansadhara is the real dispute between the parties and when the order of the Hon’ble Supreme Court was to constitute a Tribunal and refer the water dispute connected with construction of

side weir at Katragada and flood flow canal, the Central Government was empowered and it, on the basis of its satisfaction, could refer any other matter appearing to be connected with, or relevant to the water dispute, to the Tribunal. Necessarily and for all practical purposes, the matter regarding the construction of the Neradi Barrage is connected with or relevant to the water dispute, which is already referred to the Tribunal for adjudication. Therefore, it cannot be said that the Reference made by the Central Government to the Tribunal for deciding the dispute with regard to the water dispute of Vansadhara River and its river valley is incompetent and without jurisdiction. Once the Central Government constituted a Tribunal to adjudicate water dispute in respect of inter-State River Vansadhara and its river valley, then the Tribunal would have jurisdiction to decide all issues connected with the said river and river valley and no negotiation thereto is feasible nor it is necessary as all issues connected thereto are required to be considered. Similar references were made by the Central Government in the case of River Krishna and River Cauvery, as we are informed at the Bar. The submission of the Senior Counsel appearing for the State of Odisha is found to be without merit and is, accordingly, rejected. It is held that the Reference of the Central Government as made is legal and valid.

8.36 The Issue No.1, which is referred to hereinbefore, is, accordingly, decided in favour of the State of Andhra Pradesh and against the State of Odisha.

9

DISCUSSIONS AND FINDINGS IN RESPECT OF ISSUES NO. 2 TO 6: PROPOSED CONSTRUCTION OF NERADI BARRAGE

9.1 In the foregoing chapters, extensive deliberations and in-depth discussions were made with regard to the historical development of the dispute in question regarding the proposed construction of Neradi Barrage on Vansadhara river which arose between the State of Andhra Pradesh and State of Odisha. Various meetings and discussions were held between the representatives of both the States including that of the Engineers, Officers and Chief Ministers and that also sometimes in the presence of the representatives of the Ministry of Water Resources and Central Water Commission. The resolutions recorded in those deliberations have been referred to and indicated also herein before. Those minutes recorded also clearly indicate that although there was a broad agreement with regard to the construction of Neradi Barrage yet, in respect of a few of its characteristics, there was some dissent and areas of disagreement because of which the complaint was filed by the Andhra Pradesh for deciding such areas of dispute with regard to the construction of the proposed Neradi Barrage. Pleadings have been referred to, broad evidence that has been led in the matter with regard to the dispute has also been indicated hereinbefore and arguments of the Counsel appearing for the parties have also been discussed. Therefore, they are not being repeated herein for the sake of brevity. However, so far as the dispute with

regard to the construction of Neradi Barrage is concerned, there are five principal and main objections that have been raised by the State of Odisha through their pleadings, evidence and arguments of the Counsel in respect of the construction of Neradi Barrage proposed by Andhra Pradesh across the river Vansadhara which is an inter-State river flowing between the State of Odisha and Andhra Pradesh. The five main objections are with regard to:

- (a) that Neradi Barrage would create environmental degradation and affect the ecological balance in the area;
- (b) that even if the water is allowed to be drawn in terms of the request of Andhra Pradesh from the river Vansadhara, the same could be drawn only for the first crop and not beyond;
- (c) the project regarding the construction of the Neradi Barrage would call for and require acquisition of land of more than 106 acres on the side of State of Odisha as is mentioned in some of the Minutes regarding the discussions;
- (d) more importantly that the back water effect would exceed 3 km as was earlier proposed and agreed upon between the two States; and
- (e) that diversion of water whether through Neradi Barrage or through Katragada Project would cause heavy sedimentation and siltation and would thus cause

aggradation in the river bed with the result that even there could be possibility of change of the river course.

9.2 These objections raised by the State of Odisha which relate to opposing the construction of Neradi Barrage on river Vansadhara led to framing of some issues in the present proceedings which are:

- (2) *Whether the State of Odisha is justified in objecting to or delaying the Neradi Barrage by not honouring the binding Inter-State Agreements and not allowing the construction of Neradi Barrage?*
- (3) *Whether the State of Odisha is not obliged to make available the agreed extent of 106 acres of land to the State of Andhra Pradesh for the construction of the Neradi Barrage having agreed to do so as far back as in 1961?*
- (4) *Whether the State of Odisha is justified in stating that the land required for acquisition should be confined to 106 acres, on account of the Neradi Barrage, as initially agreed, when they insist on additional protective measures like embankments etc., on its side on account of the 1980 flash floods?*
- (5) *Whether the construction of Neradi barrage by the State of Andhra Pradesh across Inter-State River Vansadhara is subjected to any agreed conditions? If so, whether the agreed conditions are the following:*
 - (i) *That the submergence in the territory of Odisha shall be limited to 106 acres excluding the river bed in the State of Odisha; and*
 - (ii) *That the back water effect shall be limited to 3 km upstream of the barrage both in non-silted and silted conditions.*
- (6) *Whether the back water effect of the Neradi barrage as planned by the State of Andhra Pradesh*

goes beyond 3 km from the barrage upto Gunupur and whether the State of Andhra Pradesh has no legal right to cause submergence or back water effect in the territory of the State of Odisha without its consent?

9.3 The aforesaid issues were framed in view of the proposed construction of the two projects namely Neradi Barrage and the Side Weir Project proposed by the State of Andhra Pradesh. They contended *inter alia*, that so far as the construction of Neradi Barrage is concerned, the same is already an integral part of the agreement arrived at between the parties. There were some broad features of the agreement that was arrived at between the parties which are:

- (1) That for the construction of Neradi Barrage, an area of land not exceeding 106 acres would be acquired by the State of Odisha on its side which includes land use for various purposes.
- (2) That the drawal of the water from the river Vansadhara through Neradi Barrage would be only during the first crop period which extends upto 30th November of every year.
- (3) That the backwater effect would be restricted and limited to 3 km beyond the protection wall which would provide protection to the villages like Sara and Badigam situated near the site where construction of Neradi Barrage is proposed.

- (4) That there shall be a protection wall extending up to 3.8 km and a catch drain behind it to drain out the water from the water-logged area.
- (5) That there shall be two foot bridges so as to have access and inspection of the protection wall.

9.4 Despite the aforesaid agreement arrived at between both the parties at the inter-State level, there was some apprehension of the State of Odisha relating to the issue that its legitimate share of water from the river Vansadhara could be affected by diversion of the waters by the State of Andhra Pradesh either through the flood flow canal attached to Neradi Barrage or through the side weir at Katragada which is also connected with the same flood flow canal with addition of about 2.2 km of such canal and ultimately joining the main flood flow canal which if allowed to be constructed would broadly affect the interest of Odisha. Be it, however, stated that both the projects are part of the same project whereby the State of Andhra Pradesh desires to withdraw and take away water restricting it only to a part of its share.

9.5 These projects were initiated by the State of Andhra Pradesh with the idea and concept of utilizing the water of the river Vansadhara which falls to their share to the best possible extent to provide facility of irrigation and drinking water to as many people as possible. It is also indicated by Andhra Pradesh that such steps are being taken keeping in view the welfare of not only the people of Andhra Pradesh but also the people of Odisha which would also get the benefit of a flood flow canal attached to the left bank sluice in the proposed Neradi Barrage.

9.6 All the aforesaid five objections relate to proposed construction of the Neradi Barrage and since they are inter-connected and inter-related, they are being discussed and findings are recorded thereon conjointly. Having recorded that it would be necessary to deal with each of the said five objections constituting five issues one by one and therefore, initially, the issues with regard to environmental protection and ecological balance are being taken up for consideration. But before discussing the aforesaid objections and issues, it would be appropriate to first deal with the matters connected with Issue No.2 relating to delay in taking constructive steps for construction of Neradi Barrage. There could be no dispute to the fact that there has been inordinate delay in such construction. Agreement was arrived at and decision was taken for such construction in the year 1961. Broad agreement regarding its mechanism and nature of construction was also arrived at and agreed. But despite that, the construction could not be started even till date. Some objections and queries are being raised by the State of Odisha from time to time which are being explained and resolved by the State of Andhra Pradesh at different times. This process has definitely delayed the process of construction of the barrage at the site. However, no useful purpose would be served by trying to fix the blame for the delay on one State or the other. More meaningful way would be to find out and ascertain whether the construction of the Neradi Barrage as broadly agreed upon should be allowed or not. Therefore, Issue No.2 is decided accordingly.

9.7 Having decided the aforesaid issue, we may now proceed to deal with the subsequent issues and objections raised thereto but, as they are inter-connected, they are being answered conjointly.

Some major decisions were taken between the two States during the discussions held on 8.4.1988. The minutes thereto are relied upon by both the States. In the said meeting held on 8.4.1988, reference was made to the meeting convened by the Union Minister of Water Resources with the Chief Ministers of Andhra Pradesh and Odisha on 15.1.1987 in New Delhi in which the agreements arrived at by the two States of Andhra Pradesh and Odisha for taking up the Neradi Project was recorded with a condition that the said Neradi Project would be taken up if it could be found feasible by the Engineers of both the States and Engineers of Central Water Commission that the project could be implemented by acquiring only 106 acres of land in Odisha keeping in view the interest of Odisha as envisaged in the agreement of 1961 between the two States.

9.8 It was recorded in the Minutes of the Meeting held on 8.4.1988 that with a view to limit the extent of land required for acquisition in Odisha territory to within 106 acres, the Government of Andhra Pradesh have formulated the proposal to construct a Flood Protection Wall 3.5 km long upstream of Neradi Barrage in Odisha territory. It was also recorded that a catch drain is also proposed for draining the water behind the protection wall. The said proposal was discussed and it was concluded that the said proposal of constructing Flood Protection Wall to limit the acquisition of land in Odisha due to

Neradi barrage to 106 acres were examined during the meeting and following aspects were considered:

“2.2 AFFLUX

The Afflux due to Neradi Barrage as computed by Andhra Pradesh was considered and it was agreed that the effect of this afflux beyond 3 kms. of protection wall upstream of the Barrage was within permissible limit.

2.3 DESIGN OF PROTECTION WALL

The section of the proposed protection wall has been duly examined by the Barrage and Canal Dte's of CWC and is found to be technically sound and feasible. The stability of the wall in sliding was also found to be in order. The Engineer-in-Chief, Government of Orissa however desired that the detailed design of the wall may be carried out by CWC based on properties of the foundation soil. Chief Engineer (PAO) informed that the designs have already been checked by the concerned Dte. of CWC with regard to techno-economic clearance of the project. The detailed design of the wall can be taken up by CWC after techno-economic clearance of the project.

2.4 ADEQUACY OF CATCH DRAIN

The Engineer-in-Chief, Government of Orissa expressed doubt regarding the capacity of catch drain and desired to see the design calculations based on the guidelines provided by the Orissa Government. The Chief Engineer, Andhra Pradesh agreed that the calculations would be furnished to CWC and Government of Orissa before 30th April for examination.

2.5 INSPECTION PATH

Inspection path along the catch drain as suggested by Engineer-in-Chief Orissa along catch drain was agreed to by Chief Engineer, Andhra Pradesh.

2.6 FOOT BRIDGE

Chief Engineer, Andhra Pradesh agreed to provide two foot bridges over the catch drain to facilitate access and inspection of the protection wall.

2.7 OUT FALL STRUCTURE

It was decided that the gated sluice will be provided for the catch drain at its end downstream of the Barrage. This will be suitably protected by the guide bunds.

3.0 *The Engineer-in-Chief, Orissa agreed that the project can be finalized after the capacity of catch drain is checked by the CWC and Orissa Government. The Chief Engineer PAO indicated that this aspect will be finalized soon after Andhra Pradesh submitted the details. As the other technical aspects have already been found acceptable by CWC and Orissa Government, it should be possible to put up this project in the next Advisory Committee Meeting.”*

9.9 The careful reading and analysis of the Minutes recorded in the various meetings held between the two States makes it crystal clear that both the parties have broadly and in principle agreed upon the construction of such a barrage across the river and in fact in the meeting held on 30th December, 1994 which was attended by the Chief Ministers of the States of Odisha and Andhra Pradesh, the Minutes of which were also signed by them, it was recorded clearly that all the available water in Vansadhara would be shared between the two States on 50:50 basis.

9.10 The second resolution that was adopted in the said meeting was that no area in Odisha would be submerged as a result of construction of the proposed Neradi Barrage except 106 acres of land

to be acquired in Odisha State for various purposes as indicated in the Project Report.

9.11 The third resolution which was adopted in that meeting was that to ensure that the back water stretch is limited to 3 km on the upstream, the river has to be widened by removing constriction between the chainage 10.37 to 13.65 km to the section as suggested in the supplementary mathematical model run by the CWC.

9.12 During the visit of the Tribunal to CWPRS, Pune on 4th and 5th December, 2014, above-mentioned matter also came up during discussions. This Tribunal desired to know what would be the impact of removal of Shoal upstream of the barrage and its effect on the backwater effect. The Scientist of CWPRS replied that the removal of shoal upstream of barrage in order to increase the width of river or flow cross section would normally result in reduction in back water length. Quick model simulations undertaken on 4th December, 2014 using 2013 data revealed that the backwater effects are bound to extend up to 4 to 5 km instead of 6 km. The afflux at the barrage, however, remains unchanged. He further stated that the removal of shoal by deepening the channel is morphologically not a recommended solution. This may lead to head cut and bank erosion on upstream. The shoal would always rebuild itself during subsequent flood events.

9.13 These aspects were repeatedly discussed from the year 1961 till 2008 but, at no stage, in all these discussions, any objections seem to have been raised with regard to any threat with regard to environmental protection and degradation which could amount to disturbing ecological balance. None of the functionaries of the State

Government of Odisha at any point of time raised any apprehension that such a construction across the river Vansadhara could cause any environmental degradation. The fact remains that even if such construction of barrage across the river Vansadhara is allowed, the same will always be subjected to necessary clearance and no objection from the Ministry of Environment and Forests of the Government of India. Despite that fact, since an apprehension has been raised that such construction could affect the ecological balance and could cause environmental degradation, the said issue needs to be considered by this Tribunal at this stage.

9.13.1 One of the decisions relied upon and referred to was the decision of the Supreme Court in *A.P. Pollution Control Board vs. Prof. M.V. Nayudu [1999 (2) SCC 718]* and we are informed at the Bar that what we should follow is the precautionary principle both with regard to the proposed construction of the Neradi Barrage as also the construction of the Side Weir. In this connection we may also refer to the reports of CWC and CWPRS which have specifically stated that morphological changes in the river would span over a period of 1600 years, if any, of those constructions taking place.

9.13.2 So far as the construction of Neradi Barrage is concerned, we would first refer to a decision of the Supreme Court in *Narmada Bachao Andolan vs. Union of India and Others* reported in *(2000) 10 SCC 664*. The said decision was rendered in respect of the construction of Sardar Sarovar Dam upon the inter-State river Narmada. In the said decision, reference was made to the earlier decision of the Supreme Court in the case of *A.P. Pollution Control Board (supra)*. The said decision was held

to be not applicable to the case of *Narmada Bachao Andolan*. Since the said decision also was rendered in the light of construction of a large dam on inter-State river like Narmada and since the issue was also dealt with the precautionary principle and ecological balance and environmental issues, therefore, it would be appropriate to extract few paragraphs from the said decision.

“121. *In A.P. Pollution Control Board case [(1999) 2 SCC 718] this Court was dealing with the case where an application was submitted by a company to the Pollution Control Board for permission to set up an industry for the production of “BSS castor oil derivatives”. Though later on a letter of intent had been received by the said Company, the Pollution Control Board did not give its no-objection certificate to the location of the industry at the site proposed by it. The Pollution Control Board, while rejecting the application for consent, inter alia, stated that the unit was a polluting industry which fell under the red category of polluting industry and it would not be desirable to locate such an industry in the catchment area of Himayat Sagar, a lake in Andhra Pradesh. The appeal filed by the Company against the decision of the Pollution Control Board was accepted by the appellate authority. A writ petition was filed in the nature of public interest litigation and also by the Gram Panchayat challenging the order of the appellate authority but the same was dismissed by the High Court. On the other hand, the writ petition filed by the Company was allowed and the High Court directed the Pollution Control Board to grant consent subject to such conditions as may be imposed by it.*

122. *It is this decision which was the subject-matter of challenge in this Court. After referring to the different concepts in relation to environmental cases like the “precautionary principle” and the “polluter-pays principle”, this Court relied upon the earlier*

decision of this Court in Vellore Citizens' Welfare Forum v. Union of India [(1996) 5 SCC 647] and observed that there was a new concept which places the burden of proof on the developer or industrialist who is proposing to alter the status quo and has become part of our environmental law. It was noticed that inadequacies of science had led to the precautionary principle and the said "precautionary principle" in its turn had led to the special principle of burden of proof in environmental cases where burden as to the absence of injurious effect of the actions proposed is placed on those who want to change the status quo. At p. 735, this Court, while relying upon a report of the International Law Commission, observed as follows : (SCC para 38)

"38. The precautionary principle suggests that where there is an identifiable risk of serious or irreversible harm, including, for example, extinction of species, widespread toxic pollution in major threats to essential ecological processes, it may be appropriate to place the burden of proof on the person or entity proposing the activity that is potentially harmful to the environment."

123. *It appears to us that the "precautionary principle" and the corresponding burden of proof on the person who wants to change the status quo will ordinarily apply in a case of polluting or other project or industry where the extent of damage likely to be inflicted is not known. When there is a state of uncertainty due to lack of data or material about the extent of damage or pollution likely to be caused then, in order to maintain the ecology balance, the burden of proof that the said balance will be maintained must necessarily be on the industry or the unit which is likely to cause pollution. On the other hand where the effect on ecology or environment of setting up of an industry is known, what has to be seen is that if the environment is likely to suffer, then what mitigative steps can be taken to offset the same. Merely because there will be a change is no reason to presume that there will be an*

ecological disaster. It is when the effect of the project is known that the principle of sustainable development would come into play which will ensure that mitigative steps are and can be taken to preserve the ecological balance. Sustainable development means what type or extent of development can take place which can be sustained by nature/ecology with or without mitigation.

124. *In the present case we are not concerned with the polluting industry which is being established. What is being constructed is a large dam. The dam is neither a nuclear establishment nor a polluting industry. The construction of a dam undoubtedly would result in the change of environment but it will not be correct to presume that the construction of a large dam like the Sardar Sarovar will result in an ecological disaster. India has an experience of over 40 years in the construction of dams. The experience does not show that construction of a large dam is not cost-effective or leads to ecological or environmental degradation. On the contrary there has been ecological upgradation with the construction of large dams. What is the impact on environment with the construction of a dam is well known in India and, therefore, the decision in A.P. Pollution Control Board case [(1999) 2 SCC 718] will have no application in the present case."*

9.13.3 In paragraph 127, it was recorded that it was known that the construction of the dam would result in submergence and the consequent effect which the reservoir will have on the ecology of the surrounding areas was also known. It was also held that there are different facets of environment and if in respect of a few of them, adequate data was not available, it does not mean that the decision taken to grant environmental clearance was in any way vitiated. It was also laid down there that care for environment is an ongoing process and the system in place would ensure that ameliorative steps are taken

to counter the adverse effect, if any, on the environment with the construction of the dam.

9.13.4 We may refer to another decision of the Supreme Court in *N.D. Jayal and Another vs. Union of India and Others* reported in (2004) 9 SCC 362 which relates to construction of Tehri Dam for Hydel Power Generation. Reference was made to the judgments of the Supreme Court in *A.P. Pollution Control Board vs. Prof. M.V. Nayudu* [(1999) 2 SCC 718] and *Narmada Bachao Andolan vs. Union of India and Others* [(2000) 10 SCC 664] and paragraphs 123 and 124 of the latter judgment was referred to. It was held in the decision of *Narmada Bachao Andolan* that the construction of large dam like Sardar Sarovar Dam would not result in ecological disaster. It was also held in that decision by the Supreme Court that the experience does not show that the construction of a large dam is not cost-effective or leads to ecological or environmental degradation but, on the contrary, there has been ecological upgradation with the construction of large dams. In paragraph 21 and 22 of the said Judgment, it was held as follows:

"21. *In this context, reliance is sought to be placed on the decision of this Court in A.P. Pollution Control Board vs. Prof. M.V. Nayudu [(1999) 2 SCC 718]. In that decision, this Court viewed that in scientific matters of complex nature resulting in uncertainty, reference has to be made to a specialised technical/expert body and not merely decide the matter on well-known principles of administrative law of court not re-examining the matter if all relevant considerations have been taken note of. In the present case when once a decision had been given by this Court on safety aspects on an earlier occasion and thereafter the matter was again examined by the Government through different*

agencies and had taken a decision as to the necessity of further test by way of abundant caution should be relevant or not, we do not think, we can sit in judgment over such decision, particularly when there is no difference of opinion among the experts as to the safety of the dam. It is only by way of abundant caution such studies were suggested by four out of five experts. Thus the usefulness or necessity thereof itself being in doubt, as expressed in various reports and text books relied on by either side, the principle stated in A.P. Pollution Control Board case [(1999) 2 SCC 718] cannot be applied. In that decision it was noticed that inadequacies of science had led to the precautionary principle leading to the principle of burden of proof in environmental cases where burden as to the absence of injurious effect of the actions proposed is placed on those who want to change the present state of affairs.”

ASPECTS RELATED TO CONDITIONAL CLEARANCE

“22. Before advertng to other issues, certain aspects pertaining to the preservation of ecology and development have to be noticed. In Vellore Citizens’ Welfare Forum vs. Union of India [(1996) 5 SCC 647] and in M.C. Mehta vs. Union of India [(2002) 4 SCC 356] it was observed that the balance between environmental protection and developmental activities could only be maintained by strictly following the principle of “sustainable development”. This is a development strategy that caters to the needs of the present without negotiating the ability of upcoming generations to satisfy their needs. The strict observance of sustainable development will put us on a path that ensures development while protecting the environment, a path that works for all peoples and for all generations. It is a guarantee to the present and a bequeath to the future. All environment-related developmental activities should benefit more people while maintaining the environmental balance. This could be ensured only by strict adherence to sustainable

development without which life of the coming generations will be in jeopardy.”

9.13.5 After having held thus, it was held in paragraph 24 that the right to development cannot be treated as a mere right to economic betterment or cannot be limited as a misnomer to simple construction activities. It was also held that the right to development encompasses much more than economic well-being and includes within its definition the guarantee of fundamental human rights. Having considered the various aspects, the Supreme Court in paragraph 25 held as follows:

“25. Therefore, the adherence to sustainable development principle is a sine qua non for the maintenance of the symbiotic balance between the rights to environment and development. Right to environment is a fundamental right. On the other hand, right to development is also one. Here the right to “sustainable development” cannot be singled out. Therefore, the concept of “sustainable development” is to be treated as an integral part of “life” under Article 21. Weighty concepts like intergenerational equity (State of H.P. vs. Ganesh Wood Products [(1995) 6 SCC 363]), public trust doctrine (M.C. Mehta vs. Kamal Nath [(1997) 1 SCC 388] and precautionary principle (Vellore Citizens [(1996) 5 SCC 647], which we declared as inseparable ingredients of our environmental jurisprudence, could only be nurtured by ensuring sustainable development.”

9.13.6 Our attention was drawn to yet another decision of the Supreme Court rendered in the context of construction of Babhali barrage in the decision of State of A.P. vs. State of Maharashtra and others reported in (2013) 5 SCC 68. In paragraph 26, the Supreme Court refers to the sharp conflict over the subject matter of the dispute

namely construction of Babhali barrage between the two States. The aforesaid conflict between the parties with regard to construction and utilisation of the water was said to be resolved by the Supreme Court by permitting the construction of the barrage but with several directions which are enumerated in paragraph 89 thereto.

9.13.7 Mr. Katarki, learned counsel appearing for the State of Odisha drew our attention to the contents of the Report submitted by CWPRS in 2007 wherein it was stated that there is no model available to study the morphological changes. In the light of the said observation made by CWPRS, it was suggested by the counsel that we may, therefore, apply the 'precautionary principle' to the facts and circumstances of the present case particularly in respect of the construction of Neradi Barrage as also to the proposed construction of the side weir which, when constructed, is likely to damage the environment or ecology of the area. According to him, in such a situation what is to be applied is the 'precautionary principle' which is recognised as one of the sound principles.

9.13.8 During the course of hearing, the counsel handed over to us a note on 'precautionary principle' on 18.2.2017. On perusal of the said note, it is found that the same actually relates to Mulla Periyar Dam in the State of Kerala. The note opens with the contents that "New Dam proposed by the State of Kerala is precautionary measure to be applied in the facts of the case". Be that as it may, we have taken notice of the said note submitted before us which also refers to Principle 15 of the Rio Declaration on Environment and Development which is extracted in the note and reads as follows:

“In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious and irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost effective measures to prevent environmental degradation.”

9.13.9 It was also pointed out by the counsel that the International Court of Justice in the case of *Gabcikovo vs. Nagymaros* (ICJ Report 1997) concerning the water dispute of Danube River between Hungary and Czechoslovakia considered the precautionary principle, though it did not apply the same in the facts and circumstances of that case.

Learned counsel submitted before us that the precautionary principle has been widely applied in the matters relating to life and health by the European Economic Community and also in the United States of America and in India as well.

9.13.10 We have already referred to various decisions rendered by the Supreme Court of India in this regard. Of the aforesaid cases, special reference is to be made to the decision in *A.P. Pollution Control Board vs. Prof. M.V. Nayudu* (supra). In para 122 of the said judgment, the Supreme Court referred to the concept of ‘precautionary principle’ and the ‘polluter-pays principle’ which concepts were also discussed in the earlier decision of the Supreme Court in *Vellore Citizens’ Welfare Forum vs. Union of India*, reported in (1996) 5 SCC 647. A reference to para 123 of the said judgment in *A.P. Pollution Control Board* (supra) would signify that the precautionary principle and the corresponding burden of proof on the person who wants to change the status quo

would ordinarily apply in a case of polluting project or industry where the extent of damage or pollution likely to be inflicted is not known. On the other hand, where the effect on ecology or environment in setting up of an industry is known, what is to be seen is whether because of the same, the environment is likely to suffer and if it is so affected, then what mitigative steps are to be taken to offset the same so as to preserve the ecological balance. In the case of *Narmada Bachao Andolan* (supra), the Supreme Court categorically held that the experience does not show that the construction of a large dam is not cost-effective or that it leads to ecological or environmental degradation but, on the contrary, there has been ecological upgradation with the construction of large dams.

9.13.11 In the present case, we are concerned only with the construction of a barrage and that also not of a very huge dimension or magnitude. The same is not a polluting industry in any manner nor is an industry which would and could degrade the ecological balance or the environment in any manner. There is also no threat of serious and irreparable damage. There could be no reason as to how the construction of a barrage would cause pollution in the area and in our considered opinion, the same would not in any manner affect the ecological balance. If we apply the same rationale of the aforesaid decisions of the Supreme Court and also the reasoning of our decisions as recorded herein, it would be crystal clear that construction of a side weir on the right bank of the inter-State river Vansadhara would also not cause any pollution or irreparable damage in the environment of

the area at Katragada nor would it in any manner affect the ecological balance in the area.

9.13.12 In that view of the matter, we are of the opinion that in the facts and circumstances of the present case, the precautionary principle is not required to be applied at all. As recorded earlier, both these projects, namely, construction of Neradi Barrage as also the construction of the side weir, would be dependent on the clearance of the said projects by the Government of India from the forest and environment point of view as ordered herein and, therefore, this submission of the counsel for the State of Odisha is held to be baseless.

9.13.13 It is therefore, seen that construction of a barrage or side weir would not, in any manner, affect the ecological balance and would not cause any environmental degradation as such. Therefore, the apprehension of Odisha that construction of Neradi Barrage would cause environmental damage is belied from the reports submitted by CWC and CWPRS and also from the facts as enumerated herein before. But few other objections regarding silting, apprehension regarding change of river course would be discussed subsequently at appropriate places.

9.14 Having held thus, we proceed to consider the next objection and apprehension of Odisha that the water proposed to be drawn after construction of Neradi barrage through the Flood Flow Canal is to be restricted only for the first crop and not beyond in view of the agreement between the two States.

9.14.1 In support of the aforesaid objection and apprehension of Odisha reference was made to Resolution No.5 of the meeting dated 4.9.1962 wherein it was recorded thus:

“5. The Neradi Irrigation proposes to provide on the Andhra side for first crop only. It was agreed that the existing irrigation interests both under Orissa and Andhra Pradesh are in the Vamsadhara river basin will be a first charge on the waters. It was also agreed that the water requirements of the Neradi Project will be met out of what was agreed to under Gotta reservoir scheme previously. Orissa Engineers had no objection to the Neradi Project subject to the above conditions.”

9.14.2 This resolution indicates that there is an agreement between the two States that water from Vansadhara river would be drawn by Andhra Pradesh only for first crop. However, in respect of the said issue regarding drawal of water through Neradi Irrigation Project, another resolution came to be adopted in the meeting dated 27.7.1980 with slight modification in the intention, which is resolution B of paragraph 9. In the said resolution it was recorded thus:

“9. VAMASADHARA

(B) The Chief Engineer, Irrigation, Orissa State pointed out that the original agreement provided for utilisation of water only during the first crop period of Neradi Barrage. It was agreed that the project report should be revised for ensuring withdrawal of water from Neradi barrage during the first crop period and all flow thereafter or beyond first December is let down in the river for use by both the States.”

9.14.3 According to the State of Odisha, the agreement between the two States was restricted to drawal of water for first crop only and not beyond. In this regard, the State of Odisha has examined Mr. B.P. Das as Odisha Witness No.3. He has filed an affidavit and in paragraph 6 of the same, he has stated that the understanding between the States is that the State of Andhra Pradesh will draw water from the Neradi Barrage only during the Kharif season.

9.14.4 In paragraph 7 of the said affidavit he has further stated that in the Detailed Project Report of the Vansadhara Project (Phase-II Stage-II) filed by the State of Andhra Pradesh, which is part of Volume 3G at page 75, it is indicated that the State of Andhra Pradesh has planned for irrigation beyond Kharif season. It is also stated by him that perennial sugarcane is proposed in 20,000 acres which would require about 8 TMC of water throughout the year. It is also stated by him that there are other non-Kharif crops, namely, pulses in Rabi over 18640 acres and Rabi Paddy etc. under the command and that it is for the said reason only that Andhra Pradesh has plans to build Neradi Barrage with higher pondage involving large backwater stretch.

9.14.5 The witness was cross-examined at length by the counsel for the State of Andhra Pradesh. He was specifically asked in the cross-examination to make reference to the DPR of the Vansadhara Project, Phase-II of Stage II and confirm that there was no proposal to draw any water from the river after 31st October of every year. To the said question, the witness replied that he will have to examine the Report and thereafter would be able to give his opinion.

9.14.6 A suggestion was also given to him during cross-examination that the Rabi crop proposed is from out of waters which are drawn during the Kharif season and stored but supplied for irrigation thereafter. The witness answered that the Andhra Pradesh Neradi Barrage Project proposal suggests drawal during the monsoon through a right bank channel and stored in reservoirs for subsequent utilization in the Rabi season which, according to him, is a violation of the agreed conditions of water utilization only for the first crop. The witness agreed that the same is his interpretation of the agreement and the opinion given by him is on his own assessment.

9.14.7 Mr. V.V.S. Ramamurty, witness No.1 examined by Andhra Pradesh being APW-1, was cross examined by learned counsel for State of Odisha. In question No.46, while referring to Minutes of Meeting dated 4.9.1962, Annexure RE-1 to the counter filed by State of Andhra Pradesh in I.A. No.1 of 2010, a suggestion was made to the witness that Neradi Irrigation Project proposes to provide on Andhra Pradesh side for the first crop only which is the understanding recorded on 4.9.1962. He was put a question as to whether or not cultivation of perennial sugarcane crop is contrary to the said understanding. The witness replied in the negative and stated that the suggestion is not correct. He stated that the Neradi Project contemplated in 1962 is a standalone project, under which water is diverted from barrage into the right canal and that there was no storage reservoir and only one crop was provided. He further stated that subsequently after 1969, the scheme was changed and water from Neradi Barrage through right canal was proposed to be dropped into Hiramandalam Reservoir. He further

stated that under Hiramandalam Reservoir the sugarcane cultivation which already existed through open head channels, is proposed to be continued.

9.14.8 It is stated that the monsoon rain is received in the river catchment till about 30th November. Therefore, if the construction of the Neradi Barrage is permitted, the same would make it possible for Andhra Pradesh to withdraw water from Vansadhara River through the Flood Flow Canal during the period of the first crop, i.e. upto 30th of November of each year. Once the water is withdrawn and taken to the reservoir at Hiramandalam during the said period but not thereafter, that would satisfy the conditions of the agreement arrived at between the two States and would not, in any manner, affect the binding agreement between the parties. Once the water is withdrawn to the extent of its right to use such water of the river, it is for the said State to decide as to how to best utilise the water drawn within the specified period, i.e., the first crop period. This position is supported by the evidence of cross-examination of Mr. V.V.S. Ramamurty, APW-1. During his cross-examination he was asked in question No.46 about utilisation of water in the following manner to which his answer is relevant; both are extracted below:

“Q.46. Please see the Vansadhara project report of November 2006 at page 75. In this page the proposed cropping pattern is mentioned showing that the demand for sugarcane crop of 14.45 acres is 7.464 TMC. However, in the minutes of the inter-State meeting held on 4.9.1962 Annexure RE 1 to the counter filed by Andhra Pradesh in IA 1, it is stated that “Neradi irrigation proposes to provide on Andhra Pradesh side for the first crop only.” In view of this understanding

recorded on 4.9.1962, a cultivation of perennial sugarcane crop is contrary to the understanding. What do you say?

Ans. *No. The suggestion is not correct. The Neradi project contemplated in 1962 is a standalone project. Under this water will be diverted from barrage into the right canal and there is no storage reservoir, and only one crop was provided. Subsequently, after 1969, the scheme is changed and water from Neradi barrage through right canal is proposed to be dropped into Hiramandalam reservoir. Under Hiramandalam reservoir the sugarcane cultivation which was already existing through open head channels is proposed to be continued. Even now, in the stretch between Neradi and Hiramandalam, only one crop will be there.”*

9.14.9 It is thus established from the answer given that as per the project Report, only Paddy, Pulses and Chillies will be grown, besides the perennial crop of sugarcane. Besides, in the subsequent Inter-State meeting dated 27.7.1980, there is some modification by which the State of Andhra Pradesh was permitted to withdraw water during the 1st crop period and all flow thereafter is let down in the river. Therefore, what was permitted was withdrawal of water only till 30th November every year and all flow thereafter would be allowed to flow into the river. Once the water is withdrawn, the same would have to be stored in a reservoir which could be used later on also.

9.14.10 We observe that in its Statement of Case, the State of Andhra Pradesh has referred to the inter-State meeting held on 4.9.1962 wherein it was agreed to make a provision for a sluice at the left bank of the Neradi Barrage to facilitate discharge of about 375 cusecs of water to Odisha to meet its needs downstream of Neradi Barrage. In its reply

statement, the State of Odisha has submitted that the discharge of 375 cusecs is not sufficient to meet the needs of Orissa in the downstream of Neradi project. The rejoinder statement filed by the State of Andhra Pradesh to the reply statement filed by the State of Odisha, mentions that the State of Odisha has not disputed that the discharge of 375 cusecs is sufficient to meet its needs in the downstream of Neradi project. The State of Andhra Pradesh in its Project Report of 1978 had made this provision for a sluice at the left bank of Neradi Barrage to facilitate discharge of about 375 cusecs. The State of Odisha had not substantiated as to how this quantum of discharge is not sufficient. It has not given the details of its requirements or needs in the downstream of Neradi Barrage/Katragada side weir.

9.14.11 We are of the view that there is already an agreement between the two party-States to share the waters of River Vansadhara on 50:50 basis. Therefore, it would be appropriate if the State of Odisha decides and intimates to the State of Andhra Pradesh the capacity of the sluice on the left side for drawing water during the first crop period keeping in view its requirements in the downstream of Neradi Barrage. The State of Andhra Pradesh may withdraw the water during the first crop period through the right sluice of Neradi Barrage which could be stored in Hiramandalam Reservoir for its use later on. We observe that as per the agreement between both the State Governments on 4th September, 1962, it has been agreed that the cost of the left head sluice shall be borne by the State of Odisha. Also, if and when in future irrigation is decided in Odisha State, the cost of the proposed Neradi Barrage shall be borne on ayacut basis.

9.14.12 Thus it would not, in any manner, affect the agreement between the parties for no water withdrawn during the first crop period is being utilised by the State of Andhra Pradesh beyond its permitted share nor it is permitted to withdraw water after 30th of November. Such withdrawal would always be to the extent of its share of entitlement and not beyond. So, therefore, the objection that Andhra Pradesh can draw water only for the first crop and not utilise the said water after the first crop is misplaced and cannot be entertained.

9.15 The next objection of the State of Odisha is that it has agreed to the concept of construction of the Neradi Barrage only on the ground that not more than 106 acres of land of Odisha would be acquired and since in view of the revised situation more land would be required to be acquired, construction should not be permitted. That agreement was entered into in the years 1961 and 1962 and both the States are bound by the said terms and conditions of their agreement. After the flash flood that happened in the year 1980 which had tremendous effect on the neighbouring areas, therefore, subsequent to the said agreement it was also agreed between the two States that the barrage would be designed for a peak flood of 6 lakh cusecs.

9.15.1 It is observed that in the meeting between the Chief Ministers of Andhra Pradesh and Odisha held on 18th July, 1961, the Andhra Pradesh representatives stated that they wanted to execute the irrigation project at Neradi, which entails the acquisition of 106 acres of land in Odisha territory. On behalf of Odisha it was stated that while Odisha Government had no objection, they wanted to safeguard against water logging of their area and therefore had asked for certain details.

9.15.2 In a meeting between the Irrigation Secretaries of the two States held on 27.07.1980, it was decided that Andhra Pradesh will confine acquisition of Odisha lands to 106 acres as originally provided in the proceedings of the inter-State Agreement and it was also agreed that the 106 acres acquisition would be exclusive of the river bed.

9.15.3 After the unprecedented flood in Vansadhara river in September 1980, another joint meeting of the officers of the two States was held on 22.06.1981. Item-V of the Minutes of this Meeting reads:

“Regarding proposed barrage at Neradi, Andhra Pradesh Engineers expressed that they were anxious to proceed with the project. Orissa representatives stated that adequate waterway should be provided in the design of the barrage, taking into account the high flood of 1980 and limiting the submersion to 106 acres.

Representatives of Andhra Pradesh stated that they would redesign the barrage taking into account the flood of 1980 and C.W.C. guide lines for design of the barrage. They would send the project report to Govt. of Orissa as soon as it is ready. Their (A.P) studies at this stage, however, reveal that, if 1980 flood is to be provided for submersion in Orissa may exceed 106 Acres.

Representatives of Government of Orissa stated that they could not agree to any proposal, which would be contrary to the Inter-State agreement. The State Government would, however, be in a better position to offer their views after receiving the project report.”

9.15.4 Keeping in view the agreement between the two Chief Ministers in a meeting convened by Union Minister of Water Resources on 15.01.1987 regarding acquiring only 106 acres of land in Odisha, Andhra Pradesh proposed a 3.5 km long flood protection wall upstream

of Neradi Barrage in Odisha territory. The discussions regarding this protection wall in a joint meeting on 08.04.1988 have been given in detail herein before.

9.15.5 Meeting between two Chief Ministers on 30.12.1994 mentions about in principle agreement of Odisha to the proposal of Andhra Pradesh for going ahead with Neradi Project subject to certain conditions. Condition No. 2 reads:

“No area in Orissa will be submerged as a result of construction of the proposed Neradi Barrage, except 106 acres of land to be acquired in Orissa State for various purposes as indicated in the Project Report.”

9.15.6 In its statement of case, State of Odisha states that the DPR of Vansadhara was submitted to it by State of Andhra Pradesh vide letter dated 27.07.1982. In the said letter at Item-2, it is mentioned that:

“In spite of the best efforts made, this Government find that an area of 1266 acres in Orissa territory get submerged (as against 106 acres envisaged in July 1961) when the September, 1980 floods are taken into account in order to safeguard the interests of both the States and avert calamities on account of floods in future.”

9.15.7 State of Andhra Pradesh in its answer statement contested this averment saying that it has been misquoted out of context and adds that the requirement of land acquisition is different from the area that is going to be submerged or inundated in the post barrage condition. Andhra Pradesh requires only 106 acres for acquisition by Odisha. In its statement of case, Andhra Pradesh has referred to the

guidelines of CWC which are on the record of the Tribunal. The relevant extract is as follows:

“Generally acquisition may be done upto FRL only. The area between FRL & MWL may be acquired only if the submerged land is fertile and the duration of submergence beyond FRL upto MWL is long enough to cause damage to crops i.e. over 15 days duration. (for acquisition of the land effect of back water need not be taken into consideration).”

9.15.8 Mr. Anil B. Divan, learned counsel appearing on behalf of the State of Odisha, during his final arguments made a mention of the various Detailed Project Reports of Vansadhara Project Stage-II prepared by the Government of Andhra Pradesh. He stated that the State of Andhra Pradesh has prepared nine Detailed Project Reports in all. The first Report was prepared in the year 1954 and the last Report in the year 2006. He stated that the area to be acquired in the territory of Odisha went on changing from 106 acres to 1326 acres for different values of the design flood as agreed between the two States. He submitted that as per the various agreements between the two States, the Government of Andhra Pradesh is bound by such agreements and the area to be acquired for this project in the territory of Odisha has to be restricted to only 106 acres.

9.15.9 Perusal of these Reports indicates that the Detailed Project Report prepared in 1961 indicates as follows:

“SUBMERSION AREA

The anicut at Neradi will have a pond level of +235.00 M.S.L. The quantity utilised from the runoff of the river helped by a small pondage is 4,000 M. Cft.

The F.S.L. of the right side canal in its ultimate stage is fixed with reference to the levels to be commanded at 230.00. The Head sluice is designed to give the required discharge with a head of one foot requiring a minimum pond level of 231.00. A small pool is provided for the purpose of tiding over short periods of low flows in the river and the pond level is fixed as 235.00.

The submergence that is likely to be caused is as follows:

<i>River bed between margins (Andhra and Odisha) being variable between year to year according to the summer course in the river</i>	<i>:</i>	<i>424 acres</i>
<i>Right margin in Andhra Pradesh</i>	<i>:</i>	<i>320 acres</i>
<i>{Left Margin in Odisha with a flood bank including areas acquired for the bank and outfall drain}</i>	<i>:</i>	<i>106 acres</i>

The flood bank with top at +242.00 will be carried upto the point where it meets the G.L. at +242.00.”

An extract of the Detailed Project Report of 1978 is as follows:

“SUBMERSION:

It is proposed to minimise submersion under the Neradi barrage on the Orissa side by forming flood banks. In order to avoid water logging on the rear side of the flood bank in Orissa as a result of the construction of the Neradi barrage, it is also proposed to provide out fall sluices to drain the water where ever feasible and provide a catch drain on the rear of the flood bank to collect and dispose of all drainage water.

ORISSA SIDE:

It is found necessary to provide a flood bank for a length of 8.70 KM on Orissa side. While aligning the flood bank it is seen that it comes within the sandy waste land along the left margin of the river and also avoids submersion of villages. Further on Orissa side old flood banks exist in certain reaches and the proposed flood bank is so aligned as to follow the same alignment of the existing flood bank. Thus the land required for the flood banks including the area between the flood banks and river margin is only sandy waste and will be about (440 acres) 178.02 Hectares. But some land will be required on the rear of the flood bank for (1) Borrow area and (2) for excavation of catch drain. The land required for this is said to be under cultivation and will be (100 acres) 40.46 Hectares. In addition to the above (422 acres) (170.74 Hectares) of river bed will also be under submergence.”

9.15.10 In view of the agreement reached between the two States to modify the Detailed Project Report so as to account for the design peak flood of six lakh cusecs, the land acquisition for flood banks in the Odisha Territory for river margins, borrow area and flood bank was worked out as 1326 acres in the Detailed Project Report in the year 1985.

9.15.11 Having gone through the Mathematical Model Study by Central Water Commission and also facts emerging out of the cross-examination of various witnesses, it is observed that the flood of September, 1980 occurred over a time span of two days. It is also observed that the duration of the 6 lakh cusecs peak flood was approximately 6-8 hours.

9.15.12 In view of the change in the value of design flood, it was found that the submersion would affect more areas than conceived earlier. At one stage, it was calculated to be much more than 106 acres which is required to be acquired for providing flood banks, but with the change in the concept of the protective measures from flood banks to 3.8 km long Flood Protection Wall, this was restricted to 106 acres. With the agreement on construction of a Protection Wall over the embankments already existing at the site, with a catch drain to drain out water from the water-logged area behind the Protection Wall, it is estimated that not more than 106 acres would be required to be acquired by the State of Odisha. During the course of arguments, the counsel of Andhra Pradesh has categorically stated that they are not seeking for any further acquisition of land by the State of Odisha beyond 106 acres and it is asserted that acquisition of 106 acres of land by Odisha Government as originally agreed upon is sufficient and more than enough for the purpose.

9.15.13 Having gone through the records, we are also satisfied that there is already an embankment existing to protect the two villages, namely, Sara and Badigam and that is exactly on the side where the proposed construction of the Protection Wall is being thought of and conceived. Mr. A.K. Padhi, OW-2, in his cross-examination was asked in question No.95 as to whether he is aware that the embankments on the left side near about Neradi and Katragada have been strengthened and some kind of protection has been raised by Odisha to which his reply was in the affirmative. He was next asked (Q.No.96) whether these

embankments in lands on the Odisha side are government lands to which also he replied in the affirmative.

9.16 It is thus established that the entire embankment on the left side of the river stands on government land and when protection wall is constructed upon the same land, there is no requirement of acquisition of any land to that extent. If the existing embankment is used and utilised which has already been acquired/used for the purpose, construction of Flood Protection Wall on the said embankment and a catch drain behind the Protection Wall may require acquisition of land even less than 106 acres. Therefore, no additional land over and above 106 acres as agreed upon by both the States is required or needs to be acquired by the State of Odisha for the said purpose. Thus this objection raised by the State of Odisha is also found to be baseless and without any merit.

BACKWATER EFFECT

9.17 After having discussed at length the issues pertaining to delay in construction of Neradi Barrage and acquisition of 106 acres of land in Odisha Territory as also the issue with regard to withdrawal of water during the first crop period only, we are required now to consider one of the major issues urged before us which is relating to the backwater effect that may be caused due to construction of Neradi Barrage. We have at many places hereinbefore referred to various discussions that had taken place between the Ministers and Officials of the State of Odisha and the State of Andhra Pradesh regarding proposed construction of Neradi Barrage and also the proposed construction of

side weir at Katragada. Reference is also made to the contents of various studies carried out but some of those relevant extracts of the contents thereof may have to be once again made so as to understand and appreciate the contentions raised before us with regard to the backwater effect of the water of the river after construction of the Neradi Barrage.

9.17.1 On this subject we refer to the agreement dated 18.7.1961 in which concurrence of the Government of Odisha to the proposal of construction of Neradi Barrage entailing acquisition of 106 acres of land in Odisha Territory was recorded. That decision was, however, subject to providing some more details to the Odisha Government, as asked for, to safeguard their interest against water-logging of their area. So far as the construction of Neradi Barrage is concerned, although there was a broad agreement with regard to such construction, but the nature and design of the Neradi Barrage and details of the flood bank proposed were required to be finalized and in that process several meetings had taken place subsequent thereto, one of which was meeting dated 04.09.1962.

9.17.2 In that meeting, it was agreed that the design proposed by the Andhra Pradesh Engineers for the flood bank and the arrangements proposed for the drainage sluice were generally acceptable.

9.17.3 Further discussions were held with regard to the problem regarding water-logging in the rear of left flood bank in the meeting dated 27.7.1980. In the said meeting it was agreed that catch drains behind the protection wall constructed on the embankment would be provided to avoid such water logging, if any.

9.17.4 However, there was a change in the conception and design of the Barrage in view of the occurrence of a high flood in the year 1980 which destroyed and devastated the entire region causing huge loss to life and property. In that view of the changed situation, another joint meeting was held on 22.6.1981 wherein minutes were recorded regarding the apprehensions and suggestions of the Odisha representative that adequate water way should be provided in the design of the barrage, taking into account, the high flood of 1980 and limiting the submersion of land only to the extent of 106 acres. Regarding the design of the barrage it was decided that the Government of Andhra Pradesh would re-design the barrage taking into account the flood of 1980 and CWC guidelines.

9.17.5 In the meeting held on 10.1.1984, one of the following decisions is as follows:

“(i) Officers of CWC in association with the concerned officers of Orissa and Andhra Pradesh would immediately inspect the river reach near about Neradi to Gunupur and ascertain the hydraulic conditions in the river bed and flanks so as to reach a better judgment on the value of rugosity co-efficient ‘n’ and observed flood marks of the 1980 floods.”

9.17.6 In the inter-State meeting held on 9.2.1985 at Bhubaneswar, it was recorded at item-2 as follows:

“The most important issue was regarding the value of the flood peak to be adopted for the design of the barrage and calculating backwater profile. After reviewing the previous studies conducted in this regard, it was agreed that the barrage should be designed for a peak flood of six lakh cusecs at the Neradi site.”

Again at item-5 of the said inter-State meeting, it was recorded as follows:-

“After dividing the channels into Main channel and over bank, the values of ‘n’ already decided that is 0.04 for over bank and 0.03 for main channel will be adopted.”

9.17.7 Some major decisions were taken between the two States during the discussions held on 8.4.1988. Though relevant portions of this meeting have already been given in detail hereinbefore, but for the sake of ready reference, relevant extract of the minutes of this meeting is given below:

“2.2 AFFLUX

The Afflux due to Neradi Barrage as computed by Andhra Pradesh was considered and it was agreed that the effect of this afflux beyond 3 kms. of protection wall upstream of the Barrage was within permissible limit.”

9.17.8 It may be stated herein that in the said meeting several other resolutions were taken regarding the design of the protection wall, adequacy of the catch drain, providing an inspection path and two foot bridges. Para 2.7 thereof deals with Out Fall Structure wherein the decision is recorded that the gated sluices will be provided for the catch drain at its end downstream of the Barrage and that the same would be suitably protected by the guide bunds.

9.17.9 We may also usefully refer to the meeting held on 22.11.1991 between the representatives of the State Governments in the presence of Member (P&P) of Central Water Commission. In the said meeting

also the request of the State of Odisha Government was recorded that acquisition of the land has to be to the extent of 106 acres and that there would be construction of a masonry wall of 3.8 km long which proposal of the Andhra Pradesh was accepted by the Government of Odisha.

9.17.10 Reference is also made to the joint inspection carried out by representatives of the two State Governments as also the representative of the CWC on 22.12.1991 in which it was observed that there is no necessity for taking up the physical model studies as the river appears to have stable regime. As regards the possibility of the river bed in backwater zone, it was felt that necessary studies could be carried out on the mathematical models which may be carried out before finalization of the flood protection works.

9.17.11 However, mention is made of the meeting that was held between the Chief Ministers of two States on 10.6.1992. The minutes of the said meeting having a connection with the issue being discussed is extracted herein below:

“Neradi Barrage:

Hydrology data upto 1991 and Mathematical Model Studies will be supplied by the Irrigation Department Andhra Pradesh within 10 days. Mathematical Model has a linkage with the aggradation of the river bed which in turn will affect the Orissa Portion by floods beyond the stipulated 3 kms. Andhra Pradesh Engineer, however, assured that the backwater effect will be limited to 3 km. Sharing of water would be on 50:50 basis. It was agreed in principle that Orissa Government would have no objection to the Government of Andhra Pradesh going ahead with

construction of the Barrage but the height of the Barrage would be subject to mathematical model studies and hydrological data.”

9.17.12 The Mathematical Model Studies as discussed hereinbefore which was agreed to by the two State Governments and the CWC, was carried out by CWC and the Report was submitted in March, 1994. A supplementary Study was also carried out at the request of Government of Andhra Pradesh and its Report was submitted in September, 1994.

9.17.13 Thereafter, another study was carried out based on estimation of 6 lakh cusecs flood, calibrated ‘n’ value and considering additional cross-sections and a report thereof was submitted in April, 2000.

9.17.14 It must be stated herein that Central Water Commission is the premier Technical Organisation of India in the field of Water Resources. It promotes integrated and sustainable development and management of India’s water resources in consultation with the concerned State Governments. During the visit of this Tribunal to CWPRS, Pune, we were informed that CWPRS is one of the foremost organizations in the world in the field of Hydraulics and Allied Research. It provides specialized service through Physical and Mathematical Model Studies in water resources, power and surface Transport sectors. The studies conducted by CWPRS are able to provide hydraulically sound and economically viable solutions to various problems associated with projects on water resources. This Tribunal, therefore, would give due consideration to the studies carried out by the two organizations. These studies are part of the record submitted to the Tribunal and have also been used by both

the party-States by referring to various parts of the studies to support their case. First of all, we would deliberate upon the Mathematical Model Studies carried out by the Central Water Commission.

9.17.15 The CWC was requested to carry out the study with the objectives, namely, Hydrodynamic and Morphological. After carrying out such a study, as requested, the CWC submitted its report in March 1994 with the following conclusions:

1. The study of morphological characteristics of the river from Gunupur to Kashinagar indicates that the river is morphologically stable.
2. The maximum net aggradation due to the construction of the Neradi Barrage on Vamsdhara is of the order of 35 cm and extends up to 6.0 km upstream of the barrage where it reduces to negligible.
3. The afflux due to barrage with guide bunds only extends to a distance of about 3.0 Km upstream. However, with the construction of the flood protection wall on the L.B. extending 3.0 Km. upstream, the afflux is experienced upto 8.0 km upstream of the barrage.

9.17.16 A supplementary study was also carried out at the request of Government of Andhra Pradesh and its report was submitted in September 1994.

9.17.17 A final study based on 6 lakh cusecs flood, calibrated 'n' values and additional cross-sections was also carried out and the Report

submitted in April, 2000. The relevant conclusions of the Report are as follows:

1. The study of the Morphological characteristics of the river from Gunupur to Kashinagar indicates that the river is morphologically stable.
2. The maximum afflux due to construction of the Neradi barrage on river Vamsadhara is of the order of 36 cm and extends upto R.D 9.00 km i.e. upto 6.0 km upstream of the barrage where it reduces to negligible. However, with the construction of the Flood Protection wall on the left Bank extending 3.0 km upstream of the barrage, the maximum afflux is of the order of 46 cm and extends upto R.D 6.0 km i.e. upto 9.0 km upstream of the barrage.

9.17.18 We are also informed of the minutes of the discussion held between ministerial delegation of Odisha and Andhra Pradesh on 15.02.2001 under the Chairmanship of Chief Minister of Orissa which recorded the apprehension of the people of Gunupur and surrounding areas in view of the devastating experience of 1980 floods. During the discussions it was further pointed out that only mathematical model studies are not enough, physical model studies are to be conducted, which will be more reliable.

9.17.19 Accordingly, the CWPRS was requested to conduct the physical model studies for estimation of backwater spread and examination of upstream protection arrangement for Neradi Barrage Project. The CWPRS in terms of the request, carried out the study and

submitted the Report in 2005. Some of the important conclusions are as follows:

1. Back water length after construction of Neradi Barrage would be of the order of 6 km upstream of barrage for a discharge equivalent to $16,990 \text{ m}^3/\text{s}$ according to hydraulic scale model as well as HEC-6.
2. For a discharge equivalent to $16,990 \text{ m}^3/\text{s}$, increase in water level at cross section No 2 (2 Km upstream of barrage) over the existing condition (pre-barrage condition) was 0.72 m. With HEC-6 results, this was 0.68 m which is comparable with the model results.
3. Model studies indicated that rise in water level for a discharge equivalent to $16,990 \text{ m}^3/\text{s}$ at cross section No.6 was of the order of 0.16 m. However, this diminished rapidly immediately after cross section No.6 and was negligible at cross section No. 7.

9.17.20 Thereafter, Government of India constituted this Tribunal in February, 2010 to adjudicate the water dispute between Andhra Pradesh and Odisha. During the visit of the Tribunal to CWPRS on 03.05.2013, it was directed that since the Physical Model Studies of Neradi Barrage were carried out in the year 2005, fresh data should be provided to CWPRS for it to decide, if any changes are required in the Model studies done so far. The Tribunal further directed that fresh river cross sections on the agreed locations be carried out jointly by the two party States under the overall guidance of Central Water

Commission from 15th to 22nd May 2013. The up-to-date G&D data available with Central Water Commission should also be supplied to CWPRS, Pune for making comparison of the data and coming to a conclusion, whether any changes are required to be made in the Model studies. CWPRS submitted its Report in August, 2013, with copies to both the State Governments.

9.17.21 This Tribunal again visited the CWPRS, Pune on 4th and 5th December, 2014 to discuss the issues related to the model studies carried out for Neradi barrage. During the presentation in CWPRS, it was pointed out that a study is required to be done by the CWPRS taking into consideration the proposed protection wall on the left bank upstream of Neradi Barrage. The Tribunal directed the Government of Odisha to submit the cross sections and alignment of the proposed protection wall. After receipt of the consent of the Government of Odisha and Andhra Pradesh on the proposed alignment of the protection wall, CWPRS carried out the study and gave its report to the Tribunal and a copy thereof to both the States in June, 2015.

9.17.22 Based on the 1-D mathematical model studies conducted with pre-monsoon 2013 cross section data of river Vansadhara and with the provision of protection wall as per the agreed alignment of the wall submitted by project authorities, following conclusions are drawn by CWPRS:

“1. With the provision of barrage and protection wall, the maximum afflux is expected to be 211 cm at 4 Km upstream of barrage for the calibrated varying ‘n’ values. This afflux value is expected to vary between 199 cm due to variation of ‘n’ in the range

of \pm 30% from calibrated 'n' values. The afflux is computed to be lesser than 10 cm at a distance of 9 to 10 km upstream of the proposed barrage.

- 2. With the adoption of Manning's 'n' values of 0.03 for well-defined sandy portion of river channel and 0.04 for overbanks, maximum afflux is 95 cm at 4 Km, diminished to 6 cm (less than 1% of normal depth) at 7 Km and was zero at 12 Km upstream of the proposed barrage.*
- 3. The maximum afflux values of 126 cm, 104 cm and 108 cm are computed at 4 Km for fixed 'n' values of 0.015, 0.030 and 0.045 respectively. The afflux in these cases is considered to be negligible (<10 cm) at 6 Km, 7 Km and 7 Km respectively."*

9.17.23 Oral and documentary evidences were produced by both the State Governments before the Tribunal in support of the respective cases in respect of the concerned issues including the possible backwater effect due to the proposed construction of Neradi Barrage. In that view of the matter, it would be necessary to discuss at some length the respective cases of the parties followed by the nature and value of evidence that had been adduced in support and with respect to the issue of backwater effect. So far as the issue with regard to sedimentation is concerned, the same would be taken up separately as it is to be appreciated with a different set of evidence adduced in that regard.

9.17.24 Various reports have been prepared by the CWC and the CWPRS at different points of time and each one of those reports have been taken on record as Exhibits. Reference has also been made to those reports hereinbefore with our comments. Reliance was placed by

both the States on some portions of the aforesaid Reports in support of their respective cases. So far as the backwater effect and morphological changes due to the construction of Neradi Barrage are concerned, detailed and extensive study was made by CWC and the aforesaid report of 1994 was submitted on the basis of the Mathematical Model Studies.

9.17.25 The State of Odisha has produced four witnesses and the State of Andhra Pradesh two witnesses for deposing before the Tribunal in respect of the issues raised by the two States.

9.17.26 Mr. B.P. Das, OW-3, submitted that Andhra Pradesh has attempted to interpret the agreement on the length of the backwater, stating that it starts from the tail of the Flood Protection Wall. Referring to the minutes of various meetings between the two State Governments, Mr. Das stated that there is no such evidence to interpret that backwater length of 3 km begins from the tail of the Flood Protection Wall. Quoting Mathematical Model Studies submitted by CWC in 1994, Mr. Das has observed that even after the construction of Flood Protection Wall on the left bank extending up to 3 km upstream, the afflux is extending up to 8 km upstream of the barrage.

9.17.27 Referring to the Mathematical Model Studies conducted by the CWC in 2000, Mr. Das stated “with the construction of 3 km long flood protection wall on the left bank of the barrage, the rise in water level is of the order of 46 cm and the backwater effect extends up to 9 km upstream of the barrage.” Mr. Das also referred to the physical model studies conducted by the CWPRS, in 2005, and stated that backwater length after construction of Neradi barrage would be of the

order of 6 km upstream of barrage for the discharge equivalent to 16,990 cumecs. He also pointed out that the study was conducted by CWPRS without considering the 3.8 km long Flood Protection Wall.

9.17.28 We observe that his statement that the backwater will go upto 9 km upstream of Neradi Barrage was not based on any study conducted by him but on backwater studies of CWPRS Report of 2015 using 'n' value of 0.045.

9.17.29 The learned counsel of Andhra Pradesh drew the attention of the witness to the Hydrograph annexed to the report of the CWC (Vol.3K) and asked the witness about the duration of the flood flow of 6 lakh cusecs. The witness replied that the flood lasted from 0 hours of 17th September to 0 hrs of 19th September and 6 lakh cusecs flood was the peak flood which shows a spike shape natural to any flood hydrograph corresponding to an intense storm event.

9.17.30 Relying upon the Report of 2015 of the CWPRS, Mr. Das, to a query, submitted that the protection wall as proposed on the left bank upto 3.8 km would provide protection to its left in the Odisha territory but, the back water exhibits a sudden rise of almost 2 m at the end of the protection wall which would cause additional submersion for another 5 to 6 km upstream and that would lead to additional submergence on the left bank.

9.17.31 Another witness of State of Odisha, Prof. G.N. Yoganarasimhan, OW-4, in his affidavit has stated that the State of Odisha and Andhra Pradesh agreed to the construction of Neradi barrage subject to the following conditions:

- (i) The submergence will be limited to 106 acres.
- (ii) The backwater effect will not go beyond 3 km upstream of the barrage.
- (iii) The Manning's 'n' value to be adopted in backwater computation should be 0.03 in the river bed and 0.04 for the flanks.

9.17.32 We have noted that he has conducted backwater studies using Mathematical Model HEC-RAS for 5 scenarios. Through his studies, he has shown that the backwater effect due to the construction of Neradi barrage goes upto 6 km upstream of the barrage and the backwater extends upto 8 km if Flood Protection Wall of 3 to 4 km is constructed and 'n' value of 0.03 in the river bed and 0.04 on the flanks is considered. His study also shows that the backwater may extend up to 7 km in case of flood protection wall up to 4 km is considered with 'n' value of 0.02825.

9.17.33 During the cross-examination of OW-4, the learned counsel of Andhra Pradesh referred to the witness's backwater study of Neradi Barrage (Annexure B of the Affidavit) particularly Tables 3 and 4 on Page 23. To a query of the learned counsel in respect of case 2 (Barrage without protection wall) that whether it would be correct to say that there won't be any rise in water level at 0-4 km from the barrage, the witness answered in affirmative. However, when asked to corroborate that there would be no backwater effect as a result of the barrage at Neradi, the witness deposed that it was not correct to say that there was no backwater effect, but this is the output of the programme used.

9.17.34 We have also taken note of another suggestion of the learned counsel that the norm of backwater effect to be inconsequential when it is less than 1% of the normal depth would be applicable in case of Neradi Barrage and the witness agreed to the said suggestion.

9.17.35 Mr. V.V.S. Ramamurty, APW-1, in his Affidavit has enclosed a table and figures (Annexure B) regarding the width of the river Vansadhara at Observed Maximum Flood Level (OMFL) from axis of barrage to 10 km upstream. He has submitted that the river broadens to the maximum width at 3rd km upstream of Neradi Barrage site and later it narrows down and broadens again at 6th km. He has stated that the backwater travelling upstream through the larger water spread would be met with rapids coming down during floods at the constricted cross sections and as a result the backwater would not travel beyond 6 km.

9.17.36 During his cross-examination, the witness stated that beyond 3 km from Neradi barrage and upto 15 km there are many major streams, in addition to Gadiakhala from left and Jagannathpur nalla and Shirjulinalla on right, which join the river Vansadhara. The witness agreed to the suggestion of the learned counsel of State of Odisha that when the proposed wall is constructed in the upstream of Neradi barrage for 3 km, the flows from these two nallas which join Vansadhara river would get blocked forming backwater in the upstream of those nallas and stated that it is because of this only that a catch drain is proposed behind the protection wall to drain away the water to the downstream of the proposed Neradi barrage.

9.17.37 Further, he added that once protection wall is constructed on the left side, the question of effect of backwater upto 3 km does not arise at all as the protection wall will safeguard the villages Sara and Badigam and the surrounding areas behind the protection wall. He further added that as per the studies conducted by CWPRS even though the backwater travels beyond 6 km, the rise in water level beyond 6 km is well within the permissible limit of 1% of normal depth and as such there is no damage to State of Odisha on account of backwater.

9.17.38 Learned counsel for the State of Odisha drew the attention of the witness to the flood hydrograph prepared by CWC, at page 110 of Volume-3K to the Statement of the Case of Andhra Pradesh, which shows the backwater effect of river Vansadhara as six hours when the flood of 6 lakh cusecs impinges on the proposed Neradi barrage. Mr. Ramamurty replied that in his view the maximum flood might have been there only for a duration not exceeding two hours when the peak flood of more than 16,000 cumecs occurred sometime between 11 pm of 17th September to 01 am of 18th September, 1980.

9.17.39 Mr. Anil Divan, Senior Counsel for the State of Odisha while arguing in the matter of backwater effect due to Neradi Barrage referred to the Detailed Project Reports prepared by the Government of Andhra Pradesh during the period from 1954 to 2000. It is pointed out by him that the area to be acquired in the territory of Odisha has been increased to 1322 acres as the value of design flood kept on increasing from 2.1 lakh cusecs to 6 lakh cusecs and, therefore, construction of the Neradi Barrage cannot be permitted in view of such increase in the area of land to be acquired.

9.17.40 It is also submitted by him that what was agreed upon was the acquisition of 106 acres of land in total for the purpose of construction of protection wall and catch drain and also including the land of submergence and, therefore, no further acquisition of land could be sought for in the name of submergence of land. It is also submitted that the backwater effect has to be measured from the site of the Neradi Barrage and not beyond, as is sought to be done by the State of Andhra Pradesh by referring to the Minutes of the Meeting dated 8.4.1988.

9.17.41 He has also relied upon the evidence of Prof. Yoganarasimhan who had shown that in the post-silted conditions, afflux at 7 km chainage would be 96 cms which works out to about 32.54% which is shown by him in case No.5 of his affidavit. Relying on the same, the counsel has submitted that such high afflux would definitely extensively damage the agricultural land, standing crops and habitations etc.

9.17.42 Learned counsel for the State of Odisha during his submissions also has referred to the Report prepared by CWPRS in 2015 in which it is shown that the backwater effect of the Neradi Barrage, when constructed, would extend beyond 3 km and upto 8 km and that the afflux would be more than 1% of the normal depth of the river. By referring to the various studies conducted by the CWC and CWPRS, he submitted that the backwater effect would definitely go beyond the agreed length of 3 km and consequently, it is submitted that the State of Andhra Pradesh has failed to design the Neradi Barrage keeping the backwater effect within the stipulated length of 3 km.

9.17.43 As against the aforesaid submissions made by the counsel appearing for the State of Odisha, Mr. Vaidyanathan, the learned Senior Counsel appearing for the State of Andhra Pradesh in his reply, drew the attention of this Tribunal to the opposition of State of Odisha to the Neradi Barrage due to three principal objections:

- (i) The back water effect is beyond what was agreed upon;
- (ii) The project envisages or would require more than 106 acres which was agreed upon and therefore that again is contrary to the agreement; and
- (iii) The project envisages utilisation of waters for a second Crop whereas the agreement is that it would be only for the first crop.

9.17.44 He has submitted that the construction of the Barrage is in public interest and such construction is also particularly agreed to by the State of Odisha with certain conditions as mentioned hereinbefore.

9.17.45 The Tribunal has taken a note of his submission that the State of Andhra can proceed on the basis that the project would limit the acquisition of land in Odisha to 106 acres and they are ready to comply with this agreement.

Regarding the drawal of water during the first crop period, learned Senior Counsel stated that this has already been agreed to by Odisha and, according to him, there is no restriction in regard to utilization of this water beyond 1st December.

Concerning the backwater effect, he submitted that any construction or obstruction on the river would cause backwater effect. He stated that based on evidence and report of the CWPRS, State of Andhra Pradesh would show that this is what was contemplated and was agreed to by the parties.

9.17.46 Learned Senior Counsel for the State of Andhra Pradesh has heavily relied on the conclusions and findings of the Mathematical Model Studies of CWC and stated that the afflux of Neradi Barrage beyond 6 km would be negligible. The State of Odisha did not dispute that finding when it insisted on the need of Physical Model Studies for Neradi Barrage. He also pointed out that any construction or obstruction on the river would cause some backwater effect but the only important aspect which is required to be enquired into is whether any substantial and appreciable impact on either the lands or the crops or on the inhabitants is caused as a result of such construction. According to him, there would not be any such substantial impact on either the lands or the crops or on the inhabitants even if the Barrage is allowed to be constructed. He pointed out that according to the reports, it is established that the backwater effect is really caused by the construction of the protection wall and in that view of the matter it was also resolved between the parties in the Minutes dated 8.4.1988 that the effect of backwater beyond 3 km of the protection wall is within permissible limit.

9.17.47 The learned Senior Counsel for the State of Andhra Pradesh stated that the study of the CWPRS indicates and shows that there is a very negligible rise in water levels and that too as a result of protection

wall and not as a result of construction of the barrage. Even during the 1980 flood, the maximum flood line till which the flood waters came is indicated in the map provided by the learned counsel thereby indicating that all these lands were inundated during 1980 floods when there was no barrage. During the said period, Sara and Badigam villages were also affected and submerged whereas Palsingi was at a higher level of 85.29 m and, therefore, it was not affected but nearby areas were affected. Therefore, as and when such heavy flood occurs as that of in the year 1980, these areas would be affected even if there is no barrage.

9.17.48 The Senior Counsel for the State of Andhra Pradesh also has drawn our attention to the Minutes of the Meeting dated 22.1.2008 wherein the Chairman of the meeting had recorded his observation that the backwater effect has to be limited to 3 km of the Barrage. Drawing our attention to the same, he submitted that what was recorded by the Chairman of the meeting was his understanding and not an agreed decision arrived at between the two States. There was no agreement superseding the earlier agreement between the parties regarding backwater effect extending 3 km beyond the protection wall. Having dealt with substantially the evidence adduced in respect of the said issue regarding backwater effect and the submergence, made by the respective counsel on the said issue, we may now proceed to critically analyse the records and evidence placed before us and the submissions made.

9.17.49 The main dispute apparently revolves around the respective stand of the two State Governments as to whether backwater effect should be measured 3 km upstream of Neradi Barrage or 3 km

upstream of the protection wall. In this connection, we have perused and referred to the minutes of the various meetings dated 8.4.1988, 10.6.1992 and 30.12.1994. The minutes of the meeting dated 8.4.1988 clearly indicate that the afflux due to Neradi Barrage which was agreed upon between both the State Governments would be within permissible limits beyond 3 km of protection wall upstream of the Barrage.

9.17.50 We have specifically examined the minutes of the meeting held on 21.2.2008. From a reading of the same it would be crystal clear that nowhere in the said resolution it was mentioned about superseding the agreement of having the backwater effect beyond 3 km of the protection wall, which was found to be within permissible limit. So far as 3 km upstream of the Barrage observation is concerned, that was the observation of the Chairman of the meeting which is recorded of his own. It is not indicated therefrom that either the State of Odisha or the State of Andhra Pradesh agreed to the said observation and at least the minutes recorded on that day does not indicate the said position. The aforesaid decision of afflux being within permissible limits beyond 3 km of protection wall upstream of Neradi Barrage, taken in presence of both the parties and agreed to by them, stands firm till date and has become final and binding on the parties.

9.17.51 Various studies carried out by CWC, CWPRS as well as by Prof. Yoganarasimhan, one of the witnesses examined by State of Odisha only provide that there could be backwater effect in view of construction of Neradi Barrage and also of the protection wall. This backwater effect and flow would continue to a length of about 6 km

upstream of the Barrage after which the effect thereof would be very negligible and within permissible limits. The reports, like the studies clearly stipulate the same position which we find no reason to disagree with.

9.17.52 Prof. Yoganarasimhan in his backwater study has covered five different scenarios and has given the results in Table 3 and Table 4 on page 23 of his affidavit. But for us, case 3 of Table 3 is the relevant one because it is based on 6 lakh cusecs flood, 3 km long protection wall and agreed values of 'n' of 0.03 in the river bed and 0.04 in the flanks. The aforesaid Table is reproduced below:

TABLE - 3

Distance (u/s) from Barrage (km)	Water Levels (m)		
	Case 1	Case 2	Case 3
0	75.63	75.94	75.94
1	77.11	76.97	76.97
2	77.98	77.90	77.68
3	78.25	78.18	78.69
4	78.46	78.40	79.32
5	79.26	79.24	79.80
6	80.30	80.29	80.55
7	80.27	80.27	80.34
8	83.59	83.59	83.58
9	84.00	84.00	84.00
10	84.74	84.74	84.74
11	84.70	84.70	84.70
12	87.34	87.34	87.34
13	87.46	87.46	87.46
14	88.12	88.12	88.12
15	90.29	90.29	90.29

Case1 : No Barrage (Neradi)

Case2 : With Barrage as proposed

Case3 : With Barrage and flood protection wall up to 3 km

u/s : Upstream

9.17.53 On scrutiny of this case, we observe that though the backwater extends up to 8 km but beyond 6 km it is within permissible limits and negligible. This is in general agreement with the latest backwater study of CWPRS which has also concluded that backwater effect beyond 6 km of Neradi Barrage is within permissible limits. The relevant Table showing the backwater study of CWPRS carried out in 2015 is reproduced below:

Water levels (m) at different locations under existing condition, with Barrage and with Barrage plus Protection wall in position with 'n' values of 0.03 for defined channel and 0.04 for overbanks

Chainage (km)	Existing condition	With Barrage	
		Without PW	With PW
15 km u/s	90.3	90.3	90.3
14 km u/s	86.76	86.76	86.76
13 km u/s	87.49	87.49	87.49
12 km u/s	87.36	87.36	87.36
11 km u/s	84.57	84.58	84.58
10 km u/s	82.57	82.57	82.58
9 km u/s	82.29	82.29	82.31
8 km u/s	81.59	81.59	81.63
7 km u/s	80.88	80.88	80.94
6 km u/s	79.41	79.42	79.91
5 km u/s	78.94	78.97	79.63
4 km u/s	78.36	78.4	79.31
3 km u/s	78.12	78.16	78.91
2 km u/s	77.79	77.84	77.91
1 km u/s	76.85	76.93	77.24
Just u/s of Barrage	75.88	76.11	76.13

Note: u/s - Upstream, PW - Protection Wall

9.17.54 From the perusal of the results of the aforesaid studies, it is also crystal clear that the backwater effect does not extend up to Gunupur town upstream of Neradi Barrage for the agreed conditions of design flood value, provision of flood protection wall on the left bank upstream of Neradi Barrage and the value of the rugosity coefficient 'n'.

9.17.55 We observe that the comments of OW-3 regarding the backwater effect as also submissions made before us by the learned counsel for the State of Odisha regarding the extent of backwater are contrary to the findings of the Reports submitted by the CWC and CWPRS. There is also a clear contradiction between the evidence of OW-4 vis-a-vis that of OW-3 and submissions of the State of Odisha. After having given our conscious attention to the three studies carried out by CWC, CWPRS and OW-4, we are of the considered opinion that the backwater effect would not, in any manner, cause submergence of land beyond what is being acquired by the State of Odisha for the aforesaid purpose which includes the land required for construction of protection wall and the catch drain behind the wall.

9.17.56 The contention of the State of Odisha indicating their apprehension that once the Barrage is constructed, the backwater effect would go up to Gunupur town was held to be only a speculative apprehension. It is pointed out that Gunupur town is located 15 km upstream of the Barrage and, therefore, any damage to this town due to the construction of the barrage is totally baseless.

9.18 In our estimation, acquisition of the land required for construction of protection wall and catch drain would not cross the

limit of 106 acres as discussed hereinbefore. Even assuming that there is submergence of land due to flood waters caused during an unprecedented high flood the duration of the same would be for a very restricted period which in our estimation may not cause much of a damage either to the standing crops or to the habitation necessitating acquiring of further land beyond 106 acres which theory is also supported by the State of Andhra Pradesh. However, if and when a heavy damage is caused by backwater of Neradi Barrage due to high flood beyond the pool level at any point of time causing submergence of land beyond 106 acres of land which is acquired, we feel that the committee constituted by us would examine and consider whether any reasonable compensation would be required to be paid in that regard and if they come to the considered opinion and conclusion that the inhabitants of Odisha and their standing crops are, in any manner, damaged or affected and there is irreparable loss and damage to their crops and structures, the affected persons may raise their claims for the losses suffered upon which they shall be given reasonable compensation as assessed by the committee, the money for which will be provided by the State of Andhra Pradesh. This condition is apart from the other conditions which are being laid down hereinafter for allowing construction of the Neradi Barrage and its proper maintenance.

SEDIMENTATION

9.19 Having decided the issue with regard to the backwater effect, we are left to decide another issue which has been agitated before us

and which relates to causation of sedimentation in the course of the river which could occur due to construction of the Neradi Barrage across the river. An apprehension is raised in that regard by the State of Odisha in their pleadings and they have also led evidence to show that due to such construction of Neradi Barrage there would be sediment deposit in the river bed which would not only cause an obstruction to the free flow of water but also could possibly cause greater backwater effect in the upstream of the Barrage.

9.19.1 Mr. R.C. Tripathy, OW-1, in his examination and cross-examination has referred to the apprehension of the State of Odisha regarding heavy sedimentation due to construction of Neradi Barrage. He stated that in case the proposed barrage at the Neradi is constructed, aggradation of the river bed upto the crest level of the barrage will take place within a very short time span of 2 to 3 years and the proposed Katragada side weir will always remain submerged, thereby drawing higher quantum of water than predicted at this stage. The upstream and downstream cutoffs provided below the barrage will adversely restrict summer water flow on the downstream side, thereby affecting the interests of Odisha.

9.19.2 Mr. Arun Kumar Padhi, OW-2, in his Affidavit has submitted that river Vansadhara is prone to heavy sedimentation. After the construction of Gotta Barrage by the State of Andhra Pradesh across river Vansadhara, the bed level in the upstream reach up to Kashinagar has suffered aggradation.

9.19.3 The above aggradation in 32 years from 1980 to 2012 varies from 0.6m to 2.5m. If Neradi Barrage is permitted to be constructed,

the river is likely to suffer heavy sedimentation in the upstream. On the silted belt, the back-water effect will be much more higher and longer than what has been estimated by the studies conducted by the Central Water Power and Research Station, Pune and Central Water Commission, New Delhi. About one lakh people of Gunupur and surrounding places would be swamped by floods resulting human disaster.

9.19.4 Mr. Padhi was then cross-examined by the Senior Counsel of Andhra Pradesh. He was asked about the comparison of the cross-section of the river taken at Kashinagar in the year 1980 and 2012 as enclosed in his Affidavit as Annexure B and about the data of which the graph had been drawn. Mr. Padhi replied that the reduced levels have been taken by CWC field staff in the years 1980 and 2012 which have then been analysed by his department people under his guidance. He was informed by the learned counsel that there was a correction made in the year 1985 and 1986 by CWC to the reduced level of zero gauge.

9.19.5 Thereafter, he was asked to look at a comparison of the bed levels of cross-section at Kashinagar for 1975 and 1980 prepared by the State of Andhra Pradesh and based on that it seemed that the operation of the barrage at Gotta has not caused any aggradation at Kashinagar. The witness agreed that it so appeared from the documents of these 2 years. He was further shown a comparison of the bed level for the years 1980, 1993, 1998, 2003 and 2012 and was told that the bed closer to the left bank has both gone up and gone down and there is no consistent aggradation as claimed by him. Mr. Padhi agreed to this suggestion also. The learned Senior Counsel of Andhra Pradesh

suggested to the witness that the statement in paragraph 14 of his affidavit that the above aggradation in 32 years from 1980 to 2012 varies from 0.6 m to 2.5 m is without applying the correction factor in regard to the reduced level at zero gauge at Kashinagar made in the year 1985-86. The witness agreed to the suggestion of the Senior Counsel of Andhra Pradesh.

9.19.6 Prof. Yoganarasimhan, OW-4, has submitted his opinion in regard to Neradi Barrage as well as the Side Weir at Katragada. In his Affidavit, he has prepared a report on the back-water study of Neradi Barrage which is in Annexure B. As mentioned hereinbefore, he has conducted back-water studies using Mathematical Model-RAS. He has also stated that the inter-State river Vansadhara is highly prone to sedimentation. He has further submitted that the sediment inflow at the Kashinagar gauge site is measured by Central Water Commission and abstract of the daily sediment inflow at the gauge site is annexed in Annexure B which would indicate that the river carries both bed load and suspended sediments. He has also done sediment accumulation study and concluded that the river bed is expected to rise at the rate of 9.68 cm per year. It means that over a period of 9 to 10 years, one can expect the sediment to accumulate up to the crest of barrage base.

9.19.7 Mr. C.S. Vaidyanathan cross-examined Prof. Yoganarasimhan and enquired that if he was aware that the proposed barrage consists of 30 crest gates. The witness answered in the affirmative. The learned Senior Counsel of Andhra Pradesh asked the witness that if he was aware of the six under sluice gates and if the operation of these gates will flush off sediments, Prof. Yoganarasimhan replied that he was

aware of the provisions of the under sluice gates but stated that the sediments will get flushed off only in that portion.

9.19.8 Thereafter, learned counsel queried the witness on the extent of sedimentation the proposed barrage would cause and whether the calculations furnished by him were correct. The witness after checking his calculations stated that it took about 20 to 22 years for the sediment made up as against 10 years mentioned by him earlier.

9.19.9 The Tribunal has taken a note of Prof. Yoganarasimhan's opinion regarding flushing off the sediments in front of under sluice gates of Neradi Barrage. It has also noted that he had to carry out correction in his calculations for working out sediment accumulation at the behest of counsel of Andhra Pradesh.

9.19.10 Only one of the witnesses of Andhra Pradesh, Mr. Satyanarayana, APW-2, was cross-examined by the counsel of the State of Odisha about the deposition in his affidavit regarding sedimentation. Mr. Satyanarayana has submitted that most of the sediment is carried by the river during floods and about 70% to 80% of suspended sediment is categorized as fine. It is carried as wash load. The fine sediment will not settle unless there is storage which is absent in case of the side weir.

9.19.11 He was extensively cross examined by Mr. Mohan V. Katarki, learned counsel for the State of Odisha. He was asked that if he had conducted any study on sedimentation. The witness replied that he had not conducted any study and his another proposition of the major quantity of flow going along the main river course carrying all the

sediment was on the record. Then he was posed a question regarding measurement of the extent of aggradation in a river channel by comparing the bed-level over a period of time. The witness responded by saying that aggradation and degradation is a natural phenomenon in rivers and these studies are carried out normally whenever they are required. His attention was drawn to OW-2/6 prepared by the State of Andhra Pradesh which is comparison of the bed levels of the cross sections at Kashinagar for different years of 1980, 1993, 1998, 2003 and 2012. The response was solicited to the fact that difference in the bed level in the 1980 to 2012 between 100 m to 200 m on the left side is more than 2.5 m. Mr. Satyanarayana stated that it is a matter of record and conforms to his answer that the aggradation and degradation is a natural phenomenon in the rivers.

9.19.12 The counsel appearing for the State of Odisha has relied upon the evidence adduced by their three witnesses who have mainly deposed on the issue of sedimentation to submit that there is every likelihood of heavy sediment deposit on the downstream and upstream of the Barrage when constructed. According to the counsel for the State of Odisha, due to the aforesaid factor, there would be aggradation on the upstream of Neradi Barrage which will adversely affect the State of Odisha.

9.19.13 Mr. Katarki also invited our attention to Issue No. 5 and after placing reliance on the same gave emphasis on the word 'silted conditions' of the said issue. He has also submitted that due to such heavy sedimentation and siltation as stated by their witnesses there could be possibility of change in the inter-state border whether it is at

the deepest point or at the centre which in turn would be affecting the morphological and environmental degradation at the site. According to him, flows in the river transport sediment, which is also part of the flows in the river, but the question is what would happen to the sediments being carried by the flow of the water if a dam is built or some other obstruction comes across the river. According to him, when a construction is made across the river, part of the sediment would tend to deposit at the bed of the river which is a natural phenomenon and when it is a case of construction of a dam, there is a possibility of larger sediment deposit affecting the interest and welfare of the State of Odisha. In support of his contention, he has relied upon the factor that larger the velocity of the river flows lesser the sedimentation and if the velocity is less in slow moving water, the sedimentation would be definitely higher. He also has relied upon an extract of the note of Arbitrator in 'Indus Waters Kishen Ganga Arbitration' wherein it is recorded as under:

“Sediment is an element of any watercourse or river system and enters the water as a result of erosion within the watershed of the river in question, as well as from the banks and bed of the river itself. Quantities of sediment can vary dramatically between river systems as a result of differences in the geology, climate, and vegetation of the catchment area, as well as human activities such as agriculture. Within a particular river system, the quantities of sediment entering the water will also vary substantially over time as a result of seasonal factors such as snowmelt and monsoon rains, as well as discrete events such as earthquakes and landslides that may push large quantities of soil into the water. In many rivers, peak sediment loads may be many times the average concentration, and in extreme

cases, quantities of sediment greater than the entire average annual load may enter a river within the space of a few days.

Because the capacity of a river to transport sediment is directly linked to the velocity of the flow, it will vary over the reach of a river. In particular, anybody of still water, such as a pool, lake, or reservoir will have the effect of slowing the flow and reducing its transport capacity, thereby causing suspended sediment to settle to the bottom. Coarse particles will typically be deposited at the upstream end where the flow first enters a reservoir, while finer sediments will settle further into the reservoir as the dispersal of the incoming water progressively reduces its flow. As a result of these dynamics, sedimentation is a concern at any reservoir where the long term maintenance of a significant storage volume is an objective. Simply put, any reservoir will eventually fill with sediment, reducing its utility and eventually rendering it inoperable if this process is left uncontrolled."

9.19.14 As against the aforesaid submission of the State of Odisha, Mr. Vaidyanathan appearing for the State of Andhra Pradesh has submitted that the aforesaid apprehension as pointed out by the counsel appearing for the State of Odisha is belied from the evidence on record. He drew our attention to the evidence of Mr. Tripathy, OW-1, and Mr. A.K. Padhi, OW-2, which according to him is contradictory to each other in nature. The learned counsel has submitted that the sedimentation is a natural phenomenon, which depends on the quantum of flow of water and that sediment carried with the flow eventually settles down even without the construction of a barrage. He has drawn our attention to the various documentary evidences particularly the graphs which were made available to OW-2

by the State of Andhra Pradesh during his cross-examination which indicate the bed level at chainage 100 m to 500 m from the left side of the river cross section at Kashinagar from 1975 to 2012. Relying on the same, he has submitted that there should have been consistent upward trend because of sedimentation which is found to be otherwise and which remains more or less stable between 1976 and 1980 and then there is a sharp rise in 1980, due to the high flood in 1980. He has further drawn our attention to the aforesaid graph to submit that 1980 to 1981 it remained stable and then there was no aggradation or degradation whereas in 1992 there was a sharp fall and then from 2000 to 2008 it goes up and thereafter it remained stable. Relying on the same he, therefore, submitted that drawal of water and operation of the reservoir at Gotta has nothing to do with the aggradation or degradation at Kashinagar. He submitted that Prof. Yoganarsimhan's own evidence proves and establishes that under sluice gates constructed at the Barrage point would clear the sediment in that portion. Counsel for the State of Andhra Pradesh also pointed out the admission of Prof. Yoganarasimhan, OW-4, that the calculation rate of sedimentation as stated by him was wrong. He relied upon the evidence of Prof. Yoganarasimhan that it takes about 20-22 years and not 10 years as deposed in his evidence. Therefore, he submitted that whatever is stated by Prof. Yoganarsimhan regarding the rate of sedimentation cannot be relied upon. He also submitted that the evidence on record would clearly point out to the fact that the apprehension of Odisha with regard to sedimentation or the river wearing away from existing point is not made out at all.

9.20 We have very minutely perused the evidence on record, both of Odisha and Andhra Pradesh as also the submissions of the counsel appearing for the parties on this issue and, upon going through the same, we find that the apprehension of Odisha is not based on hard facts and they are mere apprehensions without there being any base for such apprehensions. The studies carried out by CWC on the basis of Mathematical Model Studies establish that no case of heavy sedimentation is made out. At this stage, we would like to reiterate the observations of CWC in its Report of March, 1994. As per the analysis of the sediment transport data, the river carries only fine sediment (wash load) of size less than 0.075 mm during the low flows. However, this wash load is expected to get lifted up from the bottom and washed down as suspension during the flood season when the gates are open. A discharge more than 600 cumecs for about 12 hours was considered sufficient to wash the load. The minimum flow of 600 cumecs is available for about 3 days in the monsoon period on an average. Therefore, there is hardly any chance of the pond getting cumulatively silted up. As such there is no adverse effect of the lean season deposition due to ponding.

9.21 Prof. Yoganarasimhan's study also shows similar results. He has also categorically stated that undersluice gates in the barrage will flush out all sedimentation in front of such gates. But he also admitted that he is not a sediment transport expert. These studies categorically establish that despite construction of Neradi Barrage there will be regular flow of the river and that there would be no heavy sedimentation either upstream or downstream of the Neradi Barrage.

The design of the Neradi Barrage was revised due to the heavy flood of 1980 and in that revised design, more under sluice gates have been provided which will definitely enable more sediments to be flushed out. Even assuming that there is little sedimentation and siltation occurring near the sill of the Barrage, the same could be cleared by the project authorities, as and when required. Therefore, the case sought to be made out by the State of Odisha regarding heavy deposit of sediment due to construction of Neradi Barrage is found to be without merit and the same is rejected.

9.22 In terms of these findings, the application filed by the State of Andhra Pradesh, registered as I.A.No.2 of 2010, stands disposed of.

10

DISCUSSIONS AND FINDINGS IN RESPECT OF ISSUES NO. 7 TO 15: PROPOSED CONSTRUCTION OF SIDE WEIR AT KATRAGADA

10.1 Having deliberated upon and after extensive discussion, findings were recorded in respect of Issues Nos.2 to 6 in the previous Chapter. Therefore, we are now required to deal with Issue No.7 which relates to undertaking projects by the State of Odisha for proposed diversion of water of inter-State River Vansadhara to another basin. So far as this issue is concerned, we have analyzed the evidence placed before us but on perusal of the same found no such evidence adduced in support or against the said contentions either from the side of the State of Andhra Pradesh or from the side of the State of Odisha concerning undertaking any project by the State of Odisha to divert the waters of inter-State river Vansadhara to another basin.

10.2 We sought clarifications from the counsel appearing for the State of Andhra Pradesh during the course of arguments to point out to us the evidence led on the aforesaid issue. The counsel fairly submitted that no such evidence is led on the said issue and, therefore, the same does not require any consideration by the Tribunal. We are also of the opinion that there is no evidence led by any of the States either in support or against the contents of the said issue and, therefore, the Tribunal refrains from answering the aforesaid issue except holding that

the said issue is not decided for lack of any evidence, both oral and documentary. The aforesaid issue is, therefore, answered accordingly.

10.3 The stage has now come to deal with the remaining issues namely, Issues No. 8 to 13 which relate to different facets and features regarding construction of the side weir at Katragada. While dealing with these issues, some repetition of the facts already mentioned cannot be avoided as it would lead to better understanding of the relevant facts in the context of the issues.

10.4 First of all, we would like to discuss one of the issues, i.e. Issue No.8, wherein State of Odisha's objection to drawal of water by Andhra Pradesh through side weir and Andhra Pradesh's query that whether it is bound to take the consent of Odisha before execution of this project especially when it is within its territory and share.

10.5 In this connection, suffice to say that the river Vansadhara is an inter-State river approximately 29 km length of the river forms the common boundary between Odisha and Andhra Pradesh. For the aforesaid length of the river totalling 29 km, the river runs along within the State of Odisha on the eastern side whereas other part of the river runs along the territory of Andhra Pradesh on the western side. The construction of the side weir is proposed on the right bank of the river in the territory of Andhra Pradesh. Since the river is an inter-State river and there is a common boundary running in the middle of the river course, therefore, objections could be raised by the State of Odisha apprehending certain damage to their interest which have also been focused in these proceedings. The State of Andhra Pradesh conceived the proposal for construction of side weir and discussed it in the joint

meeting held between the two States before starting the construction of the said side weir project on the right bank although it is within the territory of Andhra Pradesh.

10.6 During the course of hearing, we have been informed that there is a due process and guidelines in place for taking up irrigation projects like construction of a dam, barrage or a weir on inter-State river(s). In the case of an inter-State river, interest of the co-riparian States are involved and therefore, any step taken for construction of such projects, prior consent of the other co-riparian State(s) may ordinarily be necessary to be obtained. But when the matter is before a Water Disputes Tribunal, the rival contentions and objections can be looked into by the Tribunal and a decision could be given either way by the Tribunal irrespective of any consent by the other State. In view of the Order of this Tribunal, this issue is decided accordingly.

10.7 Now, coming to the remaining issues, namely, Issues No. 9 to 13, we may like to state that both the State of Andhra Pradesh and the State of Odisha are co-riparian States of Vansadhara river basin and both the States share a common boundary of 29 km. In the aforesaid stretch of 29 km, the State of Andhra Pradesh desired to construct a barrage to help and assist the State to take required and necessary steps to provide irrigation facilities to the lands within its territory on the right side of the River Vansadhara. Negotiations and discussions between both the State Governments regarding such a proposal to construct a barrage at Neradi to enable the State of Andhra Pradesh to withdraw water from the river within the extent of their share had taken place. Pursuant to such negotiations and discussions, the

agreement was arrived at on 18.7.1961 in the presence of and signed by both the Chief Ministers of the State of Odisha and the State of Andhra Pradesh in respect of construction of a barrage at Neradi.

10.8 The site was also selected after joint inspection made by the Engineers of both the States as stated by Mr. Satyanarayana, APW-2, which is not challenged in cross-examination. After the conclusion of the aforesaid discussions, resolutions were adopted, one of which related to construction of Neradi barrage on Vansadhara River. In the said resolution, it was recorded that the State of Andhra Pradesh wanted to execute irrigation project at Neradi which would entail acquisition of 106 acres of land in Odisha territory and, therefore, requested the concurrence of Odisha Government to go ahead with the aforesaid proposed project of construction of Neradi barrage. Another resolution taken also provided that it might be possible to irrigate some areas of Odisha from this Project. A no objection of the Odisha Government to the aforesaid proposal of construction of Neradi barrage was taken and recorded that while the Odisha Government has no objection to the aforesaid construction of Neradi barrage, but it wanted to safeguard against the water-logging of their area. Therefore, certain details were sought for regarding the same. It was recorded that as soon as those details are received, the Odisha Government would indicate their concurrence to the project.

10.9 As a follow up to the aforesaid resolution adopted in the State Governments' meeting attended by both the Chief Ministers, another meeting was held on 4.9.1962, wherein it was agreed that the design proposed by the Andhra Pradesh Engineers for the flood bank

and arrangements proposed by the Andhra Pradesh for the drainage sluice were generally acceptable. In the said meeting, it was further recorded that the Odisha Engineers also agreed that a sluice might be provided on the left bank at a place to be indicated by the Odisha Government for any future irrigation to be taken up by Odisha in its territory. The agreement was also with regard to the fact that the Neradi Irrigation Project proposed to provide on the Andhra side for the first crop only. With regard to the resolution adopted for drawal of water only for the first crop, there was a further resolution adopted on 27.7.1980 in which it was recorded that the Chief Engineer, Irrigation, Odisha State pointed out that the original agreement provided for utilization of water only through the first crop period of Neradi Barrage. By the aforesaid resolution, a further agreement was made that the project report should be revised for ensuring withdrawal of water from Neradi barrage during first crop period and all flow thereafter or beyond 1st December being let down in the river for use by both the States.

10.10 Therefore, it is crystal clear that there was a broad agreement between both the States that a barrage across the river would be constructed at Neradi with the provision of sluices on both the sides so as to enable both the States to construct flood flow canal for withdrawal of water from the river Vansadhara during the period of first crop only which is till 30th November of every year, limiting such withdrawal of water to the extent of entitlement of share of water by the two States. There was also a broad agreement between both the States that for the purpose of construction of barrage and for its

ancillary purposes, there would be requirement of acquisition of 106 acres of land in Odisha territory which was agreed to be acquired by the State of Odisha. It, however, made it clear to the State of Andhra Pradesh that no further land beyond that 106 acres agreed to be acquired would be so acquired by the State of Odisha for the purpose.

10.11 As stated above, there was an agreement that the withdrawal of the water from the river Vansadhara by the State of Andhra Pradesh for the purpose of irrigating land on their side would be during the first crop period only. However, subsequent thereto, a heavy flood had occurred in the year 1980, the intensity of which was much larger than earlier design flood of 2.6 lakh cusecs. In that view of the matter, both the States agreed for revision of the design of the project proposal but keeping intact the earlier agreement. It was agreed by both the States, when they met after the aforesaid heavy flood of 1980, that inspection and surveys would be carried out by the Officers of the State of Andhra Pradesh and the State of Odisha after which the Central Water Commission would review the present estimate of maximum discharge considering and taking note of the impact of 1980 floods.

10.12 Pursuant to the aforesaid discussion and agreement, a revised plan was made to cater to the need of tackling an intensity of flood of 6 lakh cusecs at the Neradi site. Through the years further discussions took place between both the States to arrive at an agreeable solution so that construction of the Neradi Barrage could be started. But, unfortunately for some reason or the other, no final agreement could be arrived at. The State of Andhra Pradesh, having waited for about 45 years, to give shape to the construction of Neradi

Barrage, suggested that since the construction of Neradi Barrage is taking time and since there was an urgent need on the part of the State of Andhra Pradesh to withdraw water from the Vansadhara river in order to enable the State to help and assist its people residing in the territory of Andhra Pradesh to irrigate their land and to provide water for drinking purposes, a side weir at Katragada could be constructed.

10.13 In a ministerial level meeting between the two states held on 24.2.2005 it was decided that a Technical Committee be constituted with the Engineers from both the States. It was also decided that no work, which will jeopardise the interest of any State will be taken up by both the States in river bed or banks or Flood Flow Canal, till the final Report of the Technical Committee is submitted and accepted by both the Governments.

10.14 Subsequently, a team of CWC officers had a meeting on 7.4.2005 with the officials of the State of Andhra Pradesh. The Officials of the Government of Andhra Pradesh in the said meeting pointed out that construction of Neradi barrage under Stage-II was being delayed for about thirty years without any decision and pending for want of clearance from the Odisha Government and, therefore, they proposed construction of side weir at Katragada. It was recorded in the minutes of the said meeting that the side weir is proposed on the right bank of the river Vansadhara as an alternative to Neradi Barrage to draw benefits of flood flows into the Hiramandalam Reservoir through flood flow canal. It was clearly recorded that the ultimate intention of the Government of Andhra Pradesh is construction of Neradi Barrage only with the consent of the Odisha Government and that construction of

side channel weir is a stop gap arrangement to draw flood flows from the river into the proposed Hiramandalam Reservoir. It was also stated that the Model studies will be conducted for side weir and results will be put forth before CWC.

10.15 In another meeting taken by the Additional Secretary, Ministry of Water Resources with the officials of two State Governments on 5th and 6th December, 2006, the issue of side weir was discussed and it was decided that TOR for the Model studies to be carried out by CWPRS, Pune would be prepared after mutual consultation.

10.16 Pursuant to the same, a study was made by the CWPRS and a report was submitted in the year 2007. The nature of the aforesaid proposal, which was taken notice of by CWC and State of Odisha, was for construction of a 300 m. long side weir with crest level of 70.4 m (0.9m. above bed-level) at 2 km upstream of proposed Neradi Barrage. The detailed salient features of the side weir are already mentioned in earlier Chapter titled 'Initiation of Statutory Remedy and Constitution of the Tribunal'.

10.17 As mentioned hereinbefore, the State of Odisha had already conveyed its objections against the implementation of the proposed construction of side weir, in inter-State meeting held on 24.2.2005 wherein it was agreed that no work which would jeopardise the interest of any State would be taken for construction in and around the river Vansadhara. But being apprehensive, on 14.2.2006, the State of Odisha filed a complaint to the Central Government – Ministry of Water Resources, Government of India, under Section 3 of the Inter-State

River Water Disputes Act, 1956 seeking constitution of an inter-State Water Disputes Tribunal to adjudicate the water dispute in respect of the inter-State river Vansadhara and its valley and particularly with regard to the proposed construction of side weir with a flood flow canal planned on the river Vansadhara at Katragada.

10.18 The contents of the said complaint filed by the State of Odisha have been stated in detail hereinbefore. Alleging non-action on the part of the Central Government, the State of Odisha filed a Writ Petition under Article 32 of the Constitution before the Hon'ble Supreme Court of India on 6.9.2006 seeking for the relief of constitution of an appropriate Water Disputes Tribunal under Section 4 of the Inter-State River Water Disputes Act, 1956 and also to refer to it the dispute relating to the construction of the side channel weir and flood flow canal project at Katragada on river Vansadhara by the State of Andhra Pradesh.

10.19 In the said Writ Petition notice was issued to the Union of India and also to the State of Andhra Pradesh. After completion of pleadings, the writ petition was heard and the same was disposed of in February, 2009 holding that the prayer made by the State of Odisha did not appear to be unreasonable since the dispute between the two States does not confine itself to the construction of the side channel weir and the flood flow canal but primarily it involves the unilateral decision taken by the State of Andhra Pradesh to divert the river waters to the State of Andhra Pradesh which could possibly disturb the agreement to share the water of the river equally. Consequently, such dispute was held to be a water dispute by the Hon'ble Supreme Court

of India and a direction was issued for constitution of a Water Disputes Tribunal. An interim order was also passed by the Hon'ble Supreme Court of India directing that no construction shall be carried out by the State of Andhra Pradesh on any work relating to construction of side weir at the proposed site of Katragada till the matter is taken up and decided by the concerned Water Disputes Tribunal.

10.20 Pursuant to the aforesaid order and also filing of another complaint by the State of Andhra Pradesh regarding constitution of a Water Disputes Tribunal for deciding the dispute regarding the sharing and withdrawal of water from the river Vansadhara and also in relation to the construction of Neradi Barrage, the Central Government constituted Water Disputes Tribunal in terms of the provisions of Section 3 of Inter-State River Water Disputes Act, by issuing a Notification on 24.2.2010.

10.21 After the constitution of the Tribunal by the Central Government and the reference of the water disputes between the States of Odisha and Andhra Pradesh to this Tribunal, the State of Odisha filed an interim application praying for continuation of the interim order passed by the Supreme Court by order of maintenance of status-quo with regard to the proposed construction of Katragada side channel weir and the flood flow canal, which was registered as I.A. No.1/2010. Notice was issued on the aforesaid application. While issuing notice and despite objections raised by the State of Andhra Pradesh regarding passing of an interim order at that stage, the Tribunal passed an interim order directing the State of Andhra Pradesh to maintain status-quo as of that date with regard to the construction

of side channel weir and flood flow canal at Katragada. The said interim application was thereafter placed for final arguments when arguments of the counsel appearing for both the States were heard at length, as stated hereinbefore. By detailed order passed on 17th December, 2013, the application filed by the State of Odisha was disposed of holding that the State of Andhra Pradesh has been able to establish a prima facie case in their favour and also to establish that balance of convenience is on their side and also that the State of Andhra Pradesh would suffer irreparable loss and injury if the side weir was not allowed to be constructed and the State would be deprived to utilize that quantity of water for irrigation and for other ancillary purposes. So far as the apprehensions pointed out by the State of Odisha regarding various issues and on different aspects are concerned, the same were found to be baseless and the reasons for the same have been clearly recorded in the order itself which is placed as Appendix-5 in Volume-III (APPENDIXES) and referred in the Chapter titled 'Hearing of the Proceedings in the Tribunal'. By the said order, the Tribunal allowed the Government of Andhra Pradesh to construct the side channel weir along with the ancillary works at Katragada as proposed but with certain conditions which were enumerated in paragraph 53 of the Order.

10.22 As against the said order passed by this Water Disputes Tribunal, the State of Odisha filed a Special Leave Petition before the Hon'ble Supreme Court challenging the legality and validity of the said order dated 17th December, 2013 in which the Supreme Court of India

by order dated 17.2.2014 issued notice on the said Special Leave Petition but did not pass any order of stay or any other interim order.

10.23 In view of the fact that the Supreme Court only issued notice on the said Special Leave Petition and no stay order was granted, the proceedings before the Tribunal were continued with a direction to the parties to lead evidence pursuant to which oral and documentary evidence were produced before the Tribunal in support of their respective cases. Evidence was also led both by the State of Odisha and the State of Andhra Pradesh in favour and against construction of the side weir at Katragada. Learned counsel for both the parties, after completion of recording of evidence, advanced their arguments. During the course of their arguments, they argued also on various points arising out of the issue of construction of the side weir at Katragada with a flood flow canal.

10.24 On the basis of the arguments of the counsel appearing for the State of Odisha it is found that their objections to the construction of the side weir at Katragada are mainly four-fold which are the following:

- (a) With the proposed construction of side weir, the entire water of the river would go down the side weir which will affect the percentage of water share of Odisha;
- (b) It will deprive of accustomed depth of water on the left bank;

- (c) Existing utilization of water for distribution of potable water to 18 villages and water for agricultural purposes for 30,000 acres would be adversely affected;
- (d) Diversion would cause change in the river course and would also affect sedimentation.

10.25 In order to appreciate, discuss and give findings on the aforesaid issues framed in the matter, being Issues No.8-13, and the aforesaid four-fold objections raised by the State of Odisha with regard to the construction of the side weir, it would be necessary to discuss at some length the respective cases of the parties and then the nature of the evidence that has been led in support of and against with respect to the said issues.

10.26 In the complaint filed by the State of Odisha before the Central Government and also in the Statement of Case filed by it before the Tribunal after its constitution, the State of Odisha has stated that negotiation in respect of the Neradi project between the States of Andhra Pradesh and Odisha was going on for a very long time and various inter-State meetings were convened by the Government of India where crucial decisions regarding studies to be conducted and design parameters to be formulated were discussed and taken. It was stated on behalf of the State of Odisha that despite the aforesaid position, the Chief Minister of Andhra Pradesh on 6.1.2005 unilaterally announced that the waters of Vansadhara inter-State river would be diverted at Katragada through a 34 km long flood flow canal by constructing a side channel weir on the right bank and after drawing water from Vansadhara river through it, the same would be taken

through the flood flow canal and then stored in Hiramandalam Reservoir having a capacity of 19 TMC so as to irrigate 1.07 lakh of acres of land. The State of Odisha in the said Statement of Case has stated that the aforesaid proposal and also construction of the side weir for drawing water from Vansadhara river would cause hardship and injuries to the State of Odisha. In the Statement of Case, in paragraph 12, the State of Odisha has given several reasons which would cause possible injuries to the State of Odisha due to the construction of such side weir project. It is alleged that such construction of side weir channel when completed would naturally facilitate free flow of water by gravity into the connecting flood flow canal in the State of Andhra Pradesh and that it is apprehended by it that with the flow of water, scouring would take place on the right side and silt would accumulate on the left side of the river which would result in sand casting on the left side and consequently dry up the existing river bed downstream of Katragada. It is also alleged that such diversion would substantially deprive the existing irrigation of 30,000 acres in Odisha lying on the left bank of the river Vansadhara downstream of Katragada besides depriving drinking water facility to 18 villages situated in Odisha on the left bank of the river. According to the State of Odisha, these consequential results would lead to depletion of the ground water level and that would bring in morphological changes resulting in environmental changes shifting the river from the present channel towards the flood flow canal. In the Statement of Case, reference is also made to the studies conducted by the Central Water and Power Research Station (CWPRS), Pune. It is, therefore, crystal clear from the aforesaid statements made in the Statement of Case that the State of Odisha apprehends consequential

changes which are mainly four-fold, which are more specifically stated hereinbefore.

10.27 The State of Andhra Pradesh, on the other hand, stated that the aforesaid apprehensions of the State of Odisha are misplaced because of the salient points which are stated in para 6 of their reply to the Statement of Case of the State of Odisha. Several salient points have been stated in the said para 6 of the reply statement. It was pointed out that almost half of a century has passed since the State of Odisha agreed for construction of the Neradi Barrage and that despite the aforesaid position and also due to dilatory tactics adopted by the State, construction of Neradi Barrage was getting unduly delayed on account of one objection or other being raised by Odisha resulting in huge quantities of Vansadhara river water averaging around 80 TMC flowing as surplus into the sea year after year. It is pointed out that the aforesaid proposed construction of side channel weir at Katragada is a temporary measure till the Neradi Barrage is constructed. According to the State of Andhra Pradesh, the State of Odisha should have had no objection to such construction as proposal to construct the side weir is exclusively within the territory of Andhra Pradesh and entire drawal of the river water through the side weir is within the share of the State of Andhra Pradesh and, therefore, there could be no prejudice either to the State or its territories or to its inhabitants. It is also pointed out that there would be no environmental or morphological damage to the river or the environment around it by reason of the proposed construction of side weir which fact is extensively supported and

corroborated by the report prepared by the CWPRS in the year 2007. Relying on the same, it was stated that there will be no damage either to the river or to the environment or to the public health nor the construction of the side weir will deprive the right of the State of Odisha to realize, use and utilize its share of waters in the river Vansadhara.

10.28 The mechanism for construction of the side weir as proposed by the State of Andhra Pradesh would be similar to the model constructed by CWPRS on the basis of which a study was made. The sill level which is shown in the model is such that the water would not be reaching the height of the sill level when the flow in the river is below 4000 cusecs. When the flow in the river is above 4000 cusecs, a small fraction of the flow will come into the canal and a major share will flow in the river and when the flow exceeds 8000 cusecs again some water could come to the canal. In any case, the flow above 4000 cusecs in the river Vansadhara occurs only for about 55 days in a year. What has been found by CWPRS in the model study is that even though the sill level is kept at 0.9 m above the bed-level, the same was so kept on the assumption that the water when it flows above 4000 cusecs, it would also flow into the canal. The CWPRS found on a Physical Model Study that only when the flow is around 5300 cusecs, some water comes into the canal. Till then the water would be flowing only through the river and not through the canal at all.

10.29 The Flood Flow Canal as a part of the Neradi Barrage Project takes the water to the Hiramandalam Reservoir. The flood flow canal has a length of about 32 km. If and when side weir at Katragada is constructed, there shall be an additional 2.2 km length of flood flow canal which will join the main flood flow canal, envisaged as part of the Neradi Barrage Project. It is also highlighted at this stage that construction of the side weir is conceived in such a manner that once the barrage is constructed and the same is made functional, the side weir would be made completely dysfunctional.

The side weir and the 2.2 km stretch of flood flow canal at Katragada and the ancillary structures are meant to be operative only till the Neradi Barrage and the planned flood flow canal comes into operation.

10.30 Various reports have been prepared by the CWC and the CWPRS at different points of time and each one of those reports have been taken on record as Exhibits. Reliance was placed by both the States on some portions of the aforesaid Reports in support of their respective cases. So far as the proposal to construct a side weir at Katragada is concerned, detailed and extensive study was made and the aforesaid report of 2007 was submitted on the basis of the Physical Model Studies for Katragada side weir. After referring to various aspects of the issue, it was stated by the CWPRS that measurements with respect to discharge passing through the head regulator were made. Observations for water level in metres in Vansadhara river just upstream of side weir and discharge passing over side weir in cumecs are as follows:

Sl.No.	Upstream Water level, m	Discharge in Vamsadhara m ³ /s	Discharge in Katragada m ³ /s
1	70.40	150	Non measurable
2	70.60	200	28.18 to 29.03
3	70.90	400	141 to 145

10.31 During the course of arguments, learned counsel for the State of Andhra Pradesh has given us a table depicting the same position but giving the figures in cusecs and also by mentioning the percentage of flow in the river and flow in the side weir. That is also made part of the record which reads thus:

S.No.	Flow in the river in cumecs (cusecs)	Flow in the side weir in cumecs (cusecs)	Flow in the river d/s of side weir in cumecs (cusecs)	% of flow in river d/s of side weir	% of flow in side weir
1	150 (5300)	Nil	150 (5300)	100	0
2	200 (7060)	29 (1020)	171 (6040)	85.5	14.5
3	400 (14,120)	145 (5120)	255 (9000)	63.75	36.25

10.32 During the course of investigation and enquiry, it emerged that the CWPRS discussed the salient features of the project under para 10 of the Report stating, inter alia, that under the existing conditions it was noticed that the flow of river Vansadhara near Katragada was following right bank for all discharge stages. According to it, the aforesaid trend continued even in the post weir scenario in

which condition there was rise in velocity and discharge intensity in Vansadhara river at Katragada which may be due to the variation of flow along the side weir. Further, it stated that for higher discharge stages, the drop in water level was negligible. It also indicated that model studies proved that for discharge equivalent to $150 \text{ m}^3/\text{s}$ in Vansadhara, negligible discharge passes through the side weir and that with discharge of 200 and $400 \text{ m}^3/\text{s}$, discharge passing over Katragada weir was 29 and $145 \text{ m}^3/\text{s}$ respectively. The CWPRS compared the same with the analytical computation which showed that discharge of $6.69 \text{ m}^3/\text{s}$ and $205.5 \text{ m}^3/\text{s}$ passed through the side weir for discharge equivalent to 160 and $400 \text{ m}^3/\text{s}$ in Vansadhara. According to it, the difference is primarily because of assumption of idealized river cross-section. It was also noticed by them in the model that left and right abutment walls of the side weir were obstructing the river flow and, therefore, it was felt that the same may be given a proper flare for streamlining the flow. It is also concluded that the present alignment of the side weir needs to be changed by about 3° as shown in Figure 11 appended to the Report. One major factor which was also noticed was that under existing condition and after construction of side weir, water levels at Katragada remained unchanged.

10.33 Regarding morphological changes in the river, it was found by CWPRS that morphological changes in Vansadhara river near Katragada could not be assessed from the model studies but it was felt that the river channel has not shown any tendency to vitiate from time to time and that even after the construction of the side weir, the conditions may not alter drastically but a close watch on the river behaviour from

year to year is required to be kept. The CWPRS recorded its conclusions in para 11 and it was recorded therein that for low as well as high flow stages in Vansadhara river, flow conditions with and without side weir were almost similar and that negligible discharge passed through side weir in the case of discharge equivalent to 150 m³/s.

10.34 Both the States produced their witnesses who have deposed in respect of the issue with regard to the construction of side weir. Mr. Arun Kumar Padhi, OW-2, stated in his deposition that at Katragada the width of the river is 400 m and that of the proposed side weir is 300 m and therefore, according to him, the entire flow of the river may find a way into the flood flow channel taking off from the side weir. From the aforesaid deposition of the witness, it appears that he has deposed that the proposed side weir is sought to be constructed by the State of Andhra Pradesh across the river and not on the bank of the river on the right side as proposed. It appears that what he intended to say was on the assumption that the construction of the side weir of the width of 300 m is across the river but the proposal of the State of Andhra Pradesh is for construction of a side weir by the side of the river and in the territory falling within the State of Andhra Pradesh and, therefore, such apprehension as raised by the said witness appears to be misplaced. The said witness also stated that construction of the side weir is proposed at a place where the river is taking a bend but the documents placed on record including the Google's map and our own visit at the spot indicates that at the place where such construction is being proposed, the river is not taking a bend but it is taking a bend at another point upstream which would not have the impact of major part

of the water of river Vansadhara going down the side weir as alleged. It must also be noted that the spot where the river is taking a bend, it is taking a bend to the left and not to the right.

10.35 It is worth mentioning that at an earlier stage, the case of the State of Odisha was that the flood canal planned by the State of Andhra Pradesh is a deep cut canal and that entire water of the river would get diverted forcing the shifting of the river in due course of time and that could be possible because the canal is planned to be cut at such a place where the river takes a U-turn, which would act as an escape route for the water in the bent portion of the river. It was stated so in paragraph 2(l) of the complaint of Odisha. But later on, the State of Odisha modified its stand that the canal is planned at bend. Cross-examination of Mr. A.K. Padhi, OW-2, makes that position clear where he has stated in answer to question No.81 that the proposed site is located at a bend which is a favourable condition to draw more flows into the side channel. His further cross-examination in that regard is as follows:

"Q. 83: I am putting to you that the gradient of the side channel is 1/12000. What do you say?"

Ans.: Yes.

Q. 84: Are you aware of the gradient profile of the river Vansadhara around Katragada and Neradi?"

Ans.: I do not recollect at the present.

Q. 85: I am putting to you a statement and a graph showing the profile of river Vansadhara indicating therein the gradients at different points taking from +15 to -10 kms taking Neradi barrage at 0 point. You would notice

that the gradient of the river ranges from 1/2571 to as high as 1/686. What do you say?

Ans.: *Yes.*

Q. 90: *I am showing you the location marked 'A' in the map (marked by the counsel for the State of A.P.) which indicates the excavation done for the purpose of construction of the side weir and which fixes the location of the side weir. I put it to you that this is not at the bend as stated by you in answer to question No.81. What do you say?*

Ans.: *No, it is on a bend. On 8.4.2015 I had personally paid a visit to the spot and noticed the location of proposed side weir is on a bend where the entire flow on that day which was about 10.5 cumecs was hitting the side weir.*

Q. 91: *Did you notice a side weir on the field visit?*

Ans.: *I visited the spot from Odisha side and went upto the flow at that point. The entire flow was diverted towards the curve that is the right side.*

Q. 155: *I am showing you the relevant part of the said Report (Ex.OW-2/16) which indicates in page 7 and 10 the flow pattern through the side weir for different discharges in the river. I am suggesting that your averment that the entire flow of the river may find a way into the flood flow channel taking off from the side weir is not borne out by the technical report of CWPRS No.4459 based on model studies. What do you say?*

Ans.: *I will study and analyse the report and thereafter I will get back.*

Q.159: *I put it to you that your evidence is technically flawed and contrary to Odisha's expert evidence. What do you say?*

Ans.: *I do not agree."*

10.36 He was shown the location marked as 'A' in Exhibit No.OW 2/12 (Annexed as Annexure-1) and the location indicated in Exhibit No.OW-2/13 from which it could be deduced that the location is different from the location indicated in Exhibit No.OW-2/13. The witness replied in affirmative meaning that the locations are different but not very widely. He agreed that the width of the river is 500 metres and not 400 metres.

10.37 The witness was given a suggestion in respect of the issue of depth of the flow. He was asked as to whether the water level and the depths indicated by him in Tables 1 & 2 are not consistent with the depth of flow being higher at 8,000 cusecs compared to the flow of 4,000 cusecs. The witness, in reply to the aforesaid question agreed and stated that it is not consistent.

10.38 He was also asked specifically in the context of chainages indicated by him in Tables 1 & 2 where the flow is closer to Andhra Pradesh bank and not of Odisha bank. In reply to the said question the witness stated that from the aforesaid two analysis it is clear that it is closer to Odisha than Andhra Pradesh.

10.39 He was asked to refer to page 12 of his affidavit where he has stated that for the purpose of meeting the water requirement of 5.49 TMC, the discharge of about 8,000 cusecs is required in the river. The witness was further asked that what is the nature of the record

maintained by the Government of Odisha on the basis of which the witness had made the said statement. The witness replied that no such records are available but basing on the cropping pattern and other needs, a calculation has been made. He has stated that 5.49 TMC is the total requirement in the left bank.

10.40 He has also stated that the width of the river at Katragada is 500 m. (Q.No.153). As against the aforesaid evidence, Mr. Routhu Satyanarayana, APW-2, in his cross-examination stated thus:

“Q.10: *Please see the Schematic Diagram at page 10 of your affidavit, annexed as Annexure-B (Ex.APW-2/2). From this map, it is clear that the direction of flow of water in Vansadhara river near Katragada is not parallel to the side weir but it is oblique to the same. What do you say?*

Ans.: *I deny the suggestion. The side weir is proposed on the right bank of the river almost parallel to the flow direction of River Vansadhara. This is only a schematic diagram to indicate the overall arrangement of the side weir complex with reference to the river flow and also the proposed Neradi barrage.*

Q.11: *I put it to you that due to proposed alignment of the side weir, the direction of the flow in the river will shift and it will be attracted significantly towards the side weir. What do you say?*

Ans. : *I deny the suggestion. Only a part of the flow in the Vansadhara River from 4000 cusecs and above will spill over into the pond of the side weir. Major quantity of the flow from 4000 cusecs and above will be kept flowing in the main river course only. As such, it is not*

correct to say that the flow will be diverted through the side weir”

10.41 The aforesaid evidence on record, therefore, impel us to draw a conclusion that even after construction of a side weir at Katragada, sufficient water flow would be available in the river Vansadhara from the point at Katragada to Neradi point and beyond.

10.42 There is yet another witness examined by the State of Odisha, namely, Mr. Bishnu Prasad Das, OW-3. Our attention was drawn to his statement, particularly, the computations made by him which are at variance with what CWPRS has stated in its Report. His evidence to that extent is also contrary to the evidence of their own witness Prof. Yoganarasimhan who was examined as OW-4. It also appears from his evidence that he has not taken into account the capacity constraint in the Flood Flow Canal. In any case, as the studies indicate and as the witnesses have stated, the flow in the Flood Flow Canal is restricted at 6400 cusecs, Mr. Bishnu Prasad Das, OW-3, has not thought of the aforesaid restriction of the flow. Mr. Yoganarasimhan, OW-4, has given a table showing discharge of water over the side weir. According to him, Case 3 of the said table is a realistic one which would indicate that the computation arrived at by him under the said head is much less than what was computed by CWPRS. It is indicated from his deposition and the table submitted by him that at 200 cumecs river flow, the water that will flow over the side weir is computed as 6.328 cumecs. The said computation of the witness appears to be much less than what the CWPRS has arrived at and computed for, CWPRS has computed at 28.18 cumecs which is only about 15%. Therefore, according to the said

witness (OW-4), the percentage of flow through the side weir is only 3% whereas 97% of the flow will continue to go down the river. That indicates that the percentage of discharge over the side weir is much less according to Mr. Yoganarasimhan, OW-4, than even what was found by CWPRS in its study. According to the witness (OW-4), at 200 to 500 cumecs, i.e. 7063 to 17657 cusecs, of flow in the river, the flow through the side weir is 41% at the highest.

10.43 On the other hand, Mr. Routhu Satyanarayana, APW-2, has on the issue of construction of side weir, deposed that the State of Andhra Pradesh would be drawing water from the river through the side weir to the extent of 6400 cusecs maximum during the time when the flow is available which is in excess of 4000 cusecs. But, according to him, in any case, the maximum water that would flow down the link canal would in all cases be maximum 6400 cusecs. It is also stated by him that anything above 6400 cusecs would flow back to the river through the escape channel in view of the established fact that the capacity of the link canal is limited to 6400 cusecs and that nothing more thereto could be drawn by the State of Andhra Pradesh under any circumstances. It is also indicated from the diagram shown to us that as part of the entire system of side weir, gates are provided at the head regulator and not at the side weir. The mechanism that is provided for drawing water through the side channel weir is to provide gates at the head regulator of Flood Flow canal and the surplus water will pass through the escape channel to join the river course once again. Regulation of flows is done at the head regulator where the gates are provided. The intake level and the sill level of the side weir is at 70.4 m

and it is only when the level in the river gets raised to above 70.4 m, some water would get spilled over into the side weir and, therefore, according to him, the apprehension of the State of Odisha is totally baseless.

10.44 Before adverting to answer the issues framed concerning construction of side weir at Katragada which arise out of four principal objections enumerated hereinbefore, it would be of utmost necessity and requirement that we keep in mind few salient features regarding the background history and other factors connected with the construction of the side weir and its mechanism.

10.45 The proposal with regard to construction of Neradi Barrage was being discussed between both the States for a very long period of time. Despite the fact that both the States agreed upon in principle about such construction across river Vansadhara yet repeated clarifications and objections were being raised on one ground or the other at various stages thereby getting the project delayed. Since, according to the State of Andhra Pradesh they require withdrawal of water from Vansadhara on an urgent basis to cater to the immediate need and for the purpose of drinking and also for the purpose of irrigation for its people they proposed construction of such a side weir on its own bank on the right side which would not entail any acquisition of land on the side of Odisha. It was also proposed that if such construction is made there would be no issue of backwater effect and, therefore, till the agreement with regard to the construction of Neradi Barrage is finally approved and put to action, construction of the side weir may be permitted so as to enable the State of Andhra Pradesh to

withdraw some water from the river to fulfil its obligation and commitment to supply drinking water to its residents and also to supply water for the purpose of irrigation to the lands of the inhabitants residing within the territory of Andhra Pradesh.

10.46 It was clearly proposed by the State of Andhra Pradesh that the side weir is purely an ad hoc and temporary project which when made operative would cause the river-water to spill over to the pond created as a part of the side weir only when the flow in the river is above 4000 cusecs. The mechanism now would ensure that there will be no drawal of water from the river till it crosses 4000 cusecs. It is made clear and an assurance is given by the State of Andhra Pradesh that the design and parameters of the side weir are so clear that there would be no drawal through the side weir so long as the flow is only 4000 cusecs or below. It was also pointed out that in the best hydrologically favourable conditions, the side weir can withdraw water for only 55 days and the drawals would vary from 0 to 6500 cusecs in those days. It is also established from the records that the theoretical withdrawal of about 8 TMC would be possible only during the aforesaid 55 days and even then about 80 TMC of river water would flow down the river below Katragada as unutilized to the sea. The extent of withdrawal of water, according to the State of Andhra Pradesh, during the aforesaid days would be to a maximum of 6400 cusecs and that also for the period where the flow is available in excess of 4000 cusecs.

10.47 The Report of CWPRS prepared in 2007 would also indicate that if the flow of river is about 7000 cusecs, what the State of Andhra Pradesh would be drawing would be about 1000 cusecs which is

established from the Physical and Analytical Model Study of CWPRS. Thus, it is crystal clear that any water flowing above the extent of 6400 will flow back to the river through escape channel because the capacity of the link channel is limited to 6400 cusecs. The mechanism to take the water away through the side weir is to withdraw the water at the side weir to a pond at the end of which there will be a head regulator. At the head regulator water from the pond would be regulated and managed. The regulation of the flows of the water would be done at the head regulator and that is the reason why gates would be provided there and also there would be an escape channel and the excess water will go through the escape channel and will join the river once again. The specific case of Andhra Pradesh is to draw water to the extent of 8 TMC only through Flood Flow Canal and the remaining would go through the escape channel and join the river back.

10.48 The aforesaid proposed construction and the mechanism proposed for such construction by the State of Andhra Pradesh is opposed by the State of Odisha on various grounds. But on an analytical study, it is found that there are mainly four principal objections which we have stated hereinbefore. The first of the said objection is on the ground that with such construction of side weir, the entire water of the river would go down the side weir which would affect the percentage of water share of Odisha. According to the State of Odisha, the place where the aforesaid construction of side weir is proposed is at the bend where the river is shifted to another direction and, therefore, it is apprehended that due to the aforesaid bend, river water would come to the bend and then entire water would flow down

the side weir to join the flood flow canal attached thereto resulting deprivation of State of Odisha of its water share which is agreed to be on 50:50 basis.

10.49 We have analysed the aforesaid objection in the context of the records, both oral and documentary. On appreciation of such evidence on record, it could be said that the proposed construction of the side weir is not at the bend but away from it. There appears to be a bend at a place upstream, and far away from the place of the proposed construction of the side weir. This is crystal clear from Exhibit No.OW-2/12 filed by the State of Andhra Pradesh which depicts a satellite imagery of the river and river bed in the areas around Katragada (Annexed as Annexure-1). The CWPRS which has made an extensive study so far as the construction of side weir is concerned, has categorically pointed out in the Report submitted in the month of July 2007 that their studies were conducted on a Physical Model for determining flow pattern of pre and post side weir and discharge passing over side weir etc. In the Report they have given the main conclusion based on the model studies holding *inter alia* that for low as well as high flow stages in Vansadhara river, flow condition with and without side weir were almost similar. Since the said conclusions are vital for deciding objections raised, it is found necessary to extract the same:

“(i) For low as well as high flow stages in Vamsadhara river, flow conditions with and without side weir were almost similar.

(ii) Model studies indicated that for discharge equivalent to 150 m³/s in Vamsadhara, negligible

discharge passed through side weir. With discharges of 200 and 400 m³/s, discharge passing over Katragada weir was 29 and 145 m³/s, respectively.

(iii) Water level on upstream of side weir (in front of the side weir in Vamsadhara) varied from 70.48 to 71.00m for discharge of 150 to 400 m³/s in Vamsadhara.

(iv) The drop in water level at 2 km downstream of side weir was in the range of 0.2 m to 0.25 m for low flow stages in the post side weir scenario.

(v) A proper flare to the abutment walls of the side weir is required for streamlined/smooth entry to the flow towards side weir.

(vi) The alignment of the side weir needs to be shifted by 3° as shown in Fig.11.”

10.50 While coming to the aforesaid conclusions, CWPRS considered data in the nature of Survey Data, Hydraulic Data and upon analysis of such data and Models and Model Scales, they have recorded their findings with existing conditions in pre-weir scenario and also post-weir scenarios which are detailed in paragraphs 7 and 8 of the Report as follows:

“7. Studies with existing conditions – Pre weir scenario

The discharges equivalent to 150, 200, 400, 8495 and 16,990 m³/s were run in the model. Water level, depth and velocity measurements were taken along cross section 100m upstream edge of side weir, Centre line of weir and 100m downstream edge of the side weir as shown in the sketch. It was seen that the water levels from 100 m upstream edge to 100 m downstream edge of the side weir, along the flow were generally falling. Also, the water levels were increasing towards the left bank. This was in line with the fact that the flow was

concentrated on the right bank in the vicinity of proposed side weir. Table 4 shows the water level observations at the various points shown in the sketch. Minimum velocity of the order of 0.49 m/s was observed at 80 m away from right bank and 100 m downstream edge of the side weir for a discharge equivalent to 150 m³/s, while maximum velocity was observed along the left bank at 100 m downstream edge of the side weir was of the order of 4.57 m/s for a discharge equivalent to 16990 m³/s. However, maximum intensity for this discharge was worked out as 40.41 m³/s/m at 80 m away from the right bank and 100 m downstream edge. For a discharge line in the range of 150 to 400 m³/s, the maximum discharge intensity was of the order of 5.12 m³/s/m at 40 m away from the right bank and 100 m downstream. Table 5 gives the velocity and discharge intensities at these locations. In summary, it can be stated that for low flow stages, the maximum velocity was observed as 1.87 m/s while, the maximum discharge intensity was 5.12 m³/s/m. In the same way, the maximum velocity was of the order of 4.57 m/s and then discharge intensity was 40.41 m³/s/m for the high flow stages. Photos 2 to 5 depict flow patterns under existing condition for various discharges.

8. Studies with side weir in position – Post weir scenario:

Side weir was constructed in the model as given in fig.2. Fig 8 shows the cross section details of Katragada weir. Discharges equivalent to 150, 200, 400, 8495 and 16,990 m³/s were run in the model. Water level, depth and velocity measurements were taken same as those described with the existing condition. At the downstream end of the head regulator canal, 30° V-notch was fixed to measure the flow passing through the head regulator. Photo 6 shows the lay out in the model. Table 6 shows water levels and Table 7 shows velocity/discharge intensities and the post weir scenario for various discharge stages. Fig.9 shows the water

level profile just upstream of side weir in the river portion. In addition observation of water levels along the centreline of the pond between crest of side weir and head regulator were taken (Fig.10).

For the low flow stages up to 400 m³/s, maximum intensities increased from 5.12 m³/s/m under existing condition to 5.59 m³/s/m under post weir scenario while, maximum velocity increased from 1.87 m/s to 2.43 m/s in front of the weir in Vamsadhara river. Similar trend was observed also for higher discharge stages when the maximum intensities with the post weir scenario increased from 40.41 m³/s/m to 46.81 m³/s/m while, the maximum velocities increased from 4.5 m/s under existing condition to 5.18 m/s under post weir condition. It can be summarily stated that there was no significant rise in intensities and/or velocities under post weir conditions that can cause any undesirable effects.

In order to determine the drop in water level at right bank, 100 m upstream of weir axis, a comparison between Table 4 and Table 6 was made. It was seen that the drop in water level was in the range from 0.11 m to 0.37 m for different discharge stages. Similar observations were also made at 2 km downstream of Katragada weir. It was noticed that the drop in water level was in the range of 0.2 to 0.25 m in the low flow stages. However, drop in water level was negligible for the higher discharge stages.”

10.51 After the detailed study, it was found by CWPRS that flow of river Vansadhara near Katragada was following right bank for all discharge stages which remained continued even in the post weir scenario.

10.52 The aforesaid discussion is extracted at earlier place also and the conclusion given was that under the existing condition and after

construction of side weir, water level near Katragada remained unchanged. They have also concluded that the river channel has not shown any tendency to vitiate from time to time and that even after construction of the side weir, the condition would not alter drastically.

10.53 The view that is taken is fortified and gets strengthened from the Report of 2007 submitted by CWPRS. According to the said Report when the flow in the river is 150 cumecs which is equivalent to 5300 cusecs, the discharge in the side weir is nil. Therefore, up to 5300 cusecs even though it has been designed at the level of 70.40 m, presumption is that flow will be drawn through the side weir only when the flow in the river crosses 5300 cusecs. Actual Physical Model Study which is under reference even shows that till 5300 cusecs level of water is reached, no water would go through the side weir. When the flow in the river is 200 cumecs (7060 cusecs), the flow in the side weir would be about 28.18 to 29.03 cumecs which works out to be around 1020 cusecs that means the flow of about 14.5% would flow through the side weir and 85.5% of the water would flow through the river. Similarly, when the river flow is 400 cumecs, which is equivalent to 14120 cusecs, the flow through the side weir is between 141 and 145 cumecs i.e. equivalent to 5120 cusecs. That the quantity of water of 5120 cusecs out of 14120 cusecs is about 36.25% and about 9000 cusecs i.e. 63.75% of flow would be flowing through the river.

10.54 At this stage reference could be made to the evidence of Odisha witness OW-2 who has stated in his deposition that at least at 40% of the flow in the river, the inhabitants could get the water. As against the said evidence, what is now seen from the report of the

CWPRS, even at that stage, the flow through the side weir is only 36.25% at 14120 cusecs and 63.75% of the total flow would continue to flow through the river. This also has to be considered with the fact that the maximum water that could be drawn through side weir is only 6400 cusecs.

10.55 Prof. Yoganarasimhan who was examined as OW-4 has stated in his evidence regarding the extent of flow in the river as also in the side weir and his figure, as found in his study, was much less than what the CWPRS has found in its study. Flow over the side weir is computed to be 6.328 cumecs out of the total river flow of 200 cumecs while the CWPRS has computed it at 28.18 cumecs which is about 15% i.e. the evidence of the said witness that percentage of flow through the side weir is only 3% and 97% of the flow of the river Vansadhara would continue to go down the river.

10.56 So far as the evidence of Mr. Bishnu Prasad Das, OW-3, is concerned, in this regard, to the extent of flow through the proposed side weir, on going through his deposition, it is found that his depositions are at variance with what CWPRS and Prof. Yoganarasimhan have shown in their studies. That has perhaps happened because the witness has not taken into account the capacity constraint in the canal which is 6400 cusecs.

10.57 Mr. A.K.Padhi, OW-2, has also deposed in respect of the flow in the canal. But his evidence is also not reliable as he has deposed that the side weir of 300 m breadth is being constructed and the width of the river at Katragada is 400 m. Therefore, according to him, the entire

flow of the river may find a way into the flood flow canal. From his deposition, it appears that the proposed side weir would be constructed across the river and not on the bank of the river on the right side as proposed. As regards location of the side weir, the map taken out from Google which was placed before us, indicates that the river is not bending towards the side weir and rather it is bending in the opposite direction. Since the river is swerving to the left and the side weir is not across the river course, there is no question of all the water gushing down the side channel weir as apprehended by the said witnesses.

10.58 Mr. R. Satyanarayana, APW-2, has stated in his affidavit by way of evidence that the discharge of 8000 cusecs flow is only for about 33 days in a year on an average, and that the total quantity of water for the aforesaid 33 days with 8000 cusecs flow would be about 23 TMC. It is pointed out by him that the State of Odisha has stated that they require about 8000 cusecs of flow in the monsoon period in the river downstream of Katragada to meet its irrigation and domestic needs on the left side of the river for which the requirement of total quantity of water would be about 7 TMC. He has also stated categorically that the drawal of water through said Katragada side weir would be limited to 8 TMC which is within the share of water of the State of Andhra Pradesh and that there would be no structure across the river. According to him, the concept of side weir is derived from the phenomenon of open-head

channel which is a recognized and well-accepted irrigation system. He has further stated that the sill level of side weir is proposed at EL+70.40 m which will be 0.90 m above the river bed level and that it is so designed that the river water can spill over the side weir only when the flood flow in the river exceeds 4000 cusecs. The system that would be followed is that the spilled water drawn through side weir would be collected in a small pond which will be situated immediately below the side weir and the water from the pond would be let into the 2.2 km long link canal with a maximum capacity of 6400 cusecs and regulated through a head regulator and join the flood flow canal at chainage 0.30 km which is part of Neradi Barrage. He has agreed that any water drawn in excess of 6400 cusecs would flow back to the river course itself and the whole system would be hydraulically controlled.

10.59 He was extensively cross-examined by the counsel for the State of Odisha. During his cross-examination he has stated that the crest level of the side weir would be at a constant level of RL+70.40m and that the length of the side channel weir would be 300 metres. He has denied the suggestion of the counsel for the State of Odisha that the side weir is designed as an oversized weir. In that regard he stated that the designed capacity of the flood flow canal is only 6400 cusecs and that the withdrawal through side weir would be regulated by the monitoring committee as per the orders of the Tribunal. He also stated that aggradation and degradation are natural phenomenon in the rivers

and, therefore, there are some changes in the bed-level of cross-section at Kashinagar for different years of 1980, 1993, 1998, 2003 and 2012. He was given a suggestion by the counsel for State of Odisha that once the water is diverted through side weir, the flows in the river to the extent of diversion would be reduced and that in such reduced flow river would have lesser velocity. This suggestion was denied by him but it is stated that there could be a small quantity of sediment deposit on the downstream side of the side weir which could be removed periodically. He also stated in his cross-examination that only a small fraction of the discharge through the main river course would be diverted and that the flows of the river up to 4000 cusecs and major part of the quantity of flows above 4000 cusecs would be flowing downstream continuously. He further stated in his cross-examination that the head regulator of the side weir would control and regulate the flows.

10.60 As against such evidence on record, the witnesses produced by the State of Odisha supported their contention that diversion of water through side weir would definitely cause possible aggradation on the left bank of Vansadhara on the side of Odisha and also in front of the side weir at Katragada. However, one of their witnesses, namely, Prof. Yoganarasimhan, OW-4, in his deposition, particularly referred to the table of discharge over side weir as prepared by him, where he has given a summary, is extracted below so as to understand his view:-

**FLOW OVER SIDEWEIR AND BALANCE FLOW IN THE RIVER
DOWNSTREAM OF KATRAGADDA, AS PER MATHEMATICAL
MODEL STUDY OF PROF. G.N. YOGANARASIMHAN**

Sl. No.	Flow in Vansadhara in Cumecs (cusecs)	Flow over Side Weir in Cumecs (cusecs) Case 3	% of flow over side weir	Balance flow in Vansadhara in Cumecs (cusecs)	% of flow in the River
I	II	III	IV	V	VI
1	200 (7063)	6.326 (223.4)	3.164	193.364 (6839.5)	96.836
2	300 (10594)	59.792 (2111.5)	19.307	240.208 (8482.9)	80.693
3	400 (14126)	138.684 (4897.6)	34.671	261.316 (9228.3)	65.329
4	500 (17657)	205.397* (7253.5)	41.079 (36.246)	318.77 (11257.3)	63.754
5	600 (21189)	279.455* (9868.9)	46.576 (30.205)	418.77 (14788.7)	69.795
6	700 (24720)	350.293* (12370)	50.042 (25.890)	518.77 (18320.2)	74.110
7	800 (28252)	419.571* (14817)	52.446 (22.654)	618.77 (21851.7)	77.346
8	900 (31783)	485.274* (17137)	53.919 (20,137)	718.77 (25383.1)	79.863
9	1000 (35315)	549.918* (19420)	54.992 (18.123)	818.88 (28914.6)	81.877
10	10000 (353150)	650.000* (22955)	65.00 (1.812)	9818.77 (346746.9)	98.118

*Restricted to 181.23 cumecs (6,400 cusecs) being the capacity of the link canal.

- Note :
1. The second column is as per the first column in pg-59 of affidavit.
 2. The third column is as per the last column in pg-59 of affidavit.
 3. The fourth column percentages are as shown by the professor in his last column in brackets.
 4. The percentages shown in brackets in the fourth column of the above statement are when the flow in the link canal is restricted to 181.23 cumecs

10.61 When we carefully read the same, we find that he has given three case studies and what is relevant for our purpose is case No. 3. When the river discharge over side weir is 200 cumecs, according to him, the percentage of flow over side weir would be 3.164% which is even less than the percentage found by the CWPRS for similar quantity of water in their study which stands at 15%. Similarly, when the discharge is to the extent of the quantity of 300 cumecs, the quantity of discharge at the side weir is 19.307% which is much below 33% as found by CWPRS for the same quantity of water. It is, therefore, clear that despite such withdrawal of water, major part of river water would go down in the main river course.

10.62 The evidence on record clearly belie the apprehension of the State of Odisha that they would be prejudicially affected if the river water is allowed to go down the side weir and it may even affect their share of water. The State of Andhra Pradesh and the State of Odisha both are entitled to 50% of the river water each as agreed to. Thereafter each of the State is entitled to receive about 55 TMC water. In this connection, reference could be made to the minutes of the Meeting dated 30.9.1962 wherein it is recorded thus:

“From the data available it has been estimated that the yield of Vamsadhara River at Gotta Reservoir is 115.00 TMC. The requirement of Andhra Pradesh for Gotta Irrigation Project and Neradi Anicut is 47.4 TMC. The total quantity of water for the existing irrigation in Andhra Pradesh is about 7 TMC. So the total requirement of water of Andhra Pradesh for the existing irrigation and projects which are now being taken up is 54.5 TMC. The requirements of water for

the projects in Orissa State has been roughly estimated to be 55 TMC.

Thus the yield of Vamsadhara Basin is just sufficient to meet the requirements of both the states. The water of Vamsadhara Basin may consequently be utilized by both Andhra Pradesh and Orissa States on a fifty-fifty basis.”

10.63 Out of the aforesaid share of entitlement, the State of Andhra Pradesh is seeking to draw only 8 TMC of water through the side weir which also clearly establishes that placement of the head regulator is so designed that it would control flow of water through the side weir connecting with the flood flow canal and any excess of water beyond 8 TMC would go down the escape channel. Besides, anything drawn beyond 6400 cusecs would also go down the escape channel. Therefore, it can be well concluded that with the proposed construction of side weir, only a very small fraction of the water of the river would go down the side weir. With the construction of side weir, the quantity of river water to go through the side weir would not be in any case more than 8 TMC and that also is within the course of about 55 days of the year when the flow in the river is sufficient and more than 4000 cusecs. Therefore, that would not in any manner affect the percentage of share of Odisha. This objection is, therefore, rejected as it has no merit.

10.64 The nature of this objection is also connected somewhat with the second objection which is taken by the State of Odisha which is to the effect that the proposed construction of the side weir would deprive the State of Odisha to the accustomed depth of water on the left bank situated on the side of the State of Odisha. Aggradation in the

river is a natural phenomenon but by the construction of the side weir and withdrawing water to the extent of 8 TMC only through the months of monsoon and that also only for a period of about 55 days cannot and would not cause any loss of depth of water on the left bank. The report of CWPRS to which reference was made states that under the existing condition and even after construction of side weir, water level near Katragada would remain unchanged. It was also observed that the river channel has not shown any tendency to vitiate from time to time. The conclusion as recorded by the CWPRS is that for low, as well as high flow stages in Vansadhara River, flow condition with or without side weir were almost similar. These conclusions are not specifically challenged and the findings and conclusions are based on hard data.

10.65 Prof. Yoganarasimhan, OW-4, has stated in his evidence that his study cannot be said to be unreliable but the study indicates that he may have to correct cross-section or use interpolation and other manipulations to get the result. It is proved on his evidence that the study carried out by him cannot be relied upon as produced before us. The same is held to be not reliable.

10.66 Therefore, it could be concluded that there will be no loss on the depth of water on the left bank as suggested by the State of Odisha even despite construction of the side weir and even if there be any silting, the same could be removed from time to time with proper monitoring. The second objection is, therefore, not accepted as it is without merit.

10.67 The next objection which is raised by the State of Odisha with regard to the proposal of construction of Side Weir at Katragada is that

such construction, if allowed to be made, would adversely affect the existing utilisation of water by the State of Odisha for distribution of potable water to 18 villages and also distribution of water for agricultural and irrigation purposes for 30,000 acres. In the reply filed to statement of case filed by the State of Andhra Pradesh, a specific objection is taken by the State of Odisha to the effect that such a construction would deprive drinking water requirements and facilities to 18 villages and irrigation requirement of 30,000 acres of land situated on the left bank of the inter-State river Vansadhara lying within the territory of State of Odisha. In line with the aforesaid objections taken in the reply filed to the statement of case filed by the Andhra Pradesh and in its own statement of case, contentions were raised before us by the State of Odisha during the course of hearing of the interim application, registered as I.A. No. 1 of 2010. The said contentions were dealt with and answered in paragraphs 48 and 49 of the interim order passed on 17.12.2013 granting temporary injunction in the following manner:

“48. Another contention which was substantially advanced during the course of arguments by the State of Odisha was regarding deprivation of drinking water supply to 18 villages and also deprivation of existing irrigation system of water to 30,000 acres of cultivable land and also causing irreparable damages to their environment, flora and fauna. The aforesaid apprehension appears to be illusory, for assuming that even if the quantity of 8 TMC of water is taken through the Side Weir, the same would occur only for a particular period of approximately 60 days in a year and that also during the full monsoon season and for the rest of the period the entire water in the river would go down according to the river course only and even

during that period of approximately 60 days there shall be sufficient flow of water as it is the monsoon period and therefore, there would be no obstruction at all for the State of Orissa drawing and distributing drinking water to all its neighbouring villages and also irrigating the cultivable land situated nearby in terms of its entire requirement. While giving the aforesaid statistics of supplying of drinking water to 18 villages and irrigating 30,000 acres of land, the State of Odisha has not provided any calculation or the details of the water requirement for its inhabitants or the cultivable land in its territory. The State of Andhra Pradesh, during the course of arguments urged on these aspects and stated that without such statistics such tall claims should not be entertained.

49. *In the pleadings filed before us by the State of Andhra Pradesh they have sought to give some statistics and have worked out the water requirement for irrigable area of 30,000 acres lying in the State of Orissa downstream of Side Weir at Katragada. Similarly it has also worked out the water requirement for the inhabitants of the 18 villages by adopting the national norms. For arriving at the final figure of 3.85 TMC for growing paddy in an area of 30,000 acres the norms adopted are the norms adopted by the National Commission for Integrated Water Resource Development. While working out the drinking water requirement for the domestic and livestock in 18 villages of Orissa the population details of 12 villages as available from the census of 2001 have been taken and have been projected for the year 2050. Relying on the same it is calculated that the domestic water requirement of all the 18 villages would come to about 0.116 TMC and, therefore, the total water requirement for irrigation as well as domestic requirement has been worked out to about 4 TMC of water. We agree with the aforesaid calculation and hold that quantum of about 4 TMC would be sufficient to meet the present and future domestic and irrigation requirement of the*

State of Orissa at the downstream of the Side Channel Weir at Katragada. From the data made available by the Central Government to both the State Governments it is clearly established that there would be still ample water in the river to meet the present and future requirements of both the States.”

10.68 However, subsequent thereto and during hearing of the main proceeding, on the aforesaid plea of requirement of water for drinking and agricultural purposes to the extent indicated above, evidence was adduced by four witnesses appearing on behalf of State of Odisha. The State of Andhra Pradesh also examined one witness to disprove the said allegations of the State of Odisha.

10.69 OW-1 examined by the State of Odisha was Mr. Ramesh Chandra Tripathy. He has referred to in paragraph 5 of his affidavit the statements made by the State of Odisha in their complaint wherein it was stated that the executive action of the Government of State of Andhra Pradesh in proposing the diversion of water of inter-State river Vansadhara through the above Flood Flow Canal, which:-

- (a) would deprive the drinking water requirements in about 18 villages and irrigation requirement of 30,000 acres of land situated in the downstream portion of Left Bank of river Vansadhara falling in the State of Odisha;
- (b) would result in drying up the existing river bed and consequent shifting of the river affecting ground water level;

(c) would create fait accompli and may cast shadow on the equitable share of State of Odisha in the waters of Inter-State river Vansadhara and its valley.

10.70 The witness has also stated in paragraph 6 of his Affidavit the stand of the State of Odisha in respect of aforesaid objection by stating that out of the planimetered area of 12,000 acres lying below the contour level of 80 metres between Katragada and Inter-State border, the net irrigable area works out to 9,600 acres. According to him, the Gross Cropped Area is estimated by considering the intensity of irrigation which is 275% in cultivating three crops and, therefore, the Gross Cropped Area comes to 26,400 acres which at present is being served by tube wells, private lifts, minor tanks and public lift irrigation projects. According to him, the net irrigable area lying above the contour level of 80 metres is about 5,733 acres with intensity of 120% which gives a Gross Cropped Area of 6,880 acres and thus, the total Gross Cropped Area below and above contour line of 80 metres is about 33,280 acres which depends upon the water drawn from Vansadhara river below Katragada and upto the inter-State border. He has given the list of villages situated within the territory of Odisha on the left side of Vansadhara.

10.71 The said witness was cross examined at length by the counsel appearing for the State of Andhra Pradesh during the course of which it was pointed out to him that the State of Odisha has indicated the water requirement for the area as shown by the State of Odisha between Katragada and Inter-State border as 5.49 TMC in respect of irrigation, drinking water and livestock. The witness was asked whether that

position is correct to which the witness replied that the water requirement for irrigation, drinking and livestock may be 5.49 TMC but that does not include all the water requirements for that area. He was asked to give an estimation of the entire water requirement for that particular area to which he replied that he is unable to quantify the requirement. In his affidavit, the witness had indicated the total cultivable area as 5523.81 hectares equivalent to 13,641 acres.

10.72 The witness was also given a suggestion during his cross-examination that the utilisation projected below Katragada is only in the region of 5 TMC to which the witness replied that he cannot answer the statement correctly as of then. He was also told in question No. 23 by the Counsel for the Andhra Pradesh that he had intimated that the total cultivable area is 5523.81 hectares which is equivalent to 13641 acres. On the basis of the said statement made by the witness, he was asked whether he would be able to compute the irrigation water requirement for that extent of cultivable area below Katragada on the left side of Vansadhara river in Odisha to which he replied in the negative that he is unable to do so. He was also asked in question No. 25 whether he would be able to indicate what is the extent of area which he would be able to irrigate with one TMC of water to which also his answer was in negative. The attention of the witness was drawn to his statement where he had stated as to what are other requirements of the region which he has stated in answer to question No. 30 in question No. 32, he was specifically asked as to what are those requirements to which he replied that he had briefly mentioned the requirement in his affidavit in paragraph 15 when he was asked as to

whether he had estimated the quantum of such requirement. His answer was again in negative. He has admitted in his answer to question No. 37 that he has not made any studies to quantify the water requirements in the said region for the various components. The specific attention was also drawn by putting a question being question No. 45 that the rejoinder of the State of Odisha in paragraph 3 (iii) to which the witness has referred to in answer to question No. 44 makes reference only to the water requirement for irrigation and domestic water supplies to 18 villages situated on the left bank of the river Vansadhara and not to any other requirement as indicated by him in cross-examination. When his attention was drawn to the said fact, he accepted the position. He has also admitted in his cross-examination that Lower Vansadhara Irrigation Project envisages in Phase-I construction of a dam across Sananadi river which is a tributary of Vansadhara river. The witness was shown the Table 20.1 in Volume I, Part-II of the Project Report being Exhibit No. OW-1/4. Drawing his attention to the same, it was suggested to him that the cropping intensity as shown in the said Report at present is only 107.2% and his answer to the said suggestion was in the affirmative. He admitted that the said Sananadi Reservoir Project envisages a dam across Sananadi river before it joins the main river Vansadhara and that project would not in any manner be affected by the proposed diversion of supplies through the Side Weir or through Neradi Barrage. When the aforesaid evidence of OW-1 is analysed, it is found that the witness was giving conflicting statements and it appears that his calculation of irrigation intensity of 275% does not appear to be based on correct assessment. He was unable to give any cogent reasons for arriving at the figure of

intensity at 275%. Intensity of irrigation has been assessed by him when he stated that the requirement of the area is 275% intensity and according to him he has arrived on the same in his studies of the requirements as demanded by the farmers for their cultivation and livelihood. However, no such studies are placed on record wherefrom it could be calculated that such requirement of the area is actually of 275% intensity. He has also stated in his cross-examination while answering question No. 19 that as per the Project Report of Odisha relating to Lower Vansadhara Project Stage-I, the total requirement of the State of Odisha for irrigation, drinking water and livestock is estimated to be about 4 TMC. He also stated that the statements made by him in paragraph 16 and 17 of his affidavit are based on the contents of the said Project Report.

10.73 As against the aforesaid evidence, the evidence that was adduced on behalf of the State of Andhra Pradesh was of Mr. Routhu Satyanarayana who was examined as Witness No. 2 for Andhra Pradesh. He has stated in paragraph 16 of his Affidavit that the water requirement of Odisha downstream of Katragada is very insignificant and that is being done mainly through minor irrigation tanks which receive water through rivulets. He also stated that there are no existing diversion structures or Lift Irrigation Schemes of such a magnitude at present to irrigate the alleged gross cropped area of 9,600 acres with 275% intensity of irrigation on the left side of the river downstream of Katragada, on Odisha side, through which the State of Odisha has been drawing water for its alleged requirements or utilisation. It was stated in his examination-in-chief that by reason of drawal of water through

the Side Weir, no damage would be caused to the State of Odisha or to its alleged water requirements downstream of the Side Weir.

10.74 Apart from leading the evidence by both the State Governments on the aforesaid issue, the counsel also advanced arguments with regard to drinking water requirement in 18 villages and for irrigation requirements of 30,000 acres of land situated in the downstream of the left bank of the river Vansadhara falling in the territory of Odisha. The State of Odisha for the aforesaid purpose relied upon mainly on the affidavit of Mr. Arun Kumar Padhi, OW-2, who has stated about the water requirement in the aforesaid area in paragraph 4 to paragraph 8 of his Affidavit. When made a comparative study of his evidence with that of Mr. Ramesh Chandra Tripathy, OW-1, it is found that having stated almost on similar line, both of them have shown that the total water requirement of Odisha for irrigation, domestic and livestock in the villages situated in the downstream of the left bank of the river Vansadhara falling in the territory of Odisha is about 5.49 TMC.

10.75 Our attention was drawn to the cross-examination of Mr. Padhi, the Witness No. 2 of Odisha. While replying to question No. 20, he has stated that Odisha needs minimum flow, i.e. about 40% of the flow for other purposes excluding its requirement of 5.49 TMC. From his answer against question No. 21, it could be concluded that only 40% of flow should be allowed on the river in the common boundary so as to enable State of Odisha to fulfil its obligation and so far as the rest 60% is concerned, the same could be withdrawn. The counsel for the State of Andhra Pradesh drew our attention to the Lower Vansadhara Project Report prepared by the Government of

Odisha. The said report of lower Vansadhara Project indicates that the State of Odisha has already planned a project which would take care of the requirements of all these villages in those same areas situated on the side of State of Odisha. Particular reference was made to the project indicating diversion of water from proposed Sananadi Dam which would irrigate some portion of the area downstream of Neradi Barrage. Besides, even assuming that the State of Odisha would require water from Vansadhara River to supply drinking water and also water for irrigation and agricultural purposes to the villages and agricultural fields situated on its side near Katragada, the same could be done by drawing water from the proposed Sananadi Dam. The fact also remains that State of Odisha would have enough water on the river Vansadhara which it can withdraw from its side in future as well because what is being proposed by Andhra Pradesh by way of construction of Side Weir is to draw water from Vansadhara only for a particular period of time, i.e. about 55 days during the months of monsoon and during the period of first crop which is upto to 30th November every year and that also during only that period when the river carries more than 4,000 cusecs of water. What is being sought to be drawn through the construction of Side Weir is only a very small portion of water and that the rest of the water would still be available and would flow down the river course.

10.76 The said Witness No. 2, namely Mr. Arun Kumar Padhi had stated in answer to question Nos. 108 to 114 in his cross-examination regarding irrigation supplies. He mentioned that all these areas which are below 118 metres contour will be fully covered by irrigation since the bed level of the left main canal from Sananadi Dam at head

regulator is 118.21 m. It can be, therefore, concluded that the same would cover supply of water for drinking as also irrigation purposes to 18 villages and 33,000 acres respectively. The learned counsel for the State of Andhra Pradesh has also stated which is also found to be correct that the water requirement for irrigation and domestic and livestock needs cannot be even 5.49 TMC which was alleged to be so as it is clear that the total lift of water from Vansadhara by the State of Odisha for last 42 years is only 0.12 TMC. But be that as it may, it is exclusively proved from the entire evidence on record that whatever water is required by the State of Odisha for supply of drinking water and also water for irrigation purposes to its citizens would still be available as the State of Andhra Pradesh is not going to interfere with the entitlement of the share of Odisha Government of 50% of the river water in any manner. All that the State of Andhra Pradesh is seeking to do by constructing the Side Weir is to draw water from Vansadhara river to the extent of 8 TMC only which is exclusively within the entitlement of their share of 50% in the river water. Neither OW-1 nor OW-2 has stated either in their examination in chief or cross-examination regarding carrying out any independent study on crop water requirement for the areas to be irrigated in Odisha below Katragada.

10.77 While passing our order on 17th of December, 2013, we had taken notice of similar contentions and objections raised by the State of Odisha. On the basis of the documentary evidence available on record at that relevant point of time, we concluded that while working out the drinking water requirement for the domestic and livestock in 18 villages

of Odisha, the population details of 12 villages as available from the census of 2001 and also as have been projected for the year 2050 have been taken. We had held then after proper calculation that the domestic water requirement of all the 18 villages would come to about 0.116 TMC and, therefore, the total water requirement for irrigation as well as domestic requirement has been worked out to about 4 TMC of water. In that context and having appreciated the evidence available on record, we held that quantum of about 4 TMC would be sufficient to meet the present and future domestic and irrigation requirements of the State of Odisha at the downstream of the side Channel Weir at Katragada and that from data made available by the Central Government to both the State Governments, it is clearly established that there would still be ample water in the river to meet the present and future requirements of both the States.

10.78 After recording the aforesaid findings and during the subsequent proceedings in the present matter, evidence was produced before us to indicate that the State of Odisha has taken up a project for diverting water from the proposed Sananadi Dam to meet the requirement of the areas which are also being projected for the purpose of water requirement of the State of Odisha. We also consider availability of the aforesaid water drawn from Sananadi Dam to provide drinking water and water for the irrigation purposes to the same villages and to the same cultivable land for which the State of Odisha has stated that they need to withdraw water from Vansadhara also for the purpose of irrigating the same areas and supply drinking water to the same people. The demand is found to be exaggerated in view of the

availability of sufficient water for supply to the aforesaid areas but that fact is irrelevant and immaterial for all practical purposes for it is proved and established from the evidence on record that even if State of Andhra Pradesh is allowed to draw water through Side Weir, the same would be only to the extent of 8 TMC per year and that also within the span of particular days numbering about 55 days of the monsoon months during which the flow in the river is more than 4000 cusecs of water. The apprehension of Odisha is, therefore, baseless and this objection is found to be without any merit.

10.79 Another objection that is raised by the State of Odisha is that any diversion of water by the State of Andhra Pradesh through the Side Weir Channel would cause damage in the river course of river Vansadhara and would also cause sedimentation in the river bed which would be a factor leading to morphological changes and also change in the river course. This issue was also raised by the State of Odisha while arguing the interim application. The objection raised at that point of time was also with regard to apprehension of the State of Odisha of silting and sedimentation taking place near the construction site of the Side Weir and the same leading to possible change in the river course. These objections were considered and they were found to be baseless, reasons whereof were mentioned in paragraph 44 and 45 of the said order as follows:

“44. A strong case was sought to be made out on behalf of the State of Orissa with regard to sedimentation and silting in the river thereby causing morphological changes in the Vansadhara River provided permission is granted for construction of the Side Weir on its side as proposed by the State of Andhra

Pradesh. The mathematical model studies to which reference was made hereinbefore which were carried out by the Central Water Commission to evaluate the Hydrodynamical and morphological consequences of construction of Neradi barrage concluded that the river is morphologically stable besides in the physical model studies carried out by Central Water and Power Research Station regarding the proposed Side Weir at Katragada, it is recorded that morphological changes in the Vansadhara river near Katragada Side Weir cannot be assessed from the model studies, as it is felt that the river channel has not shown any tendency to vitiate from time to time. In the said studies it is also concluded that even after the construction of a Side Weir the position would not alter drastically but it would be necessary to keep a close watch on the river behaviour from year to year. From the aforesaid and records available to which reference was also made hereinbefore, it is clearly established that there may not be any noticeable changes in the morphology of the river post construction of Katragada Side Weir, if any.

45. So far the apprehension of the silting and sedimentation taking place near the construction of the Side Weir is concerned the record before us fully discloses that such apprehension is also baseless. Be that as it may, even if such sedimentation and silting occurs due to the construction of the Side Weir and functioning of the same, these could be properly tackled and taken care of by directing de-silting of the area near the construction of the Side Weir as and when such silting and sedimentation is noticed.”

10.80 Apart from the aforesaid recording of our tentative findings on the said Issue, we have dealt with the Issue while dealing with the arguments on silting, sedimentation and aggradation and recorded our findings thereto. While reiterating those findings as recorded on similar submission on possible effect of sedimentation and outcome thereof,

we would like to discuss the said issue further particularly at the point of Katragada as hereunder.

10.81 In the Statement of Case, in paragraph 12, the State of Odisha has given several reasons which would cause possible injuries to the State of Odisha due to the construction of such side weir project. It is alleged that such construction of side weir channel when completed would necessarily facilitate free flow of water by gravity into the connecting flood flow canal in the State of Andhra Pradesh and that it is apprehended by it that with the flow of water, scouring would take place on the right side and silt would accumulate on the left side of the river which would result in sand casting on the left side and consequently dry up the existing river bed downstream of Katragada.

10.82 The State of Andhra Pradesh states that aforesaid apprehensions of the State of Odisha are misplaced because of the position explained in their Rejoinder and the Reply Statement.

10.83 As per the evidence of Mr. R.K. Tripathy, OW-1, there is a categorical statement by the said witness that he was never involved in any siltation study and he has no special knowledge about the same. But he has stated that if the side weir, as proposed is constructed, aggradation in the river bed would take place on the left bank meaning thereby on the side of Odisha. When the aforesaid evidence is read and compared with that of Mr. A.K. Padhi, OW-2, who has stated in his evidence that sedimentation on the right bank due to the construction of the side weir would take place near the side weir, it is thus established that the two witnesses of Odisha, i.e. OW-1 and OW-2,

themselves are contradicting each other. OW-2 even could not say as to whether there is more sedimentation in the east flowing river or not.

10.84 Mr. Routhu Satyanarayana, APW-2, appearing for the State of Andhra Pradesh has categorically stated that most of the sediment is carried by the river during floods and that during the flood condition the discharge withdrawn through Side Weir is only of a small fraction of flood discharge and, therefore, the flow pattern in the river would not be affected. He further stated that the scouring or silting due to flow through Side Weir is expected to be insignificant and that about 70 to 80% of suspended sediment is categorised as fine and that the same is carried as wash load. He gave a categorical statement that the position of the river course would remain the same with or without the Side Weir and that the Side Weir is a temporary measure. He has also stated in his evidence that Side Weir will not cause any changes as alleged by the State of Odisha especially when the normal flows upto 4000 cusecs would invariably pass through the river even in post Side Weir condition. The witness was cross-examined and in question No. 29 of the cross-examination, he was asked whether it is correct that once the water is diverted through the Side Weir, the flows in the river to the extent of diversion would be reduced and that the reduced flows in the river would have lesser velocity. The witness replied that he does not agree with the aforesaid alleged technical proposition but he stated that there could be likelihood of small quantity of sediment deposit, if any, on the downstream side of the Side Weir which could be removed periodically as ordered by the Tribunal in its Interim Order by putting up a condition of the said nature. He was also asked whether it is right that

the extent of aggradation in the river channel is measured by comparing the bed level over a period of time. The witness agreed with the aforesaid proposition and stated that aggradation and degradation is a natural phenomenon in the rivers.

10.85 In the course of further cross-examination Mr. Satyanarayana denied the suggestion of the learned counsel that if the bed of the river had suffered aggradation at Kashinagar as shown in Exhibit No. OW-2/6, the crest height of 0.9 m of the side weir may gradually lose its height and close up in less than nine years forming sand cast etc.

10.86 On careful perusal and on analysis of the record, it is clearly revealed that no such quantity of high sedimentation would take place either near the site of construction of the Side Weir or opposite to it on the side of the territory of Odisha nor is there any possibility of the river changing its course due to construction of such a Side Weir which will function only when the flow of the water on the river Vansadhara is more than 4000 cusecs. The water that would be carried through the Side Weir is only a small fraction of the water which is even admitted by Prof. G.N. Yoganarasimhan, OW-4, of the State of Odisha and in that event major part of the water in the river would go down in the river course which will carry the sediments along with it and there would be little sedimentation, if at all. The same could be cleared in terms of directions and conditions laid down by us hereinafter. We, therefore, find no reason to take any different view from what was taken in our earlier order dated 17.12.2013 but while allowing construction of such a Side Weir at Katragada and granting permission to the State of Andhra Pradesh to construct side weir as proposed, we put conditions

enumerated in this Order. In the light of the fresh evidence of the witnesses and arguments of the learned counsel of both the States, we have made necessary modifications in the final Order. We also make It clear that the mechanism of the construction of the Side Weir would be to draw water from river Vansadhara which could be taken by the State of Andhra Pradesh through the Side Weir to a pond at the end of which there shall be a Head Regulator. Then flow of the water would be controlled by Head Regulator which will regulate taking away water from the river Vansadhara of a quantity of 8 TMC only, during the aforesaid period of about 55 days during the period of monsoon and that also when the flow in the river is more than 4000 cusecs and the Head Regulator would be so controlled. The excess water would be taken back to the river course through the escape channel. The said mechanism as suggested by the State of Andhra Pradesh is also approved of having the gates at the main Head Regulator which will be immediately after the small pond where the water from the river Vansadhara would initially be taken.

10.87 We have in this Report considered the feasibility of the construction of Neradi Barrage and having gone through the records, we have accorded permission for construction of such barrage at Neradi across river Vansadhara. As and when such construction is completed and the barrage is made functional, the proposed Side Weir even if constructed in terms of the order passed by this Tribunal, the same shall be totally plugged and made completely non-functional. We are informed that when the barrage is constructed, in any case, the Side Weir would get submerged under water. Even if that be so, it must be

ensured that no water from river Vansadhara would go down the Side Weir and that there should be no flow at all to go through the Side Weir. The Side Weir should become completely non-functional once the Neradi Barrage is made functional. Besides all the agreements of both the States which are also being acted upon and ordered to be binding on the parties, the water of Vansadhara has to be utilised by the two co-riparian States, namely, Andhra Pradesh and Odisha on 50:50 basis. We are also of the opinion that only 8 TMC of water would be diverted through the Side Weir which would be a part of 50% share of Andhra Pradesh. We, therefore, are of the considered opinion that the temporary injunction which was granted by us is legal and valid and we make the said temporary injunction absolute and we pass a permanent injunction in favour of Andhra Pradesh as we do not find any reason or basis to revisit our earlier findings. Therefore, the Order dated 17.12.2013 is made absolute and reiterated. We also find no merit in the objections taken by the State of Odisha against construction of Side Weir proposed by the State of Andhra Pradesh. The said Side Weir could be constructed as proposed and in terms of the observations made hereinbefore but subject to certain conditions given in detail hereinafter.

10.88 The said conditions are required to be mandatorily followed and complied with and scrupulously maintained. It is also made clear that the order granting permission to construct the Side Weir with its ancillary works and the conditions laid therein by us would be applicable only till the permission granted for construction of Neradi Barrage with the conditions applicable to such construction is made

effective and the barrage is constructed and made operational and functional.

10.89 The Project proposal must get clearance from the Central Water Commission, Ministry of Water Resources, River Development and Ganga Rejuvenation; Ministry of Environment, Forest and Climate Change; Ministry of Tribal Affairs and other statutory clearances as would be required.

10.90 We have just recorded our findings and answered in respect of Issues No. 8 to 13 in this chapter. Thereafter, we are left to decide the last issue being issue No. 14 regarding requirement of constituting the Inter-State Regulatory Body. This issue which remains to be addressed is regarding the necessity of setting up an inter-State Regulatory Body for implementation of the decision of this Tribunal.

10.91 In this regard, we have already mentioned above that a decision by a Water Disputes Tribunal constituted under the Inter-State River Water Disputes Act 1956, on publication in the official gazette is final and binding on the parties to the dispute and shall be given effect to by them. Section 6(1) of the said Act provides finality and the binding nature of the decision of the Tribunal. It also provides that the decision is to be given effect to by the parties to the dispute. We feel that an inter-State Regulatory Body may play a very vital and important role in effective implementation of the decisions given by a Water Disputes Tribunal. This Body may render assistance to the parties to the dispute in giving effect to all the decisions.

10.92 In this connection, we may refer to Sub-Section (1) of the Section 6A of ISRWD Act, 1956. As per this provision, the Central Government has been given power and 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.

10.93 We have deliberated upon this issue and in our considered opinion an Inter-State Regulatory Body would be required to be constituted for implementing the decision of this Tribunal. During the course of the hearing of the proceeding, both the parties to the dispute have also agreed to and favoured setting up such a mechanism.

10.94 Keeping this in view, we hereby decide to set up an Inter-State Regulatory Body which would be called “Supervisory Committee” for implementing the decision of this Tribunal. The nature and mode of its functioning and its powers have been enumerated by us which are as follows:

- (1)** A Supervisory Committee consisting of four members – two from the Central Water Commission; one from the State of Andhra Pradesh; and one from the State of Odisha shall be constituted to supervise the functioning of the Side Weir complex at Katragada and Neradi Barrage when constructed and also for implementation of the order of the Tribunal.
- (2)** The composition of the Committee shall be:

- (i) Chief Engineer, CWC - Chairman
- (ii) Representative of State of Andhra Pradesh - Member
- (iii) Representative of State of Odisha - Member
- (iv) Superintending Engineer/Director, CWC - Member Secretary

(3) The Committee shall have following functions and powers:

- (i)** To supervise the operation of the gates, of the Head Regulator of Flood Flow Canal of Side Weir complex, including the closure of the same.
- (ii)** To ensure that total drawal of water through Head Regulator of Flood Flow Canal of Side Weir complex, during the months of June to November in any year shall not in any case exceed 8 TMC, constituting a part of 50% share of water of the State of Andhra Pradesh.
- (iii)** To ensure that the gates of the Head Regulator of the Flood Flow Canal of Side Weir complex, shall open on 1st June and close on 1st December or earlier as soon as the total drawal of water equals to 8 TMC every year and the gates shall so remain closed till 31st May of next year.
- (iv)** To maintain the record of the flow upstream of the Side Weir and also of the flow passing through

the Head Regulator of Flood Flow Canal. When the Flood Flow Canal is operational, it may be ensured that the flow downstream of the Side Weir is equal to or more than 4000 cusecs.

- (v)** To make periodical survey, as it deems necessary, for assessing aggradation and degradation in the river near the Side Weir and take appropriate steps thereto so as to ensure that the bed level of the Side Weir at all times shall be as per its original design.
- (vi)** To keep a close watch on the river behaviour and to ensure that if there be any silting or sedimentation in front of the Side Weir at Katragada or upstream near the Neradi Barrage, the same shall be got cleared, as and when required, through the State Government of Andhra Pradesh.
- (vii)** To ensure that the Side Weir is totally plugged and made completely non-functional immediately after commissioning of the Neradi Barrage.
- (viii)** To supervise the regulation of flows from Neradi Barrage so as to ensure:
 - (a)** that the water from Vansadhara river at Neradi Barrage is withdrawn by the State of Andhra Pradesh and the State of Odisha

during the period from 1st of June to 30th of November every year.

(b) that during the period from 1st December to 31st May every year, entire water reaching Neradi Barrage, flows down the river for use by both the States.

(ix) To visit the flood affected areas of Odisha, if any, impacted due to the backwater of Neradi Barrage beyond its pool level and make assessment for giving recommendations regarding compensation to be paid to the flood affected families/persons. For this purpose, the Committee may co-opt any member(s) as it deems fit.

(4) The Committee shall select the place for its office which shall be provided by the State of Andhra Pradesh.

(5) The expenses for the maintenance of office and all expenses for conducting the monitoring activity shall be borne by the State of Andhra Pradesh.

10.95 We hope that the Supervisory Committee will help and provide assistance in the compliance of the decision of this Tribunal imbining the spirit of cooperation between State of Andhra Pradesh and State of Odisha. The committee would facilitate mutual cooperation between the two States for smooth compliance of the decision of this Tribunal which they are bound to do as per Section 6(1) of the ISRWD Act, 1956.

10.96 The decision of the Tribunal shall become effective and binding amongst the parties to the dispute, independent of any scheme set up by the Central Government for its implementation. This position is very much clear on the face 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.

10.97 The Central Government and the party States shall nominate members of the Supervisory Committee at the earliest, in any case, not later than 3 months from the date of publication of this decision in the Official Gazette, otherwise the concerned failing party State may lose its right to nominate its member. No decision of the Supervisory Committee shall be invalid merely because of non-appointment of any Member by any State or by reason of absence of any Member. The aforesaid issue is also decided accordingly.

10.98 Although discussions and findings have been recorded hereinbefore in respect of all the 14 issues, however, while filing the written submissions, the State of Odisha has taken up some additional issues through questions which are also required to be referred to, dealt with and discussed. So far the question raised with regard to the Side Weir at paragraph 5.2 of the written submissions is concerned, it was elaborately discussed and the findings are recorded holding that no prejudice should be caused to the interest of the State of Odisha and its inhabitants even if permission is granted to the State of Andhra Pradesh to construct the Side Weir near Katragada. The first question raised in paragraph 5.2 of the written submissions is answered in the aforesaid

manner while reiterating the findings recorded in answer to Issues No. 7 to 14.

10.99 The next question raised in paragraph 5.3 by the State of Odisha is as to whether the observations in paragraph 44, 45 and 47 of the interim Order dated 17.12.2013 should be revisited in view of the evidence on record, particularly studies of Prof. Yoganarasimhan (OW-3) and Mr. A.K. Padhi (OW-2). Although we have recorded our observations regarding construction of the Side Weir in paragraph 44, 45 and 47 of the interim Order passed on 17.12.2013 but the same was an interim Order and, therefore, tentative in nature. After the evidence is received in that regard, detailed and critical appreciation and analysis is made of the evidence received thereafter and the entire issue with regard to the construction of the Side Weir is re-appreciated and a fresh finding is recorded holding that no case is made out to take a different view than what was taken in paragraphs 44, 45 and 47 of the order dated 17.12.2013. Detailed reasons are recorded to come to the similar findings as that of recorded in paragraphs 44, 45 and 47 and, therefore, this question raised by the State of Odisha in their submission is also dealt with.

10.100 The third question that is raised is whether the State of Odisha establishes that the Physical Model Study of the Side Weir conducted by CWPRS is only on hydraulic aspects and not with regard to morphological changes. CWPRS in its report prepared and filed in 2007 has categorically recorded that it has not examined the morphological aspects of the matter but so far as the allegation with regard to the morphological changes in Vansadhara river near

Katragada Side Weir is concerned, the same is considered and detailed reasons for coming to such a finding that there would be no morphological changes are recorded. It is also required to be clarified at this stage that although the report states that morphological changes in Vansadhara River near Katragada side weir cannot be assessed from the model studies, however, it is felt that the river channel has not shown any tendency to vitiate from time to time. It is felt that even after the construction of side weir, the conditions may not alter drastically. However, a close watch on the river behaviour from year to year is required to be kept.

10.101 The next question that is raised apart from the issues raised is whether the CWPRS erred in applying the De Marchi equation. The answer to the aforesaid issue is discussed hereunder:

CWPRS in its Report of 2007 has clearly indicated that their conclusions regarding the side weir are based on Physical Model Studies. However, for the purpose of comparison, they have carried out analytical studies using De Marchi equation for side weir flows. The Analytical computations are based on number of assumptions like the cross-section of Vamsadhara river being idealized to a rectangular channel, length of the side weir is such that the specific energy is constant along the side weir and kinetic energy co-efficient equal to 1. The analytical analysis gives higher value of flows over the side weir as compared to the Physical Model Studies for the same discharges in the main river. CWPRS has attributed the difference to the assumptions made by using De Marchi equation. It cannot be held that there is any error in its application. The main thrust of CWPRS's study and its

findings are recorded on the basis of Physical Model study but only for the purpose of corroboration, they have used the Analytical Model study using the De Marchi equation.

10.102 The 5th question raised is whether the proposals in the DPR of 2014 for the Side Weir do not envisage construction of gates as contemplated in paragraph 53 of the interim Order dated 17.12.2013.

Whether or not the proposal is incorporated in the DPR of 2014 is irrelevant and immaterial and the Tribunal is competent to give its opinion and findings after going through the records placed by the parties. The Tribunal has found it necessary, feasible and competent to order for construction of Head Regulator with gates immediately after the pond of the side weir as ordered herein and the same would be binding on all concerned.

10.103 So far as the 6th question on Side Weir raised by State of Odisha requesting for permitting the State of Andhra Pradesh to lift the water from Vansadhara river instead of cutting the side weir in the banks and constructing 300m long side weir is concerned, It is stated by Mr. V.V.S. Ramamurty, APW-2, during his cross-examination that lift irrigation is costly and not preferred as long as it is possible to irrigate the area by gravity. The present scheme of Vamsadhara Irrigation Project contemplated irrigation by gravity and would be more economical. In this connection question No.32 of the cross-examination of Mr. Satyanarayana, APW-1 and his answer is reproduced:

“Q. 32 *I put it to you that without constructing Neradi barrage or side weir at Katragadda, the planned 8 TMC of water from river Vansadhara can be pumped by installing lift system in the region upstream of proposed barrage and downstream of katragadda or in any location downstream of Neradi barrage with a small head. What do you say on its feasibility as an Engineer?*

Ans. *I deny the suggestion. As an Engineer, it is my preference to go for a gravity flow wherever, it is possible. Neradi barrage site has been selected by the experts of both the States, Odisha and Andhra Pradesh after examining several sites both on upstream and downstream site of this Neradi barrage and agreed upon for the construction of the barrage. The lift scheme was also examined and found uneconomical. The CWC also suggested that this is not viable.”*

10.104 Another question that is raised by the State of Odisha in the written submissions filed is whether or not side weir is over-designed structure. The pleadings of the parties have not dealt with such an allegation but the State of Odisha had brought up such an issue in evidence. The studies carried out by CWPRS for computing the discharge over the side weir of length of 300 m have amply shown that very small fraction of water will flow over the side weir as compared to the discharge in the main river Vansadhara. A similar study carried out by Odisha’s own witness Prof. Yoganarasimhan, OW-4, has arrived at a conclusion that the discharges over the 300 m long side weir are even less as compared to what has been computed by CWPRS. Be that as it may, the length of the Side Weir is also immaterial as it has been

discussed and the findings are recorded that flood water would spill over to the said Side Weir only when the flow is more than 4000 cusecs and not below. There is a Head Regulator provided at the head of Flood Flow Canal and, therefore, it would be monitored by the Inter-State Regulatory Body as ordered herein and the quantity of water which could be drawn through the said canal is only 8 TMC and not beyond and, therefore, there is no possibility of drawing more water by the State of Andhra Pradesh than what is ordered. It is, therefore, held that the proposed side weir is not overdesigned structure.

10.105 One of the further contentions of Mr. Katarki, learned counsel appearing for the State of Odisha is that since there is likelihood of causing sedimentation and siltation in the inter-State river Vansadhara in view of the back water effect of the proposed Neradi Barrage and due to slow down of flows on construction of the proposed side weir, it would resultantly cause alteration of the inter-State boundary. It was submitted by him that the inter-State river Vansadhara is a border river for 29 km. According to the counsel, what is to be applied in the present case is the Thalweg Doctrine where the deepest point of the inter-State river is taken as the border between the two States. It was also submitted by him that with the construction of either of the two projects, namely, Neradi Barrage or Side Weir, the same would definitely cause siltation and sedimentation changing the deepest points of the river and resultantly, once the deepest points are changed, it would lead to alteration of inter-State boundary. According to him, even if the central line of the river is taken as the inter-State boundary, even then, not only the sedimentation would destroy and

change the river course with the possibility of the river course changing altogether which would consequently alter and affect the inter-State boundary of both the States.

10.106 We have recorded our considered reasons for holding that the apprehension of the State of Odisha of occurring any heavy sedimentation or siltation either near the Neradi Barrage or near the proposed site of construction of the side weir at Katragada is based merely on speculation and not on hard facts. As a matter of fact, we have found that no such heavy or major siltation or sedimentation would take place at either of the two places and even if there be some minor siltation or sedimentation, the same has been ordered to be removed by constituting an Inter-State Regulatory Body which would definitely take care of such a situation so that there is no suffering so far as the State of Odisha is concerned.

10.107 The learned counsel during the course of his arguments regarding sedimentation has admitted that sediments are always part of the river flows. We are of the view that the process of settling down such sediments on the river bed is dependent upon the quantity of river flows and its velocity. The Thalweg line in any alluvial river is subject to change due to natural causes. CWPRS in its studies have also analysed on the basis of old and new data regarding the river bed level and have come to the conclusion that the Thalweg line changes over a period of time along the length of the river which as per the CWPRS is quite natural.

10.108 So far as the inter-State boundary of River Vansadhara is concerned, the Survey of India has held the same to be the central line

of the river of the inter-State river Vansadhara, which document is on record. However, whether the inter-State border is the central line or the deepest point of the river is irrelevant as the apprehension of the State of Odisha regarding possible change of inter-State border is found to be totally baseless.

10.109 In terms of these findings, the complaint filed by the State of Odisha is dismissed whereas the complaint filed by the State of Andhra Pradesh is allowed to the aforesaid extent and the application filed by the State of Andhra Pradesh, registered as I.A.No.2 of 2010, stands disposed of.

11

SUMMARY OF ANSWERS/RESPONSE ISSUE-WISE

11.1 In the previous chapters, detailed discussions have been recorded on the issues framed in the proceeding and answers have been provided issue wise and also objection wise. But since the discussions and reasons recorded are lengthy, it is found befitting to give a summary of the findings and answers given issue wise.

11.2 Issue No. 1

11.2.1 Whether, the reference dated 19.03.2010 of the Union of India, under Section 5(1) of the Inter State River Water Disputes Act, 1956 with regard to the water disputes emerging from the complaint dated 28.07.2009 filed by the State of Andhra Pradesh is not maintainable?

11.2.2 The aforesaid issue was framed in view of the contention raised by the State of Odisha that the complaint of Odisha filed before the Central Government under Section 3 of the Inter State River Water Disputes Act, 1956 related only in respect of the proposed construction of the Side Weir and that no dispute was raised by any of the States with regard to concept and proposal of the construction of the Neradi Barrage. Therefore, reference of the dispute of the proposed construction of Neradi Barrage by the Central Government unilaterally and without carrying out any negotiation or discussions with the State of Odisha subsequent to the filing of the complaint by the State of

Andhra Pradesh with regard to the construction of such a barrage as required under the Act should be held to be not maintainable. This issue on the basis of the rival contentions of the counsel for the parties has been discussed in depth and threadbare and thereafter findings have been recorded giving detailed reasons for arriving at such findings and conclusions that it is maintainable. It was decided that the construction of side weir at Katragada with a flood flow canal is intrinsically connected with that of construction of Neradi Barrage and because of the said fact one part of it cannot be decided without deciding the other part of the matter. Both the aforesaid projects are part of Vamsadhara Project Phase-II Stage-II and connected with diversion of water of inter-State river Vansadhara and its river valley and, as a matter of fact, the said decision to have such a diversion by constructing a barrage on the river Vansadhara was agreed to at various points of time but also disagreed with regard to various other details. When a decision was taken that a River Water Disputes Tribunal should be constituted so as to comply with the direction issued by the Hon'ble Supreme Court vide its Order dated 6.2.2009 to adjudicate and decide the feasibility and permissibility of construction of side weir at Katragada with a flood flow canal, necessarily the issue which is intrinsically connected therewith, namely, construction of Neradi Barrage which is also a water dispute, was also required to be considered by the same Tribunal to arrive at a just, composite and legal decision.

11.2.3 Besides as and when a Tribunal is so constituted under Section 4 of the Act, the Central Government is empowered under

Section 5 of the Act to refer the water dispute and any matter appearing to be connected with, or relevant to the water dispute, to the Tribunal for adjudication. The dispute with regard to the utilisation, distribution and use of the water of the river Vansadhara is the real dispute between the parties and when the order of the Hon'ble Supreme Court was to constitute a Tribunal and refer to it the water dispute connected with construction of side weir at Katragada and flood flow canal, the Central Government was empowered and it, on the basis of its satisfaction, could refer any other matter appearing to be connected with, or relevant to the water dispute, to the Tribunal being so empowered under Section 5 of the Act. Necessarily and for all practical purposes, the matter regarding the construction of the Neradi Barrage is connected with or relevant to the water dispute, which is also referred to the Tribunal for adjudication. Therefore, it cannot be said that the Reference made by the Central Government to the Tribunal for deciding the dispute with regard to the water dispute of Vansadhara river and its valley is incompetent and without jurisdiction. The issue No. 1 thus is answered accordingly.

11.3 Issue No. 2

11.3.1 Whether the State of Odisha is justified in objecting to or delaying the Neradi Barrage by not honouring the binding Inter-State Agreements and not allowing the construction of Neradi Barrage?

11.3.2 There could be no dispute with regard to the fact that there has been an inordinate delay in taking constructive steps for construction of the Neradi Barrage. Agreement for such a construction of a barrage at Neradi across the river Vansadhara was arrived at

through a decision thereto taken for such construction in the year 1961. Broad agreement regarding its mechanism and nature of construction was also arrived at and agreed upon around the same time. Despite the said fact, the construction of the Barrage could not be started even till date. Some objections and queries are being raised by the State of Odisha from time to time with regard to details of the nature and mechanism of construction which are being explained and resolved by the State of Andhra Pradesh at different times. This process has definitely delayed the matter of construction of the barrage at the site. But it is held that no useful purpose would be served by trying to fix the blame for the delay on one State or the other and more meaningful way would be to find out and ascertain whether the construction of the Neradi Barrage as broadly agreed upon should be permitted and allowed or not. The aforesaid issue No. 2 is answered accordingly.

11.4 Issue No. 3 and Issue No. 4

Issue No. 3

11.4.1 Whether the State of Odisha is not obliged to make available the agreed extent of 106 acres of land to the State of Andhra Pradesh for the construction of the Neradi Barrage having agreed to do so as far back as in 1961?

Issue No. 4

11.4.2 Whether the State of Odisha is justified in stating that the land required for acquisition should be confined to 106 acres, on account of the Neradi Barrage, as initially agreed, when they insist on

additional protective measures like embankments etc., on its side on account of the 1980 flash floods?

11.4.3 Issue No. 3 and issue No. 4 both are found to be interconnected as they relate to acquisition of 106 acres of land by the State of Odisha as agreed upon under the Inter-State Agreement so as to enable the State of Andhra Pradesh to construct the Neradi Barrage, construction of flood protection wall, construction of catch drain behind it and for other ancillary purposes. Both the issues are intrinsically connected with each other and therefore, they are taken up and answered conjointly.

11.4.4 While dealing with the two issues, reference was made to the Minutes of the Meeting between the Chief Ministers of Andhra Pradesh and Odisha held on 18.7.1961 wherein Andhra Pradesh representatives stated that they wanted to execute the irrigation project at Neradi which entails the acquisition of 106 acres of land in Odisha territory. The minutes further record that on behalf of the Odisha, it was stated that while Odisha Government had no objection to acquire 106 acres of land but they wanted to safeguard against the water logging of their area and, therefore, asked for certain details. In a meeting between the officers of the two States held on 27.7.1980, it was decided that Andhra Pradesh will confine acquisition of Odisha land to 106 acres as originally provided in the proceedings of the Inter-State Agreement and it was also agreed that 106 acres of land acquisition would be exclusive of the river bed. Reference can also be made to the meeting between the two Chief Ministers held on 30.12.1994 mentioning about in-principle agreement of Odisha to the proposal of Andhra Pradesh for going

ahead with Neradi project subject to certain conditions. Condition No. 2 reads:

“No area in Orissa will be submerged as a result of construction of the proposed Neradi Barrage, except 106 acres of land to be acquired in Orissa State for various purposes as indicated in the Project Report.”

11.4.5 In view of the change in the value of design flood it was found that the submersion would affect more areas than conceived earlier. At one stage, it was calculated that area to be acquired would be much more than 106 acres which is required to be acquired for providing flood banks, but with the change in the concept of the protective measures from flood banks to 3.8 km long Flood Protection Wall, the requirement of land was restricted to 106 acres. With the agreement on construction of a Protection Wall over the embankments already existing at the site, with a catch drain behind it to drain out water behind the Protection Wall, it is estimated that not more than 106 acres would be required to be acquired by the State of Odisha. During the course of arguments, counsel for Andhra Pradesh has categorically stated before us that they are not seeking for any further acquisition of land by the State of Odisha beyond 106 acres. The State of Andhra Pradesh has asserted that acquisition of 106 acres of land by Odisha Government as originally agreed upon is sufficient and more than enough for the purpose.

11.4.6 It is established that the entire embankment on the left side of the river stands on government land and when protection wall is constructed upon the same land, there is no requirement of acquisition

of any land to that extent. If the existing embankment is used and utilised which has already been acquired/used for the purpose, construction of Flood Protection Wall on the said embankment and a catch drain behind the Protection Wall may require acquisition of land even less than 106 acres. Therefore, no additional land over and above 106 acres as agreed upon by both the States is required or needs to be acquired by the State of Odisha for the said purpose. Thus this objection raised by the State of Odisha is also found to be baseless and without any merit.

11.4.7 In view of the aforesaid findings arrived at, it is held in respect of the aforesaid Issue No. 3 and Issue No. 4 that State of Odisha is bound to honour the binding nature of inter-State agreement to acquire 106 acres of land as agreed upon and they are obliged to make available the agreed extent of 106 acres of land to the State of Andhra Pradesh through the process of acquisition of land as agreed upon for the construction of the Neradi barrage under the inter-State Agreement the cost of which, as assessed under the relevant Act, shall be paid by the State of Andhra Pradesh. The aforesaid two issues are accordingly answered.

11.5 Issue No.5 and Issue No.6

Issue No. 5

11.5.1 Whether the construction of Neradi barrage by the State of Andhra Pradesh across Inter State River Vansadhara is subjected to any agreed conditions? If so, whether the agreed conditions are the following:

- (i) That the submergence in the territory of Odisha shall be limited to 106 acres excluding the river bed in the State of Odisha; and
- (ii) That the back water effect shall be limited to 3 km upstream of the barrage both in non-silted and silted conditions.

Issue No. 6

11.5.2 Whether the back water effect of the Neradi barrage as planned by the State of Andhra Pradesh goes beyond 3 km from the barrage upto Gunupur and whether the State of Andhra Pradesh has no legal right to cause submergence or back water effect in the territory of the State of Odisha without its consent?

11.5.3 So far as Issue No. 5(i) is concerned, the same is already dealt with/answered while answering Issues No. 3 and 4.

Issue No. 5 (ii) is also very closely connected with Issue No. 6 as both the issues deal with back water effect, if any, within the territory of the State of Odisha.

11.5.4 In the Minutes of the Meeting held on 8.4.1988, it was agreed that the effect of the afflux beyond 3 km of protection wall upstream of the barrage was within the permissible limit. The Mathematical Model study clearly indicates that the afflux of Neradi Barrage beyond 6 km will be negligible. The State of Odisha did not dispute this finding when it insisted for physical model studies for the Neradi Barrage.

11.5.5 There cannot be any dispute to the fact that any construction or obstruction across the river would cause a back water effect. What is, however, to be seen is whether there is any substantial and appreciable damage caused to either the standing crops, structures or the inhabitants due to the backwater as a result of such obstruction. The Study Reports have mentioned that the back water effect would be actually caused due to the proposal of construction of the protection wall. When there is a barrage without a protection wall, the back water effect tapers over in the first km itself. The finding of the CWPRS as well as that of its own witness of the State of Odisha, Prof. Yoganarasimhan, OW-4, record that it is because of the protection wall that the backwater effect stretches beyond and the concept of the protection wall comes in due to the apprehension raised by the State of Odisha after the heavy flood of 1980 and its condition to acquire land not more than 106 acres. So far as the reliance of the State of Odisha on the minutes of the meeting held on 22.1.2008 is concerned, it must be observed at this stage that in that meeting dated 22.1.2008, the Chairman of the meeting desired to know the problems associated with Neradi barrage which was conceived to serve both the States. The Chairman of the meeting himself has noted the three constraints, one of which he noted was that the back water effect should be limited to 3 km upstream of the barrage. That limit is put by the Chairman and is not a decision between the two States as such. In fact, the agreement which was arrived at between the two States in the resolution taken in the meeting dated 8.4.1988 that the effect of the afflux due to Neradi barrage beyond 3 km of protection wall upstream of the barrage was within the permissible limit. The aforesaid minutes as recorded by the

Chairman on 22.1.2008 cannot, therefore, be construed as superseding the agreement dated 8.4.1988 arrived at mutually by both the States and the same can never be treated as inter se agreement between the States. The aforesaid agreement of 1988 categorically provided for backwater effect and agreed that the effect of this afflux beyond 3 km of protection wall upstream of the barrage was within the permissible limit.

11.5.6 The study of the CWPRS indicates and shows that there is a very negligible rise in water levels and that too as a result of protection wall and not as a result of construction of the barrage. The possibility of having 6 lakh cusecs flood could be possibly once in 500 years. Even when in 1980 such an event took place, the maximum flood line till which the flood waters came is indicated in the map provided to us thereby indicating that all these lands were inundated during 1980 floods when there was no barrage. During the said period, Sara and Badigam villages were also affected and submerged whereas Palsingi was at a higher level of 85.29 m and, therefore, it was not affected but nearby areas were affected. Therefore, as and when such heavy flood occurs as that of in the year 1980, these areas would be affected even if there is no barrage.

11.5.7 Therefore, when the construction of Neradi Barrage project is implemented with the protection wall, that would actually mean a benefit to the State of Odisha in as much as the land to this extent and the villages Sara and Badigam will also be protected. Far from causing any damage to these areas, it will enure to their benefit. Therefore, these two issues are answered holding that upon acquisition of 106

acres of land by the State of Odisha and making the same available to the State of Andhra Pradesh for construction of protection wall and construction of catch drain behind the same including part of the land which could be required for the purposes as per Detailed Project Report of Neradi Barrage, the said area is held to be sufficient for such purpose and no further land is required to be acquired by the State of Odisha than what was agreed upon. It is also held that the backwater flow after construction of the barrage and also of the protection wall may cause backwater effect upto another 3 km of the protection wall beyond which it is within the permissible limit and any back water flow thereafter is bound to be negligible with very little ripples being caused thereafter which, in any manner, cannot cause any damage as apprehended by the State of Odisha. However, as a measure of precaution, it is ordered that if at any point of time there is any damage to the agricultural land and property of any of the inhabitants of State of Odisha by the backwater of Neradi due to heavy flood caused in the river Vansadhara on the side of the Odisha territory, such reasonable compensation as would meet the ends of justice shall be payable to all such persons whose agricultural land, crops or structures are substantially damaged. Such compensation payable shall be so assessed by the Supervisory Committee in accordance with the existing law and the same shall be payable by the State of Andhra Pradesh through the Government of Odisha. These two issues are, therefore, answered accordingly.

11.6 Issue No. 7

11.6.1 Whether the State of Odisha is not barred from undertaking projects under which it has been proposed/proposing to unilaterally divert the waters of Inter State River Vansadhara to another basin jeopardizing the basin requirements of river Vansadhara?

11.6.2 So far as the answer to this issue is concerned, no evidence is led by any of the States in support of allegation made in respect of the aforesaid issue. When clarifications were sought for from the counsel appearing for the State of Andhra Pradesh, he has clearly submitted that no such evidence is led on the said issue and, therefore, the same does not require any consideration by the Tribunal. We are also of the opinion that there is no evidence led by any of the States either in support or against the contents of the said issue and, therefore, we refrain from answering the aforesaid issue except holding that the said issue is not decided for lack of any evidence, both oral and documentary. The aforesaid issue is answered accordingly.

11.7 Issue No. 8

11.7.1 Whether the State of Odisha is justified in objecting to the drawal of waters by the State of Andhra Pradesh through Side Weir especially when the proposed drawal is within its territory and share and whether the State of Andhra Pradesh is bound to take the consent of the State of Odisha before execution of the Side Weir Project on the right bank?

11.7.2 The issue framed is whether the State of Andhra Pradesh requires any consent from the State of Odisha to withdraw such water

through its territory. In this connection, suffice to say that the river Vansadhara is an inter-State river approximately 29 km length of the river forms the common boundary between Odisha and Andhra Pradesh. For the aforesaid length of the river totaling 29 km, the river runs along within the State of Odisha on the eastern side whereas other part of the river runs along the territory of Andhra Pradesh on the western side. The construction of the side weir is proposed on the right bank of the river in the territory of Andhra Pradesh. Since the river is an inter-State river and there is a common boundary running on the centre of the river course, therefore, objections could be raised by the State of Odisha apprehending certain damage to their interest which have also been focused in these proceedings. The State of Andhra Pradesh conceived the proposal for construction of side weir and discussed it in the joint meeting held between the two States before starting the construction of the said side weir project on the right bank although it is within the territory of Andhra Pradesh.

11.7.3 In the case of an inter-State river, interests of the co-riparian States are involved and therefore, any step taken for construction of a dam, barrage or a weir, consent of the other co-riparian State may be ordinarily necessary to be obtained. But when the matter is before a Water Disputes Tribunal, the rival contentions and objections can be looked into by the Tribunal and decided independently irrespective of any consent by the other State. In view of the Order of this Tribunal, this issue is answered accordingly.

11.8 Issue No. 9

11.8.1 Whether the Side Weir as proposed by the State of Andhra Pradesh would in any way adversely affect any interests of the State of Odisha in the downstream of Katragadda?

11.8.2 Upon detailed discussions of the evidence on record, it is found and recorded hereinbefore that construction of the side weir as proposed by the State of Andhra Pradesh would not, in any manner, affect, much less adversely, the interests of the State of Odisha in the downstream of Katragada. It was held that from the agreed ratio of 50:50 sharing of the water of Vansadhara, the State of Andhra Pradesh is entitled to draw their share to the extent of about 55 TMC of water whereas what is being permitted to withdraw through the side weir is only 8 TMC of water and that also within the monsoon months when the flow in the river is more than 4000 cusecs which would occur, if at all admittedly during the period of about 55 days of the monsoon months. The apprehension that on construction of the side weir, the entire water of the river would go down the side weir was also found to be imaginary and baseless. The mechanism of the construction of Side Weir as proposed by the State of Andhra Pradesh makes it crystal clear that only 8 TMC of water would be drawn by Andhra Pradesh when the flow in the river is more than 4000 cusecs of water during the monsoon months. No further quantity of water would go down the Flood Flow Canal of the side channel weir as per our detailed directions in this regard. This fact totally belies the apprehension of Odisha Government. Therefore, the construction of such side weir would not have any adverse effect on the State of Odisha or its inhabitants.

11.9 Issue No. 10

11.9.1 Whether the drawal of waters through Side Weir as proposed by the State of Andhra Pradesh would in any way diminish the share of waters of the State of Odisha?

11.9.2 Whatever is permitted in our findings is the permission given to the State of Andhra Pradesh to withdraw only the quantity of water measuring 8 TMC out of its share of about 55 TMC and, therefore, such permission would not, in any way, diminish the share of waters of the State of Odisha. Two tabular statements, as referred under Para 10.30 and Para 10.31 of this Report, indicate the measurements of discharge passing over the side weir as well as percentage of flows passing over the side weir and in the downstream of river Vansadhara at Katragada. These statements establish and indicate that the apprehension of the State of Odisha is baseless.

11.10 Issue No. 11 and Issue No. 12

Issue No. 11

11.10.1 Whether, the Side Weir at Katragada planned by the State of Andhra Pradesh to divert water from the right bank of the Inter-State river Vansadhara is likely to change or alter the Inter-State border in the common reach of the river below Katragada and if so, is the above material issue for consideration by this Tribunal in the context of the present dispute?

Issue No. 12

11.10.2 Whether the Side Weir at Katragada planned by the State of Andhra Pradesh to divert water from the inter-State river Vansadhara is likely to affect the morphology of the river Vansadhara in the downstream reach of Katragada due to aggradation of the river bed caused by siltation and if so, whether the above is a material issue for consideration by the Tribunal in the context of the present dispute?

11.10.3 These two issues are closely connected with each other and, therefore, they are being taken up together. These issues for consideration were drawn up in view of the apprehension raised by the State of Odisha which was highlighted by Mr. Katarki, the learned counsel appearing for the State of Odisha during his oral argument before us. He submitted that since there is likelihood of causing sedimentation and siltation in the inter-State river Vansadhara in view of the back water effect of the proposed Neradi Barrage and due to slowing down of flows on construction of the proposed side weir, it would effect and cause alteration of inter-State boundary which is the deepest point of the river bed or the central line of the river. On consideration of the evidence on record, we have recorded our reasons for holding that the apprehension of the State of Odisha of occurring any heavy sedimentation or siltation either near the Neradi Barrage or near the proposed site of construction of side weir at Katragada is based merely on speculation and not on hard fact. As a matter of fact, we found that no such heavy or major siltation or sedimentation would take place at either of the two places and even if there be any minor siltation or sedimentation, the same has been ordered to be removed

by constituting an Inter-State Regulatory Body which would definitely take care of such a situation, if any, so that there is no suffering so far as the State of Odisha is concerned.

11.10.4 We have also recorded our detailed reasons for coming to such a finding that there would not be any morphological changes as alleged. It may be noted that although the report of the CWPRS states that morphological changes cannot be assessed from the model studies yet from other evidence on record including the contents of the Studies made, it was found and so recorded in our findings that there would not be any morphological changes even if such a Side Weir is allowed to be constructed. We have recorded clearly that construction of side weir on the right bank of the inter-State river Vansadhara would also not cause any pollution or irreparable damage to the environment of the area at Katragada nor would it, in any manner, affect the ecological balance in the area. We also recorded our opinion that in the facts and circumstances of the present case, the precautionary principle is not required to be applied and cannot be applied at all for the reasons mentioned. It was also recorded that both these projects, namely, construction of Neradi Barrage as also the construction of a side weir, would be dependent on the clearance of the said projects by the Central Water Commission, Ministry of Water Resources, River Development and Ganga Rejuvenation; Ministry of Environment, Forest and Climate Change; Ministry of Tribal Affairs and other statutory authority(s) as would be required. Therefore, whether or not there could be any damage with regard to ecological balance or any morphological change could be looked into by the Statutory Authority,

if necessary and/or required. However, in any case, we are of the opinion that the apprehension of Odisha that construction of Neradi barrage or the side weir would cause the environmental damage is belied also from the reports submitted by CWC and CWPRS. We also find, as a matter of fact, that the apprehension of the State of Odisha regarding the change of the river course is also imaginary and baseless.

11.10.5 The argument of the State of Odisha is that any diversion of water by the State of Andhra Pradesh through the side weir channel would cause damage to the river course of river Vansadhara and would also cause sedimentation in the river bed which would be a factor leading to morphological changes and also change in the river course.

11.10.6 We have extensively dealt with the issue of silting, sedimentation and aggradation hereinbefore. After appreciating the evidence on record, we have recorded that no such quantity of high sedimentation as is apprehended would take place either near the site of construction of the side weir or opposite to it on the side of the territory of Odisha nor is there any possibility of the river course changing its course. Due to construction of such a side weir which will function only when the flow of the water in river Vansadhara is more than 4000 cusecs, the water that would be carried through the side weir is only a small fraction of the water which is even admitted by Prof. Yoganarasimhan, OW-4 and in that event major part of the water in the river would go down in the river course which will carry the sediments along with it and there would be little sedimentation if at all which could be flushed out, if required. We have also held that there shall be

no major aggradation caused in the river bed which could adversely affect the interest of the State of Odisha.

11.10.7 We have in this Report considered the feasibility of the construction of Neradi Barrage and having gone through the records, we have accorded permission for construction of such barrage at Neradi across river Vansadhara. As and when such construction is completed and the barrage is made functional, the proposed side weir even if constructed in terms of the order passed by this Tribunal, the same shall be totally plugged and made completely non-functional immediately after the Neradi Barrage is made operational. We are informed that when the barrage is constructed, in any case, the Side Weir would get submerged under water. Even if that be so, it must be ensured that no water from river Vansadhara would go through the side weir at all. Besides, all the agreements of both the States which are also being acted upon are ordered to be binding on the parties. The water of Vansadhara has to be utilised by both the co-riparian States, namely, Andhra Pradesh and Odisha in 50:50 ratio basis. We are also of the opinion that only 8 TMC of water would be diverted through the Head Regulator of the Flood Flow Canal which would be only a small fraction of the part of 50% share of Andhra Pradesh. Therefore, these two issues are also accordingly answered holding that there shall be no change or alteration of the inter-State border in the common reach of the river below Katragada nor there would be any adverse morphological effect in the river Vansadhara due to aggradation of river bed caused by siltation which is found to be very negligible even if there be any.

11.11 Issue No. 13

11.11.1 After the construction of the Side Weir at Katragada by the State of Andhra Pradesh, will there be any material change in volume or pattern of flows on the left bank of the river falling in the territory of the State of Odisha? If so, will it adversely affect the existing water requirement of the inhabitants in the State of Odisha?

11.11.2 We have elaborately dealt with this issue in our findings recorded. Out of the share of entitlement on 50:50 basis of the river water of Vansadhara, the State of Andhra Pradesh is seeking to draw only 8 TMC of water through the side weir. In line with the aforesaid findings we hold that there shall be no material change in the volume or pattern of flows on the left bank of the river falling in the territory of State of Odisha nor will it, in any manner, adversely affect the existing water requirement of the inhabitants in the State of Odisha.

11.12 Issue No. 14

11.12.1 Whether an Inter-State regulatory body is necessary for implementation of the decision to be given by this Hon'ble Tribunal?

11.12.2 We have considered this issue and given our considered thought to the same. In our considered opinion, the Inter-State Regulatory Body (called as Supervisory Committee) would be necessary for implementing the decision recorded herein by the Tribunal. The nature and mode of its functioning and its powers have been enumerated hereinbefore.

11.13 Issue No. 15

11.13.1 To what relief?

11.13.2 So far this issue is concerned, the complaint filed by the State of Odisha relating to the construction of the side weir is found to be without any merit and is dismissed and, therefore, the reference made in respect of the same is also answered accordingly. We make it clear that Side Weir as proposed could be so constructed but on conditions laid down herein. So far as the complaint filed by the State of Andhra Pradesh is concerned, we find justification so far as construction of Neradi Barrage is concerned, which according to us, is not only beneficial to the State of Andhra Pradesh but would also be beneficial to the State of Odisha. We have also ordered for constitution of an Inter-State Regulatory Body which would monitor the functioning of both the projects and would also take necessary steps to totally plug and make the side weir completely non-functional once the construction of Neradi Barrage is completed and the same is made functional and operational. Therefore, relief is granted to the State of Andhra Pradesh to the aforesaid extent in terms of the reference made on their complaint.

11.14 In terms of these findings, the Complaint filed by the State of Odisha is dismissed whereas the Complaint filed by the State of Andhra Pradesh is allowed to the aforesaid extent. So far as the application registered as I.A.No.2 is concerned, the same also stands disposed of in terms of the present order.

12

FINAL ORDER AND DECISION OF THE VANSADHARA WATER DISPUTES TRIBUNAL

At the end, the Tribunal records its final order and decision in the following manner:-

Clause I

The complaint filed by the State of Andhra Pradesh is held to be maintainable.

This order shall come into operation on the date of publication of the Decision of this Tribunal in the Official Gazette under section 6 of the Inter-State River Water Disputes Act, 1956.

Clause II

The Tribunal hereby declares that the yield of the river Vansadhara at Gotta Barrage is 115 TMC and this shall be shared by both the States on 50:50 basis. This was agreed to by the State of Andhra Pradesh and the State of Odisha during the meeting held on 30th September, 1962.

Clause III

The Tribunal hereby permits the State of Andhra Pradesh to construct the Side Weir along with ancillary structures as proposed. The State of Andhra Pradesh is permitted to withdraw water only upto 8 TMC from 1st of June to 30th of November every year through the Side Weir. The gates of the Head Regulator of Flood Flow canal of the Side

Weir shall be closed on 1st of December or earlier, as the case may be, i.e., as soon as the total drawal of water equals to 8 TMC and the gates shall remain closed till 31st May of next year.

Clause IV

The Tribunal hereby permits the State of Andhra Pradesh to construct the Neradi Barrage across the river Vansadhara with ancillary structures. The Barrage will have a Right Head Sluice of design capacity of 8000 cusecs for meeting the requirements of State of Andhra Pradesh. The Barrage will also have a Left Head Sluice for meeting the requirements of the State of Odisha below Neradi Barrage. The capacity of this Left Head Sluice will be intimated by the State of Odisha to State of the Andhra Pradesh within six months of the publication of this order in the official Gazette. The cost of Left Head Sluice shall be borne by the State of Odisha. If and when in future, irrigation is decided in Odisha State, the cost of the proposed Neradi Barrage shall be borne between the two States on ayacut basis. This is as per the agreed resolution dated 4th September, 1962 between the two States.

Clause V

The Tribunal hereby permits the State of Andhra Pradesh to withdraw the water of Vansadhara river from Neradi Barrage during the first crop period i.e. from 1st of June to 30th of November every year. All flows thereafter shall be let down in the river for use by both the States as agreed upon.

Clause VI

Side Weir at Katragada shall be totally plugged and made completely non-functional immediately after the Neradi Barrage is commissioned.

Clause VII

The proposed Neradi Barrage project as well as the proposed Side Weir project must get necessary clearances from Central Water Commission; Ministry of Water Resources, River Development & Ganga Rejuvenation; Ministry of Environment, Forest and Climate Change; Ministry of Tribal Affairs and other statutory bodies, as required.

Clause VIII

The State of Odisha shall acquire 106 acres of land as per relevant provisions of the concerned Act in its territory, required for the Neradi Barrage Project and hand it over to the State of Andhra Pradesh within a period of one year from the date of publication of this order in the official Gazette.

Clause IX

Andhra Pradesh shall pay to Odisha all costs including compensation, charges and expenses incurred by Odisha for or in respect of the compulsory acquisition of lands, as provided in the Detailed Project Report of Neradi Barrage, which are required to be acquired for Neradi Barrage.

Clause X

Setting up of Supervisory Committee

We make the following orders with regard to setting up of Inter-State Regulatory Body (Supervisory Committee) for implementing

the decision of the Tribunal. The composition, functions and powers of the Supervisory Committee are as follows:

- (1)** A Supervisory Committee consisting of four members – two from the Central Water Commission; one from the State of Andhra Pradesh; and one from the State of Odisha shall be constituted to supervise the functioning of the Side Weir complex at Katragada and Neradi Barrage when constructed and also for implementation of the order of the Tribunal.
- (2)** The composition of the Committee shall be:
 - (i) Chief Engineer, CWC - Chairman
 - (ii) Representative of State of Andhra Pradesh - Member
 - (iii) Representative of State of Odisha - Member
 - (iv) Superintending Engineer/Director, CWC - Member Secretary
- (3)** The Committee shall have following functions and powers:
 - (i)** To supervise the operation of the gates, of the Head Regulator of Flood Flow Canal of Side Weir complex, including the closure of the same.
 - (ii)** To ensure that total drawal of water through Head Regulator of Flood Flow Canal of Side Weir complex, during the months of June to November

in any year shall not in any case exceed 8 TMC, constituting a part of 50% share of water of the State of Andhra Pradesh.

- (iii)** To ensure that the gates of the Head Regulator of the Flood Flow Canal of Side Weir complex, shall open on 1st June and close on 1st December or earlier as soon as the total drawal of water equals to 8 TMC every year and the gates shall so remain closed till 31st May of next year.
- (iv)** To maintain the record of the flow upstream of the Side Weir and also of the flow passing through the Head Regulator of Flood Flow Canal. When the Flood Flow Canal is operational, it may be ensured that the flow downstream of the Side Weir is equal to or more than 4000 cusecs.
- (v)** To make periodical survey, as it deems necessary, for assessing aggradation and degradation in the river near the Side Weir and take appropriate steps thereto so as to ensure that the bed level of the Side Weir at all times shall be as per its original design.
- (vi)** To keep a close watch on the river behaviour and to ensure that if there be any silting or sedimentation in front of the Side Weir at Katragada or upstream near the Neradi Barrage,

the same shall be got cleared, as and when required, through the State Government of Andhra Pradesh.

(vii) To ensure that the Side Weir is totally plugged and made completely non-functional immediately after commissioning of the Neradi Barrage.

(viii) To supervise the regulation of flows from Neradi Barrage so as to ensure:

(a) that the water from Vansadhara river at Neradi Barrage is withdrawn by the State of Andhra Pradesh and the State of Odisha during the period from 1st of June to 30th of November every year.

(b) that during the period from 1st December to 31st May every year, entire water reaching Neradi Barrage, flows down the river for use by both the States.

(ix) To visit the flood affected areas of Odisha, if any, impacted due to the backwater of Neradi Barrage beyond its pool level and make assessment for giving recommendations regarding compensation to be paid to the flood affected families/persons. For this purpose, the Committee may co-opt any member(s) as it deems fit.

- (4) The Committee shall select the place for its office which shall be provided by the State of Andhra Pradesh.
- (5) The expenses for the maintenance of office and all expenses for conducting the monitoring activity shall be borne by the State of Andhra Pradesh.

The Central Government and the party States shall nominate members of the Supervisory Committee at the earliest, in any case, not later than 3 months from the date of publication of this decision in the official Gazette. No decision of the Supervisory Committee shall be invalid merely because of non-appointment of any member by any State or by reason of absence of any member.

Clause XI

The State of Andhra Pradesh, on the recommendation of the Supervisory Committee, which shall be final and binding, shall make the payment to the State of Odisha on account of the compensation for the damages, if any, caused by backwater of Neradi Barrage beyond its pool level.

Clause XII

The decision 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

binding and complied with by both party States as a part of this decision and this order.

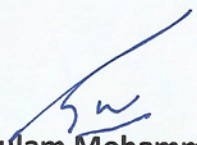
Clause XIII

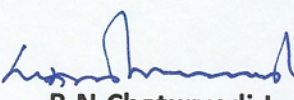
Nothing contained herein shall prevent the alteration, amendment or modification of all or any of the foregoing clauses by agreement between the parties or by legislation of the Parliament.

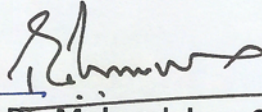
Clause XIV

Order as to costs of proceedings

The States of Andhra Pradesh and Odisha shall bear their own costs. The expenses and costs of the Tribunal shall be borne and paid by the two States in equal shares.


Ghulam Mohammed J.
MEMBER


B.N. Chaturvedi J. —


Dr. Mukundakam Sharma J.
CHAIRMAN

New Delhi
13th September, 2017



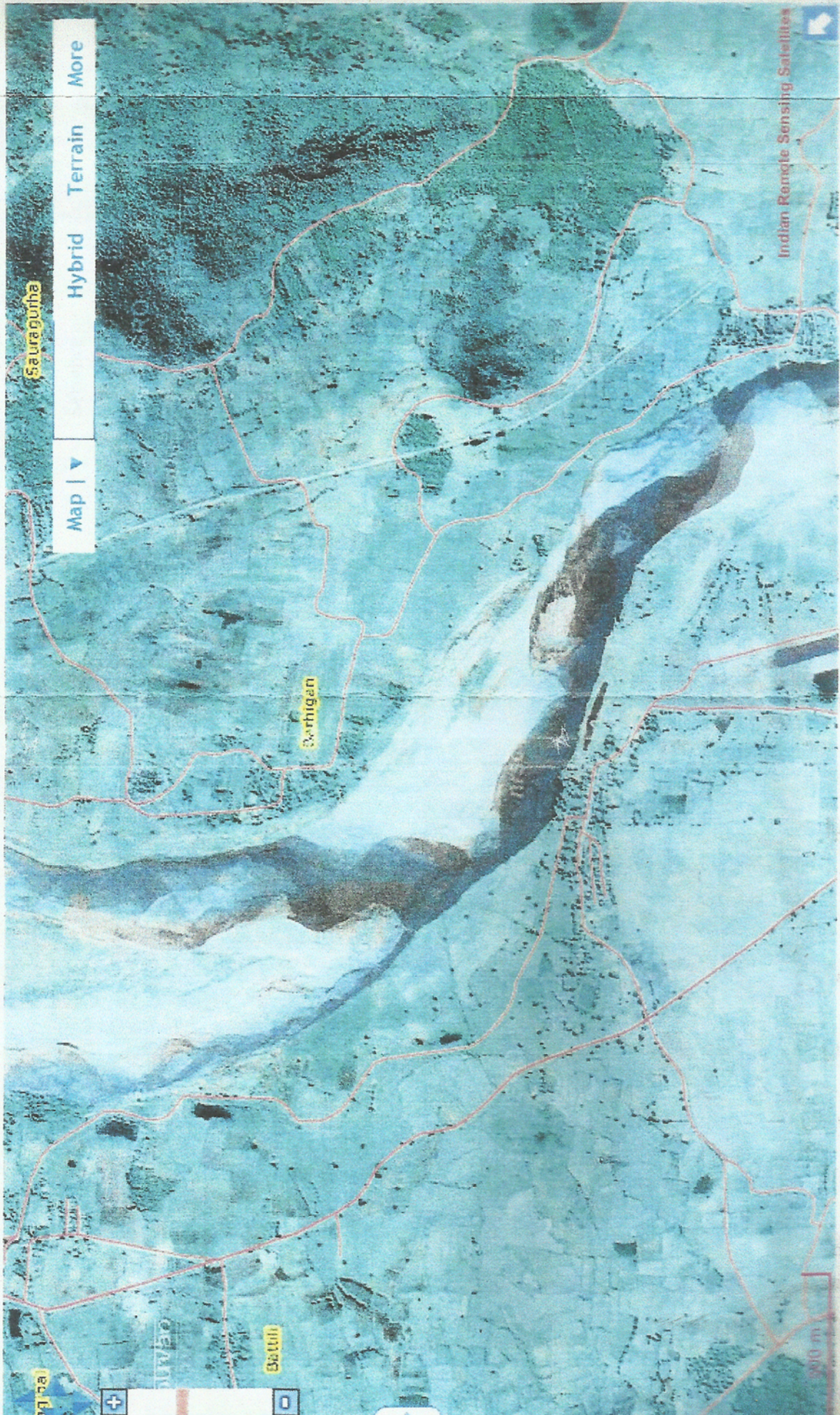
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VANSADHARA WATER DISPUTES TRIBUNAL

List of Former Chairman, Member, Assessor and Former & Present Officials of the Tribunal

A. Former Chairman and Member

1. Mr. Justice B.N. Agrawal
(Retired Judge of
Supreme Court of India) – Chairman
24-10-2010 to 09-12-2010
2. Mr. Justice Nirmal Singh
(Retired Judge of Jammu
& Kashmir High Court) – Member
24-10-2010 to 02-01-2012

B. Former Assessor

1. Mr. S.K. Sinha – Assessor
10-09-2012 to 01-01-2017

C. Former and Present Officials

1. Mr. B.V. Sharma – Registrar
30-11-2010 to 31-10-2015
2. Mr. Harish Chander – Registrar
23-12-2015 – till date
3. Mr. G.P. Vohra – Assistant Registrar
11-01-2011 to 20-09-2015
4. Mr. R.K. Sharma – Assistant Registrar
01-08-2016 - till date
5. Mr. Y.P. Singh – Executive Engineer
13-05-2013 to 11-01-2016
6. Mr. Dhananjay Kumar – Executive Engineer
22-07-2016 - till date

7. Mr. D.S. Sandhu – Principal Private Secretary
10-05-2011 to 09-05-2012
8. Mr. Alex PP – Principal Private Secretary
28-11-2011 to 27-11-2012
9. Mr. Manoranjan Gouda – Principal Private Secretary
15-12-2011 to 31-03-2013
10. Mr. V.K. Verma – Principal Private Secretary
03-09-2012 to 02-03-2015
11. Mr. P.S. Chaggar – Principal Private Secretary
04-04-2013 - till date
12. Mr. Ashok Kumar – Principal Private Secretary
26-05-2015 - till date
13. Mr. D.R. Satia – Court Master
06-05-2011 to 09-08-2015
14. Mr. A.K. Arora – Court Master
01-07-2011 to 28-06-2013
15. Ms. N. Annapurna – Court Master
23-05-2014 - till date
16. Ms. Meera Hemant – Court Master
09-05-2016 - till date
17. Mr. M.S. Sodhi – Private Secretary
03-01-2011 to 06-05-2013
18. Mr. S.K. Dhar – Private Secretary
28-03-2011 to 21-10-2015
19. Ms. Sarita Kashyap – Private Secretary
26-12-2013 – 08.09.2017
20. Mr. S.K. Kathuria – Private Secretary
01-05-2017 - till date
21. Mr. M.S. Rathor – Section Officer
14-03-2011 to 13-03-2014
22. Mr. Pratap Singh – Section Officer
25-08-2014 to 01-12-2016

- 23. Mr. S.C. Ghoshal – Section Officer
09-05-2017 - till date
- 24. Mr. M.L. Bhatia – Personal Assistant
01-08-2012 to 31-07-2014
- 25. Mr. K.K. Batra – Personal Assistant
24-09-2015 - till date
- 26. Mr. G.S. Negi – Assistant
03-01-2011 to 24-01-2015
- 27. Mr. Bhagat Ram – Assistant
01-04-2011 - till date
- 28. Mr. N.D. Joshi – Assistant
02-02-2015 - till date