GOVERNMENT OF INDIA

OUTCOME BUDGET

2007 - 2008

MINISTRY OF WATER RESOURCES

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EXECUTIVE SUMMARY

A system of performance budgeting by Ministries handling development programmes was introduced in 1969 on the basis of the recommendations of Administrative Reforms Commission as an essential and integral part of the annual budgetary process. For some time the Ministry of Finance have been considering the need to address certain weaknesses that had crept in the performance budget documents such as lack of clear one-to-one relationship between the Financial Budget and the Performance Budget and inadequate target-setting in physical terms for the ensuing year. Besides, there was growing concern to track not just the intermediate physical "outputs" that are more readily measurable but the "outcomes" which are the end objectives of State intervention, as articulated by the Finance Minister in Para 100 of his Budget Speech (Budget 2005-06). In order to overcome these weaknesses, the "Outcome Budget" was introduced for the first time in 2005-06 as a pre-expenditure instrument to help realize the Ministries' "vision" through clearly defined outputs/outcomes, as compared to the current system built around post-expenditure scrutiny. This will co-relate financial outlays for the ensuing financial year with expected physical outputs/final outcomes in respect of schemes/programmes being implemented by the Ministries/Departments of the Government of India and will form a part of normal budgetary process.

2. Last year, in preparation for the Budget 2006-07, Outcome Budget 2006-07 and Performance Budget 2005-06 were prepared as per the guidelines issued by the Ministry of Finance. This year, the Ministry of Finance have issued fresh guidelines stipulating merger of Performance Budget into Outcome Budget. Thus, unlike last year, Performance Budget and Outcome Budget are not to be prepared separately. In preparation for Budget 2007-08, a single document titled "OUTCOME BUDGET 2007-08" has, therefore, been prepared keeping in view the fresh guidelines of the Ministry of Finance for being presented to both the Houses of Parliament and Parliamentary Standing Committee on Water Resources.

3. The Outcome Budget 2007-08 of this Ministry has been prepared in accordance with the Broad Format contained in the guidelines issued by the Ministry of Finance, highlighting physical dimensions of the financial budgets indicating actual physical performance in the financial year 2005-06, performance in first 9 months of the financial year 2006-07 and the targeted performance during 2007-08. This has the following chapters covering different aspects of the Ministry:

Chapter	Aspect(s) covered
I	gives brief introductory note on the functions of the Ministry, organizational setup, planning and policy framework and programmes / schemes being implemented by the Ministry. Briefly, the Ministry of Water Resources in the Government of India is responsible for laying

Chapter	Aspect(s) covered
	down policy guidelines for overall development, conservation and management of water as a national resource, overall national perspective and coordination in this regard including coordination of diverse water uses. Under the Secretary and one Additional Secretary, the Ministry is organized under one administration, nine technical wings and one finance wing. The Ministry has two attached offices, seven subordinate offices, seven statutory bodies, two autonomous bodies (societies) and two public sector undertakings. The Ministry have been implementing/monitoring 63 plan, and 3 centrally sponsored schemes during X plan period through its various wings/organizations. For XI plan period, the activities under various programmes/schemes being implemented/monitored by the Ministry have been clubbed to 15 central sector, 1 centrally sponsored and 4 state sector schemes.
II	contains a tabular format, which may be visualized as "vertical compression and horizontal expansion" of the Statement of Budget Estimate (SBE). The main objective is to establish a one-to-one correspondence between Financial Budget 2007-08 and Outcome Budget 2007-08. The details comprise of the financial outlays, projected outputs and projected/budgeted outcomes (intermediate, partial and final, as the case may be).
III	details reform measures and policy initiatives taken by the Ministry and how they relate to the intermediate outputs and final outcomes in areas such as public private partnerships, alternate delivery mechanisms, social and gender empowerment processes, greater decentralization, transparency, etc.
IV	gives scheme-wise analysis of physical performance with reasons for variations; explaining the scope and objectives of individual programmes/schemes, giving their physical targets and achievements during 2005-06 and that upto third quarter of 2006-07.
V	contains financial review covering overall trends in expenditure vis-à-vis Budget Estimates, Revised Estimates in recent years, including the current year. This chapter also gives position of outstanding utilization certificates and unspent balances with states and implementation agencies. The details of year-wise plan outlay and actual expenditure during X plan period are as under:

Financial Year	Plan Outlay	Actual Exp. (Rs Cr)
2002-03	562.00	404.27
2003-04	554.00	399.94
2004-05	580.00	406.04
2005-06	621.00	510.39

Chapter	Aspect(s) covered		
	2006-07	700.00	354.10*
	*Upto 31.1.07		
	Reasons for shortfall in expenditure have been explained in this chapter.		
VI	contains review of performance of statutory / autonomous bodies and public sectors undertakings under the administrative control of the Ministry.		

4. The Central Water Commission (CWC), an attached office of this Ministry and a premier technical organization in the country in the field of water resources since 1945, carries out general monitoring of selected on-going major, medium and extension, renovation and modernisation (ERM) irrigation projects through its various Monitoring Directorates and Field formations. The Commission particularly monitors implementation of major, medium and selected minor irrigation projects receiving central assistance under Accelerated Irrigation Benefits Programme (AIBP) and Command Area Development projects. As a part of monitoring, the projects are visited by officers of CWC on regular basis. The command area development projects are also visited by the officers of Command Area Development Wing of the Ministry to monitor various activities under the programme. Other major activities of the Commission include hydrological observations, water quality monitoring, flood control forecasting and inflow forecasting, survey & investigation, morphological studies, design, dam safety, project appraisal, monitoring of reservoir level and live storage capacity, irrigation performance overview of completed irrigation projects, integrated river basin planning etc.

5. The Central Ground Water Board, a subordinate office of this Ministry, monitors Ground Water Regime of the country. The Board monitors ground water levels in the country four times a year through a network of 15500 Ground Water Monitoring Wells. The other important activities of the Board include ground water management studies, geophysical studies, exploratory drilling, remote sensing studies, water quality analysis, short term water supply investigations, regulation of ground water development, registration of ground water structures, registration of drilling agencies, mass awareness and training programmes etc. The Board also carries out technical examination of major and medium irrigation schemes from the point of view of their impact on ground water regime.

6. Financial progress in respect of various central sector/centrally sponsored schemes is monitored by the Ministry through periodical expenditure review meetings with concerned authorities.

7. The organizations like Central Soil & Materials Research Station, Central Water & Power Research Station, National Institute of Hydrology etc. are

engaged, inter-alia, in research and development activities in the water resources sector.

8. Keeping in view the necessity of awareness on water related issues involving its conservation and judicious use, the Media Committee of the Ministry has devised and implemented media related activities involving electronic, print and traditional media. During the year 2006-07, the Ministry initiated campaign through Doordarshan and All India Radio by way of telecasting/broadcasting of video/audio spots to stress necessity of conservation of water. A number of events viz. IITF, Water Asia, Krishi Expo, North East Trade Fair etc. were participated to educate visitors in interactive manner. The print media viz. newspapers etc. was also utilized by releasing press advertisements, cartoon booklets, posters etc. to popularize concept of water conservation and rainwater harvesting. The National Water Policy of 2002 (NWP) recommends private sector participation i.e. Public-Private–Partnership. In this regard paragraph 13 of the NWP is reproduced below:

> "Private sector participation should be encouraged in planning, development and management of water resources projects for diverse uses, wherever feasible. Private sector participation may help in introducing innovative ideas, generating financial resources and introducing corporate management and improving service efficiency and accountability to users. Depending upon the specific situations, various combinations of private sector participation, in building, owning, operating, leasing and transferring of water resources facilities, may be considered".

This involves some complex issues, e.g. controlling the private operator's access to water; protecting the interests of other competing users from the same source of water; guarding the interests of the poor at the supply end; ensuring stated quality of service under monopoly conditions; limiting the profit made by the private operator to reasonable levels; defining what are reasonable levels of profit; etc

9. The year 2007 has been declared as Water Year. It has been decided to lay greater emphasis on publicity measures through electronic, print and traditional media in an interactive manner.

CHAPTER I

BRIEF INTRODUCTORY NOTE ON THE FUNCTIONS OF THE MINISTRY/ DEPARTMENT, ORGANIZATIONAL SET UP, LIST OF MAJOR PROGRAMMES / SCHEMES IMPLEMENTED BY THE MINISTRY/ DEPARTMENT, ITS MANDATE, GOALS AND POLICY FRAMEWORK

INTRODUCTION

1.1 The Ministry of Water Resources is responsible for overall development, conservation and management of water as a national resource, overall national perspective and coordination in this regard including co-ordination of diverse water uses.

1.2 The Ministry's role and activities are as follows.

(i) overall planning, policy formulation, coordination and guidance in water sector;

(ii) technical guidance to and scrutiny, clearance and monitoring of the irrigation, flood control and multi-purpose projects (major and medium) of the states/UTs;

(iii) infrastructural, technical and research support for sectoral development at the state-level;

(iv) providing special central financial assistance and help in obtaining external financing from the World Bank and other external agencies in some cases;

(v) overall planning, policy formulation, guidance, administration and monitoring of the schemes in respect of minor irrigation and command area development;

(vi) overall resources planning, establishment of utilizable resources and formulation of policies for exploitation of ground water, overseeing of support to state-level activities in ground water development;

(vii) formulation of national water development perspective and determination of water balance of different basins and sub-basins for exploring the possibilities of inter-basin transfers;

(viii) coordination, mediation and facilitation regarding resolution of differences or disputes relating to inter-state rivers and overseeing of the implementation of the inter-state projects in some instances;

ix) operation of central network for flood forecasting and warning on inter-state rivers; provision of central assistance for some state schemes in special cases, and preparation of flood control master plans for the Ganga and the Brahmaputra;

(x) talks and negotiations with neighbouring countries (Bangladesh, Nepal, Bhutan, China and Pakistan) regarding river waters, water resources development projects, the operation of Treaties (Indus Treaty) etc. ; and

(xi) construction, maintenance and operation of the Farakka Barrage Project.

THE MINISTRY AND ITS ORGANISATIONS

1.3 Under the Secretary and one Additional Secretary, the Ministry is organised under Administration and various Technical Wings. The Administrative Wing works under Joint Secretary (Administration) and the Technical Wings are headed by Commissioner (Policy Planning), Commissioner(Projects), Commissioner (Indus), Commissioner (Ganga), Commissioner (Command Area Development and Water Management), Commissioner (Ground Water), Commissioner (Brahmaputra and Barak), Additional Director General(Stat.) and Economic Advisor (Coord. & Evaluation). The Finance Wing is headed by a Joint Secretary & Financial Adviser who works under the Secretary in respect of delegated powers and represents the Ministry of Finance in respect of other powers.

1.4 The functions listed in paragraph 1.2 supra give a broad picture of centre's responsibilities for the orderly administration of water resources. Some of these functions are performed by specialized organizations. For instance, technical guidance and scrutiny of major and medium projects is done by the Central Water Commission, which along with Central Water & Power Research Station, Central Soil & Materials Research Station and National Institute of Hydrology provides general infrastructural and research support to sectoral development at the state level.

1.5 The Central Water Commission also operates a flood forecasting system on inter-state rivers. The preparation of flood control master plans for the Ganga and Brahmaputra river system has been the responsibility of the Ganga Flood Control Commission and the Brahmaputra Board respectively. In regard to ground water development, the technical arm of the Ministry is the Central Ground Water Board. Under the national perspective for water resources development, National Water Development Agency is preparing water balance studies of Peninsular and Himalayan river basins and sub-basins.

1.6 There are also a number of Boards and Committees concerned with specific inter-state projects like Sardar Sarovar Construction Advisory Committee, the Betwa River Board, the Bansagar Control Board, the Upper Yamuna River Board and the Tungabhadra Board. Questions of planned development of Narmada Basin, inter-state coordination, water allocation, cost allocation, etc. relating to

certain projects on the Narmada, including rehabilitation of project affected persons, are the responsibilities of the Narmada Control Authority, a body set up under the Inter-State Water Disputes Act, 1956 consequent to the Narmada Water Disputes Tribunal Award. The construction, operation and maintenance of the Farakka Barrage Project are also the responsibilities of this Ministry.

1.7 There are two Public Sector Undertakings under this Ministry, namely (i) Water and Power Consultancy Services (India) Limited; and (ii) National Projects Construction Corporation Limited. Water & Power Consultancy Services (India) Limited is providing consultancy services on water and power resources projects. National Projects Construction Corporation Limited is a joint venture of the central and state governments. The Corporation is engaged in construction of multi-purpose river valley projects, hydro-electric projects, thermal power projects and irrigation projects.

1.8 There are two attached offices, seven subordinate offices, seven statutory bodies, two autonomous bodies (Societies) and two public sector undertakings under the administrative control of the Ministry. These are:

ATTACHED OFFICES

1. Central Water Commission
2. Central Soil & Materials Research Station

SUBORDINATE OFFICES

1. Central Water & Power Research Station
2. Central Ground Water Board
3. Farakka Barrage Project
4. Ganga Flood Control Commission
5. Bansagar Control Board
6. Sardar Sarovar Construction Advisory Committee
7. Upper Yamuna River Board

STATUTORY BODIES

1. Brahmaputra Board
2. Betwa River Board
3. Narmada Control Authority
4. Tungabhadra Board
5. Ravi and Beas Water Tribunal
6. Cauvery Water Disputes Tribunal
7. Krishna Water Disputes Tribunal

AUTONOMOUS BODIES (SOCIETIES)

1. National Water Development Agency
2. National Institute of Hydrology

PUBLIC SECTOR UNDER-TAKINGS

1. Water and Power Consultancy Services (India) Limited
2. National Projects Construction Corporation Limited.

1.9 Chapter VI of this outcome budget covers the functions and organizational set up of Statutory/Autonomous organizations and Public Sector Undertakings named above. The functions and organizational set up of other important attached and subordinate organizations of the Ministry are briefly mentioned below:

CENTRAL WATER COMMISSION

1.10 Set up in 1945, the Central Water Commission (CWC) is responsible for furthering and promoting measures for control, conservation and utilization of water resources throughout the country in the areas of beneficial uses, irrigation and hydropower generation, flood management and river conservation. The CWC has developed considerable expertise in planning, investigation, management and design of schemes for the development of water resources.

1.11 The Commission is headed by Chairman with the status of Ex-Officio Secretary to the Government of India and three Members with the status of Ex-Officio Additional Secretary to the Government of India heading the technical wings namely, the Design and Research Wing, Water Planning & Projects Wing and River Management Wing. There is a separate set up for human resources management which includes personnel management/training/development, financial management and coordination of information concerning technical and administrative matters of the CWC and a National Water Academy located at Pune. These units function directly under the Chairman.

1.12 Thirteen regional offices, headed by Chief Engineers, have been opened in various parts of the country. These offices are responsible for monitoring of major and medium irrigation projects and appraisal of medium irrigation projects in addition to flood forecasting and hydrological observations. Some of the regional offices are also engaged in survey and investigation of Water Resources Projects.

CENTRAL SOIL AND MATERIALS RESEARCH STATION

1.13 The Central Soil and Materials Research Station (CSMRS) is a premier organization in the country dealing with field exploration, laboratory investigations and basic & applied research in the realm of geo-mechanics, concrete technology & materials of construction relevant to River Valley Projects within the country and abroad. The Central and State Government agencies and Public Sector Undertakings, responsible for construction of river valley projects, are its main clients. Many major industrial complexes, multi-storied buildings, thermal and nuclear power stations are also taking consultancy from CSMRS. In addition to this, CSMRS plays a leading role in standardization, organization of workshops/seminars and training courses for dissemination of knowledge.

CENTRAL WATER AND POWER RESEARCH STATION

1.14 The Central Water and Power Research Station (CWPRS), established in 1916 is the premier hydraulic research institute. The mandate of the institution encompasses undertaking specific research studies, supported by necessary basic research, to comprehensively offer R&D support to a variety of projects dealing with water resources, power and water-borne transport. The institution offers consultancy and advisory services to the government within its sphere of its activities; disseminates expertise and research findings amongst hydraulic research fraternity; and aids and promotes research activities at various institutions. Since independence, the expansion of CWPRS has been synonymous with the growth of the nation itself.

CENTRAL GROUND WATER BOARD

1.15 The Central Ground Water Board is entrusted with the responsibilities of scientific surveys, investigations, exploratory drilling, monitoring, assessment, augmentation and regulation of ground water resources of the country. The data generated provide a scientific base for user agencies. Besides advising states and other user agencies on planning and management of ground water schemes, the Board is also taking up special studies on R&D, Artificial Recharge, Conjunctive use of Surface & Ground Water, Water balance and geogenic contamination, etc. It organizes various training courses for its personnel and personnel of Centre/ state govt. organizations engaged in ground water field.

1.16 Ground water plays a key role in meeting the water needs of various sectoral user beside ecological sustenance in India. The growing dependability on ground water as a sustained resource in Nation building, reasserts the need of an organization like Central Ground Water Board which is vested with the responsibility of ground water management in the country through survey, assessment, monitoring and regulation of ground water resources. The activities of the Board are of regular nature and are being pursued on a continuing basis as per National Water Policy, 2002 and in accordance with the overall development strategy for the Xth Plan.

1.17 The Central Ground Water Board is headed by the Chairman and has four main wings namely 1) Exploratory Drilling & Materials Management 2) Sustainable Management & Liaison 3) Survey, Assessment & Monitoring and 4) Training and Technology Transfer. Each wing is headed by a Member. The Board has 18 Regional Offices, each headed by a Regional Director with 17 supporting Engineering Divisions and 10 state unit offices for undertaking various field activities in the country. Central Ground Water Authority (CGWA) has been constituted under Environment (Protection) Act, 1986 for regulation and control of ground water development and management in the country. The Authority is chaired by Chairman, CGWB and has nine members representing various ministry/department.

GANGA FLOOD CONTROL COMMISSION

1.18 The Ganga Flood Control Commission (GFCC) was established in April 1972 with headquarters at Patna. It serves as the executive limb of the Ganga Flood Control Board, headed by the Union Minister for Water Resources. The Chief Ministers (or their representatives) of the Basin states concerned, Union Ministers of Finance, Railways, Surface Transport, Agriculture and Member, Planning Commission are members of this Board. GFCC acts as the secretariat of the Board. The Commission is headed by a Chairman and is assisted by two full-time Members, four Directors and other officers and staff. The representatives of the concerned central ministers/departments as well as the Chief Engineers of the basin states are either part-time members or permanent invitees of the Commission.

BANSAGAR CONTROL BOARD

1.19 Based on an Inter-State Agreement among the Chief Ministers of Madhya Pradesh, Uttar Pradesh and Bihar, Bansagar Control Board was constituted in January 1976 for efficient, economical and early execution of Bansagar dam and connected works. The respective States carry out works of canals and power systems within their territory. The Control Board has an overall responsibility for construction of the Bansagar dam and its appurtenant structures. Water Resources Department of the Government of Madhya Pradesh, under the direction of the Control Board is implementing works of the project. The Union Minister of Water Resources is the Chairman of the Board and the Union Minister of Energy, Chief Ministers and Ministers-in-charge of Irrigation and Finance of the three States and Minister in-charge of Electricity of Madhya Pradesh are its members. Executive Committee set up under the Chairmanship of the Chairman, Central Water Commission, manages the affairs of the Board.

1.20 The Secretariat of the Board, located at Rewa and headed by a Secretary, is a subordinate office under the Ministry of Water Resources. The expenditure of the office of the Board is initially met out of the Budget of the Union Ministry of Water Resources and subsequently reimbursed in equal proportions by the States of Madhya Pradesh, Uttar Pradesh and Bihar. The States of Madhya Pradesh, Uttar Pradesh and Bihar share the cost and benefits from the Bansagar Dam in the ratio of 2:1:1.

1.21 The rock fill dams and non-overflow masonry dams on either flanks have been completed to its full height. All the overflow block have been completed upto the crest level of 326.40 m and the reservoir was partially filled up to crest level in the monsoon year 2000-01. Civil works of Spillway Piers and Bridge have been completed during the year 2005-06. Work on installation of 18 Nos. Radial Crest Gates and Stop-log Gates are in progress and are targeted to be fully completed by March 2007. With the partial storage upto crest level of dam, power generation has commenced and about 1000 million units of electricity worth about Rs.200 crore is generated every year besides irrigation in an area of about 1000 hectare and domestic water supply to Rewa and adjoining towns/villages is being provided

in Madhya Pradesh. In addition to the above, regulated releases are being made from the dam for Bihar for utilisation in Sone Command under Indrepuri Barrage. The Executive Committee in its 71st meeting held on 18.7.2006 has reviewed the physical and financial progress of the project.

SARDAR SAROVAR CONSTRUCTION ADVISORY COMMITTEE

1.22 Sardar Sarovar Construction Advisory Committee (SSCAC) was set up in accordance with the directions of the Narmada Water Disputes Tribunal (NWDT) by the erstwhile Ministry of Irrigation (now Ministry of Water Resources) under its Resolution of 04 September 1980 to ensure efficient, economical and timely execution of Unit-I (Dam & Appurtenant works) and Unit-III (Hydro-Power Complex) and it started functioning from 01 December 1980. The Advisory Committee is headed by the Secretary, Union Ministry of Water Resources as its Chairman and has its members from the Government of India and the Party States. The Committee is having a whole-time Secretary of the rank of Chief Engineer assisted by Deputy Secretary, Assistant Secretaries and other subordinate staff for its Secretariat work. The headquarter of the SSCAC is located at Vadodara (Gujarat).

1.23 The SSCAC has a Permanent Standing Committee (PSC) to serve as a sub-group for scrutinizing estimates, tender documents, construction programme, project progress etc. The PSC also functions as "Claims Committee" to consider the claims of contractors that may be beyond the powers of the project authorities.

1.24 The SSCAC deliberates on the various points concerned with the programme/progress of construction of Sardar Sarovar Project, estimate, claims etc. during its regular meetings. Till date, 74 meetings of the SSCAC have been held; and the last two meetings were held on 3rd August 2005 and 27th September 2006 at New Delhi. In 74th SSCAC meeting, important decision was taken on matter related to payment of share cost of Sardar Sarovar Project by the Party States, brief report on the proceeding of the 92nd PSC meetings, draft proposal for Annual Development Plan (2006-2007) of Unit-I (Dam and Appurtenant) works and Unit-III (Hydro Power) works, Extension of time limit and revision of rates for construction of Tail Race Channel (TRC) for underground River Bed Power House, Construction of Garudeshwar Weir of Saradar Sarovar Project, Claim putforth by Contractor on account of shortfall in concrete progress during the various working seasons from 1993-94 to 1997-98 due to the restrictions imposed in raising the spillway of Sardar Sarovar Dam and Progress review of Unit-I (Dam and Appurtenant) works and Unit -III (Hydro Power) works.

1.25 In case of Permanent Standing Committee (PSC), 92 meetings have been held; and the last meeting was held on 2nd February 2006 at New Delhi. In the last meeting of PSC of SSCAC the important issues were discussed related to claim put forth by Contractor on account of shortfall in concrete progress during the various working seasons from 1993-94 to 1997-98 due to the restrictions imposed in raising the spillway of Sardar Sarovar Dam, review of the progress of

Unit-I & Unit-III works of Sardar Sarovar Project and review of the Progress of Real Time Data Acquisition System (RTDAS) in Narmada Basin.

1.26 In the 76th emergency meeting of Narmada Control Authority (NCA) held on 8th March 2006, after deliberation on the R&R works in the States of Madhya Pradesh, Gujarat and Maharashtra and after recommendations of Environmental and R&R Sub-groups, permission was granted for raising the block nos. 22 to 50 of Spillway from EL 110.64 m to EL 121.92 m level. The work of raising these blocks commenced on 9th March 2006 and it was completed on 30th December 2006.

1.27 Till date all six Units out of River Bed Power House (RBPH) and all five Units of Canal Head Power House (CHPH) of Sardar Sarovar Project have been commissioned.

1.28 After implementation of RTI Act, 2005 the same was made available on the official website www.sscac.gov.in in October 2006 for general public. Citizen's Charter of SSCAC is also made available on the official website.

1.29 The Sardar Sarovar Construction Advisory Committee's (SSCAC) Secretariat is a subordinate office of the Union Ministry of Water Resources. The expenditure incurred by the SSCAC's Secretariat is borne equally by the four Party States of Gujarat, Madhya Pradesh, Maharashtra and Rajasthan. Initially, the expenditure is reflected in the union budget under the Ministry of Water Resources as "Non-Plan' expenditure which is subsequently reimbursed from the participating States.

UPPER YAMUNA RIVER BOARD

1.30 In terms of clause of 7(iii) of the Memorandum of Understanding dated 12 May 1994 between the basin states of Uttar Pradesh, Haryana, Rajasthan, Himachal Pradesh and NCT of Delhi, Government of India constituted the Upper Yamuna River Board vide Resolution dated the 11 March 1995 for allocation of surface flow of river Yamuna up to Okhla. The newly formed state of Uttaranchal was also subsequently inducted to the Board and the Upper Yamuna Review Committee. Entire expenditure in connection with the functioning/activities of the Board is shared equally by the basin states. Budget provision for the Board is reflected in the detailed demand for grants of this Ministry and the expenditure on the Board is met out of reserve funds where the receipts of the participating states are kept. The Upper Yamuna River Board with the representatives from the aforesaid basin States and the Central Government Departments concerned have held thirty one meetings so far. The last meeting was held on 21.12.2006. The Upper Yamuna Review Committee has so far held three meetings to discuss the related issues. The last meeting was held on 12.04.2006.

WATER RESOURCES DEVELOPMENT: PLANNING AND POLICY FRAME WORK

GENERAL SCENARIO OF IRRIGATION AND WATER RESOURCES DEVELOPMENT

1.31 Of 4000 Billion Cubic Meters (BCM) of average annual precipitation including snowmelt in the country, the average annual water flow available is around 1869 BCM. However, because of the topographical, hydrological and other constraints, only about 690 BCM of the available surface water can be utilized in addition to the annual replenishable ground water resources of 433 BCM. The total utilizable water in the country is, thus, assessed as 1123 BCM.

1.32 The use of water for irrigation constitutes about 84% of total water used. With the increase in demand of water for other uses, the share of water use for irrigation is likely to go down to about 73% by 2025 AD. The Ultimate Irrigation Potential (UIP) has been assessed as 139.89 million hectare (mha). As per provisional figures reported by the States to the Planning Commission, irrigation potential of the order of 100.97 mha has been created by the end of 2005-06. Thus about 72 % of UIP has been harnessed. Due to varied reasons including the constraints of resources with the State governments, the performance of the States in implementing irrigation projects has not been of desired level.

PLAN PROSPECT FOR WATER RESOURCES SECTOR

1.33 The Tenth Five Year Plan (2002-2007) recognizes that the water resources in country are under severe strain. Despite large investments in irrigation in the past, only about 40 percent of our agricultural area is irrigated. The progress on this front has slowed down considerably during the recent years, particularly in terms of major and medium irrigation projects.

NATIONAL WATER RESOURCES COUNCIL

1.34 National Water Resources Council was set up by the Government of India in March, 1983. The Prime Minister is the Chairman, Union Minister of Water Resources is the Vice-Chairman and concerned Union Ministers, Minister of State for Water Resources, Chief Ministers of all States and Lieutenant Governors/Administrators of the Union Territories are the Members. Secretary, Ministry of Water Resources is the Secretary of the Council.

The Functions of the Council are as follows:

- To lay down the national water policy and to review it from time to time.

- To consider and review water development plans submitted to it (including alternative plans) by the National Water Development Agency, the River Basin Commissions, etc.
- To recommend acceptance of water plans with such modifications as may be considered appropriate and necessary.
- To give directions for carrying out such further studies as may be necessary for full consideration of the plans or components thereof.
- To advise on the modalities of resolving inter-State differences with regard to specific elements of water plans and such other issues that arise during planning or implementation of the projects.
- To advise practices and procedures, administrative arrangements and regulations for the fair distribution and utilization of water resources by different beneficiaries keeping in view optimum development and the maximum benefits to the people.
- To make such other recommendations as would foster expeditious and environmentally sound and economical development of water resources in various regions.

NATIONAL WATER BOARD

1.35 The Government of India constituted a National Water Board in September 1990 under the Chairmanship of Secretary, Ministry of Water Resources to review the progress achieved in implementation of the National Water Policy and to report the progress to the National Water Resources Council from time to time. The Secretaries of Union Ministries of Agriculture, Rural Development, Urban Development, Surface Transport, Environment & Forests, Planning and Science & Technology, Chairman, Central Water Commission, Chief Secretaries of all States/Union Territories are its Members and Member (Water Planning & Projects), Central Water Commission is the Member Secretary.

The functions of the Board are as follows:

- To review the progress of the implementation of the National Water Policy and report to the council.
- To recommend the setting up of appropriate organisations and institutions for the integrated development of water resources as envisaged under the National Water Policy.
- To assess the achievements of the different institutions / agencies working on the water related activities in the context of the National Water Policy and suggest appropriate measures for further action.

- To make recommendations on the pattern of financing of the water development projects for speedy and systematic development of the water resources.
- To suggest guidelines for the development and training of personnel required for the water sector.
- To make suggestions for undertaking appropriate programmes in pursuance of the directives in the National Water Policy.
- To suggest investment priorities in the water sector for achieving the objectives of the National Water Policy.
- To consider any matter/ problem associated with the development and management of the Nation's water resources and as may be brought up before the Board. Make suitable recommendations to the Ministry of Water Resources / National Water Council.

1.36 The Board has held twelve regular and one special meeting so far. The 12th meeting of the National Water Board of National Water Resources Council was held on 5th January, 2007.

1.37 As decided, a Working Group for examining the draft National Policy Guidelines for Sharing/Distribution of Waters of Inter-State Rivers amongst States taking into consideration views of all States, under the chairmanship of the Chairman, Central Water Commission, with members from the States of Andhra Pradesh, Bihar, Chattisgarh, Karnataka, Madhya Pradesh, Punjab, Rajasthan and Tamil Nadu, was constituted. Three meetings of the said Working Group have been held on 30.5.2003, 18.12.2003 and 18.6.2004. The Draft National Policy Guidelines for sharing/distribution of waters of inter state rivers amongst States was modified by the Working Group based on the comments received from State Governments. The Working Group has submitted the revised draft of National Policy Guidelines. These Guidelines have been circulated to the States for obtaining their views.

1.38 A Committee under the chairmanship of Additional Secretary, Ministry of Water Resources, with members from the States of Gujarat, Jharkhand, Madhya Pradesh, Maharashtra, Orissa, Tamil Nadu, Uttar Pradesh, and West Bengal and Commissioner (PP), Ministry of Water Resources as Member Secretary was also constituted to deliberate upon the mechanism for working out in detail of the model(s) of River Basin Organisations appropriate for meeting the objectives of sustainable and optimal development of water resources of the country. Four meetings of the Committee were held on 24th April, 2003, 6th June, 2003, 11th June, 2003 and on 29th June, 2004. The Committee has submitted its Report suggesting model of RBO. The report was considered by the National Water Board of National Water Resources Council in its meeting held on 05.01.2007 and views of the State Governments have been sought.

NATIONAL WATER POLICY

1.39 The revised National Water Policy was adopted by the National Water Resources Council under the Chairmanship of the Prime Minister of India in its 5th meeting held on 1st April, 2002.

The salient features of the National Water Policy – 2002 are as under:-

- Water is a precious national resource and its planning, development and management should be governed by national perspectives.
- A well developed information system for water related data at national/state level should be established with a net-work of data banks and data bases integrating and strengthening the existing central and state level agencies.
- Water resources development and management will have to be planned for a hydrological unit. Appropriate river basin organizations should be established for the planned development and management of the river basins.
- Water should be made available to water short areas by transfer from other areas including transfer from one river basin to another, after taking into account the requirements of the areas/basins.
- Planning of water resources development projects should, as far as possible, be for multi-purpose with an integrated and multi-disciplinary approach having regard to human and ecological aspects including those of disadvantaged sections of the society.
- In the allocation of water, first priority should be given for drinking water, followed by irrigation, hydro-power, ecology, agro-industries and non-agricultural industries, navigation and other uses, in that order.
- The exploitation of groundwater should be regulated with reference to recharge possibilities and consideration of social equity. The detrimental environmental consequences of over-exploitation of ground water need to be effectively prevented.
- Careful planning is necessary to ensure that construction and rehabilitation activities proceed simultaneously. A skeletal national policy on resettlement & rehabilitation needs to be formulated such that project affected persons share the benefits through proper rehabilitation.
- Adequate emphasis needs to be given to the physical and financial sustainability of existing water resources facilities. There is need to ensure that the water charges for various uses should be fixed such as to cover at least the operation and maintenance charges initially and a part of the capital costs subsequently.
- Management of the water resources for diverse uses should incorporate a participatory approach by involving users and other stakeholders alongwith various governmental agencies, in an effective and decisive manner.

- Private sector participation should be encouraged in planning, development and management of water resources projects for diverse uses, wherever feasible.
- Both surface water and ground water should be regularly monitored for quality. Effluents should be treated to acceptable levels and standards before discharging them into natural streams. Minimum flow should be ensured in the perennial streams for maintaining ecology.
- Efficiency of utilization should be improved in all the diverse uses of water and conservation consciousness promoted through education, regulation, incentives and disincentives.
- There should be a Master Plan for flood control and management for each flood prone basin. In flood control and management, the strategy should be to reduce the intensity of floods.
- Land erosion by sea or river should be minimized by suitable cost-effective measures. Indiscriminate occupation of, and economic activity in coastal areas and flood plain zones should be regulated.
- Needs of drought-prone areas should be given priority in the planning of project for development of water resources. These areas should be made less vulnerable through various measures.
- The water sharing/distribution amongst the states should be guided by a national perspective with due regard to water resources availability and needs within the river basin.
- Training and research efforts should be intensified as an integral part of water resources development.

EXTERNAL ASSISTANCE IN WATER RESOURCES SECTOR

1.40 The Ministry of Water Resources assists the State Governments and its organizations for availing external assistance from different funding agencies to fill up the resource gap and state-of-the-art technology for water resources development of the country, particularly for the irrigation schemes.

1.41 The World Bank continues to be the primary source of external assistance in the water resources sector. Assistance is also being availed from multilateral/bilateral agencies and countries.

1.42 A brief account of ongoing externally aided projects (12 in number) being implemented in various States with assistance from the World Bank and other bilateral agencies namely Japan Bank for International Cooperation (JBIC) and Kreditanstalt fur Wiederaufbau (KFW), Germany is as under:

(A) World Bank Assisted Projects

Sl. No.	State	Name of Projects	Date of Agreement/Completion	Assistance Amount in Million Donor Currency	Type of Assistance	Cumulative Disbursement upto 31.10.2006 Million US$/SDR (Rs. In crore)
1.	Karnataka	Karnataka Community Based Tank Management Project - CR.3635-IN	06.06.2002 31.1.2009	SDR 80 Revised SDR 63.420	Credit	SDR 23.205 Rs.152.322
2.	Madhya Pradesh	Madhya Pradesh Water Sector Restructuring Project- LN.4750-IN	30.11.2004 31.3.2011	US$394.020	Loan	US$ 24.592 Rs.108.015
3.	Rajasthan	Rajasthan Water Restructuring Project Cr.3603-IN	15.3.2002 31.3.2008	SDR 100.02	Credit	SDR 45.842 Rs.300.297
4.	Uttar Pradesh	UP Water Sector Restructuring Project Cr.3602-IN	08.3.2002 31.10.2007	SDR 90.471	Credit	SDR 24.288 Rs.159.017
5.	Maharashtra	Maharashtra Water Sector Improvement Project – LN 4796-IN	19.8.2005 31.03.2012	US$325	Loan	US$ 32.204 Rs.145.112
6.	Hydrology Project-II	Andhra Pradesh, Gujarat, Maharasshtra ,Karnataka, Kerala, Madhya Pradesh, Chhatisgarh, Orissa,Tamil Nadu,	19.1.2006 31.01.2012	US$104.98	Loan	US$ 0.527 Rs.2.351

		Himachal Pradesh, Goa, Pondicherry and Punjab.				

(B) Bilateral Assistance(JBIC Japan-Loan)

Sl. No.	*State*	*Name of Projects*	*Date of Agreement/ Completion*	*Assistance Amount in Million Donor Currency*	*Cumulative Disburse-ment upto 31.10.2006 Million US$/SDR (Rs. In crore)*
7.	Andhra Pradesh	Modernisation of Kurnool-Cuddapah Canal	25.1.1996 26.2.2005 31.3.2004 22.3.2009	(Tranche-I) 16049 (Tranche-II) 4773	15728.655 Rs.670.679 1881.495 Rs.73.683
8.	Orissa	Rengali Irrigation Project	15.3.2002 31.3.2008	SDR 100.02	SDR 45.842 Rs.300.297
9.	Rajasthan	Rajasthan Minor Irrigation Improvement Project	31.3.2005 31.3.2013	11555	0.00
(JICA JAPAN- GRANT ASSISTANCE IN THE FORM OF EQUIPMENTS)					
10.	Uttar Pradesh	Development of Ground Water	5.1.2006 31.3.2007	603	0.00
GERMANY- LOAN					
11.	Maharashtra	Minor Irrigation Project	31.12.1998 31.12.2008	EURO 23.008	EURO 6.848 Rs.35.880
12.	Himachal Pradesh	Minor Irrigation & Rural Water	31.10.2002 31.12.2005	EURO 2.659	EURO 0.00

		Supply Project(Proposal for extension till June, 2007 recommended to Department of Economic Affairs)			

Pipeline Projects

(A) World Bank Assistance

S.No.	Name of Project	Estimated Cost
1	Dam safety Assurance, Rehabilitation and Disaster Management Project – Phase-II	Rs. 917 Crores
2.	Tamil Nadu Water Resources Consolidation Project Phase-II	Rs. 3902 Crores
3.	Andhra Pradesh Water Sector Development Project, Modernization and Rehabilitation of Nagarjuna Sagar Project	Rs.1142 Crores
4.	West Bengal Minor Irrigation Project	Rs.1142 Crores
5.	Bihar Flood Management Information System(Grant under DFID Trust Fund of World Bank)	US$ 476.800

(B) Bilateral Assistance-Japan

6	Andhra Pradesh Irrigation Livelihood Improvement Project.	Rs.1000 Crores

Japan International Cooperation Agency (JICA)- Grant

7	Sub-Himalayan Development Project, West Bengal	Rs.40.06
8.	Procurement of drilling rigs in Kashmir Valley	7.5 Million Yen
9.	Integrated Water Resources Management for Poverty Eradication and Sustainable Development, Andhra Pradesh	Rs.55 Crores

(C) Bilateral Assistance-Germany

10.	Development of Decision support system for Reservoir Operation, NIH	Rs.0.90 crore
11.	In-situ Stress Measurement for Development of Hydro-Electric Projects, CSMRS	Rs.1.50 crores

Recently Negotiated Projects

ASIAN DEVELOPMENT BANK

Sl. No.	Name of Project	Amount of Assistance in Million (Donor Currency)	Status
1.	Chattisgarh Irrigation Development Sector Project	US $ 46.108	Project yet to be declared effective
2.	Orissa Integrated Irrigation Agriculture and Water Management Project	US $ 0.875	Letter of Agreement to be signed by DEA
3.	Integrated Coastal Zone Management and Related Investment Project	US $ 0.25	Draft final report of consultants recommendations expected by January, 2007

For Dam Safety Project Phase-II (renamed as Dam Rehabilitation and Improvement Project), the World Bank has proposed to create Dam Rehabilitation and Improvement Fund for the long-term sustainability of the dams. A National Level Steering Committee has been constituted under the Chairmanship of Secretary(WR) to look into various aspects and give policy directions in formulation and implementation of the project. A Technical Committee headed by Member (D&R), Central Water Commission has also been constituted for providing technical inputs to the Steering Committee and finalization of the technical details of the project.

JAPAN INTERNATION COOPERATION AGENCY (JICA)

1.43 JICA is responsible for the technical cooperation aspect of Japan's Official Development Assistance (ODA) programmes. The Technical Cooperation is aimed at the transfer of technology and knowledge that can serve the socio-economic development of developing countries. JICA carries out a variety of programmes to support the nation building of developing countries through such technical cooperation. At present, a proposal namely 'Development of Ground Water in Uttar Pradesh" has been taken up with JICA. In addition, the proposals "Integrated Water Resources Management for Poverty Eradication and Sustainable Development" from Andhra Pradesh, "Procurement of Drilling Rigs for Drilling Tubewells" from Jammu & Kashmir and "Sub-Himalayan Development Project – Integrated Water Resources Development and Management" from West Bengal has also been recommended to the Japanese side for consideration of JICA.

1.44 During the financial year 2006-07, an amount of Rs.213.893 crore has been received from the external funding agencies and utilized till October, 2006 by the Central/ State Governments for implementation of various externally aided projects in Water Resources Sector.

RELATIONS WITH NEIGHBOURING COUNTRIES

INDUS WATER TREATY

1.45 Under the Indus Waters Treaty 1960, India and Pakistan have each created a permanent post of Commissioner for Indus Waters. The two Commissioners together form the Permanent Indus Commission. Each Commissioner is the representative of his Government and serves as a regular channel of communication on all matters relating to the implementation of the Treaty. The Commission undertook its 105th tour in Pakistan in January 2006 and its 98th meeting in Pakistan in June 2006. Secretary level talks as part of Composite Dialogue process were also held in Pakistan in June 2006.

COOPERATION WITH NEPAL IN WATER RESOURCES DEVELOPMENT:

1.46 The Government of India is having continuous dialogue with Nepal in the field relating to water resources. Various initiatives taken in this regard include-

***Pancheshwar Multipurpose Project*:**

1.47 India signed Treaty on "Integrated Development of Mahakali River" with Nepal on 12 February 1996 which came into force with effect from 05 June, 1997.

The Treaty is valid for a period of 75 years from the date of its coming to force. The centerpiece of the Treaty is Pancheshwar Multipurpose Project. For which both the countries agreed to prepare a Joint Detailed Project Report (DPR). A Joint Group of Experts (JGE) of Nepal and India has been discussing the progress with regard to the preparation of DPR for Pancheshwar Multipurpose Project. The JGE has so far held 20 meetings. The 20th meeting of the JGE was held on 06 October 2004 in New Delhi. The joint DPR could not be completed due to a few outstanding issues to be resolved by the Joint Group of Experts of Nepal and India. The first meeting of the Joint Technical Group (JTG), constituted by Joint Group of Experts (JGE) in its 20th meeting to address some of the issues pertaining to Pancheshwar Multipurpose Project, was held on 20th and 21st December 2004 at Kathmandu. There has not been much headway in agreeing to various studies put forward by Indian side. It was decided that further discussions will be held on the following issues :

(a) Assessment of water availability down stream of Pancheshwar Dam site;
(b) Evaluation of alternative re-regulating Dam site including Rupaligarh and its re-position as apportionment;
(c) Assessment of project benefits as per the Treaty provisions;
(d) Evaluation of the power installation in conjunction with Pancheshwar, Rupaligarh scenario including phased development of full capacity (5600 mw);
(e) Cost apportionment between various uses;
(f) Project evaluation based on different standard methods and assessment of economic cost of generation.

It was decided to hold the next meeting at New Delhi to address the above issues but the meeting has not been held so far.

Sapta Kosi High Dam Multipurpose Project and Sun Kosi Storage Cum Diversion Scheme:

1.48 An agreement was reached with Nepal for Survey and Investigation and preparation of Detailed Project Report for Sapta Kosi High Dam Multipurpose Project and Sun Kosi Storage Cum Diversion Scheme for which a Joint Project Office (JPO-SKSKI) has already been opened in Nepal on 17 August 2004. This project has flood control as one of the major benefits. A Joint Team of Experts on JPO-SKSKI is there to review the progress of JPO-SKSKI and give suitable directions in this regard. Investigations of Sapta Kosi High Dam and Sun Kosi Storage Cum Diversion Scheme in Nepal are in progress.

For XI Plan, works mentioned above are proposed to be part of a consolidated scheme named 'River Management Activities and works related to Border Areas'.

1.49 During the current year 84% topographical survey works, 25% geological investigations for Sapta Kosi and 58% for Kamla dam, 58% environmental impact

assessment have been proposed to be completed. The topographical survey for command area of irrigation has been proposed to be completed 40% of the total works. The canal alignment survey have been targeted as 68%. The seismic data collection has been proposed during 205-06 as 23%, target for navigational survey as 56%. The target for topographical survey till December 2005 was 63% and achievement is 15%. The targets for Saptakosi and Kamla dam in respect of geological investigation till December 2005 were 15% and 58% respectively, the achievement being 5% and 50%. The target for EIA studies till December 2005 was fixed as 43% against which nil progress has been made as the works have not been awarded till date. The targets for topographical survey of command area and canal alignment survey till December 2005 were 25% and 32% with nil progress so far as these are to be taken up by consultants. The target for seismic data collection till December 2005 was zero. The target for field work related to navigational survey till December 2005 was 41% with 25% achievement.

Upper Karnali & Burhi Gandaki Hydro Electric Projects:

1.50 HMG Nepal also desired India to take up implementation of 300 MW Upper Karnali Hydro Electric Project and preparation of Detailed Project Report in respect of 600 MW Burhi Gandaki Hydro Electric Project which are under discussion. An Inter-Ministerial Team was set up in the Ministry of Water Resources to discuss the modalities for taking up the above projects by Government of India. It was decided that NHPC will take up implementation of Upper Karnali H.E. Project including upgradation of the Detailed Project Report. As regards Burhi Gandaki Hydroelectric project in order to discuss the modalities for taking up field investigations and studies and preparation of Detailed Project Report, a technical team from the Ministry of Water Resources visited Nepal in October 2003. In the 2nd meeting of Joint Committee of Water Resources held in October, 2004 at New Delhi, it has been agreed to take up the field investigations and preparation of Detailed Project Report by an agency of Government of India for which a MOU is to be signed between the two Governments to undertake the work.

Indo-Nepal Joint Committee on Water Resources (JCWR)

1.51 The Indo-Nepal Joint Committee on Water Resources (JCWR) was constituted in pursuance of the decisions taken by the Prime Ministers of Nepal and India during the visit of the Hon'ble Prime Minister of Nepal to India from 31 July - 6 August 2000. The JCWR has been constituted to discuss and take decisions on important issues pertaining to cooperation in the water resources sector including implementation of the existing agreements and understandings. The JCWR shall oversee the work of all the Technical and Expert Level Committees and Groups in the field of water resources. It acts as an Umbrella Committee of the committees and groups. The 2nd meeting of this Committee i.e. of JCWR was held in Delhi on 7-8 October, 2004 wherein the progress made in the various bilateral committees / meetings were discussed concerning to mutual interest in the water resources sector to both the countries.

Standing Committee on Inundation Problems (SCIP)

1.52 For dealing with the problems of inundation in the vicinity of India -Nepal border, a Standing Committee on Inundation Problems between India and Nepal has been functioning since 1986. The Committee has so far held 13 meetings; the last one was held during 30th August to 1st September, 2006 at Patna wherein various issues relating to flood problems in India and Nepal border areas were discussed and sorted out.

Joint Committee on Kosi & Gandak Projects

1.53 A Joint Committee on the Kosi and Gandak Projects is functioning to review and take necessary measures on issues pertaining to the operation and maintenance of the Kosi and Gandak projects. The Committee on the Indian side is headed by Engineer-in-Chief, Water Resources Department, Government of Bihar. The last meeting was held during 5th – 6th June,2006 at Kathmandu.

India - China co-operation

1.54 In 2002, the Government of India had entered into an MOU with China for sharing of hydrological information on Yaluzangbo/ Brahmaputra river in flood season by China to India. In accordance with the provisions contained in the MOU, the Chinese side is providing hydrological information (water level, discharge and rainfall) in respect of three stations, namely Nugesha, Yangcun and Nuxia located on river Yaluzangbo/ Brahmaputra from 01 June to 15 October every year. The requisite data was received and the same was utilized in formulation of flood forecasts by Central Water Commission.

1.55 An agreement regarding the provision of Hydrological data of one site on Sutlej (Langqen Zangbo) was also concluded during the visit of Hon'ble Premier of China in April 2005 for which an MoU has been signed. As per MoUs, the Chinese side has also agreed to provide information on any abnormal rise/fall in water level /discharge & other information, which may lead to sudden floods on the basis of existing monitoring & data collection facilities on real time basis.

1.56 The two sides have also agreed to continue bilateral discussions to finalise at an early date similar arrangements for the Parlung Zangbo and Lohit (Zayu Qu) rivers (which are tributaries of Brahmaputra).

1.57 An artificial lake was created in 2004 at Parechu river in China due to landslide dam. Discussions were held during the Secretary level discussions in Beijing in March 2005 and during the visit of Hon'ble Premier of China to India in April 2005. As per information available the landslide lake breached in last week of

June 2005. As per information provided by the Chinese side, height of dam is reduced and major quantity of water has flowed down. At present the lake dam does not pose any potential threat to downstream areas. The Hon'ble President of the People's Republic of China, paid a state visit to the Republic of India from 20 to 23 November, 2006. During the visit it was agreed to set up an expert – level mechanism to discuss interaction and cooperation of provision of flood season hydrological data, emergency management and other issues regarding trans-border rivers as agreed between them. Follow up action on the matter has been taken up in consultation with MEA.

India-Bhutan co-operation

1.58 A scheme titled "Comprehensive Scheme for Establishment of Hydro-meteorological and Flood Forecasting Network on rivers common to India and Bhutan" is in operation. The network consists of 33 hydro meteorological/ meteorological stations located in Bhutan and being maintained by Royal Government of Bhutan with funding from India. The data received from these stations is utilized in India by Central Water Commission for formulating the flood forecasts. A Joint Expert Team (JET) consisting of officials from the Government of India and Royal Government of Bhutan continuously reviews the progress and other requirements of the scheme.

1.59 The matter relating to problem of floods created by rivers originating from Bhutan and coming to India was taken up with Royal Government of Bhutan. In this connection a Joint Group of Experts (JGE) on Flood Management has been constituted between India and Bhutan to discuss and assess the probable causes and effects of the recurring floods and erosion in the southern foothills of Bhutan and adjoining plains in India and recommend to both Governments appropriate and mutually acceptable remedial measures. The first meeting of JGE was held in Bhutan during November 2004. The JGE had series of discussions and also made several field visits to some of the affected areas which include the sites prone to landslides and dolomite mining areas. Based on their recommendations, the JGE felt that a more detailed technical examination is required and accordingly agreed to form a Joint Technical Team (JTT) under the Chairmanship of Member (PID), North Bengal Flood Control Commission for which a meeting has been held in April 2005. The JTT studied some sources of sediment load, nature of slides and suggested further studies and preparation of maps to be taken up for deciding remedial measures to be recommended by the JTT. Further, as per the decision taken in the first meeting of JGE, a five members Indian team visited Tsatichu lake in Eastern Bhutan (which was formed due to massive landslide occurred on the right bank of river Tsatichhu on 10th September, 2003) alongwith the officials of Royal Govt. of Bhutan between 18th and 23rd December 2006. During the joint visit, it was observed that the quantity of water in the lake at present is very small and the threat of flood to downstream areas, including Indian Territory is negligible. However, it was recommended that there is a need to monitor any future development like further landslide leading to blockade of outlet and the level of water in the lake should be monitored specially during monsoon.

India-Bangladesh co-operation

1.60 An Indo-Bangladesh Joint Rivers Commission (JRC) is functioning since 1972 with a view to maintain liaison in order *to* ensure the most effective joint effort in maximizing the benefits from common river systems which is headed by Water Resources Ministers of both the countries. A Treaty was signed by the Prime Minister of India and Bangladesh on 12 December 1996 for the sharing of Ganga/Ganges waters. The Treaty shall remain in force for a period of thirty years to be renewable by mutual consent. For monitoring the implementation of the Treaty, a Joint Committee has been set up. During the current year the Committee met three times and observed that Joint measurements on Ganga at Farakka (India) and Ganges at Hardinge Bridge (Bangladesh) during lean season (Jan-May 2006) had been held to the satisfaction of both the countries.

1.61 36th meeting of the Indo-Bangladesh JRC was held at Dhaka from 19th – 21st September 2005 wherein various matters pertaining to cooperation in Water Resources sector with Bangladesh were discussed. As per the decisions taken during 36th meeting of JRC the Hon'ble Ministers of Water Resources of India and Bangladesh alongwith their delegations undertook visits in September, 2006 to sites of river banks protection, minor lift irrigation and drinking water schemes along the concerned common/border rivers including a stretch of river Ichhamati where river forms boundary between India and Bangladesh, to assess the situation on the ground. During field visit and discussions, there was good understanding between both sides and differences were narrowed down. There was also better appreciation and greater clarity on the issues involved. However, as some more technical details were required, agreement could not be reached. It was decided that further discussions on the matter will be made in the next meeting of JRC which is proposed to be held in India in due course.

1.62 The existing system of transmission of flood forecasting data on major rivers like Ganga, Teesta, Brahmaputra and Barak during the monsoon season from India to Bangladesh was continued. The transmission of flood forecasting information from India during the monsoon has enabled the Civil and Military authorities in Bangladesh to shift the population affected by flood to safer places. During 36th meeting of JRC, Indian side offered to Bangladesh to provide the level, flow and forecast of the river Brahmaputra at Guwahati and advisory forecast of Ganga at Farakka which would increase the time of advance flood warning.

ASSISTANCE FOR EMERGENT FLOOD PROTECTION MEASURES IN EASTERN AND WESTERN SECTORS

1.63 In order to enable the states to take up flood protection measures/works of an emergent nature along with the international rives (Eastern and Western Sectors), non-plan provision of Rs 3.00 crore was made in the budget for 2005-06

for special central loan assistance to the concerned States. Outlay for the scheme during 2006-07 is Rs 3.00 crore.

ASSISTANCE TO STATES FOR STATE PLANS – SUTLEJ YAMUNA LINK CANAL

1.64 Sutlej Yamuna Link Canal in Punjab territory is funded in the Central Sector and an amount of Rs. 499.12 crore had been released to the Government of Punjab upto the end of March 1994. The works came to a standstill since July 1990,following which the completion of the canal has become dependant on matters before the Hon'ble Supreme Court, the latest being a Presidential Reference on Punjab Termination of Agreements Act, 2004. Provisions are being kept for this canal, in view of past judgments to complete the canal and possible similar outcome of Presidential Reference that might warrant works to be started at any time at short notice. Effective hearings before the Ravi & Beas Waters Tribunal have also become a matter awaiting the outcome of the Presidential Reference.

1.65 Issues related to utilization of Yamuna Waters have also become increasingly significant. The Upper Yamuna Review Committee chaired by Hon'ble Minister (WR) held a meeting after a gap of nine years, to discuss the issues. Central Govt. is paying a focused attention to expedite construction of storage scheme in Upper Yamuna Basin.

1.66 The implementation of the Indus Waters Treaty 1960 is an international obligation, and requires tours and meetings of the Permanent Indus Commission to be held, as an on-going activity. Issues taken up with Pakistan also require meetings at Secretary level between the two countries. Concerted attention had also to be paid to the process of Expert Determination by Neutral Expert during 2005-06 & 2006-07 in respect of Baglihar Hydro Electric Project.

TENTH PLAN ALLOCATION & ANNUAL PLANS

1.67 The Planning Commission approved Rs. 3600 crore for X Five-year Plan of the Ministry. The Ministry distributed these allocations over 68 schemes comprising 60 spillover and 8 new schemes. Out of the 68 schemes, 7 schemes were completed or weeded out/closed in the period between 2002-03 to 2006-07. During the Xth Plan 2 schemes have also been transferred to non-plan sector. The approved outlay for Annual Plan 2006-07 for the Ministry is Rs. 700.00 crore. Sector-wise Plan allocation is as given in the following chart.

Sector	X Plan Outlay
(1)	**(2)**
Secretariat Economic Services	7.47
Major & Medium Irrigation	324.64
Minor Irrigation	511.57
Command Area Development Programme	1213.00
Flood Control	1403.32
Transport Sector	140.00
Total	**3600.00**

1.68 Overall financial review (Sector/Organistation/Scheme-wise) has been given in chapter V. Sector/Organization/Scheme-wise physical performance has been given in chapter IV.

CHAPTER I I
Statement of Outlays and Outcomes / Targets : Annual Plan 2007-08

S. No.	Name of Scheme / Programme	Objective/Outcome	Outlay 2007-08			Quantifiable Deliverables / Physical Outputs	Projected Outcomes	Processes/ Timelines	Remarks/ Risk Factors
			Non - plan Budget	Plan Budget	Complementary Extra-Budgetary Resources (Rs Cr.)				
1	2	3	4 (i)	4 (ii)	4 (iii)	5	6	7	8
1	&RP P DQG $UHD ' HYHORSP HQW HMDV: 0 DQDJ HP HQW 3URJ UDP P H	To take up Command Area Development and Water Management in the commands of irrigation projects	N.A.	300 .00	N.A.	a) Construction of Field Channels (b) Construction of Field Drainge. (c) Correction of System deficiencies of distribution upto 150 cusecs discharge (d) Renovation of tanks.	To bridge the gap between created potential and potential utized through (a) development of CCA(0.7 mha)(b) Correction of conveyance deficiency (1.25 mha) and (c) reclaimation of water logged saline and alkaline land. (0.1mha)	-	Inadequate matching outlay by State Governmen t and delay in release of fund by them to the implementin g agencies.
2	Development of Water Resources Information System	(i) To collect data from network of Hydrological Observation stations for overall resource assessment and analyzing the same for its characteristic (ii) To initiate process for development of water resources information system.	43.7 5	30. 00	N.A.	Data collection and analysis is a continuous activity.	(a)Collection of hydrological data is a continuous activity.(b) The process of development of information system will be initiated.		-
3	Hydrology Project	(i) To modernize system of collection, processing and storage of data. (ii) To develop standard procedure for hydrologic planning and design using such data in the implementing agencies.	N.A.	33. 00	N.A.	The project being in initial stage, action to be initiated towards procurement of main consultants and initiating the process of improvement of data processing and utilization systems	Initiating work on specific modules finalized in consultation with World Bank experts.	To be implemented by 13 States and 8 central implementing agencies. Procurement of three main consultancies to be completed during the year.	-

4	Ground Water Management and Regulation	(i) Integrated Ground Water Management Studies to prepare ground water management plan (ii) Ground water exploration utilizing scientific tools, viz., remote sensing and GIS, geo-physical surveys aided by drilling to locate ground water worthy areas (iii) Periodic assessment of ground water resources (iv) Monitoring of ground water levels from Ground Water monitoring stations (v) Short term water supply investigations for source finding to Central/State Govt. departments. (vi) Preparation of Report, maps for use by planners and administrators.	55.70	62.00	N.A.	Ground Water management studies. Ground Water Exploratory wells. Ground water monitoring and preparation of districts reports.	(a) Ground Water Management Studies - 1.5 Lakh sq. km. (b) Ground water exploration - 800 wells. (c) Ground water monitoring - 15500 stations. (d) preparation of district reports -40	Implemented by CGWB within the prescribed time frame of one year	-
5	Investigation of Water Resources Development Schemes	Carrying of investigation in respect of identified projects for water resources development.	N.A.	30.00	N.A.	Investigation and preparation of project report for identified project to continue.	(a)Preparation of 10 feasibility report and one project report.(b) The work on investigation of ILR projects to continue.	The works of investigation /preparation of project report are covered in more than one year and are carried over to following years	Consensus of co-basin states required.
6	Research, Training and Mass-Awareness	To support the research and training activities by premier research institutes, i.e., CWPRS, CSMRS, NWA and RGNGWTRI. In addition, support is to be provided to various other academic and research institutes in the country.	N.A.	35.50	N.A.	The implementation of the scheme will help in capacity building and creation of additional facilities. The research output are generally in terms of technical report and research papers having recommendations for improved techniques for	Preparation of reports - 275, research papers - 225, training and workshops - 75	This work is to be implemented by various organizations of the Ministry.	-

						planning and design. Quantifying deliverables are: (a) research report (b) research papers (c) training works.			
7	Pagladiya Dam Project	To take up works in respect of Pagladiya Dam Project.	N.A.	1.00	N.A.	To protect areas from flood damages and also provide benefits in terms of creation of irrigation potential. However taking up of the work for this project is subject to fulfilling certain requirements like Zirat Survey etc. Therefore, only token provision has been kept for this year.	-	-	-
8	Farraka Barrage Project	Operation and maintenance of barrage, feeder canal, township, vehicle, equipment etc.	N.A.	33.00	N.A.	This is a continuing activity for operation and maintenance of barrage.	-	-	-
9	River Basin Organization/Authority	The Scheme is to encourage formation of River Basin Organization with the primary objective of providing a forum to all the co-basin states for taking up necessary studies and evaluation etc. with a view to identify the most appropriate alternative for optimum utilization of resources and meeting the aspirations of all stake-holders.	N.A.	0.50	N.A.	The creation of RBO has to be preceded by consultations with State Governments. Process of consultations will be initiated during this year. A token provision has been kept in this regard.	-	-	-

10	Dam Safety Studies and Planning	(i) To carry out studies and recommend procedures to be adopted for taking up measures related to dam safety (ii) To provide assistance to State Government in respect of dam safety measures (This aspect to be taken up after the proposed DRIP with World Bank assistance is agreed. Thus, a token provision of Rs 1.00 crore has been made under State sector.)	N.A.	2.00	N.A.	(a) Preparation of standards/guidelines regarding various aspects of dam safety (b) Completion of evaluation studies of safety aspects of identified dams (c) capacity building through software development and training programme etc.	(a)Guidelines/Studies-1(b)Evaluation studies-2	-	-
11	Flood Management	The Specific activities relate to flood forecasting and flood management on border rivers to be undertaken under Central Sector Scheme. Simultaneously, Government of India will provide support to State Government under the State Sector Scheme.	1.40	461.00	N.A.	Flood control and anti-erosion works.	(a) Number of forecasts to be issued - 6000 (b) Area to be protected against flood - 2.18 lakh hec.	State Governments submit proposal to Central Agencies/MoWR for examination /approval and release of funds	The work for central sector scheme(Rs 62 Cr) to be implemented by various organizations of the Ministry and that of the state sector (Rs 399Cr) through various state Govts/ agencies
12	Infrastructure Development	To undertake infrastructural development activities relating to upgradation and moderanization of computerization and information system, lands and buildings etc.	N.A.	12.00	N.A.	Acquisition of land and buildings for Central Water Commission and CGWB and IT development of MoWR	Better and more efficient working environment.	CWC and CGWB will obtain approval of MoWR	Acquisition of land and buildings in volves various Govt. agencies.
13	Accelerated Irrigation Benefit Programme	To complete on-going irrigation/multi-purpose project in advanced stage of construction and which are beyond the resources capability of State Government in a time bound manner with a	N.A.	3080	N.A.	Creation of additional irrigation potential.	Creation of additional irrigation potential of 1.50 mha through projects supported by AIBP (major/medium 1.35 mha and minor 0.15 mha).	Central Assistance is dependant on submission of proposals by states and ceiling limits prescribes by Planning Commission/ MoF.	Inclusion of proposals under AIBP is subject to mandatory clearances

		view to (a) create additional irrigation potential and (b) derive envisaged benefits from these projects.							
14	Repair, Renovation and Restoration of Water Bodies directly linked to Agriculture	(i) To restore and augment storage capacities of water bodies. (ii) To recover and extend their lost irrigation potential.	N.A.	100	N.A.	Creation of additional irrigation potential through renovation of water bodies (approx. 500)	Additional irrigation potential of 0.68 lakh ha.	Implementation by State Government and monitoring by State and Central Governments. Pilot scheme is to be implemented through Distt. Level implementation committee with active community pariticipation. The programme is to be completed in two full working seasons.	Working season is short and processes like capacity building, involving of NGOs in implementation etc. require sufficient time.

CHAPTER-III

Reform measures and policy initiatives

3.1 As indicated in Chapter-I, the primary responsibility of Ministry of Water Resources is to lay down policy guidelines and programmes for the development and regulation of the country's water resources. The vision which guides the policy framework is optimal sustainable development, maintenance of quality and efficient use of country's water resources to match the growing demands on this precious natural resource with active involvement of all stakeholders in order to achieve accelerated, equitable economic development of the country. The activities relating to implementation and operationalisation of water resources projects are taken up by the respective State Governments. However, Ministry of Water Resources encourage the State Governments to take various reform measures as envisaged in National Water Policy. One of the important activities in this regard is to encourage the State Governments to adopt necessary reforms needed to ensure physical as well as financial sustainability of irrigation projects. The Ministry of Water Resources has prepared a " Model Bill to Regulate and Control the Development and Management of Ground Water" and circulated to all the states. So far eight states/ Union territories have enacted legislation with action already initiated by twenty states/Union territories. The Ministry of Water Resources has also been encouraging Participatory Irrigation Management through its programmes for Command Area Development & Water Management.

3.2 Further, keeping in view the urgent need to (a) address the water related issues (b) ensure successful implementation of policies and programmes and (c) involve all sections of the societies, the Year-2007 has been declared as Water Year during which the focus will be on:

- Awareness programme for the masses
- Specific activities for policy opinion makers
- Organization of conferences and workshops on important development and management issues.

CHAPTER IV

REVIEW OF PAST PERFORMANCE

SECRETARIATE ECONOMIC SERVICES

4.1 Hydrology Project Phase-II:

4.1.1 The Hydrology Project Phase-II is a follow on project of earlier Hydrology Project Phase-I, for a total Cost of Rs 631.83 Crores with an assistance of the World Bank. The World Bank assistance is for US $ 104.98 million in the form of long-term loan to the Government of India. The project started w.e.f. April 2005.

4.1.2 The project aims to extend and promote the sustained and effective use of the Hydrological Information System by all potential users concerned with water resources planning and management, thereby contributing to improved productivity and cost-effectiveness of water-related investments in 13 States and 8 Central agencies. The beneficiary States are Andhra Pradesh, Chhattisgarh, Goa, Gujarat, Himahal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Pondicherry, Punjab and Tamil Nadu, whereas Bhakra-Beas Management Board (BBMB), Central Water Commission (CWC), Central Ground Water Board (CGWB), Central Water and Power Research Station (CWPRS), Central Pollution Control Board (CPCB), India Meteorological Department (IMD), National Institute of Hydrology (NIH) and Ministry of Water Resources (MOWR) are the central agencies, which will benefit from the project. The project, to be implemented over a period of six years, has three main components: 1) Institutional strengthening consisting of consolidation of recently concluded Hydrology project (HP I) activities in the existing States; Awareness raising, dissemination and knowledge sharing; and implementation support; 2) Vertical Extension comprising development of hydrological design aids; development of decision support systems; and implementation of purpose-driven studies; and 3) Horizontal Expansion supporting upgrading/establishment of data collection network; establishment of data processing and management systems; purpose-driven studies; and training.

4.1.3 The project, which is scheduled to be completed in 6 years, was signed with the World Bank on 19th January, 2006 and made effective from April 2006. A review by Bank for the plan and progress of the implementing agencies was carried out w.e.f. April 23 to June 13, 2006. For all the implementing agencies which are getting grants through M0WR (seven agencies which do not include IMD), estimated utilization of fund during the last 6 months (up to Sept. '06) of FY 2006-07 has been Rs. 0.6311 Crore (INR), revised estimate for FY 2006-'07 is proposed to be Rs. 13.61 Crore and the budget estimate for FY 2007-'08 is proposed to be 23.00 Crore (INR). The proposed outlay for the MoWR agencies (seven central agencies) for the XI Plan is Rs.175.67 Crore.

4.1.4 A project launch workshop was held during April 19-21, 2006. In this the World Bank and all participating agencies reviewed the progress made during HP-I and discussed to provide support as per the Implementation Plan. Thereafter, an implementation review mission of the World Bank had visited all the participating states and central agencies during April 23-June 13, 2006 and made their recommendation. In addition to the above, three more workshops were also organized by PCS, viz. on 22-23 March, 2006, 11-13 September, 2006 and 24-25 January, 2007 respectively, in which the matters related to the procurement of works, goods and consultancies, along with financial management reporting, were discussed at length. Nodal officers, Procurement Officers, Project Coordinators and Finance Officers of the implementing agencies actively took part in deliberations. To enable preparation of a specific programme and take up preparatory works for setting up of Hydrometeorological Networks in the new states, two workshops were organized by PCS during May 25-26, 2006 and May 29-30, 2006 in New Delhi and at Goa respectively. Central agencies like CWC, CGWB, NIH and CWPRS have been entrusted to take up trouble shooting issues of HP domain software like HYMOS, GEMS, and WISDOM. The India Meteorological Department (IMD), Central Water Commission (CWC) and Central Ground Water Board (CGWB) have been entrusted to recommend specifications related to hydrometeorological, surface water and ground water domain equipments respectively. IMD specification committee has been framed for procurement of Automated Rain Gauge (ARG) & Automated Weather Station (AWS), both linked through telemetry and satellite. IMD has made survey for site selection for installation of the RADAR in Shimla.

4.1.5 The implementing central and state agencies have submitted Annual Work Plans for FY 2006-07 and FY 2007-08, which have been sent to the World Bank after finalization. The National Steering Committee (NLSC) and State Level Steering Committee (SLSC) have been set up and Hydrological Information System management Group (Tech), Hydrological Information System management Group-Data Dissemination HISMG(DD), Hydrological Information System management Group (Institutional Strengthening and Training) HISMG(IS&T) have been constituted at Project Coordination Secretariat (PCS), MoWR. Technical committees and steering committees for procurement of Decision Support System DSS (Real Time) and Decision Support System (Planning) and Hydrological Design Aid for Water Quality have been constituted at BBMB, NIH and CPCB respectively. PCS, NIH and BBMB have published Expression of Interest (EoI) for the procurement of Management and Technical consultancy, DSS (Planning) and DSS (RT) consultancies and other agencies are in the line of doing so. PCS, NIH and BBMB have prepared ToRs and are in the process of issue of request for proposal (RFP) to the short-listed firms. The consultants are to be in place during 2007-08. The Hydrology Data User Groups have also been framed and the HISMG (IS&T) has finalized training programme in the areas of Hydrometery, Data Entry and Processing, IWRM (Integrated water Resources and Management), Watershed Management and Decision Support System (DSS) through National Water Academy (NWA) of CWC, CGWB, NIH and CPCB for this year as for well as for coming years. For PCS, to effectively

implement and monitor the scheme, a new office space has been taken on hire from NDMC in the Connaught Place, New Delhi.

4.1.6 In FY 2006-07, the Implementing Central Agencies have planned and initiated procurement of four major consultancies- i) DSS (Planning) ii) DSS (Real time), iii) Technical Assistance and Management Support iv) HDA (WQ). Also the funds for FY 2006-07 are to be utilized under institutional strengthening (procurement of office building, office and training equipments), training of officers and staff, organizing workshops, seminars etc. During the year 2006-07, the approved Annual Work Plan is for Rs. 8.870 crore, out of which the Investment Cost is Rs. 8.518 crore and Recurring cost is Rs. 0.352 crore.

4.2 Water Quality Assessment Authority:

4.2.1 The Water Quality Assessment Authority (WQAA) was constituted under the Environment (Protection) Act,1986 in May 2001 for the purpose of performing such functions as stated in the Gazette Notification for issuing directions to the agencies (government / local bodies / non-government) for water quality related matters specified in the Notification. The 12-member Authority is headed by the Secretary, Ministry of Environment & Forests as the Chairman and the Commissioner (B&B), Ministry of Water Resources as the Member Secretary under which the Secretariat of the WQAA is functioning in MoWR. Based on the decision taken in the meeting of WQAA, the Water Quality Monitoring Committee (WQMC) has been constituted by WQAA for reviewing water quality related matters on a continuous basis. State Level Water Quality Review Committees had been constituted in States/UTs to coordinate works assigned to them in respect of Water Quality such as Water Quality Monitoring Network, identification of problem areas etc. A plan scheme titled “Creation of Coordination cell to assist WQAA” for Rs.350 lakh has been sanctioned for the10th Five Year Plan. The main provision in the estimate is for salary of the staff, provision for hiring of professionals, taking up selected R&D studies, traveling, office and other administrative expenses for conducting seminars, workshops, meetings etc.

4.2.2 In the current year, the 5th meeting of WQAA was held in August, 2006 in which the follow up action on the recommendations of the Uniform Monitoring Protocol for Water Quality, circulated to all the states and concerned central agencies for implementation, was reviewed. Following major decisions were taken in the meeting:

- WQAA reviewed recommendations of the Working Group on its study on minimum flow of rivers, and accordingly Working Group was directed to carry out studies including the water quality aspect, most critical stations and to provide justification of the norms recommended.
- The need for submission of the Water Quality Management Plans (WQMP) for polluted stretches by respective states to NRCD was discussed in the meeting. It was decided that CPCB and NRCD would communicate to all the states/ UTs regarding holding of the Workshop on WQMP.

- One regional workshop for discussing strategy of actions for the Eastern Region was held at Bhubenswar on 20th & 21st February, 2007.

4.2.3 Through workshops, interaction amongst all the states and the concerned central agencies are organized by the Coordination cell of the Authority. The water quality review committee reviews water quality management, identifies problem areas and hot spots, evaluate existing system of monitoring network and implementation of awareness and graded training etc. A Workshop on Water Quality Management Plans was also held in December, 2006 by CPCB in which guidelines for preparation Water Quality Management Plans by states were discussed.

4.3 Information Technology Development:

4.3.1 The Ministry of Water Resources is responsible for laying down policy guidelines and programs for the development and regulation of the country's water resources. This Information Technology (IT) Strategic Plan presents the Ministry's plans for computerizing its activities with the aid of modern, robust, secure, and cost-effective IT solutions. The Plan will enable the Ministry of capitalize on advancements in the technology. This Plan supports the Ministry of Communications and information Technology's recommendations for E-Governance processing among the different organizations and offices of the Ministry.

4.3.2 While this Plan is a logical extension of past modernization and planning efforts, it also provides a radical and visionary blueprint for the future. Successful accomplishment of the Plan's strategic goals and objectives will require and bring out major changes in the Ministry's culture. The ways people carry out their responsibilities, and the supporting IT infrastructure and Systems.

IT – Vision

4.3.3. The Plan is based on the concept of e-governance. The explosion in the technologies such as the Internet, along with powerful data mining solutions, will enable the ministry to revolutionize It support for the activities of governance, and management. This plan will also standardize the IT environment of Ministry.

Introduction

4.3.4 This document is a sequel to the "Five year information plan" (FYITP) brought out by National Informatics Centre (NIC) in consultation with Ministry of Water Resources (MOWR) in year 2000. Since the finalization of the FYITP, many changes have happened in the Information Technology (IT) environment of the Ministry.

4.3.5 In fulfillment of the first phase of FYITP, MOWR had taken up the union of personal computing and interconnectivity activities in the ministry and its various Wings located at Shram Shakti Bhawan, Krishi Bhawan and Shastri Bhawan. NIC established the Local Area Network (LAN) and provided the NICNET/Internet connectivity. MOWR provided computers to the Officers and Sections for whom the requirements were identified. Officials were imparted training to enable them to work on the standard office application tools such as word, excel and PowerPoint. The users were also provided preliminary introduction to mail applications like MS-outlook, Outlook express and Internet Explorer.

4.3.6 In the second phase, NIC established LAN in Ground Water/Water Management Wings at Lok Nayak Bhawan and Eastern Rivers & Indus wing at CGO Complex and Subsequently NICNET/Internet connectivity was provided. Computers were provided to all Sections and Senior Officers as was done in the first phase. The activities thus far have ushered in IT awareness amongst the offices and staff of the Ministry and there is increasing use of office productivity enhancement tools as those of word processing, spread sheets and presentation software.

4.3.7 This Information Technology Strategic Plan (ITSP) has been necessitated primarily because of the concept of e-governance, which is taking a firm ground in the country. ITSP has been formulated with a view of to provide effective governance and to capitalize on the substantial progress already made in achieving previously-set objectives. Since MOWR has done the groundwork for e-governance by establishing LAN and inter-connectivity between its offices spread in different locations, this is an ideal time for initiating step towards fulfilling the minimum agenda of e-governance set by Ministry of Communication and Information Technology (MCIT) and thereafter move towards the goal to excel in providing an excellent governance to its own employees, citizens, coordinating States and Union Territories (UT) and other ministries and Departments in Government of India.

4.3.8 This document elaborates on the ministry's strategic IT goals which had originally been dealt with in the FYITP. This Chapter summarizes the Ministry's overall mission and strategic goals for IT Vision For 2008. This strategic Plan focuses entirely on the future of IT in the Ministry.

IT Vision For 2008

E-Governance

4.3.9 The Nation stands on the threshold of a new era in the conduct of a new era in the conduct of governance. Issues facing the political and economic issues are increasingly complex and global.

4.3.10 Governance in Ministry increasingly involves dealing with its organizations, other Ministries and external agencies. The interacting offices and citizens should

have rapid access to information about the services rendered by the ministry. The new concept of e-governance deals with these challenges. Achieving the minimum agenda of e-governance set by the MCIT shall put the Ministry in an advantageous position with respect to e-governance.

4.3.11 Changes to the governance will be shaped increasingly by methods and approaches made possible by information technology. Advance in communications and computer technology, along with the explosive growth of the internet, are already transforming the world into a global village. The ministry must take step to adapt its traditional methods of governance to be effective in the new technological environment in witch it now operates.

4.3.12 By 2008, MOWR will be able to operate to a large degree through e-governance –that is, it will leverage IT to operational areas, management and decision making. Employees will have ready access to internal and external databases that will keep them fully up-to-date of the functioning of the Ministry and the roles being played by all of the coordinating ministries and departments. The employees will have a variety of electronic ways to communicate rapidly and realizably with their colleagues and with members of other organizations, including host ministries and Governments. And they will be able to devote more of their human resources to the Ministry's main business of government, rather than to routine administrative functions.

Objective

4.3.13 This Scheme has been framed to strengthen SMART E-governance in the Ministry of Water Resources (MOWR) based on the Information Technology Strategic Plan (ITSP) so as to make use of powerful tools of Information Technology like Networking Resources, web applications and Data Warehousing to bring efficiency in day-to-day functioning. The Scheme envisages the use of IT in the Ministry for those areas which have been taken up for computerization on a priority basis.

Activities: -

- Hardware Resources
- Networking Resources
- Software Resources
- Management, Maintenance and Improvement of IT Infrastructure
- Training

Hardware Resources*:*

4.3.14 The hardware requirement has been assessed in the current proposal and is based on a realistic understanding of the requirement. With the proposed hardware, it would become possible for the MOWR personnel to integrate the

usages the computers in their day-to-day activities. This would bring efficiency and lesser dependence on paper work.

4.3.15 Under the e-governance initiatives, the Government of India has acknowledged the requirement for Government organizations to take up computerization activities at all levels, at various platforms and forums.

Networking Resources

4.3.16 Following activities are required to be accomplished in the XI th Plan:

- Network Security & Disaster Recovery:- Adequate Network Security is proposed to be provided against the re-designed Web Site of the Ministry & Intra/Internet based instructions. Provision of Intrusion Protection for the Intra/ Internet through ready-to-use security package is also proposed.
- Network security is required in the form of H/W like Firewall Server and S/W specially developed for Network security and Disaster Recovery requirements.
- Antivirus software is also needed for keeping the network congestion free.
- LAN Expansion or Up-gradation:- Local Area Network has already been established by NIC and is functional at all locations of the Ministry of Water Resources. However, with the enhancement of network traffic on account of envisaged application packages, video conferencing facilities and up-gradation of hardware resources being implemented, the active components of the Network shall be required to be suitably upgraded to keep pace with requirement and technology.

4.3.17 Up-gradation of the active components (Switch/ Hubs) and providing suitable router system to keep pace with the increased load on the network will be required. The present setup of Internet shall be consolidated further for premium and fail-safe service. LAN expansion and up gradation is required from time to time by using latest technology (i.e. latest switch, latest methodology, latest type of cabling, wireless connectivity, s/w to manage them) to keep pace with latest from technology in networking.

Software Resources

4.3.18 Commercial Software:- To implement the recent guidelines issued by the D/O Information Technology regarding use of Licensed Software only to curb piracy and hacking, the legal version of the required software and operating system will be sought. The computer systems are proposed to be equipped with the anti-virus software, Office suites and Hindi work processing software. The other commercially ready to use package related to the Networking and Intranet usage shall be bought under this scheme, the exact specifications and requirements of which shall be need based. The software thus procured shall be

upgraded at regular intervals to keep in pace with the changing technology.

4.3.19 Software Development:- It is pertinent that after equipping the office with a large number of computer systems, the integration of usage of computers in the day-to-day activities of individuals should now take place. One of the main bottlenecks is that there are no ready-to-use package which can simplify the activities of an individual officer, which forms part of his routine official duties. It is, therefore, envisaged that specially developed packages are to be made available to the individual officers working in different Sections so that the officer is able to seamlessly integrate computers into his day-to-day activities. The development of such software will be need based and is provided for in the Scheme.

Management and Maintenance of It Infrastructure

4.3.20 Maintenance:- The infrastructure of hardware, software and networking resources, as implemented in the X th Plan as well as the proposed infrastructure in the XI th Plan Scheme, require a strong centralized maintenance and management assistance to ensure a smooth operation. The Maintenance and Management to cater to the resources which exist as on date or to be generated under the current proposal. The Parent IT Cell will be strengthened in the Ministry which will work in tandem with NIC and look after all IT related issues of the Ministry. The manpower resources will be arranged through internal or external arrangements to handle the H/W & S/W resources generated. It is also proposed that the IT unit will look after following areas in coordination with NIC & General Administration: -

- Annual Maintenance of MOWR redesigned Website
- Planning on LAN up-gradation.
- Annual Maintenance Contract(AMC) for the hardware resources.
- Annual Maintenance/ Administration (AMC) through contracts for the Network resources (Hardware and Software).
- Maintenance of the developed software/ application packages.
- Provision of consumables.

4.3.21 Training: Technological tools by themselves cannot be of any use unless they are accompanied by matching up-gradation of human resources by way of adequate trainings. Adequate trainings on various aspects of computerization are also required for MOWR personnel. Some of the areas in which trainings etc. is proposed are:

- Basic Awareness program in IT including OS level training on WINDOWS.
- MS Office (Word, Excel, Power point and Access).
- Data Base Management Systems.
- Programming tools such as Visual Basic, C/C++, Java etc.

These trainings are proposed through Government / Private agencies of repute through NIC.

4.3.22 The following table shows physical performance under the scheme:

IT Plan: Physical Performance

Item/Unit	Plan Target	Actuals Physical Performance 2005-06	Performance upto 31st Dec 2006	Targeted Performance 2007-08
Effective Citizen Interface	Finalization/Modification of contents of website by respective SMDs. -Website input and translation in Hindi. Running of Bilingual website. -Finalization of Development Strategy (MOU/Contact). -Bilingual website Design and Uploading -Providing of network Security measures.	Updation of Contents/Materials of Bilingual Website	Development of Bilingual Dynamic Website of the Ministry	Monthly Up-dation of re-designed website Contents/RTI and secure the website from hacking with the help of NIC as per guidelines given by Intelligence Bureau & D/O IT.
Secure Networking And Infrastructure	-Identification of nodes hardware and software. -Procurement of servers, networking items and software.	Addition of Nodes in existing network. Up-gradation and expansion of LAN	Installation of new nodes: – 130 (Total Nodes installed in entire MOWR = 337) New Email Id: - 120 (Total Email Id = 150)	Up-gradation and expansion of LAN using latest switch, methodology, latest type of cabling, wireless connectivity, s/w to manage them. Networking Security in the form of hardware like firewall server, antivirus software etc.
Database identification And Design	- Procurement of hardware, with related peripherals, and their maintenance (as per requirement) -Identification and submission of database needs by SMDs. -Analysis of data by SMDs/NIC. -Evolving Unifield format for submission of data. -Database designing. -Development of Database applications.	BCs-51 Laps-3 Prois-1 Printer-52 Scanners-4 UPS-57 Development Of stand alone application	BCs-27 Laps-1 Printers-28 Scanners-3 UPS-29 Development of Project Monitoring System.	PCs-25 Plasma-1 Printers-15 Scanners-5 UPS-25 Server-2 Multifunctional-5 Implementation of File Tracking System in MOWR & their attached offices.
Training in It for Officials	Training in office Automation tools. -Installation and testing of database applications,	As per needs	Training to staff in RTI-MIS, E-readiness, Through NIC	Training to staff for FTS & PMS.
Strengthening Software base and automation	Procurement of commercial software.	55	28	25
Leveraging IT to Streamline MOWR Business	Intranet applications and customized software development	Intranet development	Monthly updation of intranet and File tracking Software(FTS)	Implementation of FTS and updation of Intranet etc.

MAJOR AND MEDIUM IRRIGATION

4.4. Central Water Commission(CWC):

Data Collection and Investigation:

4.4.1 The objective of various schemes under Data Collection and Investigation is (i) to collect data from network of hydrological observation stations for overall evaluation of resources available in the country and its characteristics and (ii) carry out investigations in respect of identified projects for water resources development.

Data Collection:

4.4.2 Central Water Commission is maintaining a network of 878 Hydrological Data Collection Stations on all the major river basins of the country. The parameters of data collected are river stage data, river flow data, water quality and silt data. This is an important activity, in view of the high priority accorded for providing drinking water and water for irrigation purpose under National Water Policy. The data collected is analysed and compiled in the form of water year, silt year and water quality year books. This data is used as an input in planning and development of irrigation and power potential of the country and in settlement of Inter-State water disputes on water sharing among various States. For XI Plan, this scheme is proposed to be part of a consolidated scheme named 'Development of Water Resources Information System'.

Snow Hydrology:

4.4.3 The ultimate objective of the snow hydrology programme is to develop snow melt run off model for assessment of snow melt contribution in the river flow which will help in efficient water management for its optimum utilization, particularly during the lean season. At present there is one G&D site and two snow hydrology observatories operating in the Yamuna Basin, two G&D sites and two snow hydrology observatories operating in Chenab Basin and one G&D site and one snow hydrology observatory operating in Beas Basin. The observation of snow data at the snow hydrology observatories and measurement of Gauge & Discharge at G&D sites is in progress. For XI Plan, this scheme is proposed to be part of a consolidated scheme named 'Development of Water Resources Information System'.

Survey And Investigation:

4.4.4 Central Water Commission takes up survey and investigation and preparation of Detailed Project Report (DPR) of Water Resources Development projects.

4.4.5 At present 17 major, medium, mini and micro hydel schemes, 2 major multipurpose projects, 2 major and medium irrigation schemes and 57 minor irrigation schemes are under investigation.

4.4.6 The DPR for the Kirthai H.E. Project Stage-I in J&K and Teesta H.E. Project Stage II in Sikkim have been submitted. Kirthai H.E. Project Stage-II is under investigation and the target date of completion of DPR has been revised from March, 2007 to December, 2007 as design parameters of the project has undergone a change. The DPR for the Rangit H.E. Project Stage-IV in Sikkim has been submitted and for Rangit H.E. Project Stage II work has been stopped as the State Government has decided to go for IPP. The investigation for Seli H.E.Project and Raoli H.E. Project in Himachal Pradesh is in progress.

4.4.7 For XI Plan, all works mentioned above are proposed to be part of a consolidated scheme named 'Investigations for Water Resources Development Schemes'.

4.4.8 CWC is also rendering assistance to neighbouring countries in survey and investigation and preparation of DPR of water resources projects.

4.4.9 India signed Treaty on "Integrated Development of Mahakali River" with Nepal on 12 February 1996 which came into force with effect from 05 June, 1997. The Treaty is valid for a period of 75 years from the date of its coming to force. The centerpiece of the Treaty is Pancheshwar Multipurpose Project. For which both the countries agreed to prepare a Joint Detailed Project Report (DPR). A Joint Group of Experts (JGE) of Nepal and India has been discussing the progress with regard to the preparation of DPR for Pancheshwar Multipurpose Project. The JGE has so far held 20 meetings. The 20th meeting of the JGE was held on 06 October 2004 in New Delhi. The joint DPR could not be completed due to a few outstanding issues to be resolved by the Joint Group of Experts of Nepal and India. The first meeting of the Joint Technical Group (JTG), constituted by Joint Group of Experts (JGE) in its 20th meeting to address some of the issues pertaining to Pancheshwar Multipurpose Project, was held on 20th and 21st December 2004 at Kathmandu. There has not been much headway in agreeing to various studies put forward by Indian side. It was decided that further discussions will be held on the following issues:

(g) Assessment of water availability down stream of Pancheshwar Dam site;
(h) Evaluation of alternative re-regulating Dam site including Rupaligarh and its re-position as apportionment;
(i) Assessment of project benefits as per the Treaty provisions;
(j) Evaluation of the power installation in conjunction with Pancheshwar, Rupaligarh scenario including phased development of full capacity (5600 mw);
(k) Cost apportionment between various uses;
(l) Project evaluation based on different standard methods and assessment of economic cost of generation.

4.4.10 It was decided to hold the next meeting at New Delhi to address the above issues but the meeting has not been held so far.

4.4.11 An agreement was reached with Nepal for Survey and Investigation and preparation of Detailed Project Report for Sapta Kosi High Dam Multipurpose Project and Sun Kosi Storage Cum Diversion Scheme for which a Joint Project Office (JPO-SKSKI) has already been opened in Nepal on 17 August 2004. This

project has flood control as one of the major benefits. A Joint Team of Experts on JPO-SKSKI is there to review the progress of JPO-SKSKI and give suitable directions in this regard. Investigations of Sapta Kosi High Dam and Sun Kosi Storage Cum Diversion Scheme in Nepal are in progress.

4.4.12 For XI Plan, works mentioned above are proposed to be part of a consolidated scheme named 'River Management Activities and works related to Border Areas'.

Strengthening Of Monitoring Organisation:

4.4.13 The increasing complexity of the irrigation and multipurpose projects and the magnitude of the funds invested make it imperative to keep a close watch on projects implementation to complete them in a time-bound manner so as to achieve the targeted benefits. Monitoring also helps to identify the bottlenecks during construction of the projects. With this point in view, the monitoring of projects at the Central Government level was entrusted to Central Water Commission, which is monitoring selected Major, Medium and ERM Irrigation Projects through its monitoring units at Head Quarters and field. During the year 2006-07, 94 Major, Medium and ERM Irrigation projects under General Monitoring, 126 Accelerated Irrigation Benefits Programme projects and 21 projects under Vigorous Category are being monitored. In addition, a proposal to study the irrigation potential created in AIBP projects using Remote Sensing applications has also been included under this scheme. The main objectives of the study are (i) Inventory and mapping of irrigation infrastructure consisting of canal network, cross drainage and other related irrigation structures. (ii) Assessment of irrigation potential created. (iii) Identification of gap / critical areas in I.P. creation. For XI Plan, this scheme is proposed to be part of a consolidated scheme named 'Development of Water Resources Information System'.

Monitoring Of Water Quality In Rivers Of India:

4.4.14 River water pollution has now a days become a problem of great concern in water resources sector and is needed to be attended on priority basis. Central Water Commission is monitoring water quality at 371 key locations covering all the major river basins of India with a three tier laboratory system for analysis of surface water samples. The level – I laboratories are located at 258 field water quality monitoring stations on major rivers of India where physical parameters such as temperature, colour, odour specific conductivity, total dissolved solids, pH and dissolved oxygen of river water are observed. There are 24 level – II laboratories located at selected division offices to analyze 25 nos. physico – chemical characteristics and bacteriological parameters of river water, 4 level – III / II+ laboratories are functioning at Varanasi, New Delhi, Hyderabad and Coimbatore where 41 parameters including heavy element / toxic parameters and Pesticides are analysed periodically. The data generated is computerized in Data Base System and disseminated in the form of Water Quality Year Books, Status Reports and Water Quality Bulletins. Water Quality Year Books are published on yearly basis while Water Quality Bulletins are issued regularly. For

XI Plan, this scheme is proposed to be part of a consolidated scheme named 'Development of Water Resources Information System'.

Upgradation and Modernisation of Computerisation/ Information System:

4.4.15 An effort has been started by Central Water Commission during IXth and Xth Plan period to adopt advancement in the field of Information Technology through sanctioned plan schemes. The works proposed in XI Plan are essential for full implementation of CWC's IT vision, and involve activities that are in natural progression to the activities initiated under earlier plan schemes.

4.4.16 The main emphasis of the efforts under XIth Plan Scheme will be to:

(a) Extend CWC-Intranet ("*Sangam*") to field offices by establishment of Wide Area Network (WAN).
(b) Enhance capabilities of the intranet with custom-made software.
(c) Up-grade and strengthen the hardware/ software/ network resources at CWC-Hqs.
(d) Improve CAD/ CAE facilities in CWC for enhancement of design related competency.
(e) Improve CWC's website for wider dissemination of information.
(f) Build IT knowledge-base in CWC through trainings in the field of IT and its applications in engineering areas.
(g) Strengthen the Software Management Directorate which is nodal unit for standardization and implementation of IT System in CWC.

4.4.17 For XI Plan, this scheme is proposed to be part of a consolidated scheme named 'Infrastructure Development'.

Training Of Personnel – National Water Academy:

4.4.18 Important activities under training include arranging training programmes for engineering officers and other staff members of Central Water Commission within India and abroad. Training is also imparted to the State Engineers.

4.4.19 National Water Academy, which was upgraded from Central Training Unit during the 9th Plan with an assistance from World Bank under Hydrology Project, is now functioning as "Centre of excellence" for in-service training of water resources engineering personnel. National Water Academy is imparting training to in-service engineers from state and central organizations on various aspects of Water Resources Development, Planning and Management. It also helps in developing institutional capabilities at the national level for imparting training in new emerging fields in water resources sector on continued basis.

4.4.20 The training and other related activities have received a fillip with the development of infrastructure in NWA. During the year 2007-08, a total 38 number of courses would be conducted for the benefit of 700 officers drawn from various central and state organizations. The total output of NWA for 2007-08 would be about 1700 man-weeks of training.

4.4.21 The training activities of NWA during 2007-08 include two long term training courses viz. 14 weeks duration Induction Training Course for newly recruited Assistant Directors of CWC and a 10 weeks duration Induction Training Programme for newly recruited engineers of NTPC. The short term training courses during 2007-08 cover programmes in the specialized subjects like Investigations for Planning and Formulation of Hydropower Projects, Construction and Cost Aspects of Hydropower Projects, Economic Aspects of Multipurpose Projects, Environmental Studies, Command Area Development, Watershed Development and Management, Flood Management, Geo-informatics in Water Sector, Finite Element Analysis in Water Resources Structures etc. International courses on Hydropower Development and Integrated Water Resources Management (IWRM) are also planned during the year.

4.4.22 The work of infrastructure development of NWA continued during 2006-07. The main institutional building, NWA hostel and guest house and other auxiliary structures had already been completed. Construction of 10 nos. family hostel rooms for the trainees and 7 nos. staff quarters for NWA staff has been completed during 2006-07. Necessary procurement of hardware and software for strengthening computer center, procurement of training aids, new books and periodicals for library would be continued during 2007-08.

Research:

4.4.23 Major research activities undertaken include:

(a) Remote Sensing Application in Water Resources Development and Management.
(b) Hydrographic surveys and studies on reservoir sedimentation.
(c) Study on Socio-economic and Agro-economic impacts of irrigation projects.

Studies on Reservoir Sedimentation, River Morphology and other Remote Sensing Applications

4.4.24 The scheme has been a continuing scheme during 10th Five Year Plan. The scheme promotes the use of modern technology in the fields of Reservoir Sedimentation Survey, Remote Sensing applications in Water Resources Information system, Command area Management, River Morphology etc. and Water logging and soil salinity/ alkalinity studies.

The scheme comprises of three components namely:

A. Remote Sensing applications in Water Resources Development and Management
B. Estimation of sedimentation in reservoirs - conducting Hydrographic surveys of important reservoirs in the country.
C. Modernization of Morphological studies.

4.4.25 Command areas of several irrigation projects have had problems of salinity, alkalinity and water logging. Both from economic and environmental consideration, there is a need for efficient and productive use of land and water resources with least disturbance to the eco-system. In order to conserve land and improve degraded ranges, it is necessary to analyse the land conditions and the cause of land degradation. For the purpose remote sensing and GIS proves to be an effective tool. Comprehensive action for reclamation of land affected by waterlogging, salinity / alkalinity is to be taken up immediately to check further deterioration of precious land. For this purpose, a comprehensive assessment of the problem area is a primary requirement, which is to be followed up by detailed diagnostic survey for framing up suitable reclamation schemes in various command areas.

4.4.26 As the reservoirs are subject to silting, sedimentation of reservoirs is a matter of vital concern in all Water Resources Development Projects. Silting not only occurs in the dead storage but also encroaches into the live storage capacity, which impairs the intended benefits from the reservoirs. Therefore, the problem of sedimentation needs careful consideration. Adequate provision has to be made in the reservoir for accumulation of anticipated quantities of silt. Steps are also required to be taken to ensure that the storage capacities available are not lost or reduced unnecessarily by accelerated sedimentation. In view of above, it is essential to carry out systematic hydrographic surveys of reservoirs (major/medium) at regular intervals in order to estimate the rate of sedimentation. Reservoir surveys are necessary to get more realistic data/estimate regarding the rate of siltation and to provide reliable criteria for studying the implication of annual loss of storage over a definite period of time with particular reference to reduction of intended benefits in the form of irrigation potential, hydropower, flood absorption capacity and water supply for domestic and industrial uses etc. and periodic reallocation of available storage for various pool levels. It will also help in proper estimation of loss of storage at the planning stage itself besides evaluating the effectiveness of soil conservation measures carried out in the catchment area of River Valley Projects.

4.4.27 Water resources development is to be continued to achieve the fullest potential pertaining to irrigation, hydropower, flood control, etc. Proper and adequate knowledge vis-à-vis the river behaviour is likely to be all the more important in the days to come. The morphological study, hitherto being undertaken in a routine manner, has to be upgraded by incorporating latest techniques like remote sensing, new software, GSI, etc

4.4.28 During the year 2006-07, the following studies are being undertaken:

a. Satellite Remote Sensing Based Sedimentation Analysis of 17 reservoirs (12 through consultants + 5 in-house study) are under progress. In addition, analysis of 14 more reservoirs awarded to consultants.
b. Assessment of water logging, salinity and alkalinity affected soils in the commands of all Major and Medium irrigation Projects in the country – Preparation of final reports of five states of MP, Chhattisgarh, Maharashtra, Punjab & Gujarat is under progress. The work is to be continued for rest of the states (12 No.)
c. Hydrographic Survey in respect of 4 new reservoirs.

d. Morphological study of Kosi, Ghaghra, Satluj, Gandak,, Brahmaputra and Ganga rivers using Remote Sensing Technique.

For XI Plan, this scheme is proposed to be part of a consolidated scheme named 'Development of Water Resources Information System'.

Consultancy:

4.4.29 The role and activities of Central Water Commission are directly or indirectly associated with most of the major and medium projects in the areas of investigation, planning, design and technical advice. Besides irrigation and hydro-power projects, assistance in designs is also given in respect of storage dams for drinking and industrial water supply projects. The services rendered to State Governments and other Public Sector Undertakings / Agencies are by way of consultancy on their references. Consultancy and design charges are being recovered from the cliental agencies. At present, consultancy services are being provided to more than 100 projects, which include major projects such as Sardar Sarovar, Indira Sagar (Narmada Sagar), Srisailam, Pykara, Doyang, Tehri H.E. Project, Koteshwar H.E. Project, Tapovan Vishnugarh H.E. Project, and Lohari Nagpala H.E. Project that are under construction. Central Water Commission is also associated with design consultancy in respect of 6 Irrigation/H.E. Projects in Nepal and 6 Mini Hydro Projects of Bhutan.

Setting up of Specialized Units in H. E. Design, Pump Storage & Instrumentation.

4.4.30 This scheme was started during X Plan to upgrade the capabilities of the existing specialised Directorates in CWC so that the much needed technical excellence is ensured to handle planning and design of HE Projects and to upgrade the capabilities of Instrumentation Directorate. The proposal for XI Plan envisages to complete the task of creation of Instrumentation Museum Centre at CWC Hqs. at New Delhi. The instrumentation of a project is very important for any water resources / power generation structure to diagnose the health of the structure during its construction and operation. The designer can also verify assumed parameters while designing the structures with the help of the instruments installed in the structure. There are about 4000 large dams in India and only about 5% of these are instrumented dams. Therefore, in order to meet the requirement of monitoring the performance of nationally important hydraulic structures, it is proposed to enhance the "in-house" capability of CWC by:

a) Providing latest computer packages.

b) Setting up of Instrumentation Museum to display the Working Models.

c) Installation of Instruments and training by an Instrumentation Agency.

For XI Plan, this scheme is proposed to be part of a consolidated scheme named 'Dam Safety Studies & Planning'.

Upgradation of Facilities and Skills in CWC Regarding Dam Safety Rehabilitation

4.4.31 The Dam Safety Assurance and Rehabilitation Project assisted by the World Bank which was successfully completed in September 1999, helped strengthening the institutions of Dam Safety Organisation and Hydrological Studies Organisation of CWC. To improve the technical expertise of Dam Safety in CWC through establishing computer oriented programmes for collecting and analysing information and checking the design of dams, preparing emergency action plans for large dams in the country where safety of these dams may need up-gradation for meeting the present standards for safety norms a scheme named 'Upgradation of Facilities and Skills in CWC regarding Dam Safety Rehabilitation' was started during X Plan. The present scheme which is a spillover of the X Plan scheme envisages the taking up of following activities during XI Plan:

a) Environmental and Social Assessment (ESA) Studies of 10 existing projects in the States of Maharashtra, Madhya Pradesh, Gujarat and West Bengal.
b) Balance work of preparation of PMP Atlas and their digitization for the river basins of Ganga, Brahmaputra, Indus and Krishna.

For XI Plan, this scheme is renamed as 'Dam Safety Studies & Planning'.

Scheme-wise Physical Performance in respect of schemes under Central Water Commission

Name of Scheme/ Activity	Scope and objective of the scheme	Items/Unit	2005-06	2006-07	Achievement upto Dec.2006	2007-08
			Actual	Target		Target
1	2	3	4	5	6	7
Major & Medium Irrigation	-					
1. Strengthening of Monitoring Unit in CWC	Monitoring of selected ongoing Major, Medium and ERM Irrigation Projects throughout the country including AIBP and CAD Projects.	No. of Visits to Project site.	300	388	280	400
2. Snow Hydrological Studies	The objective of the development of snow hydrology programme is to develop snow melt run off model for Yamuna and Chenab basins for assessment of snow melt contribution in the river flow which is necessary for efficient water management for its optimum utilization particularly during the lean season.	Continuous Activity	Observation of hydrometeo-rological data at sites continued. Model study in progress	Collection of hydrometeorological data, modernisation of existing snow sites and development of snow run off model to be continued.	(i)Observation of hydrometeorological data at sites continued (ii)Data being computerised (iii) development of now run off model continued.	Collection of hydrometeorological data, modernisation of existing snow sites and development of snow run off model to be continued.
3. Monitoring of Water Quality of Rivers in India	The objective of the scheme is collection of Water Quality (WQ) data, publication of WQ data and replacement of existing equipments with state of art equipments.	Continuous Activity	Silt and Water Quality testing at 286 Level I/II/III Labs continued. WQ data being published and procurement of WQ equipments have been made.	Collection of WQ data, publication of WQ data and replacement of existing equipments with state of art equipments to be continued.	Collection of WQ data continued. Replacement / procurement of Water Quality equipments is under process.	Collection of WQ data, publication of WQ data and replacement of existing equipments with state of art equipments to be continued.

Name of Scheme/ Activity	Scope and objective of the scheme	Items/Unit	2005-06	2006-07		2007-08
			Actual	Target	Achievement upto Dec.2006	Target
2	3	4	5	6	7	8
4. Hydrological observation of rivers originating from Bhutan	The objective of the scheme is R&M of 29 hydrometeorological sites on rivers originating from Bhutan and issue of flood warnings.	Continuous Activity	R&M and Collection of data from 35 GDS & Met sites at Bhutan continued and flood warning issued in India.	R&M of 35 hydrometeorological sites and issue of flood warnings in India to be continued.	R&M and Collection of data from 35 GDS & Met sites at Bhutan continued and flood warning issued in India.	R&M of 35 hydrometeorological sites and issue of flood warnings in India to be continued.
5. Kirthai and other Multipurpose Projects in Indus basin.	The objective of the scheme is survey, field investigation and preparation of DPR for Kirthai Hydro-electric project Stage-II (J&K) and Seli and Raoli Projects (Himachal Pradesh).	Preparation of DPR	Field investigation works of Kirthai HE Project Stage II completed and DPR under preparation. Investigation of Raoli & Seli projects in H.P.- Geological exploration, Drilling work at Seli Dam site under progress.	Completion of DPR for Kirthai HE Project Stage II. Investigation of Raoli & Seli projects in H.P. and preparation of DPR.	DPR for Kirthai HE Project Stage II under preparation. Survey & investigation of Raoli & Seli projects in H.P. under progress.	DPR for Kirthai HE Project Stage II to be copleted by December, 2007. Survey & investigation for Seli and Raoli Projects and preparation of DPR to be continued.
6. Data Collection from key Hydrological Stations.	The objective of the scheme is R&M of a network of 111 HO sites in river basins other than Ganga & Indus, collection of hydrometeorological data and computerisation and publication of water year, sediment year and WQ Year Books.	Continuous Activity	Collection of HO data from 111 nos. HO sites continued	R&M of network of 111 HO sites, collection of hydrometeorological data and computerisation and publication of water year, sediment year and WQ Year Books to be continued.	R&M of network of 111 HO sites and collection of hydromet data and computerisation of data continued.	R&M of network of 111 HO sites, collection of hydrometeorological data and computerisation and publication of water year, sediment year and WQ Year Books to be continued.

Name of Scheme/ Activity	Scope and objective of the scheme	Items/Unit	2005-06	2006-07	Achievement upto Dec.2006	2007-08
			Actual	Target		Target
2	3	4	5	6	7	8
7. Investigation for Water Resources Development in North-Eastern States.	The objective of the scheme is preparation of Feasibility Reports for 57 minor irrigation schemes in Mizoram and to carry out balance work of survey and investigation of Nuranangchu Micro Hydel Projects (10 Nos.) and Tawangchu Micro Hydel Projects (4 Nos.) in Arunachal Pradesh and preparation of DPR.	Preparation of DPR	Feasibility Report of 9 Minor Irrigation Schemes of Mizoram submitted.	Preparation of feasibility reports for balance 20 minor irrigation schemes and to carry out balance work of survey and investigation of Nuranangchu and Tawangchu micro hydel projects and preparation of DPR.	Preparation of feasibility reports for balance 20 minor irrigation schemes under progress. Balance work of survey and investigation of Nuranangchu and Tawangchu micro hydel projects and preparation of DPR under progress.	Preparation and submission of balance feasibility reports for minor irrigation schemes and to carry out balance work of survey and investigation of Nuranangchu and Tawangchu micro hydel projects and preparation of DPR.
8. National Water Academy	Training to in-service engineers from state and central organizations in Integrated River Basin Planning and Management and other subjects related to water resources development and management	Course	27	32	30	38

Name of Scheme/ Activity	Scope and objective of the scheme	Items/Unit	2005-06	2006-07		2007-08
			Actual	Target	Achievement upto Dec.2006	Target
2	3	4	5	6	7	8
9. Upgradation and modernisation of Information Systems in CWC	Modernisation of CWC HQ with setting up of LAN, e-governance, Procurement of IT Hardware and Software for upgrading and modernising the various IT related services in CWC including installation of Wide Area Network		Procurement of Operating System; Maintenance of computer hardware/software and procurement of IT consumables.	Network security measures, AMC of hardware and LAN, Procurement of hardware, consumables, Intranet development by CDAC,	Intranet Portal Software 'Sangam' completed and its implementation started. Maintenance of computer hardware/software and procurement of IT consumables to be continued.	Extension of CWC-Intranet ('Sangam") to field offices of CWC by establishment of Wide Area Network (WAN). Network security measures, AMC of hardware and LAN, Procurement of hardware, consumables, storage solution, Upgradation & purchase of servers.

Name of Scheme/ Activity	Scope and objective of the scheme	Items/Unit	2005-06	2006-07		2007-08
			Actual	Target	Achievement upto Dec.2006	Target
2	3	4	5	6	7	8
10. Upgradation of facilities and skills in CWC regarding Dam Safety Rehabilitation	The objective of the scheme is to improve the technical expertise of Dam Safety in CWC by establishing 1.Centre for Numerical Modelling of Dams & Allied components. 2.Management Information System for Dam Safety. 3.Group for Preparation of Emergency Action Plans. 4.Preparation of PMP Atlases for the basins of Ganga including Yamuna, Brahmaputra, Indus and Krishna & automation through web base. 5.Review of Design Flood of Large Dams.		Processing of procurement of IDEAS package. Training programme in NWA, Pune DHI, Delhi conducted.. Preparation of PMP Atlas for Krishna & Indus Basins by the IITM, Pune under progress.	To carry out Environmental and Social Assessment (ESA) Studies of 10 existing projects in the States of Maharashtra, Madhya Pradesh, Gujarat and West Bengal. Preparation and digitisation of PMP Atlas for Krishna, Ganga, Brahmaputra and Indus basins	Environmental and Social Assessment (ESA) Studies of 10 existing projects in the States of Maharashtra, Madhya Pradesh, Gujarat and West Bengal to be awarded. Preparation of PMP Atlas for Krishna & Indus Basins by the IITM, Pune to be completed. Work of digitisation of PMP Atlas for Krishna basin awarded to CDAC, Pune.	Environmental and Social Assessment (ESA) Studies of 10 existing projects in the States of Maharashtra, MP, Gujarat and West Bengal to be carried out. Preparation of PMP Atlas for Ganga and Brahmaputra basins and digitisation of PMP Atlas for Krishna, Ganga, Brah-maputra and Indus basins.
11. Setting up of Specialised units in (a)H.E.Design (b)Pumped Storage & (c)Strengthening of Instrumentation Dte.	To enhance the "In-house"' capability of CWC in the field of H.E. Design, Pumped Storage and Instrumentation.		Set up the Infrastruc-ture for Instrumen-tation Demonstration Centre. Conducted two trainings on Ana-lysis & Design of Dams at NWA Pune and two trainings on tunnels and under-ground caverns at IIT, Roorkee.	Procurement and Installation of models in Instrumentation Demonstration Centre of CWC.	Procurement and Installation of models in Instrumentation Demonstration Centre of CWC to be continued.	Procurement and Installation of models in Instrumentation Demonstration Centre of CWC to be continued.

Name of Scheme/ Activity	Scope and objective of the scheme	Items/Unit	2005-06	2006-07		2007-08
			Actual	Target	Achievement upto Dec.2006	Target
2	3	4	5	6	7	8
12. Studies on Reservoir Sedimentation and other Remote Sensing Applications						
12.(i) Reservoir sedimentation study using remote sensing technique.	To upgrade elevation - area - capacity curves of reservoir for use in the operation and management of the reservoir. To provide data base for developing Regional Sedimentation Indices, and rational planning of future reservoirs from the angle of expected sedimentation.					
(a) In-house studies		Study	2	5	Report of two reservoirs (In-House) finalised. Draft report of 4 reservoirs prepared and under finalisation.	2
(b) Through consultants			18	26	NRSA Hyderabad completed study of four reservoirs and report submitted. MERI Nashik completed study of eight reservoirs and reports submitted. Study of 14 more reservoirs awarded to MERI Nashik, out of which eleven reservoirs found feasible and study under progress.	(I) Balance work of Satellite Remote Sensing based sedimentation assessment awarded to MERI Nashik. (ii)Work of Satellite Remote Sensing based sedimentation assessment of 11 reservoirs to be awarded to consultants.

Name of Scheme/ Activity	Scope and objective of the scheme	Items/Unit	2005-06	2006-07		2007-08
			Actual	Target	Achievement upto Dec.2006	Target
2	3	4	5	6	7	8
12.(ii) Command Area Monitoring/ Satellite monitoring of AIBP studies.	To assess the irrigation potential created up to March, 2005 in the commands of Upper Krishna and Teesta Projects	Study	2	Nil		
12.(iii) Water-logging and salinity study of the country using remote sensing technique	To update the data on water logging and salinity/ alkalinity in irrigated commands and to provide assistance in formulation of the reclamation schemes to combat the drainage problem in irrigation commands	Study	Nil	5	The Final Reports in respect of Maharashtra, MP, Gujarat, Punjab & Chattishgarh are under progress.	Work of assessment of water logged salt and/or Alkaline affected soils in the irrigated commands to be continued in rest of the States
12(iv) Capacity survey of important reservoirs using Hydrographic technique	Estimation of sedimentation in reservoirs - Conducting Hydro-graphic survey of important reservoirs in the country	Study	3	Capacity survey of 7 reservoirs to be awarded to consultants.	Award of work to consultants in respect of Capacity survey of 4 reservoirs completed. Award of work to consultants in respect of Capacity survey of 3 more reservoirs under process.	Capacity survey of 7 reservoirs awarded to consultants to be completed. (ii)Capacity survey of 3 more reservoirs to be awarded to consultants.

Name of Scheme/ Activity	Scope and objective of the scheme	Items/Unit	2005-06	2006-07		2007-08
			Actual	Target	Achievement upto Dec.2006	Target
2	3	4	5	6	7	8
12(v) Morphological study of the country using remote sensing technique	River Morphology, behaviour and efficacy of flood management structures & efficacy of irrigation and drainage projects ascertaining bed slope, aggradation / degradation of the river bed, shifting trend of the river	Study	Final draft reports of Ghaghra and Satluj submitted by NIH Roorkee. Interim draft report of Gandak submitted by CWPRS.	4	Final draft reports of Ghaghra and Satluj and interim draft report of Gandak deliberated upon by the Standing Committee for Morphological Studies of Himalayan Rivers of India and comments/observations sent to NIH Roorkee and CWPRS. A copy of the draft study report of river Kosi prepared by NIH Roorkee circulated among the members of the above committee for their observations/comments	Works of Morphological study of Kosi, Ghaghra Satluj Gandak Brahmaputra and Ganga (from Allahabad to Buxar) rivers to be continued. In addition, Morphological Studies for 10 more rivers are proposed to be initiated.

4.5 Central Soil and Material Research Station(CSMRS):

Continuing Schemes:

4.5.1 Based on the recommendations by STAC, the Eleventh Five Year Plan (2007-2012) and Annual Plan 2007-2008 was prepared and submitted to the Ministry of Water Resources in November, 2006. Ministry in turn directed CSMRS to prepare the revised Eleventh Plan based on introducing only one plan scheme by way of merging all the four Ongoing Plan Schemes into a single Plan scheme during the Eleventh Five Year Plan. Accordingly the following four ongoing Plan schemes are merged into a single scheme under the modified title "Geotechnical Investigation and Research for River Valley Project".

Sl. No.	Name of the Scheme for merger	Modified name of the merged schemes
1	Geotechnical Investigation for River Valley Projects	1) Geotechnical Investigation and Research for River Valley Project.
2	Applied/Basic Research in Structures	
3	Advanced Research and Consultancy	
4	Upgradation of Laboratory and Field Testing Facilities.	

Geotechnical Investigations and Research for River Valley Projects:

4.5.2 With the implementation of this scheme during 8th plan the CSMRS is now in a position to carry out detailed geo-mechanical investigations for various river valley projects, which are essential for achieving the most economical design and method of construction. It is a recognized fact that the expenditure on proper investigations repays itself several folds in terms of overall cost of the project and the time saved in construction of structures. Problems associated with thrust, shear and fault zones, squeezing ground conditions and tectonic forces exist in the Himalayan region are by themselves unique and call for organizing powerful inter-disciplinary specialization involving geology, geophysics and geo-mechanics.

4.5.3 Main activities of CSMRS during XIth plan period will be as under:

ONGOING ACTIVITIES:

Geotechnical Investigation and Research for River Valley Project.

a. Geotechnical Inestigatons for River Valley Projects.
b. Applied/Basic Research in Hydraulic Structures.
c. Advanced Research and Consultancy conerning Geo-mechanics and Material science.
d. Upgradation of Laboratory and Field Testing Facilities in Rock Mechanics, Soil mechanics, Foundation Engineering and Concrete Technology.

e. Training Programmes for In service Engineers.
f. Drilling for Geotechnical Investigations.
g. New Construction Techniques.
h. Infrastructure facilities for testing of Geosynthetics / Geo-textiles.
i. Research on Advanced Minerolgy and chemistry of Materials of Construction.
j. Setting up of centre of exellence in the fields of Earthquake Geo-technology, Roller compacted Concrete and Rock Mechanices.

NEW AREAS OF ACTIVITIES :

Centre for Establishment of Advanced Geotechnical Testing Techniques.

a. Upgradation of Soil, Rockfill and Rock Mechanics Testing Facilities.
b. Modernization of Advanced Geophycial Investigation Techniques.
c. Facilities for Diognostic Investigation for safety of existing Dams.
d. Centre for Development of Polymer Concrete and New Materials.
e. Establishment of Rock Grouting Laboratory.
f. Implementation of Information Technology for e-goverance.
g. Numerical Modelling and Analysis of Geotechnical Problems.
h. Institutional Co-operation Programme in the Field of Risk and Reliability analysis of Water Resources Development Projects.

4.5.4 The financial/physical targets and achievements in respect of various activities undertaken by CSMRS during 2005-06 and 2006-07 are given in the following tables:

Review of financial/physical targets and achievements during 2005-06.

(Rs in crore)

S.No.	Name of Scheme	Objective/Outcome	Outlay 2005-06	Expd. up to March 2006	Physical Outputs /Quantifiable Deilverables as projected in Outcome Budget 2005-06	Achievement of Physical Outputs/Quantifiable Deliverables projected in Outcome Budget 2005-06 (Upto 31.03.2006)	Explanatory notes on non-achievement of physical Outputs/Quantifiable Deliverables projected in Outcome Budget 2005-06, if any
1	2	3	4	5	6	7	
1	Geo-Technical Investigation for River Valley Projects	Research papers & training of officers.	2.80	2.79	-Field investigation and collection of Samples (30 Nos of Laboratory testing (6,000 -Preparation of Reports (30 Nos.) -Research Problems (4 Nos.) -Publishing Research Papers (10 Nos) -Participation in Workshops /Conferences/Seminars (30 Nos of persons – 10) -Organizing Workshops/Training courses/Seminars/Symposia/Conferences (2Nos.) - Delivering lectures (15 Nos.)	-Field investigation and collection of samples : 31 Jobs -Laboratory testing : 6100 -Preparation of Reports: 28 Nos -Research Problems : 4 (in progress) -Publishing Research Paper: 10 Nos -Participation in Workshops/ Conferences/Seminars , No of persons :12) -Organizing Workshops/Training courses /Seminars/Symposia/Conferences : 1 No. -Delivering lectures : 18 Nos.	Not Applicable
4	Upgradation of Laboratory and Field Testing Facilities.	It includes field investigation and collection of samples of 5 Jobs. Laboratory testing of 1000 Nos. It also includes publishing Research Papers, training etc., The scheme is approved.	1.16	1.13	- Field investigation and collection of Samples (5 Jobs) - Laboratory testing (1,000) -Preparation of Reports (5 Nos.) -Research Problems (2 Nos.) - Participation Workshops/Conference/seminar s(No. of ppersons – 30) -Organizing Workshops/Training ccourses/seminars/symposia/Co nferences (1Nos.)	-Field investigation and collection of samples : 3 Jobs -Laboratory testing : 700 Nos. -Preparation of Reports : 3 Nos. -Research Problem : 2 (in progress) -Participation in Workshops/ Conferences/Seminars , No of persons :12) -Organizing Workshops/Training courses /Seminars/Symposia/Conferences : 1 No. -Delivering lectures : 18 Nos.	Not Applicable
	Total -CSMRS		5.76	5.53			
2	Applied/ Basic Research in Structures	It includes field investigation and collection of samples of 5 Jobs , laboratory testing of 1000 Nos, calibrations of equipments 100 Nos. It also includes publishing Research papers The scheme is approved.	1.00	0.79	-Field investigation and collection of Samples (5 Jobs) - Laboratory testing (1,000) -Preparation of Reports (5 Nos.) -Research Problems (4 Nos.) - Publishing Research Papers (2 Nos.) -Training of CSMRS officers (5 Nos.) - Participation in Workshops/ Conferences/Seminars (No of persons – 5) - Organizing Workshops/Training courses/Seminars/Symposia/Conferences (1Nos.)	-Field investigation and collection of samples : 5 Jobs. -Laboratory testing : 1050 -Preparation of Reports :5 Nos. -Research Problem : 4 (in progress) -Publishing Research Paper : 2 No. -Training of CSMRS officers : 3 Nos. - Participation in Workshops/ Conferences/Seminars, No of persons : 5 - Organizing Workshops/Training courses/Seminars/Symposia/Conferences: 1No.	Not Applicable

Review of financial/physical targets and achievements during 2006-07.

(Rs in crore)

S.No.	Name of Scheme	Objective/Outcome	Outlay 2006-07	Expd. up to Dec. 2006	Physical Outputs /Quantifiable / Deilverables as projected in Outcome Budget 2006-07	Achievement of Physical Outputs/Quantifiable Delierables projected in Outcome Budget 2006-07 (Upto 31.12.2006)	Explanatory notes on non-achievement of physical Outputs/Quantifiable Deliverables projected in Outcome Budget 2006-07, if any
1	2	3	4	5	6	7	
1	Geo-Technical Investigation for River Valley Projects	It includes field investigation and collection of samples of 30 Jobs ,.Laboratory testing of 6000 Nos. It also includes publishing Reserch Papers, training courses etc., The scheme is approved.	5.00	2.65	-Field investigation and collection of Samples -30Jobs - Laboratory testing -6,000 -Preparation of Reports -30 Nos. -Research Problems -4 Nos. -Publishing Research Papers -10 Nos. ParticipationiWorkshops/Conference/ Seminars- No. of ppersons – 30 - Organizing Workshop/Training Courses/Seminars/Symposia/Conferenc es-- 2Nos. - Delivering lectures -15 Nos.	-Field investigation and collection of samples : 20 jobs. -Laboratory testing : 4200 -Preparation of Reports: 19 Nos .-Research Problems : 3 (in progress) -Publishing Research Paper: 9 Nos -Participation in Workshop/ Conferences/Seminars - No of persons :25 Organizing Workshops/Training Courses/Seminars/Symposia/Conferences: (2Nos. -Delivering lectures : 12 Nos.	Not Applicable
2	Applied/ Basic Research in Structures	It includes field investigation and collection of samples of 5 Jobs , laboratory testing of 1000 Nos, calibrations of equipments 100 Nos. It also includes publishing Research papers The scheme is approved.	1.21	1.31	-Field investigation and collection of Samples -5 Jobs - Laboratory testing -1,000 -Preparation of Reports -5 Nos. -Research Problems -4 Nos. - Publishing Research Papers -2 Nos. -Training of CSMRS officers -5 Nos. Participation in Workshops/ Conferences/Seminars , No of persons – 5 - Organizing Workshops/Training ourses/Seminars/Symposia/Conferences 1Nos.	-Field investigation and collection of samples : 3 Jobs. -Laboratory testing : 600 -Preparation of Reports :2 Nos. -Research Problem : 2 (in progress) -Publishing Research Paper : 2 No. -Training of CSMRS officers : 1 Nos. . - Participation in Workshops/ Conferences/Seminars, No of persons : 5 - Organizing Workshops/Training courses/Seminars/Symposia/Conferences: 1No.	Not Applicable
3	Advanced Research and Consultancy	It includes field investigations and collection of samples of 15 Jobs, Laboratory testing of 3000 nos. It also includes calibration of 5 Nos.equipments, publishing of Research papers & training of officers.	0.92	0.62	-Field investigation and collection of Samples -15Jobs - Laboratory testing -2000 -Preparation of Reports -15 Nos. -Research Problems -2 Nos. -Publishing Research Papers-5 Nos. -Training of CSMRS officers -10 Nos. - - Participation in Workshops /Conferences/Seminars , No of persons – 10	Field investigation and collection of samples : 9 Jobs. Laboratory testing : 1200 Nos. Preparation of Reports : 9 Nos. -Research Problem : 2 Nos.(in Progress) -Publishing Research Papers : 3 Nos. -Training of CSMRS officers : 6 Nos. - - Participation in Workshops/ Conferences/Seminars - No of persons : 10 Nos.	Not Applicable

4	Upgradation of Laboratory and Field Testing Facilities.	It includes field investigation and collection of samples of 5 Jobs. Laboratory testing of 1000 Nos.. It also includes calibration of equipments of 50 nos. and publishing of Research papers.	1.21	1.15	-Field investigation and collection of Samples -5 Jobs - Laboratory testing -1,000 -Preparation of Reports -5 Nos. -Research Problems -2 Nos. -Publishing Research Papers-2 Nos. - Organizing Workshops/Training courses/Seminars/Symposia/Conference (1Nos.	-Field investigation and collection of samples : 3 Jobs. -Laboratory testing : 650 Nos. -Preparation of Reports : 3 Nos. -Research Problem : 2 (in progress) -Publishing Research Papers : Nil. - Organizing Workshops/Training courses /Seminars/Symposia/Conferences : 1 No.	Not Applicable
		Total - CSMRS	8.34	5.73			

4.6. Central Water And Power Research Station(CWPRS):

4.6.1 The ensuing sections give a description of various activities completed during 2006-07 and proposed during 2007-08 under the following sub-heads:

(A) Studies and research

(B) Plan schemes

(C) Dissemination of technical know-how

(A) *Studies and Research:*

4.6.2 CWPRS carries out basic, applied and field-oriented research at the ten major laboratories under one umbrella at its campus in Khadakwasla, Pune. The research output of the institution is mainly in the form of advice relating to safe, economic and rational technical solutions to the problems referred. The research studies taken up generally relate to scrutiny of designs through model studies, field investigation and calibration of equipment. In the specific area of design, aspects such as optimization, feasibility and overall efficiency are covered. When the studies are related to investigation, adequate and reliable data on the basis of which planning can be made, are provided by CWPRS. Calibration of current / flow meters is also an important activity of CWPRS. Technical reports are submitted to clients on completion of the studies.

4.6.3 During 2006-07, ninety-three technical reports (up to mid-February 2007) were submitted to various project authorities.

4.6.4 CWPRS undertakes assignments on a no-loss no-profit basis. During 2006-07, one hundred and sixty one works (up to mid-February 2007) from the three major sectors of water resources, energy and water-borne transport were undertaken.

4.6.5 During *2006-07*, CWPRS was associated with a number of major projects which included: Bridges across Pravara, Kosi and Yamuna rivers, Morphological studies of Brahmaputra; Hydro-Electric projects of Kotlibhel, Tala, Chuzachen, Vishnugad Tapovan, Loharinag Pala, Lower Subansiri, Rupsiabagar Khasibara, Pulichintala, Uri, Ghatghar, Koyna; Nuclear/ Thermal/ Gas based power projects of Bakreshwar, Kudankulam, Kakrapar, Kalpakkam, Nagathone, Dadri; and Major Ports at Nhava Shewa, Mumbai, Paradip, Kandla, Vizag, Ennore and New Mangalore.

(B) *Plan Schemes:*

4.6.6 The following ongoing Plan schemes are operational at CWPRS:

(i) Application of Remote Sensing Techniques / Upgradation of Coastal & Offshore Data Collection Capabilities / Modernisation of Earth Sciences Laboratory
(ii) Upgradation and Modernisation of Research Facilities at CWPRS
(iii) Improvement of Canal Control through Modern Techniques and Technology
(iv) Hydrology Project II

4.6.7 Brief description, highlighting the objectives and achievement of the schemes during 2006-07 and the work plan for 2007-08 is provided below:

Achievement during 2006-2007:

(i) Application of Remote Sensing Techniques / Upgradation of Coastal and Offshore Data Collection capabilities / Modernisation of Earth Sciences Laboratory

4.6.8 The three schemes, namely Development and Application of Remote Sensing Techniques for Hydraulic and Coastal Engineering, Upgradation of Coastal & Offshore Data Collection Capabilities and Modernisation of Earth Sciences Laboratory for solving Engineering & Geotechnical problems were merged to form one single scheme for continuation during X^{th} Plan period.

4.6.9 The component of "Development and Application of Remote Sensing Technique for Hydraulics and Coastal Engineering" was approved as an independent scheme on 13.7.1999 under IX Plan. The main objectives of the scheme include development of infrastructure facilities at CWPRS for use of Remote Sensing and GIS technique and applications of Remote Sensing and GIS techniques in Hydraulics and Coastal Engineering.

4.6.10 The main objective of the offshore data component was to upgrade the field data collection capabilities by procuring sophisticated field equipment such as suspended and in-situ Current Meters, Acoustic Doppler Current Profiler (ADCP), Wave Rider Buoys, Digital Global Positioning System (DGPS), water samplers, Acoustic Releases, Directional Wave-cum-Tide and Current Gauges for measurement of coastal parameters. The data collected with the above-mentioned sophisticated instruments are of vital importance for physical/ mathematical model studies, especially with regard to providing crucial information on boundary conditions for models, which is a key factor in giving reliable solutions to real life problems.

4.6.11 The earth sciences component had the objective to modernise the Earth Sciences Laboratory in terms of equipment and allied software oriented to offer solutions to diverse problems such as selection of sites on shore and off-shore, evaluating soundness of health of existing earth/ rockfill dams, detecting buried pipelines and cables, locating source of canal seepage, assessment of groundwater resources as also locating voids and large metallic objects in land-fill areas.

4.6.12 With an allocation of Rs.0.25 crore in Annual budget 2006-07, the following activities were completed.

- Analysis of satellite imageries
- Undertaking Field visits and collection of data
- Reservoir sedimentation studies
- Collection of imageries and field data for reservoirs completed
- Equipment deployment for data acquisition and field data collected

(ii) Upgradation and Modernisation of Research Facilities at CWPRS

4.6.13 The main objective of the scheme is to upgrade and modernise the existing research facilities in various laboratories such as Coastal Engineering, Earthquake Engineering, Instrumentation, Hydrology and Water Resources, Reservoir and Appurtenant Structures, Structural Engineering, Rock Mechanics, Hydro Machinery, Environmental Engineering, and Hydrogeology. Upgrading of the facilities under the scheme has enabled, CWPRS to serve the nation in solving problems related to development of water and power resources and water borne transport more efficiently.

4.6.14 With an allocation of Rs. 4.10 crore during 2006-07 in the annual plan, the following activities have been undertaken/ completed:

- Civil works of wave flume completed
- Construction of Hangar for housing models of high head structures completed; Internal civil works in progress
- Construction work for the hangar for Multipurpose Wave Basin for the design of port layout commenced
- Procurement of the items under machinery and equipment component viz. Atomic absorption spectrophotometer, multi channel seismograph, software for application in geotechnical engineering, Tensile testing machine etc in progress

(iii) Improvement of Canal Control through Modern Techniques & Technology

4.6.15 An experimental facility is being set up under the scheme for training field engineers associated in the design and operation of canals. The long-term objective of the scheme is to improve canal control through modern techniques and technology. A series of workshops/ seminars are proposed to build confidence among designers and canal operators in improvement of canal operation and to help minimise the gap between technology development and its application for canal control. The project is expected to directly benefit field engineers, and in turn the farmers, who are the end water users.

4.6.16 Civil works relating to renovation works such as providing reinforced concrete slab and plinth protection to the existing tank facility has been taken up by CPWD. Procurement of equipment such as current meters, pumps, computers and communication equipment, etc. is in different stages of completion.

4.6.17 Under the scheme, the following activities were undertaken during 2006-07:

- Construction and fabrication of gates in progress
- Procurement of current meters
- Procurement of miscellaneous machinery & equipment for calibration
- Construction of pump house, inlet / outlet chambers, continued construction work of office building
- Laying of pipeline, electrification of building, pump house, model flume
- Construction of canal in laboratory with structures such as AVIS/ AVIO gates, duckbill weir, composite/ baffle/ distributor gates, etc.

iv) Strengthening the infrastructure facility at CW&PRS

4.6.18 Under the proposal "Strengthening the infrastructure facility at CWPRS" at an estimated outlay of Rs 29.70 crore, it is proposed to strengthen the infrastructure facilities at CWPRS in respect of manpower development, Information and Communication equipment, latest software for mathematical modelling, hangar facilities for studies relating to estuaries and river delta systems, besides undertaking basic research work. Further, major works relating to water recirculating system, electrical infrastructure, roads/sewage/boundary wall, renovation of auditorium, field office building and exhibition hall will also be undertaken.

Work plan for 2007-08:

4.6.19 All the schemes undertaken during X plan, other than `Hydrology Project II', will be physically and financially closed by March 2007 and new scheme viz "Strengthening the infrastructure facility at CWPRS" will be implemented upon approval. The construction of Multipurpose Wave Basin for the design of Port layout, commenced during X plan period, will be continued during XI plan. Besides, procurement of sophisticated equipment, mathematical modelling software, preliminary works relating to water recirculating system, electrical infrastructure and roads/ drainage system/ boundary wall will also be undertaken. Under existing provisions of Hydrology Project II, Institutional strengthening (Technical & General) will be continued; and purpose driven/ in-house studies undertaken in conjunction with other implementation agencies.

(C) *Dissemination of Technical Know-how:*

4.6.20 The mandate of CWPRS encompasses activities related to dissemination of technical know-how by publishing research papers in national/international journals, seminars/ conferences/ workshops, etc.; organising training courses/ workshops, publishing technical memoranda, delivering lectures and participation in technical committee meetings, etc.

4.6.21 The physical targets and achievements during 2005-06 and 2006-07 (upto January 2007) and physical targets in respect of various activities of CWPRS are given in the following table:

Physical Targets & Achievements (2006-07)

(Central Water and Power Research Station)

Sl. No.	Item	Unit	Actuals 2005-06	2006-07		Target 2007-08
				Target	Achievements up to Jan 2007	
A.	**Client Sponsored studies**					
1.	Physical/ Mathematical Model/ Desk studies	No	161	120	161	125
2.	Testing of soil, rock, concrete, cement, fine and coarse aggregate samples	No	670	700	650	725
3.	Water quality analysis for salinity intrusion, sedimentation etc. - Testing of samples	No	924	1000	850	900
4.	Calibration of current meters/ flow meters	No	975	800	664	1000
5.	Technical Reports	No	99	110	93	110
B.	**Dissemination of Information**					
1.	Publishing research papers (Journals/ Conferences/ Seminars) & Technical Memoranda	No	40	70	23	70
2.	Training of CWPRS staff	No	84	120	85	80
3.	Organising Workshops/ Seminars/ Symposia/ Conferences	No	06	08	01	06
4.	Delivering lectures	No	81	75	35	80
5.	Participation in Technical Committee Meetings	No	31	25	22	25

4.7 National Water Development Agency(NWDA):

4.7.1 The National Water Development Agency is an autonomous society under this Ministry set up in July 1982 under Societies Registration Act 1860. The constitution and functions of NWDA are discussed in Chapter-VI. The physical performance under the plan scheme of NWDA is discussed below:

4.7.2 So far NWDA has completed the water balance studies of 137 basins / sub-basins, water balance studies at 71 diversion points, toposheet & storage capacity studies of 74 identified reservoirs, toposheet studies of 37 water transfer links including identification of command area enroute, preparation of prefeasibility studies of 32 link projects. Out of this 30 links have been identified for preparation of feasibility reports. Feasibility reports of 16 link projects (14 under Peninsular and 2 under Himalayan Rivers Development Components) of National Perspective Plan have been completed and FRs of remaining 14 links are under progress at various stages.

4.7.3 Efforts are made for arriving consensus amongst the states for priority links so that the work for preparation of Detailed Project Reports (DPRs) can be taken up. After signing of MOU between MP, UP & Union Govt., the work for preparation of DPR of Ken – Betwa link is under progress for which 3 divisions and 2 sub divisions of NWDA have been exclusively deployed for the purpose. In addition to available staff strength, part of manpower exclusively required for the above work is being met through placement agencies on contract basis. The work for preparation of DPR of Ken – Betwa link will remain in progress during the year. In addition to above, NWDA has also been mandated to take up the work of preparation of DPRs / FRs of intra – state links as proposed by the state governments.

4.7.4 The scheme-wise physical performance during X plan period (upto December 2006) in respect of various activities carried out by NWDA in fulfillment of its objective of detailed planning of inter basin water transfer link proposals, survey & investigation and preparation of feasibility reports / DPRs of various link proposals relating to Peninsular & Himalayan Rivers Development Components is given in the following table:

Physical performance during Xth plan period (upto December 2006)
(National Water Development Agency)

S. No.	Item / unit	Xth Plan		Target 2006 – 07	Achieve-ment upto Dec.06	Reasons for variation
		Target	Achieve-ment upto 05 – 06			
I	Survey & Investigations for preparation of Feasibility Reports of link proposals					
a)	Peninsular Component	10 Nos.	8 Nos.	1 No.	-	For one link, consent of Govt. of Karnataka received during August, 2005 and NWDA has started the various activities related with preparation of feasibility report of this link project. However due to opposition of local people, the survey works could not be started. Campaign is being started to convince the local people by explaining the advantages of the project. For another link, consent is yet to be received from Govt. of Karnataka for carrying out the field survey & investigation works for preparation of FR.
b)	Himalayan Component	14 Nos.	2 Nos.	7 Nos.	1 No.	Four links, which do not involve international dimensions directly are in advanced stage of completion. One link, the S&I works are under progress at various stages. For another link, Survey work was given to Survey of India. As the project area lies in Naxalite affected districts, the Survey of India (SOI) has not started the work so far. Due to long delay by SOI now the survey work has been initiated by NWDA. The remaining 5 links involve International dimensions, permission is required from neighboring countries viz Nepal & Bhutan for carrying out field S& works, hence no target has been fixed for these links.
II.	Survey & Investigations for preparation of Detailed Project Report of Ken – Betwa Link Project.	-	-	-	-	After signing a tripartite Memorandum of Understanding (MOU) by the Union Minister of Water Resources, Chief Minister of Madhya Pradesh & Uttar Pradesh on 25.08.2005 for preparation of Detailed Project Report (DPR) of Ken - Betwa link by Central Government, the Ministry of Water Resources has decided that the preparation of Detailed Project Report (DPR) of Ken-Betwa link project will be done by NWDA with active support and guidance of Central Water Commission with in 30 months. Accordingly, the survey & investigation works for preparation of DPR of this link project have been started by NWDA in January, 2006 which are under progress at various stages.

4.8 National Institute of Hydrology (NIH):

4.8.1 The National Institute of Hydrology is an autonomous society under the Ministry of Water Resources. The organizational structure and functions of the institute have been discussed in Chapter-VI. The overall physical performance of the society during 2005-06, 2006-07 (Upto Dec. 06) and targets for 2007-08 are highlighted in the following paragraphs.

4.8.2 *Studies and Research:* During the year the Institute has carried out basic, applied, strategic and field & laboratory oriented research at its headquarters and regional centers. The research outputs of the Institute are published in the form of reports and papers in the peer-reviewed scientific journals. During the year 2006-07, the Institute has published 55 research papers in reputed international and national journals and 110 papers in the proceedings of international and national conferences and symposia. More than 45 reports based on studies and research in hydrology have been prepared during the year. Thirty one studies taken up during 2006-07 will be completed by the 31st March 2007. During the next year (2007-08), 20 Technical Reports and 70 Research Papers are likely to be published. It is also expected that 80 papers will be presented in the various Seminars and Symposia during the year 2007-08. Based on the vision document of the institute prepared during 2004, current interests in hydrology in the world, emerging and current water resources issues in the country and keeping in view the future hydrological problems in India, the Institute has drawn up thrust areas of research for the 11th Plan.

4.8.3 *Sponsored and Consultancy Projects :* The Institute has gained expertise and advanced technical knowledge in different areas of hydrology and water resources development. The Institute has been undertaking research studies for providing solutions to the real life hydrological problems in the field using advanced techniques. During the year 2006-07, the Institute has completed studies for seven sponsored and consultancy projects that were taken up earlier. In addition six new projects were taken up during the year. The titles and sponsors of the completed and ongoing projects are given below:

1. Streamflow Modelling of Bhagirathi River: Hydrograph Separation using Isotope and Geochemical techniques.
2. Assessment of Groundwater quality in 24 metropolitan cities of India.
3. Morphological studies of Ghaghra and Satluj River using remote sensing.
4. Seasonal Characterization of Ablation, Storage and Drainage of Melt Runoff and Simulation of Streamflow for Gangotri Glacier.
5. Directory of organizations working in the area of watershed management.
6. Integrated Hydrological Study for sustainable development of two Hilly watersheds in Uttaranchal.
7. Design flood Estimation for Bichom and Tenga Dams [Kameng Hydro-Electric Project (600MW), Arunachal Pradesh].
8. Land-use Change, Watershed Services and Socio-Economic impact in the Western Ghats Region.
9. Estimation of probable maximum flood for Pulichintala Dam, District: Krishna, Andhra Pradesh.
10. Development of Drought Vulnerability Indices for Preparedness and Mitigation.

11. Development of non-linear data driven model for flood forecasting for Indian Rivers.
12. Hydrological studies and multi-reservoir simulation studies for Detailed Project Report of Ken-Betwa Link.
13. Irrigation efficiency of Saran and Upper Morhan irrigation schemes.

4.8.4 *Indian National Committee on Hydrology (INCOH):* The Institute has been providing secretarial assistance to the Indian National Committee on Hydrology (INCOH). This Indian National Committee, as one of its objectives, provides technical support to the Ministry of Water Resources (MoWR) in evaluating the R&D projects and studies for funding. Till date, under INCOH, MoWR has granted financial support to 65 research projects under "Research Schemes Applied to River Valley Projects". The Standing Advisory Committee of INCOH has approved five Research & Development projects for funding during the year 2006-07 by Ministry of Water Resources. In pursuance of its objectives of preparing and periodically updating the state-of-the-art technology in hydrology in the country, the secretariat has published one state of the art report during the year. The secretariat also publishes an annual journal on hydrology entitled "Jal-Vigyan Sameeksha". The journal is being distributed to about 500 organisations in the country and abroad in order to disseminate and promote knowledge in the field of hydrology. During the year one issue of Jal Vigyan Sameeksha was brought out. The INCOH has funded ten international as well as national seminars, symposia, workshops and conferences in the relevant areas of hydrology and water resources development during the year. One of the major aims of the INCOH is to effectively coordinate and act as the focal point for the international Hydrological Programme (IHP) of UNESCO. The Committee has been involved in the VI phase of IHP (2002-2007) of UNESCO, which is devoted to water interaction with various systems emphasizing the need to solve social changes ahead and associated risks. INCOH is drawing up a work plan for the VII phase (2008-2013) of IHP as National Contribution.

4.8.5 *Hydrology Project:* The Institute is participating under Institutional Strengthening and Vertical Extension components of HP-II besides, acting as the Nodal agency for the implementation of DSS (Planning) in conjunction with 9 States and 6 Central Organizations. During the year, three training courses and two workshops were organized with the partners to finalize the structure of DSS (Planning). EOI, RFP and TOR for the development of DSS have been prepared and necessary actions for hiring consultants taken up.

4.8.6 *Technology Transfer:* One of the main objectives of the Institute is to transfer the developed technology to the target users. Besides, wide circulation of the published reports and research papers, organization of workshops, training courses, seminars, symposia, conferences, brain storming sessions, etc. have been major activities under the Technology Transfer Programme. During the year 2006-07, the Institute has organized following activities:

1. Joint Workshop with CSMRS on Water Quality and Its Management at New Delhi, May 22-26, 2006.
2. Training Course on Estimation of Probable Maximum Flood at Roorkee, May 29-June 2, 2006.

3. Training Course on Watershed Management in Semi-Arid Region at Sagar, June 16-17, 2006.
4. Training Course on System Approach for Water Resources Management at Roorkee, June 26-July 7, 2006.
5. Workshop on Preparedness Review for DSS (Planning) at Roorkee, July 12-13, 2006.
6. Training Course on Application of Surface Water Data Processing Software with emphasis on SWDES at Roorkee, August 28-30, 2006.
7. Training Course on Application of Modern Techniques in Practicing Hydrology at Roorkee, October 9-13, 2006.
8. Training Course on Applications of Modern Techniques in Practicing Hydrology at Roorkee, October 9-13, 2006.
9. Interactive Workshop for Prioritization of Structure, Inputs and Outputs of DSS (Planning), November 22-24, 2006.
10. Five days Training Workshop on Watershed Hydrology and Management at Roorkee during December 11-15, 2006.
11. Five days Training Workshop on Basic Hydrology, Hydraulics and Geomorphology at Guwahati during January 2-6, 2007.

4.8.7 *Work Programme for the year 2006-2007:* The studies and research in the Institute are being carried out broadly under the following major categories:

- Basic studies and research
- Applied studies and research
- Software Development
- Field and Laboratory oriented and strategic research
- Sponsored and consultancy research

4.8.8 The research output of the Institute is published in the form of reports and peer reviewed scientific papers. During the year 2006-07, the Institute has published 55 papers in reputed international and national journals and 110 papers in the proceedings of international and national conferences and symposia. About 45 reports based on studies and research in hydrology have been prepared during the year.

4.8.9 *Major Research Themes (XI Plan):*

- Hydrology of extremes
- Impact of land use changes on water resources
- Ground water modelling and management
- Sustainable water systems management
- Surface water modelling and regional hydrology
- Environmental hydrology

4.8.10 *Technical Publications:* During the year 2006-07, 45 Technical Reports and 55 Research Papers have been published in national and international journals. 110 papers have been presented in Seminars and Symposia during the year. Besides these publications, the Institute Scientists have published 7 chapters in book.

4.8.11 The scheme-wise physical performance of the institute during 2005-06, 2006-07(Upto Dec 06) and targets for 2007-08 are given in following table:

Name of Scheme	Item	Unit	2005-06 Actuals	2006-07		2007-08 Targets
				Target	Achievement (Upto Dec. 06)	
*Continuation and Strengthening of National Institute of Hydrology and Indian National Committee on Hydrology Secretariat	A. Research and Technical Studies					
	1. Research Projects /Studies	Nos.	52	50	52	25
	B. Dissemination of Information					
	1. Publishing research papers	Nos.	120	125	110	115
	2. Organising Workshops / Seminars / Symposia	Nos.	06	09	08	08
	3. Training of Staff	Nos.	12	11	11	15
	4. Delivering lectures outside the Institute	Nos.	45	50	45	50
	5. Participation in Technical Committees / Conferences	Nos.	33	30	35	35
*Continuation and Strengthening of National Institute of Hydrology Regional Centres including Flood Management Centres	A. Research and Technical Studies					
	1. Research Projects /Studies	Nos.	24	28	13	15
	B. Dissemination of Information					
	1. Publishing research papers	Nos.	35	35	20	40
	2.Organising Workshops / Seminars / Symposia	Nos.	03	03	02	04
	3. Training of Staff	Nos.	04	04	04	06
	4. Delivering lectures outside the Institute	Nos.	15	20	15	25

	5. Participation in Technical Committees / Conferences	Nos.	10	10	08	12
Hydrology Project	1.Technology Transfer Activity 2.Disseminat-ion Activity 3.Meetings for Implemen-tation of DSS 4.Purpose Driven Studies(PDS) 5.Procure-ment of Consultancy	Nos. Nos. Nos. Nos.	- - - -	- - - -	03 02 05 -	6 4 25 To be finalized 1

* These two schemes have been combined into one new SFC under the 11 Plan.

4.9. Research and Development in the Water Resources Sector:

4.9.1 The Central Water and Power Research Station, Pune, Central Soil and Materials Research Station, New Delhi and National Institute of Hydrology, Roorkee are fully established research organisations under this Ministry. Central Water Commission and Central Ground Water Board are also involved with research and development activities.

4.9.2 In addition to the expenditure on these government organisations, financial assistance is provided to academicians/experts in the Universities, IITs, recognized R&D laboratories/institutes, Water Resources /Irrigation departments of the Central and State Governments in the country for carrying out research and studies in water resources sector.

4.9.3 Considering wide range of topics under Water Resources Engineering, five Indian National Committees (INCs) for Hydraulics, Hydrology, Irrigation and Drainage, Geo-technical Engineering and Construction Materials and Structures have been constituted to provide necessary technical and advisory support for the R&D programme. These committees have also been charged with the responsibility of constituting expert panels, conducting workshops and disseminating knowledge so as to advance the state-of-the-art technology in the respective subject areas.

4.9.4 In the X Plan, various R&D activities of Ministry of Water Resources are proposed to be integrated through a common programme encompassing those relating to major & medium irrigation, ground water development and command area development and management in addition to a wider spectrum of mass awareness/publicity programme and related capacity building.

4.9.5 During the financial year 2005-06, Ministry undertook the plan scheme 'Research and Development for Water Resources Management' with a total provision of Rs. 10.00 crore. During the financial year 2006-07 the scheme has been taken up with a total provision of Rs 14.96 crore. The objective of the scheme is to provide financial support to academicians/experts in the Universities, IITs, recognized R&D laboratories / institutes, water resources/irrigation departments of the central and state governments in the country for carrying out research, studies and mass awareness activities in water resources sector. During 2005-06, 302 nos. of research reports and 204 nos. of research papers were completed and 66 nos. of training programmes/workshops were organized. During 2006-07(Upto December 2006), 169 nos. of research reports and 121 nos. of research papers were completed and 67 nos. of training programmes/workshops were organized.

MINOR IRRIGATION

4.10 Rationalization of Minor Irrigation Statistics(RMIS) Scheme:

4.10.1. The RMIS scheme was launched with full central assistance to all States/UTs for building up a comprehensive and reliable database for the development of Minor Irrigation Sector. Ministry had requested all the State/UT governments to identify a nodal department for compilation of minor irrigation statistics in the totality of the State/UT and to set up a statistical cell consisting of appropriate number of staff in the nodal department for taking up the work. Entire expenditure of the scheme is being borne by the Centre. 31 States/UTs have set up statistical cells. The State of Jharkhand has not created statistical cell so far. Further, there is no proposal from UTs of Chandigarh, Daman and Diu and Lakshadweep to set up statistical cell. The statistical cells are interalia responsible for furnishing quarterly progress reports on minor irrigation development in the totality of the State/UT to the Ministry of Water Resources and also help in the conduct of census of minor irrigation works. The first census, with reference year 1986-87, was conducted in all the States/UTs except Rajasthan. The national level report of the census was published in November 1993. In addition to various information collected during the census, the number of schemes out of use over a period and the area covered by the minor irrigation as a supplementary source of irrigation were also collected.

4.10.2 The second census of minor irrigation works, with reference year 1993-94, was initiated in September 1994 in 29 States/UTs. The census work could not be completed in the states of Gujarat, Karnataka, Maharashtra and Tamilnadu due to some administrative problems. The report on second census of minor irrigation works, excluding the states of Gujarat, Karnataka, Maharashtra and Tamilnadu was published in March 2001. The census was later on completed in the states of Karnataka and Tamil Nadu also.

4.10.3 The third census of minor irrigation projects with reference year 2000-2001 has been conducted in 33 States/UTs. UTs of Lakshadweep and Daman and Diu have not taken up the census work. The work was completed in all the states by June 2005 and All India Report was released in November 2005.

4.10.4 The fourth census of minor irrigation works was initially planned to be organized with reference year 2005-06. However with a view to assess the Minor Irrigation development at the end of X Five Year 2006-07.Plan, has been rescheduled for conducting the reference year 2006-07. Preliminary activities for the Census are taken up during 2006-07.

4.10.5 Under the RMIS Scheme the functioning of States Statistical Cells and their administrative control is through State Governments. The Ministry monitors the activities through quarterly progress reports on data collected by the Cells. The expenditure on salary and allowances of the Statistical Cell staff is monitored through annual utilization certificate by the State Governments. The officers from the Ministry make visits to the State Governments to monitor their activities occasionally. The data collected through Minor Irrigation Census on quinquennial basis is tabulated in the form of Census report and the same is

printed for general use. The report is also put on the Ministry's web site for general users.

4.10.6 The physical performance under the scheme during 2005-06 and 2006-07(Upto Dec 06) is summarized in the following table:

Units/ Items	X Plan Target	Achievement 2005-06	Target 2006-07	Achievement Upto Dec 06	Reasons for Variation
(1)	(2)	(3)	(4)	(5)	(6)
1. Release of funds for Stat. Cell in States	Complete Yearly release of funds to all States	Released	Release of funds for the year	Funds released to 26 States	Proposal and UC not received from 5 States/UTs.
2. Conduct of 3rd M.I. Census	(a) Planning and Training (b) fieldwork (c) data validation (d) All India Tabulation (e) Preparation of All India Report (f) Release of funds to States	Report Released			
3. Conduct of 4th M.I. Census	(a) Organising All India meeting for finalization of Census Programme (b) All India training workshop (c) Pilot testing of schedule (d) Release of funds Ist installment (e) Field work and data entry Yearly statement to be prepared.	Draft schedule and instruction guidelines finalized. Discussion on contents of schedule, modalities of data collection and work programme of Census.	Circulation of schedule and instructions to States. Release of fund-first installment, pilot testing, organizing all India training workshop.	Cost estimate of census approved. Guidelines issued to States, Steering Committee Constituted for advising Census operations. Funds to 10 States under process.	The 4th MI Census is rescheduled to be organized with reference year 2006-07 on the advice of Planning Commission.
4. Annual estimate of MI Development through State Quarterly Progress Reports.		Annual statement 03-04 finalised.	Finalisation of Annual Statement 04-05 & 05-06	Annual Statement of 04-05 finalized	Delay in receipt of Quarterly Progress Reports from States

4.11. Central Ground Water Board(CGWB):

4.11.1 The scheme wise performance of plan schemes being implemented by the Central Ground Water Board is discussed below:

(i) *Ground Water Survey, Exploration & Investigation:*

4.11.2 In 2006-2007 against the BE of Rs. 78.49 Crores, the expenditure is Rs. 45.42 Crores up to December, 2006. Major works and achievements during 2006-2007 (Up to December, 2006) are the coverage of 1.88 Lakh sq. km in pre-monsoon and 1,17,002 sq. km in Post-monsoon studies under Ground Water Management Studies (Reappraisal Survey), drilling of 500 wells under the programme of Scientific Ground Water Exploration supported by Geophysical & Remote Sensing Studies, Monitoring of ground water levels at 15513 Ground Water Monitoring Wells and water quality sampling, preparation of 40 District Reports and completion of 178 Water Supply Investigations for Defence, PHEDs and other departments.

Appraisal of Performance:

4.11.3 Targets were assigned for 2006-2007 for Ground Water Management Studies, Ground Water Exploration and preparation of District Reports and Ground Water Exploration. Under the Ground Water Exploration , the high yielding wells with discharge range 10800 lph to 180000 lph have been found in the states of West Bengal, Tamil Nadu, Orissa, Bihar, Jharkhand, Jammu and Kashmir, Kerala, Karnataka, Madhya Pradesh and Maharashtra. These studies will help in identifying Ground Water worthy areas and help in guiding the states to adopt follow up action with regard to ground water development .

(ii) *Hydrology Project:*

4.11.4 During the year B.E. of Rs.2.78 Crores, the expenditure is Rs. 0.42 Crores up to December 2006. The Hydrology Project - Phase –II (HP-II) is a follow up project of HP-I. Its major thrust is to use Hydrological Information System (HIS) data effectively and efficiently for water resources planning and management. A longer-term aim of the project is to assist the Governments at both Central and State levels to address the issues of intra-sectoral demands and overall resource planning and management through the establishment of core hydrological organizations serving all specialized water agencies.

4.11.5 The Project will further extend and promote the sustained and effective use of the HIS by all potential users concerned with water resources planning and management, both public and private, thereby contributing to improved productivity and cost-effectiveness of water-related investments in the 13 states and eight Central agencies. The coverage of existing states under the project is to help these agencies from moving over from development of HIS (as in HP-I) towards use of HIS in water resources planning and management. The project objectives will be achieved by:

(a) Strengthening the capacity of hydrology departments to develop and sustain the use of the HIS for hydrological designs and decision tools thus creating enabling environment for improved integrated water resources planning and management;
(b) Improving the capabilities of implementing agencies at state/central level in using HIS for efficient water resource planning and management reducing vulnerability droughts and thereby meeting the country's poverty reduction objectives;
(c) Establishing and enhancing user-friendly, demand responsive and easily accessible HIS to improve shared vision and transparency of HIS between all users; and
(d) Improving access to the HIS by public agencies, civil society organizations and the private sector through awareness building supporting outreach services.

4.11.6 Greater use of an improved HIS is expected to have a broad but definite impact on the planning and design of water resources schemes, from which the rural and urban poor will have secure and sustainable access to water for multi-purpose livelihood uses.

4.11.7 CGWB is participating agency in HP-II and has a budget provision of Rs 27.8 Crores and project has duration of 6 years staring from May 2006 to 2012. The revised provision for the year 2006-07 is Rs 1.7 Crore. H-P-II has two major components i.e Horizontal Expansion in three new States covering Goa, Himachal Pradesh and Punjab and Vertical Extension in the 9HP-I peninsular States. Under Horizontal Expansion, HP-I type of activities and facilities will be extended to new States, however, under Vertical Extension special knowledge enhancement type of activities such as Hydrological Design Aid, Decision support System and Purpose Driven Studies would be taken up. In the first year of the project domain specific training would be imparted, Awareness raising program would be held, tender documents for procurement/upgrading of the equipments would be prepared and construction of the piezometers would be taken up.

(iii) *Rajiv Gandhi National Ground Water Training & Research Institute (RGNGWT&RI):*

4.11.8 During the year 2006-2007, against the BE of Rs. 1.29 Crores, the expenditure incurred is Rs. 0.38 Crores up to December 2006. Thirteen training courses including one special training course out of proposed 16 training programmes have been conducted successfully during 2006 - 2007 up to December 2006 under Rajiv Gandhi National Ground Water Training and Research Institute. 251 trainees have been trained in the above training courses conducted at various places.

(iv) *R & D Schemes of CGWB*

4.11.9 Central Ground Water Board under its R&D activities is assisting Ministry of Water Resources in the form of a sub-committee of Indian National Committee on Hydrology (INCOH), with a view to accelerate the development

programme in ground water sector and giving due consideration to the increased need of taking up research in the field of ground water. This Committee examines the project proposals received by INCOH in the field of Ground Water for their suitability for funding by MoWR and also monitors the research schemes funded by INCOH.

4.11.10 During the current year based on the comments of the experts, received after scrutinizing the proposals sent by CGWB, 5 revised proposals have been received which will be considered in the forthcoming meeting of Research Committee on ground water. Five Proposals have been finally cleared for payment of installments, which will be monitored for their progress.

(v) *Acquisition of Land & Building:*

4.11.11 In 2006-2007 against the BE of Rs 7.00 Crores, the expenditure incurred is Rs. 4.98 Crores up to December, 2006. The status of construction work of building at Bangalore is under progress and likely to be handed over to CGWB by the end of December 2006 whereas the construction at Hyderabad is also under progress and likely to be completed by the end of this financial year. The construction work for two RCC culverts and store building at Guwahati office is to be started after release of funds. The construction work of the Bhopal building is likely to start in the next financial year. The CPWD has submitted revised plan by reduction of one floor of the building due to height restriction which has been approved and sent to the Ministry for administrative approval & expenditure sanction. The land for Division-II , Ambala, Central Ground Water Board has offered by HUDA in Sect-10, Ambala. The administrative approval and expenditure sanction of Rs. 1.65 Crores as land cost allotted by the Ministry. Possession of the land for staff quarters at South Eastern Region, Bhubneshwar has already been taken from the Orissa Govt. The balance amount of Rs.15,55,000/- has been sanctioned by the Ministry for lease agreement and registration of land for Bhubneshwar building.

(vi) *Central Ground Water Authority:*

4.11.12 In 2006 -2007 against the BE of Rs 1.78 Crores, the expenditure incurred is Rs 0.78 Crores up to December, 2006. During this year, 16 Mass awareness programs and 21 Ground water management training programs were organized in various parts of the country. Registration of water well drilling agencies are being undertaken by CGWA to develop micro level data base on ground water development and to control indiscriminate drilling activity in the country. During the period 27 agencies were registered with CGWA.

4.11.13 During the period, CGWA had notified additional 23 severely overexploited areas for regulation of groundwater development in the states Haryana, Madhya Pradesh, Punjab and Rajasthan. In addition to the above regulation of ground water development is already being done in 20 areas in the State of Andhra Pradesh, Punjab, Haryana, Gujrat, NCT of Delhi, Rajasthan, Uttar Pradesh, West Bengal, UT of Diu notified earlier.

4.11.14 In the notified areas of Andhra Pradesh, the regulation of ground water development is being undertaken by Andhra Pradesh Ground Water Authority. In the remaining notified areas, the regulatory measures are being enforced through the concerned District Collector/Deputy Commissioner of concern district.

4.11.15 In order to put more areas under regulation, 37 new over exploited areas of 22 districts in Andhra Pradesh, Gujrat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Punjab, Tamilnadu, Uttar Pradesh and UT of Pondicherry have been identified and notified for registration of ground water structures. The registration work in theses notified areas is to be undertaken by the respective state governments.

4.11.16 Total of 1065 Blocks/Mandals are notified with the directives to Chief Secretary for taking suitable measures for artificial recharge to ground water / Rainwater harvesting to augment ground water resources and save it from further depletion in the states.

4.11.17 In order to regulate the ground water development by the industries, a list of over exploited /critical areas have been circulated to statutory organizations like State Pollution Control Boards, Ministry of Environment and Forest etc., which refer new industries/projects to CGWA for permission prior to setting up of industries/projects. The proposals received are evaluated on case to case basis, based on site specific recommendations of Central Ground Water Board and are accorded ground water clearance. During the period forty nine industries have been accorded permissions.

(vii) *Artificial Recharge to Ground Water:*

4.11.18 Artificial Recharge to ground water and rainwater harvesting have been envisaged for augmentation of ground water resources to cope up with the depletion of water resources. During the period 2006-2007 up to December 2006, Demonstrative projects on Artificial Recharge to Ground Water and rainwater harvesting in 8 areas falling in the states of Andhra Pradesh, Karnataka, Madhya Pradesh and Tamil Nadu has been taken up.

4.11.19 Government of India constituted the "Artificial Recharge of Ground Water Advisory Council" vide Ministry of Water Resources Resolution no. 18/6/2002-GW (Pt) dated 17th April 2006 under the chairmanship of Hon'ble Minister of Water Resources, Govt. of India. Council had its 1st meeting on 22.07.2006 at New Delhi which was inaugurated by Hon'ble Prime Minister of India. Central Ground Water Board has been instrumental in implementing the actions identified in the 1st meeting of the council.

4.11.20 The scheme-wise performance during the X plan period (upto December 2006) in respect of the schemes being implemented by the Central Ground Water Board is shown in the following statement:

Scheme-wise physical performance during X plan period in respect of CGWB

Sl. No.	Sector/ Scheme/ Organization	Objective/ Outcome	Item /Unit	X Plan Target	Actual				Target	Achieve-ment	Achievement up to Dec., 06	Rea-sons for varia-tion
					2002-03	2003-04	2004-05	2005-06	2006-07	2006-07		
1	2	3	4	5	6	7	8	9	10	11	12	13
1.	**Ground Water Survey, Explora-tion & Investiga-tion**	To carry out scientific studies (hydrogeological, hydrological, hydrometeorological, chemical and geophysical) and ground water survey, exploratory well drilling and monitoring of ground water level through a network of observation wells										No Short fall
i.	Ground Water Management Studies		Lakh Sq.Km.	10.00	2.05	2.07	2.12	1.98	1.83	1.88 (Pre-monsoon) 1.17 (Post-monsoon)	10.10	
ii.	Short-term Water Supply Investigation		Nos	Need Based 1500 approx	336	269	357	305	Need Based	178	1445	
iii.	Exploration well drilling		Nos	5010 Wells	870	1339	1347	785	811 Wells	500 Wells	4841 Wells	
iv.	Network monitoring		Nos	4 times in a year	15700 Measurement completed	15700 Measurement completed	15700 Measurement completed	15645 Measurement completed	15513 4 times in a year	15513 3 times Measurement completed	All Measure-ment completed except Jan,06	
v.	Preparation of District Reports		Nos	200	44	500 GWU maps prepared instead of distt. reports	42	40	40	Data compilation/ preparation under progress	126 district reports & 500 GWUM completed	

Sl. No.	Sector/ Scheme/ Organization	Objective/ Outcome	Item /Unit	X Plan Target	Actual				Target	Achieve-ment	Achievement up to Dec., 06	Rea-sons for varia-tion
					2002-03	2003-04	2004-05	2005-06	2006-07	2006-07		
1	2	3	4	5	6	7	8	9	10	11	12	13
2.	**Hydrology Project**	To upgrade the data collection infrastructure and laboratory facilities. To establish and integrate National and State Ground Water Data Banks.			Target for HP-I achieved	-	-	-	Construction of purpose built Piezometers - 8	117 sites have been selected. First tender documents submitted to PCS/WB for clearance.	117 sites have been selected. First tender documents submitted to PCS/WB for clearance.	
									Protection Boxes - 8	First tender documents submitted to PCS/WB for clearance.	First tender documents submitted to PCS/WB for clearance.	
									Procurement and Installation of DWLRS-2	Inter-departmental committee constituted for finalization of the specifications.	Inter-departmental committee constituted for finalization of the specification.	
									Procurement of office equipments, Audio Visual and training equipments - 3	Specification for office equipment finalized – Procurement in progress.	Specification for office equipment finalized – Procurement in progress.	
									Procurement of Vehicles-3 Jeep & 1 Data Van	Case has been sent to PCS, MOWR for approval.	Case has been sent to PCS, MOWR for approval.	
									Upgrading hardware, software and network capacities– GEMS-12 sets	Inter-departmental committee constituted for finalization of the specifications.	Inter-departmental committee constituted for finalization of the specifications.	

Sl. No.	Sector/ Scheme/ Organization	Objective/ Outcome	Item /Unit	X Plan Target	Actual				Target	Achieve-ment	Achievement up to Dec., 06	Rea-sons for varia-tion
					2002-03	2003-04	2004-05	2005-06	2006-07	2006-07		
1	2	3	4	5	6	7	8	9	10	11	12	13
									Procurement of spatial data sets. -1	Communication made with all the departments having spatial data/satellite data for updating the layers land use, Geomorphology and irrigation command areas.	Communication made with all the departments having spatial data/satellite data for updating the layers land use, Geomorphology and irrigation command areas.	
									Awareness raising. - 3	Regions will organize programmes in the 3rd and 4th quarter for which guide lines has already been circulated.	Regions will organize programmes in the 3rd and 4th quarter for which guide lines has already been circulated.	
									Website development and maintenance - 1	To be taken up in the 4th quarter of 2006-07.	To be taken up in the 4th quarter of 2006-07.	
									Hydrological Design Aid.- 1	Convened meeting of HDA committee and finalized EOI for engagement of consultants. EOI sent to PCS/WB for clearance.	Convened meeting of HDA committee and finalized EOI for engagement of consultants. EOI sent to PCS/WB for clearance.	

Sl. No.	Sector/ Scheme/ Organization	Objective/ Outcome	Item /Unit	X Plan Target	Actual				Target	Achieve-ment	Achievement up to Dec., 06	Rea-sons for varia-tion
					2002-03	2003-04	2004-05	2005-06	2006-07	2006-07		
1	2	3	4	5	6	7	8	9	10	11	12	13
									Training, Workshops-	Training calendar prepared and approved by HISMG(IS&T)/ PCS.	Training calendar prepared and approved by HISMG(IS&T)/ PCS.	
3.	**Artificial Recharge of Ground Water**	Ground Water augmentation to arrest the declining ground water level	-	Construction of recharge / rain water harvesting structures- 2800 No	Under CSS a total of 108 out of 174 schemes have been completed	The civil work under 32 schemes completed.	Project completed	Impact assessment of completed scheme continued	New areas taken up for artificial recharge	Under progress	Impact assessment of completed scheme continued. New areas taken up for artificial recharge	No short fall
4.	**Rajiv Gandhi National Training & Research Institution.**	Establishment of National Level Training and Research Institute for the Ground Water Sector in India		300 trainees per year	8 training courses conducte. 160 trainees attended training courses.	7 training courses conducted. 144 trainees attended training courses.	14 training courses conducted. 268 trainees attended training courses.	16 training courses conducted. 305 trainees attended training courses.	16 training courses	13 including one special training course conducted. 251 trainees attended training courses.	58 training courses conducted. 1128 trainees attended training courses.	No short fall

Sl. No.	Sector/ Scheme/ Organization	Objective/ Outcome	Item /Unit	X Plan Target	Actual				Target	Achieve-ment	Achievement up to Dec., 06	Rea-sons for varia-tion
					2002-03	2003-04	2004-05	2005-06	2006-07	2006-07		
1	2	3	4	5	6	7	8	9	10	11	12	13
5.	**Research & Development Scheme**	Basic research in hydrogeology with special reference to the problem like pollution, contamination and depletion		Grant in aid by CGWB for various R & D Schemes involving different institutions	In respect of 9 on going schemes UC & progress report have been received in respect of 2 schemes and remaining are awaited. 5 new schemes have been scrutinized and sent for expert comments	From the approved schemes under consideration for grant-in-aid 9 have been sanctioned by MoWR. Two meetings of research committees convened.	5 proposals for R&D schemes have been scrutinized, out of these 3 proposals have been sent to experts for review and the two proposals have been sent to the Principal Investigators for modification and resubmission.	Sixteen schemes have been scrutinized and sent for comments to experts	Continued	Based on the comments of the experts, 5 revised proposals have been received which will be considered in the forthcoming meeting of Research Committee on ground water. Five Proposals have been finally cleared for payment of installments, which will be monitored for their progress.	Based on the comments of the experts, 5 revised proposals have been received which will be considered in the forthcoming meeting of Research Committee on ground water. Five Proposals have been finally cleared for payment of installments, which will be monitored for their progress.	Monitored by MoWR
6.	**Conjunctive Use of Ground Water and Surface Water.**	To evolve suitable plan for controlling the problem of water logging and salinity in the canal command areas adopting technique of Conjunctive Use of ground and surface water.	i.	Western Yamuna Canal Command Area, Haryana.	The preparatory work for the conjunctive use studies in command areas have been	Field work completed in all the three projects	Project completed	-	-	-	Three command area project completed	No short fall

Sl. No.	Sector/ Scheme/ Organization	Objective/ Outcome	Item /Unit	X Plan Target	Actual				Target	Achieve-ment	Achievement up to Dec., 06	Rea-sons for varia-tion
					2002-03	2003-04	2004-05	2005-06	2006-07	2006-07		
1	2	3	4	5	6	7	8	9	10	11	12	13
			ii.	Rushikulya Command Area, Orissa.	taken up by the concerned regions. The procurement of Digital data.	Procured Visual Mod flow Pro-3.1 software for mathematical modeling.						
			iii.	Sri Ram Sagar Command Area, A.P.	products by the SR, Hyderabad. Procured S/W by NWR,Chandigarh, SER. Bhubaneswar office							

Sl. No.	Sector/ Scheme/ Organization	Objective/ Outcome	Item /Unit	X Plan Target	Actual				Target	Achieve-ment	Achievement up to Dec., 06	Rea-sons for varia-tion
					2002-03	2003-04	2004-05	2005-06	2006-07	2006-07		
1	2	3	4	5	6	7	8	9	10	11	12	13
7.	**Acquisition of Land & Building**	To set up own office buildings to minimize expenditure towards rent and to overcome the risk to the Govt. property.		Construction of office building and acquisition of land for some of the region & division office	i.Faridabad – Construction of 3rd floor Completed ii.Chandigarh – Construction of the building Completed and interior works are in progress. iii. Guwahati – Construction of boundary wall and earth filling has been completed	Construction of Faridabad& Chandigarh completed whereas Bangalore , Hyderabad under progress.	Construction of Faridabad& Chandigarh completed whereas Bangalore , Hyderabad are under progress	Construction of office buildings at Faridaad, Chandigarh completed where as Bangalore, Hyderabad, Div. at Bhopal, Workshop at Guwahati and staff qtr at Bhubanesh-war under progress	Construction of office buildings at Bangalore, Hyderabad, Div. at Bhopal, Workshop at Guwahati and staff qtr at Bhubanesh-war	Construction of office buildings at Bangalore, Hyderabad, Div. at Bhopal, Workshop at Guwahati and staff qtr at Bhubaneshwar under progress	Construction of office buildings at Faridaad, Chandigarh completed where as Bangalore, Hyderabad, Div. at Bhopal, Workshop at Guwahati and staff qtr at Bhubaneshwar under progress	No short fall

Sl. No.	Sector/ Scheme/ Organization	Objective/ Outcome	Item /Unit	X Plan Target	Actual				Target	Achieve-ment	Achievement up to Dec., 06	Rea-sons for varia-tion
					2002-03	2003-04	2004-05	2005-06	2006-07	2006-07		
1	2	3	4	5	6	7	8	9	10	11	12	13
8.	**Central Ground Water Authority**	Regulation and control of Development of Ground Water Resources in the country and to issue necessary regulatory directions for the purpose.		**i.** Mass Awareness in ground water management , regulation & conservation – 175	33 MAP Conducted	52 MAP Conducted	52 MAP Conducted	51 MAP Conducted	57 MAP	16 MAP Conducted	204 MAP Conducted	No short fall
				ii. Training on rain water harvesting including roof top rain water harvesting - 175	32 WMTP Conducted	49 WMTP Conducted	39 WMTP Conducted	49 WMTP Conducted	57 WMTP	21 WMTP Conducted	190 WMTP Conducted	
				iii. Registration of persons/ agencies engaged in the business of drilling and construction of tube wells and allied works – As per request	1657	222 nos. drilling agencies	265 agencies registered	57 agencies registered	As per request	27 agencies registered	2228 agencies registered	

Sl. No.	Sector/ Scheme/ Organization	Objective/ Outcome	Item /Unit	X Plan Target	Actual				Target	Achieve-ment	Achievement up to Dec., 06	Rea-sons for varia-tion
					2002-03	2003-04	2004-05	2005-06	2006-07	2006-07		
1	2	3	4	5	6	7	8	9	10	11	12	13
				iv. Evaluation of proposals of industries and projects seeking clearance of CGWA- As per request	27 industries accorded clearance for withdrawal of Ground Water	21 industries	3 industries	25 industries	As per request	49 industries	125 industries	

4.12 COMMAND AREA DEVELOPMENT AND WATER MANAGEMENT (CADWAM) PROGRAMME

OBJECTIVE:

4.12.1 The Centrally sponsored Command Area Development (CAD) Programme was launched in 1974-75 with the objective of bridging the gap between irrigation potential created and that utilized through efficient utilization of created irrigation potential and optimizing agricultural production from irrigated lands on a sustainable basis. The programme envisaged to integrate all activities relating to irrigated agriculture in a coordinated manner with multidisciplinary team under an Area Development Authority.

COVERAGE:

4.12.2 Initially 60 major and medium irrigation projects were taken up under the CAD Programme, covering a Culturable Command Area (CCA) of about 15 million hectare. Since beginning in 1974-75 till now 314 projects with a CCA of 28.65 Million ha have been included under the programme. After inclusion of new projects, deletion of completed projects and clubbing of some projects, there are now 136 projects under implementation spread over 27 States.

PROGRAMME COMPONENTS:

4.12.3 In view of the recommendations of the Working Groups of the Planning Commission for X Plan, the CAD Programme was restructured w.e.f. 1.4.2004. The components of the CADWM Programme are as follows:

a) Survey, planning and designing of On-Farm Developments works;
b) Construction of field channels with a minimum 10% beneficiary contribution;
c) Full package OFD works including construction of field channels, realignment of field boundaries, land leveling and shaping also with a minimum 10% beneficiary contribution;
d) Warabandi (without central assistance)
e) Construction of field drains, intermediate and link drains for letting out surplus water;
f) Reclamation of waterlogged areas with a minimum 10% beneficiary contribution;
g) Trainings/adaptive trials/ demonstrations through Water and Land Management Institutes(WALMI) and other institutions and monitoring & evaluation of the programme with 75% funding from Government of India;
h) Institutional support to Water Users' Associations;
i) Establishment cost – 20 % of OFD works
j) R & D Activities.
k) Correction of system deficiencies above the outlet upto distributaries of 150 Cusec capacity;
l) Renovation and desilting of existing irrigation tanks including the irrigation system and control structures within the designated irrigation commands

with a minimum 10% beneficiary contribution as maintenance fund, the interest from which has to be used for maintenance in future and

m) Use of location specific bio-drainage techniques to supplement conventional techniques for reclamation of waterlogged area as a part of item(f) above.

FUNDING PATTERN:

4.12.4 The funding pattern for all the Programme components is 50:50 on sharing basis between Centre and State/farmers for all the components except for State sponsored software components such as trainings of farmers and field functionaries & officials, adaptive trials & demonstrations, action research for Participatory Irrigation Management, seminars/ conferences/workshops, monitoring & evaluation of the programme etc. for which the funding pattern is 75:25 basis between the Centre and States. The funding pattern for national level training courses for Senior level officers and Monitoring & Evaluation of the Programme sponsored by Central Government is 100%.

PHYSICAL PERFORMANCE:

4.12.5 Since beginning of the programme in the year 1974-75 till 2005-06 an area of 17.425 Mha has benefited from micro level channelization network (field channels) connecting individual farms holdings for supply of irrigation water. A need-based activity of field drains covering 1.601Mha was completed during this period. The status of outcome till end of 2005-06 is as under:

(Mha.)

S. No.	Activity	Achievements upto end of IX Plan	X Plan Achievements 2002-03 to 2005-06	Cumulative Achievements upto 2005-06
1	Field Channels	15.755	1.671	17.425
2	Field Drains (need based)	1.124	0.476	1.601

4.12.6 The status of half yearly outcome of the performance of States of above activities is as under:

Field Channels (Mha)		Field Drains (Mha)	
Annual target fixed by Ministry	Achievements during 2005-06	Annual target fixed by Ministry	Achievements during 2005-06
0.23	0.095	0.03	0.001

4.12.7 Two new activities namely correction of system deficiencies and renovation of MI tanks in target areas have been included under the restructured CADWM programme with a physical target of 1.0 Mha and 0.18 Mha respectively for the last three years of X plan i.e. 2004-07. No progress is achieved in these items during 2004-05 and 2005-06 as the necessary legalized WUAs are not formed in most of the States and thus MOU could not be signed which is a pre condition for taking up these activities.

FINANCIAL ACHIEVEMENT:

4.12.8 From the inception of the programme in the Year 1974 up to January 2007, an amount of Rs. 3238.48 crore has been spent under the CAD Programme:

(Rs. in crore)

Release made till IX Plan	Release made during X Plan		Cumulative Release till January 2007
	2002-06	2006-07 (Upto Jan 07)	
1	**2**	**3**	**4**
2450.71	638.84	148.93	3238.48

4.12.9 The approved outlay for the scheme for X Plan is Rs.1213.00 crores. The budget provision for the year of 2006-07 at RE stage is Rs. 191.08 crore. A sum of Rs. 150.98 crore has been released till 31 January 2007.

FLOOD CONTROL SECTOR

4.13 Central Water Commission:

4.13.1 Central Water Commission provides technical guidance in the matters relating to flood management work comprising embankments, drainage channel, anti-water-logging, anti-sea erosion measures etc. apart from maintaining flood forecasting and warning centers on major flood prone rivers. The important activities under the Flood Management Sector include, inter alia:

(i) Examination of Master Plans for Flood Management and Drainage.
(ii) Advice to the Central Ministries/Organisations & the State Governments on Flood Management Issues.
(iii) Techno-economic Appraisal of Flood Management Schemes
(iv) Compilation of Flood Damage Data.
(v) Formulation of Flood Management EFC Memos.
(vi) Monitoring of Flood Situation.
(vii) Flood forecasting activities of the country.
(viii) Advice to Central Ministries/State Governments on Flood Management issues.
(ix) Preparation of Technical Papers/Reports in respect of Flood Management works.

4.13.2 The Flood Management Schemes, sponsored by the State Governments, are appraised and proposed for investment clearance from Planning Commission. The Ganga Flood Control Commission and the Brahmaputra Board have prepared master plans for the Ganga and Brahmaputra Basins respectively in consultation with the Central Water Commission. Compilation of Flood Damage Data on national level and issue of Daily, Weekly and Monthly

Flood Bulletins are some of the significant functions continued as one of the essential requirements of Flood Management activities in the country.

Flood Forecasting:

4.13.3 There is about 40m ha of flood prone area in India as assessed by Rashtriya Barh Ayog. For techno-economic reasons, flood management measures, wherever planned and executed in our country, have been only against the flood of certain magnitude while the floods of higher magnitude do occur creating havoc. Accordingly, flood forecasting and warning system has been planned parallel to structural measures of flood management, as advance knowledge of incoming floods plays an important role in reducing flood damage as also better planning of rescue/relief operations. Flood forecast also helps in optimum regulation of (multipurpose) reservoirs with or without flood cushions in storage space.

4.13.4 Flood forecasting activities in India in scientific manner made a beginning in 1958 when the erstwhile Central Water & Power Commission (CW&PC) set up a Flood Forecasting Unit (FFU) for issuing flood forecasts and warnings of floods in the Yamuna at the National Capital, Delhi. This service has since been expanded by CWC to cover almost all major flood prone inter-state river basins of India. At present there are 175 flood forecasting stations, 147 level forecasting stations on major rivers and 28 inflow forecasting stations on major dams/barrages. It covers 9 major river systems in the country, including 70 river sub-basins spread over 15 States, Union Territory of Dadra and Nagar Haveli and the National Capital Territory of Delhi.

4.13.5 On an average, over 6000 forecasts at various places in the country are being issued every year by the Central Water Commission during flood season evolving them in a scientific manner. Normally, these forecasts are issued 12 to 48 hours in advance, depending upon the river terrain, the locations of the flood forecasting sites and base stations. For the purpose of Flood Forecasting, the hydrological data is being observed at more than 700 Gauge and Discharge sites, and hydrometeorological data over 500 rain gauge stations and communicated through a network of more than 450 wireless stations. Synoptic weather situations, weather forecast/heavy rainfall warnings etc are being collected from Flood Meteorological Offices(FMOs). During the flood season 2006 (May to Oct), 6655 flood forecasts were issued which included 5070 level forecasts and 1585 inflow forecasts, out of which 6370 (95.70%) forecasts were found within accuracy limits of +/- 15 cm.

4.13.6 Most of the rivers which create flood situation in the U.P. and Bihar in India originate from Nepal. The rivers are Ghaghra, Sarda, Rapti, Gandak, Burhi Gandak, Bagmati, Kamla, Kosi and Mahananda. In order to make Flood forecasting and advance warning in the flood plains of the above rivers flowing from Nepal, a scheme namely, “Flood Forecasting and Warning System on Rivers Common to India and Nepal” which includes 42 meteorological/ hydrological sites in Nepal and 18 hydrological sites in India has been in operation since 1989. The scheme is being reviewed regularly from time to time.

4.13.7 A scheme for collection and transmission of Hydro-meteorological data for the purpose of flood forecasting in India titled “Hydrological Observations on Rivers Originating from Bhutan” is in operation. This scheme has a network of 35 hydro-meteorological / meteorological stations located in Bhutan and being maintained by Royal Government of Bhutan with funding from India. The hydro-meteorological data of these 35 sites is being transmitted during flood season on wireless to CWC Control Rooms at Guwahati, Nalbari, Barpeta Road, Cooch Bihar and Jalpaiguri for formulation of flood forecast by Central Water Commission. A Joint Experts Team consisting of officials from the Government of India and Royal Govt. of Bhutan continuously reviews the progress and other requirements of the scheme.

4.13.8 The scheme-wise physical performance of CWC under Flood Control Sector during 2005-06 and 2006-07 (Upto Dec 06) and targets for 2007-08 are given in the following table:

Scheme-wise physical performance

S.No.	Name of Scheme/ Activity	Unit/Items	2005-06	2006-07		2007-08
			Actual	Target	Anticipated Achievement	Target
1	2	3	4	5	6	7
1	Pancheswar Multipurpose Project.	Preparation of DPR	DPR of the project completed (India side) and HM data observation continued. Preparation of Joint DPR continued.	(I)Collection of Hydrometeo rological data (ii)Installation and Maintenance of Seismographs in the project area (iii)Finalisation of Joint DPR.	Joint DPR under finalisation in consultation with Nepal.	(I)Collection of Hydrometeorological data (ii)Installation and Maintenance of Seismographs in the project area (iii)Finalisation of Joint DPR.
2	Survey & Investigation of Kosi High Dam.	Preparation of DPR	Survey & investigation work continued.	Survey & investigation work to be continued.	Survey & investigation work in progress.	Survey & investigation for preparation of DPR to be continued.
3	Strengthening & Modernisation of FF & HO Network in Brahmaputra & Barak Basin.	Continuous Activity	Hydrometeorological data from 39 HO/FF sites collected.	Collection of Hydrometeorological data from 39 HO/FF sites on rivers Brahmaputra and Barak and R&M of these sites	R&M of network of 39 HO/FF sites and collection of hydromet. data and computerisation of data to be continued.	Collection of Hydrometeorological data from 39 HO/FF sites on rivers Brahmaputra and Barak and R&M of these sites
4	FF on rivers common to India & Nepal	Continuous Activity	Hydrometeorological observation data at 42 sites and issue of Flood Forecast continued.	(I) Collection of Hydrometeorological data at 42 sites (ii) Issue of Flood Forecast in India.	Collection of data at 42 sites and issue of Flood Forecast to be continued.	(I) Collection of Hydrometeorological data at 42 sites (ii) Issue of Flood Forecast in India.

S.No.	Name of Scheme/ Activity	Unit/Items	2005-06	2006-07		2007-08
			Actual	Target	Anticipated Achievement	Target
1	2	3	4	5	6	7
5	Investigation for Teesta H.E Project, Rangit H.E. Project II & IV & Manas Teesta Link Canal.	Preparation of DPR	DPR preparation of Rangit HE Project Stage IV under progress. Investigation for Rangit H.E. Project II under progress. Survey works for Manas Teesta Link Canal under progress. R&M of Hydrometeorological & seismic station in Sankosh basin in Bhutan continued. Collection of hydrometeorological Data in Teesta & Rangit basins continued.	DPR of Rangit HE Project Stage IV to be completed. Investigation for Rangit H.E. Project II to be continued. Survey works for Manas Teesta Link Canal to be continued. R&M of Hydrometeorological & seismic stations in Sankosh basin in Bhutan to be continued. Collection of hydrometeorological Data in Teesta & Rangit basins to be continued.	DPR preparation of Rangit HE Project Stage IV completed. Investigation for Rangit H.E. Project II stopped at the State request. Survey works for Manas Teesta Link Canal under progress. R&M of Hydrometeorological & seismic stations in Sankosh basin in Bhutan to be continued Collection of hydrometeorological Data in Teesta & Rangit basins to be continued.	Survey works for Manas Teesta Link Canal under progress. R&M of Hydrometeorological & seismic stations in Sankosh basin in Bhutan to be continued Collection of hydrometeorological Data in Teesta & Rangit basins to be continued.

S.No.	Name of Scheme/ Activity	Unit/Items	2005-06	2006-07		2007-08
			Actual	Target	Anticipated Achievement	Target
1	2	3	4	5	6	7
6	Estt. & Modernisation of FF Network in India including Inflow Forecasts	Continuous Activity	R&M of FF Network of 172 FF sites continued. Issued level and inflow forecasts. Work Order placed for Telemetry System viz. “Supply, installation, testing, commissioning and maintenance of real time data acquisition network on turn key basis for collection, transmission and processing of hydro-meteorological data, gauging equipment, satellite telemetry and associated systems including hardware, software and peripherals, VSAT communication links between the existing DDRGS located at Burla and Jaipur and various locations in KGBO, BBBO, MERO, LGBO and YBO .	Flood Forecasting sites to be increased to 175 numbers. R&M of FF Network of all FF sites to be continued. Issue of level and inflow forecasts to be continued. Establishment of Automatic Sensors with Satellite based transmission at 168 no. FF & HO Stations	Flood Forecasting sites increased to 175 numbers. R&M of FF Network of all the 175 FF sites to be continued. Issue of level and inflow forecasts to be continued. Establishment of Automatic Sensors with Satellite based transmission at 100 no. FF & HO Stations to be completed. Digitisation of Flood Plain Zoing maps to be carried out by Survey of India.	(i)R&M of FF Network of 175 FF sites (ii) Issue of level and inflow forecasts (iii) Estt. of Automatic Sensors with Satellite based transmission at balance 68 FF & HO Stations to be completed. (iv) Digitisation of Flood Plain Maps to be carried out by Survey of India.

S.No.	Name of Scheme/ Activity	Unit/Items	2005-06	2006-07		2007-08
			Actual	Target	Anticipated Achievement	Target
1	2	3	4	5	6	7
7	Capital Outlay for Flood Control Schemes	Building	Construction of CWC buildings at Kolkata, Asansol, Guwahati, Hyderabad, Jammu and New Delhi continued.	Construction of CWC buildings at Kolkata, Asansol, Guwahati, Hyderabad, Jammu and New Delhi	Construction of CWC buildings at Kolkata, Asansol, Guwahati, Jammu and New Delhi in progress. Office buildings at Hyderabad completed.	Construction of CWC buildings at Kolkata, Asansol, Guwahati, Jammu and New Delhi to be continued

4.14 Brahmaputra Board(BB):

4.14.1 Brahmaputra Board is a statutory body under the administrative control of the Ministry of Water Resources. The main functions assigned to the Brahmaputra Board are to carry out survey and investigation and to prepare Master Plan for the control of floods, bank erosion and improvement of drainage congestion giving importance to development and utilization of water resources of Brahmaputra and Barak Valley for hydropower, navigation and other beneficiary purposes. Its assignment also includes preparation of Detailed Project Report (DPR) of the dams and other projects/schemes identified in the Master Plan as approved by the Central Government and to take up construction and maintenance of the projects approved by the Central Government and works connected therewith as proposed in the Master Plan and also to maintain and operate such dams and works. The performance has been reviewed in detail in Chapter VI. The scope and objectives of schemes being implemented by the Brahmaputra Board and scheme-wise physical performance with reasons for variation during the X Plan period upto December 2006, is given in the following table:

Scheme-wise physical performance in respect of schemes under Brahmaputra Board during X plan period (upto December, 2006)

Scheme	Scope & Objective of the Scheme	Item/ Unit	X Plan Target	Actual 2002-06	Target 2006-07	Achievement (up-to Dec 06)	Reason for variation
1	2	3	4	5	6	7	8
Continuing activities of Brahmaputra Board, Continuing Activities	Preparation of Master Plan and Survey and investigation and preparation of DPR on Multipurpose Project and Drainage Development scheme Flood Management Schemes	Master Plan	17	8	4	Nil	Due to observation /suggestion offered by the State Govts. additional information are being incorporated for which target could not be achieved.
		DPRs for DDS	11	4	4	1	DPRs are modified attending the observations of CWC.
		DPRs of MP Project /No	7	1	3	Nil	Due to non finalization of geological and hydrological parameters target for completion of DPRs have been re-scheduled.
Pagladiya Dam Project	Flood control, Irrigation and ancillary power generation	Construction of reservoir, rolled earth filled Dam, Spillways, Gates, Coffer Dam, Intake, Sluice gates.	Completion of 90 % of total works	Construction works and land acquisition process started	Works held up		No activity due to non completion of Zirat survey by Govt of Assam. . However, after formation of the new administrative authority i.e. Bodoland Territorial Council (BTC) in the project area the stalemate situation of Zirat survey as well as construction activities of Pagladiya Dam Project has been removed and the BTC has informed the Brahmaputra Board to take up necessary action for starting Zirat Survey for construction of the project.

Scheme	Scope & Objective of the Scheme	Item/ Unit	X Plan Target	Actual 2002-06	Target 2006-07	Achievement (up-to Dec 06)	Reason for variation
1	2	3	4	5	6	7	8
Harang Drainage Development Scheme.	Drainage Development Scheme	Construction of 2 Nos of Sluices, Construction & strengthening of embankment, Resectioning of the channel.	Construction of 2 Nos of Sluices, Construction & strengthening of embankment, Resectioning of the channel	Construction of 2 Nos of Sluices, Construction & strengthening of embankment, continued	Completion of 4% of balance works of Construction of 2 Nos of Sluices, Construction & strengthening of embankment,	96 % o0f total works completed	
Avulsion of Brahmaputra at Dholla Hatighuli	Flood management Scheme	Construction of permeable RCC porcupine & Bamboo crib, raising & filling of deeper bed, Construction of new embankment/tie Bund & Repair/ improvement of existing Tie bund, chanallaising the river bed.	Completion of Phase -I, II & III works.	Phase – I & II completed .			Phase –III works proposed to execute under the EFC "Critical flood control and anti-erosion works".
Protection of Majuli Island from Flood and Erosion.	Flood management Scheme	Repair and construction of nose portion of check dam, RCC porcupine works, Raising & strengthening of embankment, Physical model studies, Construction of hanger for Majuli Model	Completion of repair and construction of nose portion of check dam, RCC porcupine works, Raising & strengthening of embankment, Physical model studies, Construction of hanger for Majuli	27% of he total work completed.	Completion of repair and construction of nose portion of check dam, RCC porcupine works, Raising & strengthening of embankment and starting of Construction of hanger for Majuli Model	55%	-

			Model		and Physical model studies,		
Barbhag D.D. Scheme	DDS	Resectioning of Channal, Construction of regulator at Dusutimukh, Construction of Embankment on both bank -160.00 m, Plugging the old escape channel, protection of Slope and toe of new Embankment	Completion of works.	Detailed design completed.	Construction of sluice and embankment.	11% work completed.	Target could not be achieved due to non receipt of land from Govt. of Assam and change of design of sluice.
Anti erosion mesures to protect Kushiabil & Durgajan village at Dimapur	Flood management Scheme	Bank protection work by Boulder pitching & RCC porcupine	Completion of Phase –I & II works	Phase –I work	Completion of the Phase – II works.	Tender invited.	
Protection of North Guwahati township from flood & erosion	Flood management Scheme	Strengthing of Rajaduar-Rangmal Dyke, RCC porcupine works	Completion of works	No work programme	No work programme	No work programme	Work suspended as per recommendation of Expert.
Kailasahar (Est. cost Rs.4.18 cr.)DDS	Drainage Development Schemes,	Re-sectioning of Channal, Construction of regulator, Construction of Embankment, Plugging the gape, protection of Slope and toe of new Embankment etc.	35%	No work programme	25%	NIL	The EFC was approved on 2-02-2006 and could not be taken up the during the year 2005-06
Joysagar (Est. cost Rs.2.13 cr.) DDS			55%		30%		
East of Barpeta(Est. cost Rs.1.34 cr.)DDS			80%		55%		
Singla(Est. costRs.3.54 cr.) DDS			25%		15%		
Jangrai(Est. cost Rs.1.49.)			35 %		30 %		
					3 %		

Scheme	Scope & Objective of the Scheme	Item/ Unit	X Plan Target	Actual 2002-06	Target 2006-07	Achievement (up-to Dec 06)	Reason for variation
1	2	3	4	5	6	7	8
Jakaichuk (Est. cost Rs. 2.96 cr.)			3%				
Amjur DDS			Completion of Phase – I works		15%		
Construction of Raised Platform	Flood Management Scheme	Construction of Raised Platform, Providing water supply and sanitations facility		No work programme	100%		

4.15 Ganga Flood Control Commission(GFCC):

ACTIVITIES:

4.15.1 The Commission has been assigned the task of preparing comprehensive plans of flood management of the various river systems in the Ganga sub-basin and drawing out a phased programme of implementation of works to proper standards, besides examination of various schemes from techno-economic angle, monitoring of important flood management schemes, evaluation of flood management schemes, assessment of the adequacy of waterways existing under the rail and road bridges and providing technical guidance to the basin states. GFCC was so far appraising all schemes for flood management and anti-erosion works in Ganga Basin costing more than Rs. 3.00 crore as per the earlier guidelines of the Planning Commission. This limit has recently been enhanced by the Planning Commission to Rs. 7.50 crores. Some additional works have also been entrusted to GFCC such as monitoring of centrally sponsored schemes of critical anti erosion works in Ganga Basin States, schemes under flood proofing programme, schemes related to raising and strengthening of embankments of rivers Kosi and Gandak and raising and strengthening of embankments along Lalbakeya, Bagmati, Kamla and Khando rivers, both in India and Nepal. GFCC is also represented in a number of National and International committees.

4.15.2 The Commission has completed the comprehensive master plans for all the 23 river systems in the Ganga Basin. Updating of these plans is in progress. The Commission has updated comprehensive plans for eighteen river systems namely the Gomati, the Mahananda (twice), the Ghaghra (twice), the Adhwara Groups, the Kamla-Balan, the Bagmati, the Burhi-Gandak, the Kiul -Harohar, the Damodar, the Punpun, the Mayurakshi-Babla, the Ramganga, the Tons, the Jalangi, the Ajoy, the Yamuna river systems, the Rupnarayanpur-Haldi Rasulpur, the Tidal, Gandak, the Badua Chandan, Main Ganga and Sone river. Updating of comprehensive Plan of the Kosi river system is under progress.

4.15.3 To ensure more effective use of Comprehensive Plans prepared by the GFCC and for better understanding of flood problems and its management, GFCC arranges to present the Comprehensive Plans for flood management to an audience drawn from various departments of State Government, Central Government, academic institutions in which public representatives also participate. So far Master Plans of 17 river systems have been presented.

4.15.4 The Commission has prepared reports on the adequacy of Waterways under the road and rail bridges of 21 river systems. Study of the main Ganga river system from Buxar to Sahebganj has been completed and circulated. The report for the reach Sahebganj to outfall of Bhagirathi is under preparation and likely to be completed by March'06

4.15.5 During the year 2005-06, monitoring of seven major on-going flood management schemes viz. Buxar-Koelwar Embankment, Badlaghat-Nagarpara Embankment and Punpun Right Bank Embankment schemes in Bihar, the Maniram Domingarh Bund scheme on right bank of the river Rohin in Uttar

Pradesh and the Tamluk drainage scheme, the Ghea Kunti drainage scheme and the Urgent Development work in the Sunderbans in West Bengal was continued.

4.15.6 In addition to the above schemes, all on-going critical anti-erosion schemes in the States of Uttar Pradesh, Uttranchal, Bihar and West Bengal, maintenance of flood protection works of Kosi and Gandak projects in Nepal ; flood proofing programme in North Bihar, and raising and strengthening and extension of embankments of Lalbakeya, Kamla, Bagmati and Khandorivers under centrally sponsored category were closely monitored.

4.15.7 Performance evaluation studies of eight completed schemes namely (i) Lakhnauti bund scheme in Uttar Pradesh; (ii) Dubda Basin drainage scheme in West Bengal; (iii) Kamla Balan embankment scheme in Bihar; (iv) Barhya-Kotha Bund in Uttar Pradesh;(v) Mahananda embankment scheme in Bihar ;(vi) East Mograhat basin drainage scheme in West Bengal; (vii) Mahananda embankment scheme in West Bengal ; (viii) Lucknow Town Protection Scheme of Uttar Pradesh have been completed till March'05. Performance evaluation of two more schemes is likely to be taken up during 2006-07.

CRITICAL ANTI-EROSION WORKS IN GANGA BASIN STATES:

4.15.8 In order to assist the States in Ganga basin to take up critical anti erosion and flood management schemes, the Government of India has approved a Centrally Sponsored Scheme, with an estimated cost of Rs. 305.03 crore with the central share of Rs. 251.02 crore for the period 2004-07 with following break up:

Sl.No.	State	Central Share	State Share	Total Estimated Cost
1.	Uttaranchal	4.00	1.33	5.33
2.	Uttar Pradesh	32.56	10.85	43.41
3.	Bihar	65.84	21.95	87.79
4.	Jharkhand	4.30	1.44	5.74
5.	West Bengal	51.00	17.00	68.00
6.	Himachal Pradesh	4.32	1.44	5.76
7.	FBP	89.00	0.00	89.00
	Total	**251.02**	**54.01**	**305.03**

4.15.9 The funding pattern under the scheme provides for Central and State Share in the ratio of 75 : 25 and 100% funding for Farakka Barrage Project. The funds are provided as advance to the State Governments to take up works.

MAINTENANCE OF FLOOD PROTECTION WORKS OF KOSI AND GANDAK PROJECTS:

4.15.10 Government of India has been providing central assistance to the states of Uttar Pradesh and Bihar for protection of embankments on Gandak and Kosi rivers in the portion lying in Nepal territory. An amount of Rs. 35.00 crore has been provided in X plan to take up maintenance of flood protection works on rivers Kosi and Gandak in the portion lying in Nepal. The Standing Committee for Kosi and Gandak rivers has been set up to inspect and recommend measures to

protect the banks of two rivers from erosion in and around Kosi and Gandak barrages. The full cost of the works incurred by the State Governments is reimbursed by the Central Government on the recommendations of Kosi and Gandak Standing Committee. The recommendations of the Kosi and Gandak Standing Committee are awaited from GFCC following which funds will be released during current financial year.

RAISING, STRENGTHENING AND EXTENSION OF EMBANKMENTS ON LALBAKEYA, KAMLA, BAGMATI AND KHANDO RIVERS:

4.15.11 It has been decided by India and Nepal that in order to prevent spilling of flood water from Lalbakeya, Bagmati, Khando and Kamla rivers from Nepal side into Bihar, the embankments along these rivers in the Indian territory are to be extended to Nepal and tied to the high ground in Nepal with corresponding strengthening of embankments on the Indian side. A Committee known as India – Nepal Sub Committee of Embankment Construction (SCEC) was set up in January 2001. It held its last meeting in June, 2006. Being an international commitment, the works to be executed in the Nepal Territory are financed through the funds of Ministry of External Affairs. On the Indian side, the full cost of the works is borne by the Central Government and the funds are released on the recommendation of the Ganga Flood Control Commission following inspection of the works along with authentication of utilization certificates. Central assistance under the scheme is released in advance to enable the State Government to take up the works.

JOINT OBSERVATION ON RIVERS COMMON TO BANGLADESH AND NEIGHBOURING COUNTRIES:

4.15.12 This is a continuing Central Sector Scheme and has been formulated for joint hydrological observations etc. with Bangladesh and neighbouring countries like Nepal, Bhutan and China. The scheme includes provision of expenditure for meetings and field visits by Indian delegations to neighbouring countries and vice-versa for cooperation in the field of water resources. Provision in the scheme also exists for opening of additional sites in China on river Brahmaputra and Sutlej for obtaining the hydrological information expenditure incurred on joint measurements of flow of river Ganga/Ganges as per Indo-Bangladesh Ganga Water Sharing Treaty 1996 is covered in the estimate. The scheme is estimated to cost of Rs. 7.90 crore during X Plan.

REVIEW OF PAST PERFORMANCE IN RESPECT OF FLOOD CONTROL SCHEMES IN GANGA BASIN:

4.15.13 Review of performance in respect of flood control schemes in Ganga Basin during the years 2005-06 and 2006-07 are given in the following tables:

REVIEW OF PERFORMANCE DURING THE YEAR 2005-06

Sl. No.	Name of Scheme	Name of State	Physical Target	Physical Achievement	Financial Target (Rs. In lakh)	Financial Achievement (Rs. In lakh)	Reasons for variation in target & Achievement
1	2	3	4	5	6	7	8
1.	Critical anti erosion works in Ganga States	(a) Bihar	225.00 km	71.18 km	2233.55	1279.87	06 works out of 11 works have been completed. Slow execution by State Government.
		(b) Jharkhand	0.8 km. revetment and 3 nos. of bed bar	Nil	150.00	Nil	Works started by State Government during Financial year 2006-07
		© W.B	22.83 km	16.35 km	1483.54	668.75	Slow execution by State Government
		(d) U.P.	22.28 km	3.22 km	1093.54	436.11	01 work completed out of 08 works . Slow execution by State Government
		(e) Uttaranchal	6.04 km	5.50 km	300.00	177.00	Work completed
		(f) H.P.	1.70 km	1.70 km	131.75	131.75	N.A.
		(g) FBP	5.70 km	5.20 km	5600.00	3300.00	-
2.	Raising and Strengthening and Extension of embankments on Lalbakeya, Kamla, Bagmati & Khando rivers	Bihar	21.415 km	18.41 km	1153.00	789.721	Work partially executed by State Government.
3.	Improvement of Drainage in Critical Areas of the country	Bihar			700.00	700.00	N.A.
		U.P.			0.00	0.00	N.A.
		A.P.			300.00	300.00	N.A.
		Orissa			325.00	325.00	N.A.

REVIEW OF PERFORMANCE DURING THE YEAR 2006-07

Sl. No.	Name of Scheme	Name of State	Physical Target	Physical Achievement	Financial Target (Rs. In lakh)	Financial Achievement (Rs. In lakh)	Reasons for variation in target & Achievement
1	2	3	4	5	6	7	8
1.	Critical anti erosion works in Ganga States	(a) Bihar	297.15 km	104.20 km	3553.495	684.74	03 works out of 13 works have been completed. Slow execution by State Government.
		(b) Jharkhand	1.0 km.	0.56	150.00	150.00	N.A.
		(c) W.B	12.64 km	7.02 km	1441.36	1633.35	Slow execution by State Government
		(d) U.P.	59.425 km	22.825 km	300.00	138.36	Slow execution by State Government
		(e) Uttaranchal	0.54 km	0.54 km	123.00	0.00	Work completed. Central share likely to be released by March, 07
		(f) H.P.	2.11 km	0.00	200.00	0.00	State Government has planned to complete the scheme by March, 07
		(g) FBP	-	-	3300.00	2900.00	
2.	Raising and Strengthening and Extension of embankments on Lalbakeya, Kamla, Bagmati & Khando rivers	Bihar	37.912 km	37.912 km	994.00	994.00	N.A.
3.	Improvement of Drainage in Critical Areas of the country	Bihar			1538.44	500.00	N.A.
		U.P.			0.00	0.00	N.A.
		A.P.			95.00	95.00	N.A.
		Orissa			566.60	300.00	N.A.
		J&K			487.00	250.00	N.A

TRANSPORT SECTOR

4.16 Farraka Barrage Project(FBP):

4.16.1 The Farakka Barrage Project envisages preservation of Calcutta Port against silting by improving the regime and navigability of the Bhagirathi-Hooghly river system by regulation of upland supplies from Ganga to the Bhagirathi-Hooghly river system. The Farakka Barrage Project across the Ganga, Head Regulator, Feeder Canal; barrage across the Bhagirathi at Jangipur; bridges across feeder canal, Bagmari syphon; Regulators and Inlets at different locations were completed and commissioned in April 1975. The navigation lock at Farakka was commissioned for inland navigation route of Haldia-Farakka-Allahabad in November 1987. The lock is functioning well and 80 nos. of ships have cross during 2004-05, 62 nos. during 2005-06 and 54 nos. during 2006-07(as on 08.12.2006).

4.16.2 The Farakka Barrage Project was started in 1962 at an estimated cost of Rs 68.59 crore. The Government approved the third revised estimate of Rs 307.89 crore in June 1998. Besides, EFC memos had also been approved during IX plan period for taking up the following additional works: -

(i) Additional special protection works for Farakka Barrage (Rs 46.36 crore)
(ii) Additional special protection works for Feeder Canal & Jangipur (Rs 26 crore)
(iii) Special repair works of the existing assets/structures of Farakka Barrage Project (Rs 18 crore).

4.16.3 During X five-year plan period, there was an outlay of Rs 150 crore for Farakka Barrage Project. EFC memos for Rs 145.43 crore and Rs 3.37 crore had been approved by the Ministry for completion of residual works of IX plan during X plan including establishment cost etc. which was subsequently modified to Rs 140.00 crore by the Planning Commission.

4.16.4 The works orders for execution of special repair/rectification of Spillway Gates, Under Sluice/River Sluice Gates etc. were awarded to M/s Jessop & Co. and M/s NPCC Limited in April 1996 on 50:50 basis. By December 2005, the mechanical/electrical works had been completed and balance works including painting of Gates of Barrage and Regulators etc, have not been taken up so far.

4.16.5 The protection works of the flexile apron on down-stream of Farakka Barrage have been completed.

4.16.6 The details of physical and financial progress in respect of various activities carried out by FBP during the financial years 2005-06 and 2006-07(upto Dec 06) are given in the following tables:

REVIEW OF PERFORMANCE DURING THE YEAR 2005-06

Sl. No.	Name of Scheme	Physical Target	Physical Achievement	Financial Target (Rs. In lakh)	Financial Achievement (Rs. In lakh)
1	2	4	5	6	7
1.	Farakka Barrage Project(Plan Head-5075)	1. Operation and maintenance of Barrage and allied structure including protective measures for safety of Barrage.	100%	1265.00	1265.00
		1. Maintenance and protective measures of Feeder Canal and allied structures including navigation locks etc.	100%	246.00	246.00
		2. Operation and maintenance of Jangipur Barrage – Gates and allied structures, protection measures for afflux bund of River Ganga/Padma.	100%	210.00	210.00
		3.Maintenance of township at Farakka, Jangipur and Khejuriaghat, Barrage Hospital, FBP HS School, Roads, Buildings, Drains, Water Supply System, Electrical Works, Vehicles, Equipments etc.	100%	719.00	719.00
		4.Establishments	100%	600.00	600.00
2.	Farakka Barrage Project (Non Plan Head-3075)	1.Operation and maintenance of Barrage, Gates, hoist including painting/Hydrological study/model studies, R&M of left Afflux Bund etc.	100%	54.00	54.00
		2. Running and Maintenance of FBP colonies at Farakka, Jangipur and Khejuriaghat roads, conservancy drainage system, guest house and R&M of Power supply system.	100%	346.00	346.00
		3. Operation and maintenance of Jangipur Barrage – including lighting etc.	100%	115.00	115.00
		4. Operation and Maintenance of Ferry Service across Feeder Canal at various locations and R&M of Feeder Canal and inspection house.	100%	257.00	257.00
		5.Running and Maintenance of Vehicles/equipments and machineries of FBP.	100%	43.00	42.00
		6. Establishments	100%	1456.00	1427.00

REVIEW OF PERFORMANCE DURING THE YEAR 2006-07

Sl. No.	Name of Scheme	Physical Target	Physical Achievement	Financial Target (Rs. In lakh)	Financial Achievement (Rs. In lakh)
1	2	4	5	6	7
1.	Farakka Barrage Project(Plan Head-5075)	1.Operation and maintenance of Barrage and allied structure including protective measures for safety of Barrage.	75%	877.00	552.00
		2.Maintenance and protective measures of Feeder Canal and allied structures including navigation locks etc.	75%	378.00	251.00
		3.operation and maintenance of Jangipur Barrage – Gates and allied structures, protection measures for afflux bund of River Ganga/Padma.	25%	359.00	21.00
		4.Maintenance of township at Farakka, Jangipur and Khejuriaghat, Barrage Hospital, FBP HS School, Roads, Buildings, Drains, Water Supply System, Electrical Works, Vehicles, Equipments etc.	60%	810.00	533.00
		1. Establishments	As per actual	676.00	252.00
2.	Farakka Barrage Project (Non Plan Head-3075)	1.Operation and maintenance of Barrage, Gates, hoist including painting/Hydrological study/model studies, R&M of left Afflux Bund etc.	70%	100.00	70.00
		2.Running and Maintenance of FBP colonies at Farakka, Jangipur and Khejuriaghat roads, conservancy drainage system, guest house and R&M of Power supply system.	70%	371.00	259.00
		3.Operation and maintenance of Jangipur Barrage – including lighting etc.	80%	115.00	92.00
		4.Operation and Maintenance of Ferry Service across Feeder Canal at various locations and R&M of Feeder Canal and inspection house.	87%	260.00	225.00
		5.Running and Maintenance of Vehicles/equipments and machineries of FBP.	57%	44.00	25.00
		6. Establishments	As per actual	1477.00	1262.00

SCHEMES UNDER STATE SECTOR

4.17 Accelerated Irrigation Benefits Programme(AIBP):

4.17.1 The Accelerated Irrigation Benefits Programme(AIBP) was launched during 1996-97 to give loan assistance to the states to help them complete some of the incomplete major/medium irrigation projects which were in an advanced stage of completion. The Surface Minor Irrigation Schemes of North-Eastern States, Hill States of Sikkim, Uttaranchal, Jammu and Kashmir, Himachal Pradesh and KBK Districts of Orissa have also been provided Central Loan Assistance(CLA) under this programme since 1999-2000. Grant component was introduced in the programme from April, 2004 like other Central sector schemes. The criteria for AIBP was further relaxed from April, 2005 to include minor irrigation schemes of non-special category States with potential more than 100 ha with preference to Tribal Areas and drought prone areas which wholly benefit dalits and adivasis. Extension, renovation and modernization schemes have also been included on a selective basis. The assistance being provided during 2004-05 is on the pattern of normal central assistance i.e. 70% loan and 30% grant in the case of non-special category States and 10% loan and 90% grant in the case of special category States and KBK Districts of Orissa. The drought-prone areas, tribal areas and flood-prone areas in the country, to be identified in consultation with the Planning Commission shall be treated at par with Special Category States for funding i.e., 90% grant and 10% loan. The State Governments have been provided an amount of Rs.19437.88 crore as CLA/Grant under AIBP since inception of this programme upto March, 2006 for 200 major/medium irrigation projects and 5562 Surface Minor Irrigation Schemes. After commencement of this Programme 50 major/medium and 4187 Surface MI Schemes have been completed. An additional irrigation potential of about 3.78 million hectare (approx.) has been created through major/medium irrigation project upto March, 2006 and an irrigation potential of 162.85 thousand hectare has been created through Surface MI Schemes upto March, 2006. A note for consideration of the Cabinet for further relaxation in criteria of AIBP was approved by the Cabinet in its meeting held on 16th November 2006. Cabinet has accorded approval for relaxation on the following points:

(i) All the approved projects in (a) drought-prone areas, (b) tribal areas, (c) States with lower irrigation development as compared to National average and (d) districts identified under PM's package for agrarian distress should be provided support under AIBP in relaxation to 1:1 criteria. For other projects, 1:1 criteria i.e., taking up of another project in the State after completion of one ongoing project will remain applicable.

(ii) The sanctioned grants to be released in two installments, the first based on projected outlay and the second after confirmation of expenditure. The grant component amounting to 90% of the total grant sanctioned will be released immediately and the balance 10% of the grant when 70% of the agreed expenditure is incurred.

(iii) Removing distinction of Fast Track Projects, Reforming and Non-Reforming States and Release of grant of 25% of Project Cost for all irrigation projects in Non-Special Category States and 90% for Special Category States.

(iv) It is proposed that the stipulation of 100 hectare in respect of surface water minor irrigation schemes predominantly benefiting backward regions be brought down to 50 hectare. The stipulation of 10% beneficiary contributing in cost for post construction maintenance for Surface Water Minor Irrigation Schemes benefiting backward regions in non-Special Category States is also proposed to be done away with.

4.17.2 A budget provision of Rs.2098.38 crore has been kept in the union budget 2006-07 for providing grants to the States under AIBP. 35 projects are likely to be completed in 2006-07 and an additional irrigation potential of 9.00 lakh ha. (approx.) is going to be created from the irrigation projects funded under AIBP by March 2007, as reported by the State Governments.

4.18 Flood Control in Brahmaputra and Barak Valley (Critical Flood Control and Anti-Erosion Works in Brahmaputra and Barak Valley during X Plan):

4.18.1 The schemes was approved in the state sector with an outlay of Rs. 150.00 crore for X Plan and has been modified for Rs. 225.00 crore to include some of the schemes recommended by the " Task Force,2004 for Flood Management and Erosion Control". The scheme envisages execution of flood management and erosion control works for Brahmaputra and Barak Valley in North Eastern states including Sikkim and North Bengal falling in the Brahmaputra Basin. The flood management works will give reasonable protection to the flood prone areas in these states. 50 projects were taken up till 2005-06 and an expenditure of Rs.108.32 crore has been incurred upto February 2007. Out of this the expenditure incurred during 2006-07 upto February 2007 is Rs.47.907 crore which includes release of funds for 18 additional projects taken up during the year.

4.19 Repair, Renovation and Restoration of Water Bodies directly linked to Agriculture"

4.19.1 The Union Finance Minister in his Budget speech for 2004-05 announced for launching of a massive scheme to repair, renovate and restore water bodies directly linked to agriculture. Accordingly, the Government of India has sanctioned a Pilot Scheme for "National Project for Repair, Renovation & Restoration of Water Bodies directly linked to Agriculture" in January, 2005 with an estimated cost of Rs.300 crore to be shared by Centre and State in the ratio of 3:1. The Scheme is to be implemented during the remaining period of X Plan. The water bodies having culturable command area of more than 40 hectares and upto 2000 hectares are included under the pilot scheme in one or two districts in each States.

The objective of the Scheme are to restore and augment storage capacities of water bodies and to recover and extend their lost irrigation potential.

Present Status:

4.19.2 The Scheme has been approved in 26 district projects in 15 States, namely, Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Karnataka, Madhya Pradesh, Orissa Rajasthan, Tamil Nadu, West Bengal, Himachal Pradesh, J&K, Gujarat, Kerala and Maharashtra at an estimated cost of Rs.299.0746 crores and Central Share of Rs.132.01 crores has been released to the states till date. These projects cover 1079 water bodies with total original culturable command area of 2.99 lakh ha. After RRR works an additional irrigation potential of 1.48 lakh ha is likely to be generated from present status. The physical work for restoration has been completed for 269 water bodies so far and the restoration work is in progress in the remaining 810 water bodies. The potential created will be part of the `Bharat Nirman'. It has been decided, as announced in the Budget Speech for 2006-07 of the Finance Minister that the project will be expanded throughout the Country through external assistance. The proposals from 4 States Andhra Pradesh, Karnataka, Orissa and Tamil Nadu have been posed to the World Bank for external assistance. The proposal of Tamil Nadu has been negotiated & approved. The proposal for Andhra Pradesh is at advanced stage of negotiations with the World Bank. The Walmis, Agricultural University, IRSA, Hyderabad & IARI have been approached for evaluation of completed water bodies. Some proposals have already been received & are under consideration.

4.19.3 During 2005-06, 2 nos. of works were completed. During 2006-07, 267 nos. of works were completed upto December 2006. By March 2007, 810 nos. of works are targeted to be completed. Most of the works under the scheme are likely to be completed by March 2007. However, some spill over works will be completed in 2007-08.

4.20. Critical anti-erosion works in coastal and other than Ganga Basin States:

4.20.1 Coastal protection works are planned and executed by the respective State Governments. However, in view of severity of the problems, Ministry of Water Resources has formulated Centrally Sponsored Scheme "Critically anti-erosion works in coastal and other than Ganga Basis States" for anti-erosion works in critical areas which has been taken up by the Government of India in March, 2004 on pilot basis with an estimated cost of Rs 20.64 crore. The funding pattern of the scheme is 75:25 (Centre:State). Anti-sea erosion works for specific critical areas in Maharashtra, Orissa, Tamil Nadu, Karnataka, Kerala and Pondicherry have been included in the scheme. During the period 2003-04 and 2004-05 the funds were released from the Ministry's budget head. A provision of Rs 25.00 crore has been kept in the Annual Plan 2006-07. Since the scheme has

been transferred to the states sector from April 2005, the release of funds is being made by the Ministry of Finance. An amount of Rs 18.00 crore has been released under the scheme upto January 2007.

4.21 Improvement of Drainage in Critical Areas of the Country including Mokama Tal Area:

4.21.1 Government of India has sanctioned in February 2004, a centrally sponsored scheme estimated to cost of Rs.54.57 crore with a central share of Rs. 49.62 crore to take up works relating to improvement of drainage in critical areas of the country. The scheme aims at improving drainage conditions of critical areas, affected due to floods in the states of Andhra Pradesh, Bihar, Orissa, Uttar Pradesh and Jammu & Kashmir with central share of Rs.5.45 crore, Rs. 27.38 crore, Rs.10.42 crore, Rs. 1.50 crore and Rs. 4.87 crore respectively. From 2005-06 onwards the scheme has been transferred to State Sector. The scheme of Government of J & K has been included in 2006-07 in centrally sponsored scheme (Now state sector scheme) due to savings within the outlay of Rs. 49.62 crore. The scheme among other benefits will also increase the agricultural production in these areas. The works under the scheme are being executed by the respective state governments and will be completed by March 2007 within the X plan period.

CHAPTER - V

OVERALL FINANCE REVIEW

5.1 The scheme wise allocation of funds vis-a-vis expenditure trend and reasons for shortfall are discussed below year wise from 2002-03 i.e. from the inception of tenth plan. The details of MoWR Budget vis-à-vis X plan outlay is shown in **Annexure - I.**

FY 2002-03

5.2 FY 2002-03 was the first year of the X plan. Plan outlay during this year was Rs. 552.00 crore. Expenditure during the year was Rs. 404.27 crore and works out to 72% of sanctioned budget. FY 2002-03 being the first year of X plan, all the plan schemes were to be approved for continuance in X plan at different levels. Delay in issue of guidelines by Government for continuance of schemes from IX plan to X plan delayed incurring of expenditure of plan schemes. Apart from this, some flood control schemes remained unapproved during the financial year resulting in less expenditure. The major saving was under the following schemes:

(i) Artificial recharge of ground water
(ii) Ground water survey, exploration and investigations
(iii) Command Area Development program
(iv) Brahmaputra Board
(v) Pagladia Dam Project
(vi) Flood control in Brahmaputra and Barak Valley
(vii) Critical anti-erosion Works in coastal and other than Ganga basin states

FY 2003-04

5.3 Budget provision during FY 2003-04 was Rs. 554.00 crore. Against this expenditure incurred during the year was Rs.399.94 crore. Major Areas of saving are indicated below:

- Under NWDA since permission for the work of aerial survey in Manas-Sankosh-Teesta-Ganga link project passing through Tiger Reserve had been denied by Ministry of Environment & Forests.

- Under the scheme “Ground Water Survey, Exploration & Investigation” due to non-procurement of Machinery & Equipment.

- The scheme “Artificial reacharge of Ground Water” could not be implemented due to technical reasons and decision taken by State Level Technical Coordination Committee.

- Restructured scheme of Command Area Development and Water Management was cleared by CCEA during last week of January 2004.

- Due to non-submission of utilization certificate by State Governments, provision of Rs.5.00 crore kept under the scheme Extension of embankments Lalbakeya, Kamla, Bagmati and Khando rivers remained unutilized.

- Due to the late approval of the scheme 'Improvement of drainage in critical areas of the country.'

- Under Brahmaputra Board the shortfall of expenditure in achieving the target as anticipated during the year was due to unprecedented heavy rain, disruption of communication during the month of March 2004 and other security related problems in carrying out Survey & Investigation works including drilling works at different sites of the filed offices of the Board.

5.4 The targeted expenditure under Pagladia Dam Project could not be incurred due to following reasons:

- The State Govt. has not handed over the land for the construction of the project till date.
- The Zirat survey of the project to identify the actual number of project affected people could not be taken up by the State Govt.
- The cost of the project has been revised from Rs. 542.90 crore to Rs. 1069.40 crore. The PIB Memo with the revised cost is yet to be approved by the competent authority.

5.5 The entire provision of Rs 10 crore meant for the scheme 'Flood Control in Brahmautra and Barak Valley' was surrendered to non- lapsable pool as the scheme was not cleared by Full Planning Commission and CCEA.

FY 2004-05

5.6 In the FY 2004-05 against the sanctioned BE of Rs.580 crore the expenditure incurred was Rs.406.04 crore which works out to around Rs.70 %. The savings is attributable to shortfall in activities of the following schemes:

(i) The shortfall of expenditure to the tune of Rs. 3.67 crore in case of Brahmputra Board was owing to inability in achieving the target as anticipated during the year which was due to unprecedented heavy rain, disruption of communication and also remoteness of the areas in carrying out survey and investigation works including drilling works at different sites of the field offices of the Board.

(ii) Short fall of Rs. 0.39 crore in targeted expenditure for Pagladia Dam Project. is due to non-completion of the Zirat survey by the State Government.

(iii) Late approval of the scheme "Flood Control in Brahmaputra and Barak valley" by the Cabinet led to no expenditure resulting surrender of entire provision of Rs 20.00 crore.

(iv) Short fall in expenditure for the scheme "New Scheme for Majuli Island in Assam, Dibang Project to the tune of Rs. 11.08 crore was due to unprecedented heavy rains and flood, disruption of communication and also due to remoteness of areas.

(v) **National Water Development Agency (NWDA) surrendered funds due to non-undertaking of the work of detailed project report and also owing to closure of task force. Provision of Rs 14.00 crore kept for starting the work for preparation of Detailed Project Reports (DPR) for Ken-Betwa and Parbati –Kalisindh-Chambal Link Projects, was surrendered as consensus between concerned state for taking up the work of preparation of DPR could not be arrived at.**

(vi) Due to non-approval of the scheme " Artificial Recharge of Ground Water " entire budget provision of Rs. 40.00 crore had to be surrendered.

(vii) There was a surrender of funds of Rs. 34.85 crore in Command Area Development despite the fact that the state governments are regularly persuaded to enhance their matching outlay so as to utilize the allocated central funds.

(viii) There was a saving of Rs. 4.50 crore in the scheme Improvement of drainage in critical areas due to reduction in allocation owing to non-receipt of request for additional funding and non-receipt of utilization certificate of releases of previous year from the state govt.

FY 2005-06

5.7 In the FY 2005-06 against the sanctioned BE of Rs.621.00 crore out of which the expenditure incurred was Rs.522.69 crore which works out around 84% of BE 05-06. The savings is mainly attributable to shortfall in activities of the following schemes:

(i) **National Water Development Agency** : **Saving was due to non-undertaking of the work of detailed project report for Ken-Betwa and Parbati –Kalisindh-Chambal Link Projects. Further, National Water Development Agency could not get permission for survey in other neighboring countries for survey under Himalayan component for preparation of feasibility report.**

(ii) Establishment and Modernization of Flood Forecasting Network in India including inflow forecasts: Saving was due to late finalization of tender for Telemetry installation in River Basin.

(iii) Hydrology Project: Projected expenditure could not be incurred due to late approval of the scheme.

(iv) New Scheme for Majuli in Assam, Dibang projects etc**:** Saving was for delay in execution of works due to unprecedented heavy rains and flood, disruption of communication and also due to remoteness of areas.

(v) Sutlej Yamuna Link Canal Project: Saving to the tune of Rs. 25.00 crore was due to the matter being sub-judice**.**

TREND OF EXPENDITURE IN FY 2006- 07 UP TO DECEMBER:

5.8 Sanctioned plan budget of this Ministry for the year 06-07 is Rs. 700.00 crores which has been reduced to Rs.550.00 crores by the Ministry of Finance in RE 06-07. As per the expenditure details received from the Office Of Controller of Accounts, an expenditure of Rs.292.33 crores has been incurred, which works out to 41.76% and 53.15% with reference to B.E/R.E 06-07 respectively.

5.9 **The grant of Ministry of Water Resources for FY 06-07 is classified into six Sectors. The Sector-wise distribution of approved plan outlay (both BE/RE) and expenditure up to dec-2006 under different Sectors are summarized below:**

(Rs in crore)

Sector	B.E. 2006-07	R.E. 2006-07	Exp. Upto December 06
Secretariat Economic Services	12.13	2.23	0.42
Major & Medium Irrigation	114.01	70.12	36.37
Minor Irrigation	88.94	80.30	46.57
Command Area Development Programme	205.70	191.08	114.09
Flood Control	248.22	175.27	78.48
Transport Sector	31.00	31.00	16.40
Total	**700.00**	**550.00**	**292.33**

Secretariat Economic Services

5.10 Under this sector, three schemes are covered. Details about the financial targets and achievement of different schemes are as given below:

(Rs. in crore)

Name of the scheme	BE 2006-07	RE 2006-07	Exp. December 06
Hydrology Project	10.45	1.00	0.04
IT Development	1.12	1.00	0.27
Water Quality Assessment Authority	0.56	0.23	0.11
Total	**12.13**	**2.23**	**0.42**

The shortfall is mainly attributed to slow booking of expenditure under Hydrology Project as the project is in initial stage and the works are likely to be expedited when consultants are in place after they are procured.

Major & medium irrigation

5.11 Budget provision of Rs 114.01 crore is available under this sector. Against this, the expenditure incurred is Rs 36.37 crore upto Dec 06. The performance of the schemes under this sector are evaluated below:

(Rs. in crore)

Name of the scheme	BE 2006-07	RE 2006-07	Exp. upto December 06
Central Water Commission	28.68	25.34	13.18
Central Soil & Materials Research Station	8.34	7.72	4.59
Central Water & Power Research Station	5.45	4.10	0.48
National Water Development Agency	41.00	21.00	13.27
National Institute of Hydrology	17.48	3.96	2.97
Research & Development	13.06	8.00	1.88
Total	**114.01**	**70.12**	**36.37**

The shortfall is mainly attributed to savings under the following schemes:

- National Water Development Agency due to delay in preparation of DPR of Ken-Betwa Link Work
- Hydrology Project in NIH & CWPRS due to the delay in identification of consultants and procurements identified for the project.
- Saving in the schemes operated by Central Water Commission namely Data Collection, Setting up of specialized units in HE Design, Dam Safety & Rehabilitation in India and Studies on reservoir sedimentation.

Minor Irrigation

5.12 This sector includes surface water schemes (rationalization of minor irrigation statistics) and various ground water schemes operated by Central

Ground Water Board. The details of schemes and their financial achievements are indicated below:

(Rs. in crore)

Name of the scheme	BE 2006-07	RE 2006-07	Exp. upto December 06
Rationalization of Minor Irrigation Statistics	9.10	9.00	5.11
Central Ground Water Board	79.84	71.30	41.46
Total	**88.94**	**80.30**	**46.57**

The shortfall is mainly attributed to

- Savings under the scheme "Ground Water Survey, Exploration & Investigation" due to delay in procurement of Machinery & Equipment
- Saving due to delay in acquisition of land and building

Command Area Development

5.13 Provision of Rs. 205.70 crore has been kept for release as grants to states. Against this the expenditure is Rs.114.09 crore. The details of schemes and their financial achievements are indicated below. It is expected to meet the targeted expenditure.

(Rs. in crore)

Name of the scheme	BE 2006-07	RE 2006-07	Exp. upto December 06
Command Area Development & Water Management	204.30	189.38	112.80
Research & Development	1.40	1.70	1.43
Total	**205.70**	**191.08**	**114.23**

Flood Control Sector

5.14 Budget provision of Rs 248.22 crore was kept for various flood control schemes during the ongoing FY 06-07. This was reduced to Rs.175.27 crore in RE. Actual expenditure under flood control is Rs 78.48 crore upto Dec. 06. Apart from Central Water Commission, Brahmaputra Board and Ganga Flood Control Commission, this sector also contains number of flood control scheme**.**

(Rs. in crore)

Name of the scheme	BE 2006-07	RE 2006-07	Exp. upto December 06
Central Water Commission	31.68	19.68	13.80
Ganga Flood Control Commission	2.75	2.71	1.98
Survey & Investigation of Koshi High Dam	13.90	8.50	4.08

Project			
Maintenance of flood protection works of Koshi and Gandak Projects	5.24	3.24	0.00
Pancheshwar Multipurpose Project	2.13	2.12	1.18
Joint Observation on common Rivers with Bangladesh and neighouring countries	1.50	1.50	0.12
Critical anti-erosion works in Ganga Basin States	111.20	80.25	30.77
Extension of embankments on Lalbakeya, Kamla, Bagmati and Khando rivers	32.25	25.00	0.00
Schemes for the benefits of North Eastern States & Sikkim	47.57	32.27	26.55
Total	**248.22**	**175.27**	**78.48**

The shortfall in expenditure is primarily due to late approval of the revised scheme of Critical Anti Erosion Works which has led to late submission of proposals by state governments. The expenditure in this sector is normally high in the last two quarters. Besides for schemes extension of embankments on Lalbakeya, Kamla Baghmati and Khando rivers the expenditure is on reimbursement basis which takes place in the last quarter of the Financial Year.

Transport Sector

5.15 Budget provision of Rs 31.00 crore was provided to Farakka Barrage Project during the financial year 06-07. Against this expenditure is Rs. 16.04 crore till Dec. 06.

Budget at a Glance

5.16 In the water resources sector, the central budget enables the Ministry of Water Resources and its associate organisations to play an overall guiding and coordinating role in relation to schemes, projects and programmes that take place essentially in the states/UTs. The only project viz., Farakka Barrage Project, which is primarily a navigation project, is under this ministry because in terms of the skills and disciplines involved, it is similar to other hydraulic projects within the ambit of this ministry. In relation to water resources development, the role of centre is one of planning, guidance, policy formulation and assistance.

5.17 Since 'Water' is a state subject, the role of central government in implementing the programmes is essentially of a catalytic nature. The budget of the central government is, thus, supplemented by funds provided in the budgets of various state governments.

5.18 The Ministry have been implementing/monitoring 63 plan, and 3 centrally sponsored schemes during X plan period through its various wings/organizations. Following initiation of Zero Based Budgeting and direction of Planning Commission to prune the number of Central Sector Schemes for XI plan period, the activities under various programmes/schemes being implemented/monitored by the Ministry have been clubbed to 15 central sector, 1 centrally sponsored and 4 state sector schemes. The following paragraphs give a brief overview of the restructured schemes:

Major & Medium irrigation

5.19 Development of Water Resources Information System: The management of water resources is a highly complex task that involves multidisciplinary domains including data acquisition, numerical modelling, optimization, data warehousing, and the analysis of socio-economic, environmental and legal issues. In view of water's vital role in human life, there is a need for better design and optimal use of hydro-systems. In this context, a rational analysis must be based on an approach that considers all related causes and effects and systematically evaluates the various alternatives. The water resources information system play a vital role in achieving optimal utilisation of the resources. The objective of the scheme is to develop a water resources system and made it fully operational at the earliest. Water Resources Information System dedicated to the management of water resources.

5.20 Hydrology Project : To extend and promote the sustained and effective use of the Hydrological Information System (HIS) by all implementing agencies concerned with water resources planning and management in the 13 States and 8 Central agencies. The project would extend the HIS to the four new state agencies of H.P., Punjab, Goa and Pondichery. The coverage of existing states under the project is to help them move from development of Hydrological Information System (HIS), as in the Hydrology Project Phase-I, towards use of HIS in water resources planning and management. The project will strengthen the capabilities of implementing agencies at state/ central level in using HIS for efficient water resource planning and management. It will build awareness and outreach services about HIS use; establishing and enhancing HIS data utilization by all concerned organizations.

5.21 Investigation of Water Resources Development Scheme: To carry out the activities related to survey, field investigation, preparation of Pre-feasibility/Feasibility Report(FRs) & Detailed Project Report(DPRs) of various Water Resources Development Schemes including the schemes for Inter Basin transfer of Water and to carry out other studies and activities considered necessary incidental, supplementary or conductive to attainment of above objectives.

5.22 Research and Development Programme for Water Sector: The objectives of the scheme are (i)To find practical solutions to the country's water resources related problems and to improve available technology and engineering methods

and procedures and in particularly to take up research studies for improvement of the efficiency of the existing facilities (ii) To create / upgrade research facilities and equipments of the premier organization at National level to keep pace with the present technology (iii)To support research works to be taken up by the various institutions in the country in the water sector.

5.23 National Water Academy: This scheme will cover the activities related to training to In-service engineers from State and Central organizations in the area of Water Resources Development and particularly Integrated River Basin Planning and Management and other subjects related to Water Resources Development and Management.

5.24 Information, Education and Communication: The main objectives of the scheme are (i) To promote advocacy on the tenets of National Water Policy for adopting in projects setting, learning, documenting and dissemination.(ii)To create awareness among the people of necessity of using available water resources judiciously and sparingly. (iii) To create awareness on necessity of adopting measures for rainwater harvesting and artificial recharge of ground water to meet present and future needs of water. (iv)To reinforce importance of traditional water bodies in maintaining water balance and meeting water needs of the population. (v) To enable the public to have direct access to various database on techniques of conservation of water. (vi)To make conservation of water a mass campaign and to induce population to voluntarily adopt various water saving measures. (vii)To make special efforts to reach women and children through specially targeted messages.

5.25 River Basin Organization/Authority**: The objective of the scheme is to encourage formation of River Basin Organization with the primary objective of providing a forum to all the co-basin states for taking up necessary studies and evaluation etc. with a view to identify the most appropriate alternative for optimum utilization of resources and meeting the aspirations of all stake-holders.**

5.26 Infrastructure Development**: This scheme will include the activities related to Lands & Building and IT Development and will include the activities related to (i) Land and Buildings of CWC, (ii) Lands and Buildings of CGWB, (iii) IT Development of MoWR and (iv) Upgradation and Modernisation of Computerization and Information system of CWC .**

5.27 Dam Safety Studies & Planning**: The scheme envisages taking up necessary studies related to Dam Safety and infrastructure strengthening of the Dam Safety Organization.**

Minor Irrigation

5.28 Ground Water Management and Regulation: The main objectives of the scheme are as follows:

- To carry out ground water management studies to design area specific ground water development and management plan.
- To carry out ground water exploration aided by drilling to delineate ground water worthy areas.
- To periodically assess country's ground water resources and revise / update the methodology.
- To monitor ground water levels and quality from ground water observation wells.
- To carry out demonstrative artificial recharge and rain water harvesting studies to develop / update area specific methodologies.
- Establishing / updation of data storage and information system to store, process and disseminate ground water data.
- Regulate and control ground water development in coordination with State Government Organization.
- To carry out geophysical studies through surface and sub-surface methods to delineate potential aquifers and pinpointing of suitable sites for ground water exploration, artificial recharge etc.
- Coordinate with State governments with a view to establish benchmark methodologies for ground water studies.
- Promote awareness and water quality consciousness.
- Develop linkages with Science Institutions on aspects of ground water saving and sharing.
- Assessment of ground water quality for determining their suitability for various types of uses including use for agriculture, industrial and allied purposes.
- Preparation of Reports, Maps, Ground Water Atlases and Brochures for uses by planners and administrators.
- Strengthening of infrastructure by way of procurement of state of the art equipment which will aid in achieving the above objectives.

5.29 Rajiv Gandhi Institute of Training and Research: This scheme will cover the activities to provide a base for organizing and Upgrading the knowledge and skills of ground water professional in Planning, Investigation, Development, Management, Augmentation, Conservation and Protection of Ground Water Resources.

5.30 Command Area Development and Water management Programme (CADWM): The Centrally sponsored Command Area Development (CAD) Programme was launched in 1974-75 with the objective of bridging the gap between irrigation potential created and utilized and optimizing agriculture production from irrigated lands on a sustainable basis. The programme envisaged to integrate all activities relating to irrigated agriculture in a coordinated manner with multidisciplinary team under an Area Development Authority. With a view to improve its effectiveness, the CAD programme was restructured with effect from 1.4.2004 and renamed as Command Area Development and Water Management (CADWM) Programme. In accordance with budget announcement of 2006 further

revamping of CADWM for XI Plan is under way. The revamped programme would focus on implementation of various activities through Water Users' Associations. The scope of certain activities is also being expanded to take care of conveyance deficiencies and reclamation of waterlogged, saline and alkaline lands in all the Irrigation Commands of the country.

Flood Control

5.31 Pagaladiya Dam Project: The main objective of the scheme is the construction of dam and canal system etc. to protect an area of 40,000 ha in Nalbari area of Assam from recurring floods of the river Pagladiya and to provide irrigation to a Gross Command Area of 54,160 ha annually (average). The project is to generate 3 MW of hydro-electricity from canal release as incidental benefit.

5.32 Flood Forecasting: To strengthening and improvement of the flood forecasting and inflow forecasting network in India and development of forecast information system.

5.33 River Management Activities in Border Areas: In view of the international issues involved, it is necessary to take up river management activities on priority in a systematic method which include hydrological observation, investigation and necessary flood control, measures in cooperation with neighboring countries wherever necessary.

Transport Sector

5.34 Farakka Barrage Project: The main objective of the Farakka Barrage Project is "operation and maintenance of Farakka Barrage and associated structures including anti-erosion measures for safety of barrage".

5.35 Budgeted Estimates for FY 07-08 for the restructured schemes is presented at Table-A. A comparative table showing Budget allocated and expended for last 3 years is explained in Tables B & C. The budget of the Ministry is explained in terms of allocation of funds among various sectors (Table B) & the manner in which the expenditure of the Ministry is incurred (Table C).

TABLE - A
FY 07- 08 BUDGETS AT A GLANCE

Sl. No.	Name of the Scheme	2007-08 (Rs in Crore)		
		Sector	Gross Budgetary Support (GBS)	Outlay
I	**Centrally Sponsored Schemes**			
1	**Command Area Development and Water Management Programme.**	**CADWM**	300.00	15.00
	Total CSS		**300.00**	**300.00**
	Central Sector Schemes			
II	**Investigation and Planning**			
1	Development of Water Resources Information System	**M&M**	30.00	30.00
2	Hydrology Project	**M&M**	33.00	33.00
3	Ground Water Management and Regulation	**Minor**	62.00	62.00
4	Investigations of Water Resources Development Schemes	**M&M**	30.00	30.00
	Research, Training and Mass Awareness			
5	Research and Development	**M&M**	30.00	30.00
6	National Water Academy	**M&M**	2.00	2.00
7	Rajiv Gandhi National Ground Water Training and Research Institute	**Minor**	1.50	1.50
8	Information, Education and Communication (New schemes)	**M&M**	2.00	2.00
	Project/Programme Implementation			
9	Pagladiya Dam Project	**FC**	1.00	1.00
10	Farakka Barrage Project	**Transport**	33.00	33.00
11	River Basin Organisations/Authority (New scheme)	**M&M**	0.50	0.50
12	Dam Safety Studies & Planning	**M&M**	1.00	1.00
	Flood Management			
13	Flood Forecasting	**FC**	16.00	16.00
14	River Management Activities and works related to Border Areas.	**FC**	46.00	46.00
	Infrastructure Development			

15	Infrastructure Development	**M&M, Minor & FC**	12.00	12.00
	Total Central Sector Schemes		**300.00**	**300.00**
	Grand Total (CS+CSS)		**600.00**	**600.00**

TABLE - B
BUDGET AT A GLANCE
(SECTOR-WISE)

(Rupees in crore)

Sl No.	Sector/Organisation/Scheme	Actuals 2005-06		BE 2006-07		RE 2006-07		BE 2007-08		Total
		Plan	Non-Plan	Plan	Non-Plan	Plan	Non-Plan	Plan	Non-Plan	
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
I	**Secretariat-Economic Services**	**1.20**	**17.02**	**12.13**	**15.42**	**2.23**	**20.84**	**0.00**	**20.76**	**20.76**
II	**Major & Medium Irrigation**									
1.	Central Water Commission	20.27	80.25	28.68	76.11	25.34	78.78	2.00	84.52	86.52
2.	Central Soil and Materials Research Station	5.17	4.12	8.34	4.23	7.72	4.24	0.00	4.95	4.95
3.	Central Water & Power Research Station	2.74	22.17	5.45	21.38	4.10	22.70	0.00	22.60	22.60
4.	National Water Development Agency	17.03	0.00	41.00	0.00	21.00	0.00	0.00	0.00	0.00
5.	National Institute of Hydrology	3.44	4.70	17.48	4.62	3.96	4.50	0.00	4.95	4.95
6.	Research and Development Programme	5.61	0.00	13.06	0.00	8.00	0.00	30.00	0.00	30.00
7.	National Projects Construction Corporation Limited	0.00	15.80	0.00	15.80	0.00	15.80	0.00	0.00	0.00
8.	Sutlej Yamuna Link Canal Project	0.00	0.00	0.00	25.00	0.00	10.37	0.00	25.00	25.00
9.	Boards & Committees	0.00	1.14	0.00	2.83	0.00	2.83	0.00	3.45	3.45
10.	Central Pollution Control Board	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11.	Bhakra Beas Management Board	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12.	Development of Water Resources Information System	0.00	0.00	0.00	0.00	0.00	0.00	30.00	0.00	30.00
13.	Hydrology Project	0.00	0.00	0.00	0.00	0.00	0.00	33.00	0.00	33.00
14.	Investigation of Water Resources Development Schemes	0.00	0.00	0.00	0.00	0.00	0.00	30.00	0.00	30.00
15.	Information, Education and Communication	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00
16.	River Basin Organization/ Authority	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.50
17.	Dam Safety Studies and Planning	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
18.	Infrastructure Development	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	4.00
	Total: Major & Medium Irrigation	**54.26**	**128.18**	**114.01**	**149.97**	**70.12**	**139.22**	**132.50**	**145.47**	**277.97**

Sl No.	Sector/Organisation/Scheme	Actuals 2005-06		BE 2006-07		RE 2006-07		BE 2007-08		Total
		Plan	Non-Plan	Plan	Non-Plan	Plan	Non-Plan	Plan	Non-Plan	
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
III	**Minor Irrigation**									
1.	Central Ground Water Board	71.46	54.50	91.34	51.16	82.90	56.00	1.50	55.70	57.20
2.	Surface Water Schemes	3.65	0.00	9.10	0.00	9.00	0.00	0.00	0.00	0.00
3.	R. & D. Programme	0.42	0.00	0.50	0.00	0.40	0.00	0.00	0.00	0.00
4.	Repair, renovation and restoration of water bodies	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5.	Ground Water Management and Regulation	0.00	0.00	0.00	0.00	0.00	0.00	74.00	0.00	74.00
6.	Infrastructure Development	0.00	0.00	0.00	0.00	0.00	0.00	4.55	0.00	4.55
	Total : Minor Irrigation	**75.53**	**54.50**	**100.94**	**51.16**	**92.30**	**56.00**	**80.05**	**55.70**	**135.75**
IV.	**Command Area Development**									
1.	Command Area Development Programme	198.32	0.00	204.30	0.00	189.38	0.00	300.00	0.00	300.00
2.	R. & D. Programme	1.58	0.00	1.40	0.00	1.70	0.00	0.00	0.00	0.00
	Total: Command Area Development	**199.90**	**0.00**	**205.70**	**0.00**	**191.08**	**0.00**	**300.00**	**0.00**	**300.00**
V.	**Flood Control**									
1.	Central Water Commission	21.12	35.41	31.68	32.09	19.68	32.94	0.00	36.24	36.24
2.	Flood Proofing Programme	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.	Ganga Flood Control Commission	2.40	0.00	2.75	0.00	2.71	0.00	0.00	0.00	0.00
4.	Emergent Flood Protection Measures in Eastern and Western Sectors	0.00	1.61	0.00	3.00	0.00	3.00	0.00	3.00	3.00
5.	Survey & Investigation of Kosi High Dam Project	5.34	0.00	13.90	0.00	8.50	0.00	0.00	0.00	0.00
6.	Maintenance of flood protection works of Kosi and Gandak Projects	3.74	0.00	5.24	0.00	3.24	0.00	0.00	0.00	0.00
7.	Pancheshwar Multipurpose Project	1.53	0.00	2.13	0.00	2.12	0.00	0.00	0.00	0.00
8.	Joint Observation on common Rivers with Bangladesh and neighbouring countries	0.26	0.00	1.50	0.00	1.50	0.00	0.00	0.00	0.00
9.	Critical anti-erosion works in Ganga Basin States	83.00	0.00	111.20	0.00	80.25	0.00	0.00	0.00	0.00
10.	Extension of embankments on Lalbakeya, Kamla, Bagmati and Khando rivers	13.53	0.00	32.25	0.00	25.00	0.00	0.00	0.00	0.00
11.	Critical anti-erosion works in Coastal and other than Ganga Basin States	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12.	Improvement of Drainage in	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sl No.	Sector/Organisation/Scheme	Actuals 2005-06		BE 2006-07		RE 2006-07		BE 2007-08		Total
		Plan	Non-Plan	Plan	Non-Plan	Plan	Non-Plan	Plan	Non-Plan	
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
	Mokama Group of Tals									
13.	Schemes for the benefit of North Eastern States & Sikkim									
	-Brahmaputra Board	18.79	0.00	28.12	0.00	16.76	0.00	0.00	0.00	0.00
	-Flood Control in Brahmaputra and Barak Valley	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	-Pagladia Dam Project	1.50	0.00	5.00	0.00	3.00	0.00	1.00	0.00	1.00
	-Harrange Drainage Scheme	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	-New schemes for Majuli island in Assam, Dihang	11.00	0.00	14.45	0.00	12.51	0.00	0.00	0.00	0.00
	Project, etc.	31.29	0.00	47.57	0.00	32.27	0.00	1.00	0.00	1.00
	Sub Total (S.No.13)									
14.	Flood Forecasting	0.00	0.00	0.00	0.00	0.00	0.00	16.00	0.00	16.00
15.	River Management Activities and Works related to Border Areas	0.00	0.00	0.00	0.00	0.00	0.00	46.00	0.00	46.00
16.	Infrastructure Development	0.00	0.00	0.00	0.00	0.00	0.00	3.45	0.00	3.45
	Total : Flood Control	**162.21**	**37.02**	**248.22**	**35.09**	**175.27**	**35.94**	**66.45**	**39.24**	**105.69**
VI.	**Transport Sector**									
1.	Farakka Barrage Project	**29.59**	**22.41**	**31.00**	**23.67**	**31.00**	**23.31**	**33.00**	**24.99**	**57.99**
	TOTAL (I to VI) *	**522.69**	**259.13**	**712.00**	**275.31**	**562.00**	**275.31**	**612.00**	**286.16**	**898.16**
VII.	**AIBP and other Water Resources Programme ****	******	**0.00**	**2350.00**	**0.00**	**1650.00**	**0.00**	**3580.00**	**0.00**	**3580.00**
	GRAND TOTAL	**522.69**	**259.13**	**3062.00**	**275.31**	**2212.00**	**275.31**	**4192.00**	**286.16**	**4478.16**

*Source of financing : *Demand No.102 – Ministry of Water Resources for 2007-2008 (excluding AIBP)*

*** Details shown in Demand No. 35- Ministry of Finance (Transfers to State and Union Territory Governments).*

TABLE - C
BUDGET AT A GLANCE
(TYPE OF EXPENDITURE)

(Rupees in crore/GROSS)

Sl. No	Sector/Organisation/Scheme	Actuals 2005-06		B.E. 2006-07		R.E. 2006-07		B.E. 2007-08		Total
		Plan	Non-Plan	Plan	Non-Plan	Plan	Non-Plan	Plan	Non-Plan	
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
A.	**DIRECT EXPENDITURE**									
1.	Secretariat-Economic Services	1.20	17.02	12.13	15.42	2.23	20.84	0.00	20.76	20.76
2.	Central Water Commission									
	-Major & Medium Irrigation	20.27	80.25	28.68	76.11	25.34	78.78	2.00	84.52	86.52
	-Flood Control	21.12	35.41	31.68	32.09	19.68	32.94	0.00	36.24	36.24
3.	Central Soil & Materials Research Station	5.17	4.12	8.34	4.23	7.72	4.24	0.00	4.95	4.95
4.	Central Water & Power Research Station	2.74	22.17	5.45	21.38	4.10	22.70	0.00	22.60	22.60
5.	Central Ground Water Board	71.46	54.50	91.34	51.16	82.90	56.00	1.50	55.70	57.20
6.	Farakka Barrage Project	29.59	22.41	31.00	23.67	31.00	23.31	33.00	24.99	57.99
7.	Ganga Flood Control Commission	2.40	0.00	2.75	0.00	2.71	0.00	0.00	0.00	0.00
8.	Survey & Investigation of Kosi High Dam Project	5.34	0.00	13.90	0.00	8.50	0.00	0.00	0.00	0.00
9.	Maintenance of Flood Protection Works of Kosi & Gandak Projects	3.74	0.00	5.24	0.00	3.24	0.00	0.00	0.00	0.00
10.	Pancheshwar Multipurpose Project	1.53	0.00	2.13	0.00	2.12	0.00	0.00	0.00	0.00
12.	Joint Observation on rivers common with Bangladesh and neighbouring countries	0.26	0.00	1.50	0.00	1.50	0.00	0.00	0.00	0.00
13.	Boards and Committees	0.00	1.14	0.00	2.83	0.00	2.83	0.00	3.45	3.45
14.	Central pollution Control Board	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15.	Bhakra Beas Management Board	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total : Direct Expenditure	**164.82**	**237.02**	**234.14**	**226.89**	**191.04**	**241.64**	**36.50**	**253.21**	**289.71**
B.	**RELEASES**									
(a)	**Grants to Autonomous Bodies**									
1.	National Water Development Agency	17.03	0.00	41.00	0.00	21.00	0.00	0.00	0.00	0.00
2.	National Institute of Hydrology	3.44	4.70	17.48	4.62	3.96	4.50	0.00	4.95	4.95
3.	Brahmaputra Board	18.79	0.00	28.12	0.00	16.76	0.00	0.00	0.00	0.00
4.	Research & Development Programme									
	-Major and Medium Irrigation	5.61	0.00	13.06	0.00	8.00	0.00	30.00	0.00	30.00
	-Minor Irrigation	0.42	0.00	0.50	0.00	0.40	0.00	0.00	0.00	0.00
	-Command Area Development	1.58	0.00	1.40	0.00	1.70	0.00	0.00	0.00	0.00

Sl. No	Sector/Organisation/Scheme	Actuals 2005-06		B.E. 2006-07		R.E. 2006-07		B.E. 2007-08		Total
		Plan	Non-Plan	Plan	Non-Plan	Plan	Non-Plan	Plan	Non-Plan	
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
5.	Pagladia Dam Project	1.50	0.00	5.00	0.00	3.00	0.00	1.00	0.00	1.00
6.	Harrange Drainage Scheme	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7.	New Schemes for Majuli Island in Assam, Dibang Project, etc.	11.00	0.00	14.45	0.00	12.51	0.00	0.00	0.00	0.00
	Sub-Total (a) Grants to Autonomous Bodies	**59.37**	**4.70**	**121.01**	**4.62**	**67.33**	**4.50**	**31.00**	**4.95**	**35.95**
(b)	**Central/Centrally Sponsored/ State Plan Schemes**									
1.	Minor Irrigation									
	-Surface Water Schemes	3.65	0.00	9.10	0.00	9.00	0.00	0.00	0.00	0.00
	-Repair, renovation and restoration of water bodies	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.	Command Area Development Programme	198.32	0.00	204.30	0.00	189.38	0.00	300.00	0.00	300.00
3.	Improvement of Drainage in Mokama Group of Tals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.	Artificial recharge of Ground Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Sub-Total (b):Central/Centrally sponsored Schemes	**201.97**	**0.00**	**213.40**	**0.00**	**198.38**	**0.00**	**300.00**	**0.00**	**300.00**
(c)	**Assistance to States for Flood Control/anti-erosion works**									
1.	Flood Control in Brahmaputra and Barak Valley	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.	Flood Proofing Programme	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.	Critical Anti-erosion and Flood Control works in Ganga Basin States	83.00	0.00	111.20	0.00	80.25	0.00	0.00	0.00	0.00
4.	Emergent Flood Protection measures in Eastern and Western Sectors	0.00	1.61	0.00	3.00	0.00	3.00	0.00	3.00	3.00
5.	Extension of embankments on Lalbakeya, Kamla, Bagmati and Khando rivers.	13.53	0.00	32.25	0.00	25.00	0.00	0.00	0.00	0.00
6.	Critical anti-erosion works in Coastal and other than Ganga Basin States	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Sub-Total(c) : Assistance to States for flood control/anti-erosion works	**96.53**	**1.61**	**143.45**	**3.00**	**105.25**	**3.00**	**0.00**	**3.00**	**3.00**
(d)	**Public Sector Undertakings**									
1.	National Projects Construction Corporation Limited	0.00	15.80	0.00	15.80	0.00	15.80	0.00	0.00	0.00
(e)	**State Irrigation Schemes**									
1.	Sutlej Yamuna Link Canal Project	0.00	0.00	0.00	25.00	0.00	10.37	0.00	25.00	25.00
	TOTAL: RELEASES (a) to (e)	357.87	22.11	477.86	48.42	370.96	33.67	331.00	32.95	363.95
	Total (A+B)*	**522.69**	**259.13**	**712.00**	**275.31**	**562.00**	**275.31**	**367.50**	**286.16**	**653.66**
C	**PLAN BE 2007-08**									

Sl. No	Sector/Organisation/Scheme	Actuals 2005-06		B.E. 2006-07		R.E. 2006-07		B.E. 2007-08		Total
		Plan	Non-Plan	Plan	Non-Plan	Plan	Non-Plan	Plan	Non-Plan	
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
	Major & Medium Irrigations									
1.	Development of Water Resources Information System	0.00	0.00	0.00	0.00	0.00	0.00	30.00	0.00	30.00
2.	Hydrology Project	0.00	0.00	0.00	0.00	0.00	0.00	33.00	0.00	33.00
3.	Investigation of Water Resources Development Schemes	0.00	0.00	0.00	0.00	0.00	0.00	30.00	0.00	30.00
4.	Information, Education and Communication	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00
5.	River Basin Organization/ Authority	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.50
6.	Dam Safety Studies and Planning	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
7.	Infrastructure Development	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	4.00
	Total - MMI	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**100.50**	**0.00**	**100.50**
	Minor Irrigation									
1.	Ground Water Management and Regulation	0.00	0.00	0.00	0.00	0.00	0.00	74.00	0.00	74.00
2.	Infrastructure Development	0.00	0.00	0.00	0.00	0.00	0.00	4.55	0.00	4.55
	Total - MI	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**78.55**	**0.00**	**78.55**
	Flood Control									
1.	Flood Forecasting	0.00	0.00	0.00	0.00	0.00	0.00	16.00	0.00	16.00
2.	River Management Activities and Works related to Border Areas	0.00	0.00	0.00	0.00	0.00	0.00	46.00	0.00	46.00
3.	Infrastructure Development	0.00	0.00	0.00	0.00	0.00	0.00	3.45	0.00	3.45
	Total - FC	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**65.45**	**0.00**	**65.45**
	Total – (A+B)+C	**522.69**	**259.13**	**712.00**	**275.31**	**562.00**	**275.31**	**612.00**	**286.16**	**898.16**
D	**AIBP and other Water Resources Programme ****	0.00	0.00	2350.00	0.00	1650.00	0.00	3580.00	0.00	3580.00
	GRAND TOTAL (A+B+C+D)	**522.69**	**259.13**	**3062.00**	**275.31**	**2212.00**	**275.31**	**4192.00**	**286.16**	**4478.16**

Source of financing : *Demand No.103 – Ministry of Water Resources for 2007-2008.
** Details shown in Demand No. 35- Ministry of Finance (Transfers to State and Union Territory Governments).

No. of UCs Outstanding In r/o grants released upto march,06	Amount involved (Rs in Crores)	No. of UCs received	Amount involved in respect of UCs received	No. of UCs outstanding as on 1.01.07	Amount involved on outstanding UCs(Rs in crores)
1	2	3	4	5	6
151 (Institutions and Autonomous bodies)	59.04	129	58.06	22	0.98
93 (State Govts.)	151.98	63	79.56	30	72.42

Utilization Certificates

Position as on 31.12.2006

Unspent Balances As On Dec 2006: MoWR Organizations

(In lakh Rs)

Name of organization	Unspent balance	
	Plan	**Non-Plan**
National Water Development Agency	137.00	0.00
National Institute of Hydrology	1.08	0.07
Research & Development Programme	387.00	0.00

Brahmaputra Board	109.00	0.00
Brahmaputra Board – Pagladiya Dam Project	0.00	0.00
Brahmaputra Board – Harrang Drainage Project	238.32	0.00
Brahmaputra Board – Majuli Island	832.50	0.00
National Projects Construction Corporation Ltd.	0.00	0.00
Total	**1825.12**	**3.66**

Unspent Balances As On Dec 2006: State Governments

(In lakh Rs)

Name of the State	Total
Andhra Pradesh	3997.68
Assam	129.78
Arunachal Pradesh	233.19
Andaman & Nicobar	3.06
Bihar	1499.04
Chandigarh	0.05
Chhattisgarh	23.45
Delhi	0.16
Dadra & N Haveli	0.75
Goa	96.42
Gujarat	335.30
Haryana	667.35
Himachal Pradesh	43.20
Jammu & Kashmir	132.34
Jharkhand	28.25
Kerala	595.56
Karnataka	3792.35
Maharashtra	690.38
Manipur	365.66
Madhya Pradesh	605.33
Meghalaya	31.69
Mizoram	16.44
Nagaland	55.75
Orissa	633.45
Punjab	656.20
Pondichery	101.11
Rajasthan	2729.28
Sikkim	12.12
Tamil Nadu	2080.32
Tripura	30.41
Uttar Pradesh	23.70
Uttaranchal	83.47
West Bengal	1286.51
Total	**20979.75**

Note: Unspent balance includes the releases made for which UCs are not yet due.

CHAPTER VI

REVIEW OF PERFORMANCE OF STATUTORY/AUTONOMOUS ORGANIZATIONS AND PUBLIC SECTOR UNDERTAKINGS

STATUTORY BODIES:

6.1 Brahmaputra Board:

6.1.1 **The Brahmaputra Board was set up by the Government of India under Act of Parliament, i.e. Brahmaputra Board, Act, 1980 (46) of 1980 under the Ministry of Irrigation (Now renamed as Ministry of Water Resources). The jurisdiction of the Board includes both the Brahmaputra and Barak Valleys and covers all states of North Eastern Region either in full or part. The Board office started functioning with headquarters at Guwahati with effect from January 1982.**

6.1.2 The main functions assigned to the Board are to carry out survey and investigation and to prepare Master Plan for the control of floods, bank erosion and improvement of drainage congestion giving importance to development and utilization of water resources of the Brahmaputra and Barak Valleys for hydropower, navigation and other beneficial purposes. Its assignment also includes preparation of Detailed Project Report of the Dams and other projects identified in Master Plan as approved by Central Government and to take up construction and maintenance of the projects approved by the Central Govt. and works connected there with as proposed in the Master Plan and also to maintain and operate such dams and works.

6.1.3 Brahmaputra Board has identified several multipurpose projects till now. Detailed Project Report of six multipurpose projects viz. Subansiri, Dehang, Pagladiya, Tipaimukh ,Bairabi and Debang dam projects have been completed. The survey and investigation and preparation of DPR in respect of 9 Nos. of projects viz. (i) Lohit, (ii) Noa-dehing, (iii) Kameng, (iv)Kulsi, (v) Kynshi (Jadukata), (vi) Simsang (Someswari), (vii) Jiadhal, (viii) Killing and (ix) Jadukata Stage-II Multipurpose Projects are being done by Brahmaputra Board.

6.1.4 **Single Dam project proposals for Subansiri and Dehang for which DPR were prepared by Brahmaputra Board could not be taken up for execution because of objections from Arunachal Pradesh Govt. on account of large submergence. Therefore, Subansiri & Dihang project proposals were modified by Brahmaputra Board with a series of 3 dams on each river. Subsequently, these 3 projects on Subansiri and 3 projects on Debang were handed over to NHPC by the Government of India in March'2000. Tipaimukh project, for which DPR was prepared by Brahmaputra Board has been handed over to NEEPCO for execution. Similarly, investigations of the Bairabi project which was completed in March'2000 and DPR prepared by Brahmaputra Board was handed over to Mizoram Government. The**

DPR for Debang dam project was formulated by the Brahmaputra Board and it was completed by NHPC in 2005-06 and handed over to NHPC for execution.

6.1.5 **The CCEA clearance to Pagladiya Project was received in the month of January'2001 with an estimated cost of Rs. 542.90 Crore and approval for continuation of scheme in Xth Plan was received in Nov.'2002. The work on construction of Pagladiya Dam Project was started on the last part of the year 2000 - 2001 after obtaining necessary clearance from CCEA. However ,due to detailed design worked out by CWC there is an increase in the quantum of work and also price escalation and cost estimate has been revised to Rs 1069.40 Crore. The construction activities were held up due to non-completion of Zirat Survey by the Government of Assam. However now the BTC has informed the Brahmaputra Board to take necessary action for starting the Zirat survey. The Brahmaputra Board will readjust the schedule of actual construction on completion of Zirat survey by the administrative authority.**

Preparation of Master Plan

6.1.6 The Brahmaputra Board has so far prepared Master Plans of various rivers and tributaries of Brahmaputra and Barak river system, river of Tripura and major South flowing rivers of Meghalaya. Due to enormity of the task, the work has been divided into three parts as under :

1. Master Plan Part –I i.e. Main stem of Brahmaputra.
2. Master Plan Part –II i.e. the Barak river and its eight important tributaries.
3. Master Plan Part –III i.e. comprising 41 tributaries of the river Brahmaputra, including Majuli island, eight rivers of Tripura and major South flowing rivers of Meghalaya

6.1.7 Under Master Plan Part –III. So far out of 54 tributaries, Master Plan for 36 nos. have been approved by Ministry of Water Resources, 6 nos. have been completed and will be circulated for the Board's approval and remaining 12 nos. are under modification based on comments received from States/Organisations.

6.1.8 The UNESCO has recently been contemplating to declare the Majuli island as world heritage of culture. On request of the Government of Assam, Brahmaputra Board prepared a detailed project report for protecting the Majuli Island, the biggest ever river island in the world, which was technically cleared by the Central Water Commission for Rs. 86.85 Cr. with 3 (three) phases & recommended for investment clearance. The Phase –I works for protection of Majuli Island from flood & erosion amounting to Rs.41.28 Cr. is presently under execution. In addition to this, a Scheme for immediate measures for protection of Majuli Island amounting to Rs. 6.22 crore was taken up for execution by the Brahmaputra Board Under " New schemes for Majuli island in Assam, Dibang project etc" and the works for the scheme have already been completed. It is proposed to complete the Phase –I works during the year 2006-07.

6.1.9 Out of 34 nos. of identified drainage development schemes (DDS) 9 (nine) viz. (i) Harang (Rs. 30.49 cr.) (ii) Barbhag (Rs. 7.23 cr.) (iii) Jengrai (Rs. 1.49 cr.) (iv) Jakaichuk (Rs. 2.96 cr.) (v) East of Barpeta (Rs. 1.34 cr.) (vi) Joysagar (Rs. 2.13 cr.) (vii) Kailashahar (Rs. 4.18 cr.) (viii) Singla (Rs. 3.54 cr.) and (ix) Amjur (Rs. 14.15 cr.) drainage development schemes are under execution by Brahmaputra Board. The Board had started the construction activities of Harang drainage development scheme during 9th five year plan and targeted to complete by March'2007. Out of remaining 25 nos. of drainage schemes, 1 (one) DDS viz. Rudrasagar has been technically cleared by the CWC. DPRs of 1(one) DDS has been submitted to CWC for examination and clearance. 1 DDS was handed over to the State Govt., rest are under various stages of modification /preparation /investigation.

6.1.10 The North Eastern Hydraulic and Allied Research Institute (NEHARI) has been in operation since December'1996. River models for various schemes have been completed for undertaking protection measures by the concerned authority. Testing of quite a good numbers of soil, rock and concrete samples for Brahmaputra Board, NEEPCO, CWC, NHPC etc. have been taken up. The model studies of Majuli Island and the Jiabharali river are under progress.

6.1.11 The Board has also taken up new activities like execution of drainage development scheme including anti-erosion schemes, construction of raised platforms etc. The details of works carried out under the scheme "Majuli Island in Assam, Dibang project etc". are as under:

(a) (i) Avulsion of Brahmaputra at Dholla Hatighuli Phase-I Rs. 10.47 Cr. – completed.
(ii) Avulsion of Brahmaputra at Dholla Hatighuli Phase-II Rs. 4.95 Cr.- completed

(b) Protection of Majuli Island from Flood and Erosion (Immediate Measure) Rs. 5.92 Cr. – completed.

(c) Anti-Erosion measures to protect Kushiabil & Durgajan village at Dimapur of river Dhansiri (S) in Nagaland- The works for Phase –I amounting to Rs.0.85 Cr. have been completed during 2005-06. Tender for execution of Phase –II works amounting to Rs. 1.79 cr. has been invited and to be executed during the year 2006-07.

(d) Barbhag Drainage Development Scheme – Due to change of design and delay in land acquisition, the works could not be completed as per target. The design drawing has been finalized and work are in progress. It is proposed to complete the works in the year 2007-08.

(e) Protection of North Guwahati Township (Rangmahal) from Flood & Erosion of River Brahmaputra – As per condition of technical clearance the Expert Team visited the site and opined for not to take up the work during 10th Plan. Accordingly, the work programme has been dropped.

(f) Amjur Drainage Development Scheme(Phase-I)- The Revised SFC Memo wherein the Amjur DDS was taken up for execution was approved by the MoWR for Phase –I works amounting to Rs. 4.80 cr.

during January,2006. Tender for execution of the work for raising and strengthening of embankment has been invited and work will be allotted very shortly. Due to delay in design of sluice the execution of construction of sluice could not be taken up so far.

(g) Protection of Majuli Island from Flood and Erosion (Phase-I) (Rs.41.28 crore).

6.1.12 Subsequently, another SFC for an amount of Rs. 24.81 crore for taking up "New anti erosion and drainage schemes" was cleared during the month January 2004. the SFC was modified including Phase –I works of Amjur D.D.S. for Rs. 4.80 cr. during 10th Plan.

6.1.13 As stated above, the investment clearance for the Scheme "Protection of Majuli Island from flood & erosion, Phase- I" amounting to Rs. 41.28 Cr was conveyed by the MoWR during December 2004 and Board took up the work for execution of the scheme during 2004-05. Details of works done so far under the "New Schemes for Majuli Island and Dibang Project etc" are:

(a) Avulsion of Brahmaputra at Dholla Hatighuli Phase-I (B) Rs. 3.13 Cr. – completed.

(b) Avulsion of Brahmaputra at Dholla Hatighuli Phase-II Rs. 4.95 Cr.- completed

(c) Protection of Majuli Island from Flood and Erosion (Immediate Measure) Rs. 5.92 Cr. – completed.

(d) Anti-Erosion measures to protect Kushiabil & Durgajan village at Dimapur of river Dhansiri (S) in Nagaland- The works for Phase –I amounting to Rs.0.85 Cr. has been completed during 2005-06. Tender for execution of Phase –II works amounting to Rs. 1.79 cr. has been invited and to be executed during the year 2006-07.

(e) Barbhag Drainage Development Scheme – Due to change of design and delay in land acquisition, the works could not be completed as per target. The design drawing has been finalized and work are in progress. It is proposed to complete the work in the year 2007-08.

(f) Protection of North Guwahati Township (Rangmahal) from Flood & Erosion of River Brahmaputra – As per condition of technical clearance the Expert Team visited the site and opined for not to take up the work during 10th Plan. Accordingly, the work programme has been dropped.

(g) Protection of Majuli Island from Flood and Erosion- Phase-I – The work is under progress and proposed to be completed in 2006-07. The model studies have been carried out at NEHARI. The Phase –II & III works will be taken up on the basis of findings of model studies during 11th Plan.

(h) Amjur Drainage Development Scheme(Phase-I)- The Revised SFC Memo wherein the Amjur DDS was taken up for execution was approved by the MoWR for Phase –I works amounting to Rs. 4.80 cr. during January,2006. Tender for execution of the work for raising and strengthening of embankment has been invited and work will be allotted very shortly. Due to delay in design of sluice the execution of construction of sluice could not be taken up so far.

Further, Brahmaputra Board proposed to take up the following works during X Plan:

(a) Protection of Nagriguli Rangia town from flood and erosion of Barnadi river for which SFC Memo submitted to MoWR. To execute the work the SFC for "New anti-erosion and drainage development scheme of Brahmaputra Board" has been modified incorporating this scheme for Rs. 4.89 crore within the approved amount of Rs 24.81 cr. during X Plan and it is proposed to execute the scheme in the year 2006-07.

(b) Avulsion of Brahmaputra at Dholla Hatighuli Phase-III –the Ministry of Water Resources entrusted the Brahmaputra Board to formulate the EFC for "Critical flood control and anti-erosion scheme in Brahmaputra and Barak Valley" during 10th Plan for Rs. 150.00 cr. The EFC was modified incorporating the schemes recommended by Task Force, 2004. Accordingly, Rs. 20.00 cr. was allocated to the Brahmaputra Board to execute the schemes in Brahmaputra and Barak Valley in all N.E. States including Sikkim and North Bengal. Under this EFC state-wise share of fund and schemes to be executed by Brahmaputra Board was prioritized by an Empowered Committee headed by Member (RM), CWC. Brahmaputra Board proposed to execute the scheme "Avulsion of Brahmaputra at Dholla Hatighuli Phase –III" against state share of Assam. Another 7 (seven) nos. of schemes from different states of N.E. Region including North Bengal are under process to take up during the year 2006-07.

6.1.14 During the year 2007-08 the following projects are proposed to be carried out by Brahmaputra Board in addition to works of preparation of Master Plan and DPRs:

Continuing works of the following projects:

(i) Protection of Majuli Island from Flood and Erosion (Phase-I) (Rs.41.28 crore)
(ii) Amjur Drainage Development scheme Phase-I (Rs.4.80 crore)
(iii) Barbhag Drainage Development Scheme (Rs.7.23 crore)
(iv) Pagladiya Dam Project (Estimated cost Rs.542.90 crore) revised estimated cost Rs.1069.40
(v) 6(Six) Nos of Drainage Development Schemes Viz. Kailasahar (Est. cost Rs.4.18 crore.), Joysagar (Est. cost Rs.2.13 crore.), East of Barpeta (Est. cost Rs.1.34 crore.), Singla(Est. cost Rs.3.54 crore),

Jangrai(Est. cost Rs.1.49 crore.), Jakaichuk (Est. cost Rs. 2.96 crore.) Rs. 10.84 crore are proposed to be taken up during XI Plan.

FINANCIAL OUTLAYS

(Rs. in Crore)

Sl. No.	Name of the Schemes/ Activity	X Plan Outlay	Actual 2005-06	B.E. 2006-07	R.E. 2006-07	Actuals 2006-07 (Upto Dec 06)
1	Continuance of Brahmaputra Board	102.00	18.79	28.12	16.76	14.00
2	Pagladiya Dam Project	557.41	1.50	5.00	3.00	1.65
3	Harang Drainage Scheme	21.27	0.00	0.00	0.00	0.00
4	New Schemes for Majuli Island in Assam, Dibang Project etc.	42.00	11.00	14.45	12.51	10.90

6.2 Betwa River Board:

6.2.1 **The Rajghat Dam Project on the Betwa River, a tributary of the Yamuna, is an inter-state project of Madhya Pradesh and Uttar Pradesh. In accordance with an inter-state agreement reached between the states of Uttar Pradesh and Madhya Pradesh in 1973, Betwa River Board was constituted under the Betwa River Board Act, 1976. The Union Minister of Water Resources is the Chairman of the Board and the Union Minister of Power, Union Minister of State for Water Resources, Chief Ministers and Ministers in-charge of Finance, Irrigation and Power of Uttar Pradesh & Madhya Pradesh are its Members. The Board Headquarter, consisting of the offices of Chief Engineer, Financial Adviser and Secretary of the Board, is at Jhansi and its other subordinate offices are located at Rajghat (project site). The cost and benefits of the dam and the powerhouse are to be shared equally by the states of Uttar Pradesh and Madhya Pradesh. The expenditure of the project is met out of Betwa River Board Fund constituted by crediting the funds received by the Board as contribution from Uttar Pradesh and Madhya Pradesh.**

6.2.2 **Construction of the dam and powerhouse (civil works) was entrusted to the Betwa River Board while the respective State Governments are executing canal projects in their territories. The main parts of civil works of Rajghat dam and powerhouse were completed in June 1999. Betwa River Board is doing the land acquisition of remaining 13 villages of Uttar Pradesh through private negotiations, which is under progress. Major part of the land has been acquired during the current year. Execution of balance works of the project is being delayed due to non-contribution of funds by the participating States.The electrical/mechanical works of the power house have also been completed and all three units were synchronized during the months of July to December, 1999. The First unit started power generation from August 1999. 1328 lakh units of electricity was generated during the year 2005-06 and 893 lakh units upto 05.11.2006.**

6.3. Narmada Control Authority:

6.3.1 Narmada Control Authority(NCA) is an inter-state high level administrative authority set up by the Government of India in 1980 in pursuance of the final orders of the Narmada Water Disputes Tribunal(NWDT) for the purpose of securing compliance with and implementation of the decisions of the Tribunal by the four party states namely, Gujarat, Madhya Pradesh, Maharashtra and Rajasthan. The headquarters of the Authority is located at Indore (Madhya Pradesh). The Authority has been vested with executive powers for the implementation of the orders of the Tribunal with respect to the storage, apportionment, regulation and control of the Narmada Waters, sharing of power benefits from Sardar Sarovar Project(SSP), regulated releases of water by Madhya Pradesh, acquisition of land and properties likely to be submerged under SSP by the concerned States, compensation, rehabilitation and settlement of oustees, sharing of costs and implementation of environmental safeguard measures.

6.3.2 The Authority is headed by Secretary, Ministry of Water Resources, Government of India as Chairperson with the Secretaries of the Ministries of Power, Environment & Forests, Social Justice & Empowerment & Tribal Welfare, Chief Secretaries of the four party states as part-time members, four full-time members appointed by the Central Government and four part-time engineer-members nominated by the four party States. The decisions of the Authority are final and binding on all party States. However, a Review Committee, consisting of Union Minister of Water Resources as Chairman, Union Minister of Environment & Forests and Chief Ministers of Gujarat, Madhya Pradesh, Maharashtra and Rajasthan as members may, suo-moto or on the application of any party state, review any decision taken by the Authority. The Secretary, Ministry of Water Resources, Government of India shall act as Convener of the Review Committee.

6.3.3 The expenditure incurred by the Authority is to be borne out of the NCA fund, contribution to which is made by the participating States of Gujarat, Madhya Pradesh, Maharashtra and Rajasthan equally. The expenditure on Hydromet Project being implemented by NCA for establishment of the Real Time Data Acquisition System in the Narmada basin is to be shared by the States of Gujarat, Madhya Pradesh, Maharashtra and Rajasthan in the ratio of 44:40:15:1 respectively. Thus, the expenditure of NCA is not reflected in the central budget of the Ministry of Water Resources

6.4 Tungabhadra Board:

6.4.1 **The Tungabhadra Board was constituted by the President of India in exercise of the powers vested under sub section (4), Section 66 of Andhra State Act 1953 for completion of the Tungabhadra Project and for its operation and maintenance. The Board is regulating water for irrigation, Hydro power generation and other uses from the reservoir.**

6.4.2 **The Board consists of a Chairman, appointed by the Government of India, and three Members, one each representing the States of Andhra Pradesh, Karnataka and Government of India. In the discharge of its assigned functions, the Board exercises powers of a State Government. It makes rules for the conduct of its own business. The Government of Andhra Pradesh and the Government of Karnataka provide funds in agreed proportions and also depute staff to man the various specified posts, as per an agreed proportion. The working table for canal wise distribution of water to the States is prepared every year by the Tungabhadra Board in consultation with the State Governments, and is reviewed from time to time during the water year. The regulation of water is carried out in accordance with the agreed working table.**

6.4.3 Irrigation- The Tungabhadra Reservoir was filled up to the full reservoir level this year. The inflow into the reservoir from June to December, 2006 was 8,524.212 Million Cumec (Mcum) (301.030 Thousand Million Cubic feet (TMCft.). The utilization of water by the States of Karnataka and Andhra Pradesh till end of December 2006 was 1,973.541 Mcum (69.695 TMCft) and 1,112.398 Mcum (39.284 TMCft) respectively as against the likely abstraction of 4,199.384 Mcum (148.300 TMCft) for the water year 2006-2007. Evaporation losses from June to December 2006 were 223.731 Mcum (7.901 TMCft) to be shared by Karnataka and Andhra Pradesh in the ratio of 12.5 : 5.5. A total quantity of 3,140.786 Mcum (110.916 TMCft) of water has out flowed over spillway.

6.4.4 *Hydro Power-Two Power Houses are maintained by the Tungabhadra Board, with a total installed capacity of 72 MW, and a target of 202.50 million units of power generation is envisaged during the water year 2006-2007. Against this the power generated till end of December, 2006 was 144.333 million units. The power generated is shared between the States of Karnataka and Andhra Pradesh in the ratio of 20:80.*

6.4.5 Mini Hydel Power Plant- A Mini Hydel Plant at the head of Right Bank High Level Canal of the Tungabhadra Project under Build, Operate, Own and Transfer (BOOT) system through an Independent Power Producer viz., M/s NCL Energy Ltd., Hyderabad has been commissioned on 27-10-2004. The mini Hydel plant comprised 3 units of 2.75 MW each and generated 24.992 million units upto December 2006. The Power generated is purchased by the Transmission Corporations of Karnataka and Andhra Pradesh in the agreed ratio of 20:80.

6.4.6 *Fisheries- The Tungabhadra Reservoir has a water spread area of 378 sq.km at full reservoir level affording tremendous scope for development of fisheries. Quality fish seeds are reared in the Board's Fish Farm to meet the demand of the public and for stocking in the Reservoir to increase the biomass. The licence for fishing in Tungabhadra Reservoir has renewed for the year 2006-2007 to a local Fishermen's Co-operative Society for Rs.36,76,181/-. Quality fishnets are also manufactured in the Fish Net Making Plant run by Board.*

6.4.7 *Board meeting -During the year, the Tungabhadra Board held two meetings till end of December, 2006.*

6.5 Ravi and Beas Waters Tribunal:

6.5.1 The Ravi and Beas Waters Tribunal, which was constituted in April, 1986 as per the Punjab Memorandum of Settlement, submitted its report in January, 1987. This report was forwarded in May, 1987 to the concerned State governments. In August 1987 further reference was made to the Tribunal comprising reference by the Central Government and references received from the Governments of Punjab, Haryana and Rajasthan seeking explanation/guidance on certain points of the report. The Tribunal could not function during 09.03.89 to 17.11.96 and 04.01.99 to 09.06.2003 as post of a Member remained vacant during these periods. After filling up of the post on 10.06.03, the Tribunal has been holding hearings which however, have to be adjourned pending the outcome of a Presidential Reference on Punjab Termination of Agreements Act, 2004 before the Hon'ble Supreme Court.

6.6 Cauvery Water Disputes Tribunal:

6.6.1 The Cauvery Water Disputes Tribunal (CWDT) was constituted by the Government of India on 2 June 1990 to adjudicate the water dispute regarding

inter-state river Cauvery and the river valley thereof. The CWDT has been holding regular sittings. By March 1993, the format for filing of data by Party States and the Union Territory of Pondicherry before the Tribunal was finalized and affidavits of witnesses were taken on record and the State Governments of Tamil Nadu, Karnataka, Kerala and the Union Territory of Pondicherry have presented and concluded their cases. Cauvery basin States have also agreed and exchanged data/information in respect of their areas and projects among themselves.

6.6.2 Since the constitution of the Tribunal, 150 Civil Miscellaneous Petitions (CMPs) were filed before the Tribunal out of which 140 CMPs have been disposed of. On 25.06.1991, the Tribunal passed an order giving interim relief to Tamil Nadu and the Union Territory of Pondicherry and on 19.12.95, passed another order directing the State of Karnataka to release additional 11 TMC of water forthwith.

6.6.3 The Tribunal had taken up cross-examination of expert witnesses presented by party States from January 1994. Except for a brief period from July, 1996 to December, 1996 and from 26 November 2002 to 3 February 2003, when the Tribunal could not hold its hearing owing to vacancy in the office of Chairman due to resignation and sad demise of Mr. Justice S.D. Agarwala, Member, CWDT respectively, it has been continuing with cross-examination of witnesses. The Tribunal has completed the cross-examination of all the expert witnesses of the States of Tamil Nadu, Kerala, Karnataka and the Union Territory of Pondicherry in December, 2001. Thereafter in December, 2001 the Hon'ble Tribunal passed an order thereby covering most of the Issues under three Groups. From January, 2002 the hearing of arguments started. Arguments under Issues of Group No. 1,2,3 & 3-A have already been concluded on behalf of the States of Tamil Nadu, Karnataka, Kerala and the Union Territory of Pondicherry.

6.6.4 On 27 July, 2006, the Hon. Tribunal, in respect of Report/Decision under Section 5(2) of Inter-State Water Disputes Act, 1956, kept its order reserved. The said Report and Decision has been pronounced by the Hon. Tribunal on 5 February 2007 and copy of the same has been forwarded to the states concerned and Ministry of Water Resources.

FINANCIAL OUTLAYS

(Rupees in crore)

Name of the Scheme/Activity	Actuals 2005-06 Non-Plan	B.E. 2006-07 Non-Plan	R.E. 2006-07 Non-Plan	B.E. 2007-08 Non-Plan
Cauvery Water Disputes Tribunal	1.12	1.22	1.27	1.36

6.7 Krishna Water Disputes Tribunal:

6.7.1 The Krishna Water Disputes Tribunal (KWDT) was constituted by the Government of India under Inter State Water Disputes Act, 1956 vide their notification No. S.O. 451 (E), dated 2nd April, 2004 with its headquarter at New Delhi for adjudication of the disputes relating to sharing of Inter-State River Krishna and the river valley thereof.

6.7.2 All the Party States, viz. Andhra Pradesh, Karnataka and Maharashtra have so far filed 41 Interlocutory Applications (IAs) relating to seeking interim reliefs, filing of additional documents and other miscellaneous applications. Tribunal has started regular hearings of the case during the current year. Orders on I.A. No. 1 and I.A. No. 3 of 2005, I.A. No. 4 and 4A of 2005, I.A. No. 5 of 2005, I.A. No. 7 of 2005 and I.A. No. 8 of 2006 have been pronounced. The State of Andhra Pradesh has filed review applications in respect of I.A. No. 5/2005, I.A. No. 7 of 2005 and I.A. No. 8 of 2006. The concerned States filed their reply/rejoinder. All other applications for placing documents/reports/data on record have been allowed to be placed on record, etc. and thus disposed of.

6.7.3 After hearing all the three Party States, 32 issues have been framed and finalized which will now be taken up for hearing. A "Format of Information" has also been finalized for obtaining relevant information/data necessary to resolve the dispute by the Tribunal.

6.7.4 An Interlocutory Application (I.A.No. 34 of 2006) filed by a Private Party, viz. Atma Linga Reddy & Ors. was disposed of as the same was not found maintainable under the Inter-State Water Disputes Act, 1956.

6.7.5 In regard to the disposal of I.A. No. 24 and I.A. No. 38/06 filed by the State of Karnataka seeking directions under Rule 2 and 3 of Order XVIII of the CPC read with Section 151 of the CPC and Inter State River Water Dispute Act, 1956, Hon. Tribunal has heard the matter on 20-22 February 2007.

FINANCIAL OUTLAYS

(Rupees in crore)

Name of the Scheme/Activity	Actuals 2005-06 Non-Plan	B.E. 2006-07 Non-Plan	R.E. 2006-07 Non-Plan	BE 2007-08 Non-Plan
Krishna Water Disputes Tribunal	1.31	1.15	1.17	1.27

AUTONOMOUS BODIES (SOCIETIES):

6.8 National Water Development Agency(NWDA):

6.8.1 The Ministry of Water Resources (MOWR) and Central Water Commission (CWC) formulated a National Perspective Plan (NPP) for Water Resources Development in 1980 envisaging interbasin transfer of water from surplus basins to deficit basins/areas which comprises of two components, namely, Himalayan Rivers Development Component and Peninsular Rivers Development Component. National Water Development agency (NWDA) was set up under the MOWR in July 1982 as a Registered Society under the Societies Registration Act, 1860 for carrying out various technical studies to establish the feasibility of the proposals of NPP and to give concrete shape to it.

6.8.2 The objectives of National Water Development Agency, as amended from time to time are:

a) To carry out detailed surveys and investigations of the possible reservoir sites and interconnecting links in order to establish feasibility of the proposal of Peninsular Rivers Development and Himalayan Rivers Development Components forming part of National Perspective Plan for water resources development prepared by the then Ministry of Irrigation (now Ministry of Water Resources) and Central Water Commission.

b) To carry out detailed studies about quantum of water in various Peninsular River Systems and Himalayan River Systems and which can be transferred to other basins / States after meeting reasonable needs of basin States in the foreseeable future.

c) To prepare feasibility reports of various components of the schemes relating to Peninsular Rivers Development and Himalayan Rivers Development.

d) To prepare detailed project report of river link proposals under National Perspective Plan for Water Resources Development after concurrence of the concerned States.

e) To prepare pre-feasibility / feasibility reports of the intra-state links as may be proposed by the States.

f) To do all such other things the Society may consider necessary, incidental, supplementary or conducive to the attainment of above objectives.

6.8.3 The Hon'ble Union Minister of Water Resources is the President of the National Water Development Agency Society, which is the apex body of NWDA. The Annual General Meeting of the Society is held once a year to review the

programme and progress of the Agency. The Governing Body of the NWDA headed by Secretary (Water Resources) reviews the programme and progress of works every six months. The Technical Advisory Committee (TAC) of the Agency under the Chairmanship of the Chairman, Central Water Commission examines various technical proposals framed by the Agency. All the concerned states are represented in these committees.

6.8.4 The physical performance under the plan scheme of NWDA has been discussed in detailed in Chapter-IV.

FINANCIAL OUTLAY

(Rs. In crore)

Name of the Scheme/ Activity	X plan outlay	Actual 2005-06	BE 2006-07	RE 2006-07	Exp. Upto Dec 06
National Water Development Agency	85.00	17.03	41.00	21.00	13.27

6.9 National Institute of Hydrology(NIH):

6.9.1 The National Institute of Hydrology (NIH) is an apex S&T organization conducting basic, applied and strategic research in the fields of hydrology and water resources in the country. It was established in December 1978 with Headquarters at Roorkee as an autonomous society under the Ministry of Water Resources. The Union Minister for Water Resources is the President and the Union Minister of State for Water Resources is the Vice-President of the Society. The Institute is managed, administered, directed and controlled by the Governing Body with Secretary (Water Resources) as its Chairman. Technical Advisory Committee, with the Chairman, Central Water Commission as its Chairman, is responsible for technical scrutiny of the research programmes of the institute. Director of the institute is the principal executive officer of the Society.

6.9.2 Main objectives of the Institute are:

i) To undertake, aid, promote and coordinate systematic and scientific work in all aspects of hydrology;
ii) To cooperate and collaborate with other national and international organisations in the field of hydrology;
iii) To establish and maintain a research and reference library in pursuance of the objectives of the society and equip the same with books, reviews, magazines and other relevant publications; and

iv) To carry out activities that the Society may consider necessary, incidental or conducive to the attainment of the objectives for which the Institute has been established.

6.9.3 The studies and research in the Institute are carried out under six scientific divisions at the Headquarters, two centers for flood management studies at Guwahati and Patna and four regional centers at Belgaum, Jammu, Kakinada and Sagar. The scientific divisions at headquarters are: (1) Surface Water Hydrology ii) Ground Water Hydrology iii) Environmental Hydrology iv) Agricultural Hydrology v) Water Resources Systems and vi) Hydrological Investigations.

6.9.4 Regional Centres: Hydrological studies of different regions are being carried out at the following regional centers of the Institute:
Deccan Hard Rock Regional Centre: It was established in 1987 at Belgaum in Karnataka to cater to the hydrological problems of the hard rock region. The areas covered under this regional center include Karnataka, parts of Andhra Pradesh, Tamil Nadu and Maharashtra. The center carries out studies and research on the hydrological problems of western Ghats and the hard rock areas in peninsula.

Western Himalayan Regional Centre: It was established in the year 1990 at Jammu. The states of Jammu & Kashmir, Himachal Pradesh and hilly parts of Uttaranchal constitute the western Himalayan region. In view of the precipitation being received in the form of rain and snow, the region has several typical hydrological problems. The thrust areas for this center are identified and research studies are taken up for providing solutions to those hydrological problems.

Deltaic Regional Centre: This regional center was established in 1991 at Kakinada in Andhra Pradesh with a view to deal with the hydrological problems of the deltaic and east coast region. The areas covered under this regional center extend from Cauvery Delta in Tamil Nadu to coastal region of West Bengal covering the coastal areas in states of Tamil Nadu, Andhra Pradesh, Orissa, West Bengal and Union Territory of Pondicherry. The center carries out studies and research on problems of coastal and Deltaic areas on east coast of India.

Ganga Plain South Regional Centre: It was established in 1995 at Sagar, Madhya Pradesh. This regional center has been set up to carry out research studies on different aspects of hydrological problems of basins/sub-basins of north flowing rivers ultimately joining river Ganga. This regional center covers areas having semi-arid to sub-tropical climates. Major part of Bundelkhand region of central India, which falls in northern part of Madhya Pradesh, southern part of Uttar Pradesh and some south east part of Rajasthan come under the jurisdiction of the center.

6.9.5 Centres for Flood management: The Ministry of Water Resources renamed and reoriented the Ganga Plains North Regional Centre, Patna and North Eastern Regional Centre, Guwahati of NIH as Centre for Flood Management Studies for Ganga Basin, Patna and Centre for Flood Management Studies for Brahmaputra

Basin, Guwahati respectively during the year 2001-02. These centers focus mainly on the hydrological studies for flood management in the respective basins.

6.9.6 The overall physical performance of the institute has already been discussed in Chapter-IV.

FINANCIAL OUTLAY

(Rs. In crore)

Name of the Scheme/ Activity	X plan outlay	Actual 2005-06		BE 2006-07		RE 2006-07		Exp. upto Dec 06	
		Plan	N-Plan	Plan	N-Plan	Plan	N-Plan	Plan	N-Plan
National Institution of Hydrology	20.77	3.44	4.70	3.92	4.62	3.20	4.50	2.41	4.50
Hydrology Project Externally aided	1.03	0.00	0.00	13.56	0.00	0.76	0.00	0.56	

PUBLIC SECTOR UNDERTAKINGS:

6.10 Water & Power Consultancy Services (I) Limited:

6.10.1 Water and Power Consultancy Services (India) Ltd. (WAPCOS), a "Mini Ratna" Govt. of India undertaking, is a premier International consultancy organisation. Formally, incorporated as a Company in 1969, WAPCOS has been providing to various domestic and overseas clients, consultancy services in a diverse range of Engineering in Water Resources, Power and Infrastructure Development. WAPCOS is now recognized amongst the top ranking consultancy organizations of the World. WAPCOS has a well knit team of dedicated professionals, and with total backup from State and National level organisations operating in relevant fields, provides a wide range of comprehensive technical services. The quality management systems of WAPCOS' Civil Design Division comply with the Quality Assurance requirements of ISO 9001 : 2000 for Planning, Investigation, Preparation of Pre-Feasibility/Feasibility Reports and Preparation of Detailed Project Reports, Tender Engineering, Designs and Detailed Drawings, Construction Management, Project Monitoring and Special Studies related to Water Resources Projects as certified by AFAQ-EAQA, UK.

6.10.2 Fields of Specialisation: Main fields of specialisation of the company cover Irrigation and Drainage, Flood Control and Land Reclamation, River Management, Dams, Reservoir Engineering and Barrages, Integrated Agriculture Development, Watershed Management, Hydropower and Thermal Power Generation, Power Transmission and Distribution, Rural Electrification, Ground Water Exploration, Minor Irrigation, Water Supply and Sanitation (Rural and Urban), Environmental Engineering including Environmental Impact Assessments and Environmental Audit, Ports and Harbours and Inland Waterways, Rain Water Harvesting; Surveys & Investigations, Human Resource Management, System Studies and Information

Technology. WAPCOS has also been venturing into newer fields such as Software Development, City Development Plans, Financial Management System, Technical Education, Quality Control and Construction Supervision, Roads & Bridges, apart from turnkey assignments in Hydro-Power Projects and Water Harvesting Structures.

6.10.3 Spectrum of services: WAPCOS' spectrum of services covers a wide range of activities e.g. pre-feasibility studies, feasibility studies, simulation studies, diagnostic studies, socio-economic studies, master plans and regional development plans, field investigations, detailed engineering including designs, detailed specifications, tendering process, contract and construction management, commissioning and testing, operation & maintenance, quality assurance & management, software development and human resource development.

6.10.4 Recognition: WAPCOS has been rated as "Excellent" by the Department of Public Enterprises for fourteen years and has been awarded Prime Minister's MOU Award for "Excellence" for the year 1998-99. WAPCOS is ranked amongst the top 10 PSEs for the year 1999-2000 and has received award of "Excellence" for achieving MOU targets for the year 2000-2001 and 2004-2005 from Hon'ble Vice President of India and for the year 2001-2002 from Hon'ble President of India. WAPCOS has received EEPC Awards on a number of occasions for highest export earnings amongst Consultancy Organisations in India. WAPCOS bagged the Silver Trophy of "SCOPE Award for Excellence and outstanding contribution to the Public Sector Management-Smaller Public Enterprises Category"; "Enterprises Excellence Award" by Indian Institution of Industrial Engineering for the year 2003-2004. CMD, WAPCOS was bestowed "Bhartiya Shiromani Puraskar" and the Company was presented "Gold Medal" by Institute of Economic Studies for contribution made by WAPCOS in Nation Building.

6.10.5 Human Resources: WAPCOS as a techno-commercial organisation under the aegis of Ministry of Water Resources utilises the talent and expertise developed in the various organisations of Govt. of India and State Govts. WAPCOS is responsible for providing quality time bound services to the clients which is the very essence of its operations. WAPCOS drives its strength from its human resources, which form the backbone of the organisation. The consultancy services are carried out in 3 main Centres i.e. Water Resources, Power and Infrastructure. WAPCOS has the in-built capability to provide a multidisciplinary project team comprising its own core of professionals and also working specialists from various Govt. of India organizations viz. Central Water Commission (CWC), Central Electricity Authority (CEA), Central Ground Water Board (CGWB), Central Public Health and Environmental Engineering Organisation (CPHEEO), Central Water and Power Research Station (CWPRS), Central Soils and Material Research Station (CSMRS) etc. and other State and Public Works Departments.

6.10.6 Recognition with International Organizations and Operations Abroad: WAPCOS have successfully completed/on-going consultancy assignments abroad in 40 countries and is registered with various international funding agencies for participating in the funded projects like World Bank/International Bank for

Reconstruction and Development, African Development Bank, Asian Development Bank, Food and Agriculture Organisation, International Fund for Agricultural Development, United Nations Development Program, World Health Organisation, West African Development Bank, Indian Technical and Economic Cooperation (ITEC) Programme, Overseas Economic Cooperation Fund, Japan Bank for International Cooperation(JBIC) etc. Apart from India, WAPCOS is currently engaged in providing consultancy services in Afghanistan, Bhutan, Cambodia, Ethiopia, Eritrea, Lesotho, Rwanda, Sudan, Swaziland, Uganda, Zambia and Zimbabwe.

6.10.7 Performance: Since its inception, the performance of the company has been steadily growing and promising. The company has been able to manage its business operations so far from its own resources and has not taken recourse to any borrowings, loan or any other form of financial assistance from the Government or any other financial institution. WAPCOS has been able to pay consistently high percentage of dividends on its paid up capital and has been able to effect skillful utilisation of available human resources to match up with the job requirements.

FINANCIAL OUTLAYS

(Rs. in crores)

No. Sl.	Particulars	Actuals 2005- 06	Revised 2006- 07	Estimates 2007- 08	Provisional upto 31.12.06
1.	**Income**				
	- Consultancy Income	111.18	112.50	125.00	75.50
	- Other Income	0.72	0.30	0.30	0.57
	Total	111.90	112.80	125.30	76.07
2.	**Expenditure**				
	- Project Expenditure	84.81	85.83	96.44	62.85
	- HQ Back-up Expenses	10.74	13.34	14.57	6.03
	- Depreciation	0.60	0.63	0.79	0.47
	Total	96.15	99.80	111.80	69.35
3.	Profit	15.75	13.00	13.50	6.72
4.	Dividend	1.93	1.75 (anticipated)	1.75 (anticipated)	-

6.11 National Projects Construction Corporation Limited:

6.11.1 National Projects Construction Corporation Limited (NPCC Ltd.) was incorporated in 1957 under Companies Act. 1956 for taking up the construction of River Valley Projects and other activities. The authorized capital of the Company is Rs.30.00 crores and its paid up capital is 29.84 crores. Out of this,14 state governments and Union Territory of Chandigarh have contributed an amount of Rs.1.05 crores and the central government has contributed rest of the amount. The Corporate office of the company is at Faridabad and the headquarter is at New Delhi. Presently, it has 20 Zonal offices at Kolkata, Bhubneshwar, Agartala,

Guwahati, Imphal, Silchar, Shillong, Sipat, J&K, M.P., Parlay(Maharashtra), Chennai, Bangalore, Patna, Chapra, Ranchi, Lucknow, Noida, Rajasthan and Northern Uttranchal. At present, it has 152 Units out of which 68 are non-working units. The total manpower of the company is 2360.Voluntary retirement Scheme is in vogue since 1992 to reduce the surplus manpower, 2951 employees have taken retirement under the scheme.

6.11.2 The corporation performed well during the first ten years of its operation and declared dividend on paid up capital continuously till 1966-67 (barring the year 1962-63) The Company incurred heavy losses during the next five years. From 1972-73 to 1984-85, NPCC made marginal profits. Since 1985-86, the financial position of the company has been deteriorating. The Company's accumulated losses up to March 2006 were 684.90 crores. The main reasons of its sickness are continuous losses since 1989, negative net worth since 1990-91, reinstatement of a large number of retrenched workmen in 1991, surplus manpower, high interest cost on loans, fail in bagging of works and consequent low turnover, poor realization of dues from clients, slow down on making activities due to decision of the government regarding phased closure in 1993.

6.11.3 Revival / Turn around plan duly recommended by MOWR was submitted to BRPSE. BRPSE reviewed the proposal and submitted its recommendations for revival of company. The recommendations include.

(a) Waiver of accumulated interest of Rs.297.27 crores due to GOI as on 31.3.2006.
(b) Conversion of GOI loan Rs. 219.43 crores as on 31.3.2006 into equity capital.
(c) Writing down of equity capital of Rs.209.27 crores against the accumulated losses thereby reducing the equity capital to Rs.40 crores
(d) Bridging assistance of Rs. 60.00 crores by Government of India in 5% Redeemable Preference Share Capital to be repaid in 5 equal annual installments after 5th year in order to enable NPCC to discharge PF dues and arrears of salaries.

Recommendations of BRPSE are in the process of GOI approval.

6.11.4 Meanwhile all out efforts are being made to bag new orders so that the surplus manpower can be utilized. As on 31.3.2007 the total order book position is likely to cross Rs. 3000 crores (as against Rs.1547.10 crores as on 31.3.2005 and Rs. 2491.00 crore as on 31.3.2006). The company has also started increasing its productivity from the year 2002-03. During 2006-07, the value of work done is expected to touch Rs770.00crore (as against Rs. 302.87crore during 2003-04, Rs. 305.65crore during 2004-05 and Rs. 577.66 crore during 2005-06) Business process re-engineering and financial re-engineering is under process for improvement of profitability of the organization. The Ministry is providing non-plan assistance to the company to meet partially the expenditure on statutory dues of the employees. The details of the same are given below:

FINANCIAL OUTLAYS

(Rupees in crores)

Name of the Scheme/Activity	Actual 2005-06		B.E. 2006-07		R.E. 2006-07		B.E. 2007-08	
	Plan	N-Plan	Plan	N-Plan	Plan	N-Plan	Plan	N-Plan
National Projects Construction Corporation Limited	0.00	15.80	0.00	15.80	0.00	15.80	0.00	0.00

ANNEXURE-G

STATEMENT SHOWING DETAILS OF MINISTRY OF WATER RESOURCES BUDGET VIS-À-VIS X PLAN OUTLAY

(In Cr. Rs/Net)

Sector/Scheme/ Organization	X plan outlay	Head of Accounts	BE `02-03	Actual `02-03	BE 03-04	Actual `03-04	BE `04-05	Actual `04-05	BE `05-06	Actual `05-06	BE 06-07	RE 06-07	Exp. till Dec.06
`(1)	`(2)	(3)	`(4)	`(5)	`(6)	`(7)	`(8)	`(9)	`(10)	`(11)	(12)	(13)	(14)
I Sect. Economic Services													
1. Hydrology Project	0.97	**3451**	0.97	0.30	0.50	0.26	0.20	0.00	1.88	0.00	10.45	1.00	0.04
2.Water Quality Assessment Authority	3.50	**3451**	0.50	0.00	0.50	0.09	1.00	0.32	0.62	0.22	0.56	0.23	0.11
3. IT Development	3.00	**3451**	0.55	0.28	0.50	0.86	1.00	0.52	1.00	0.98	1.12	1.00	0.27
Total: Sect. Economic Services	**7.47**		**2.02**	**0.58**	**1.50**	**1.21**	**2.20**	**0.84**	**3.50**	**1.20**	**12.13**	**2.23**	**0.42**
II Major & Medium Irrigation													
Central Water Commission													
4. National Water Academy	10.00	**2701**	1.60	0.97	1.63	1.22	2.50	1.67	2.73	2.19	1.77	2.26	1.24
5. Snow Hydrology	2.00	**2701**	0.34	0.28	0.32	0.30	0.40	0.33	0.40	0.35	0.54	0.78	0.30
6. Monitoring of Water Quality of River in India	7.50	**2701**	1.18	0.71	1.19	1.06	1.30	1.00	1.72	0.71	1.40	0.99	0.27
7. Hydrological observation of rivers originating from Bhutan	1.50	**2701**	0.30	0.30	0.25	0.19	0.23	0.80	0.24	0.16	0.06	0.12	0.03
8. Strengthening of monitoring organization	19.00	**2701**	2.58	2.78	3.36	2.97	3.53	3.26	4.00	3.41	4.09	3.50	2.54
9.Kirthai & other Multipurpose Projects in Indus Basin	7.00	**2701**	1.00	1.05	1.18	1.14	1.61	1.53	1.99	1.04	1.98	1.36	0.86
10. Data Collection on key hydrological Stations	40.00	**2701**	7.29	6.84	7.30	7.65	8.00	8.95	10.07	8.33	10.70	9.50	6.30
11. Studies on reservoir sedimentation; River morphology and other Remote sensing Applications.	14.00	**2701**	3.00	0.65	3.45	2.35	4.00	1.82	2.63	1.59	2.44	2.25	0.33
12. Investigation of Water Resources Development in North Eastern States	5.28	**2701**	1.50	1.38	1.80	1.89	1.86	1.61	0.32	0.63	0.44	0.66	0.31
13. Up-gradation & modernization of computerization / information system	8.00	**2701**	3.10	2.62	3.00	1.10	3.20	1.44	2.27	0.77	2.10	1.50	0.51
14. Setting up of specialized units in H.E. Design, Pumped storage & Instrumentation	3.00	**2701**	0.10	0.00	0.50	0.20	1.00	0.19	0.83	0.39	0.90	1.00	0.01
15. Dam Safety & Rehabilitation in India	8.00	**2701**	0.10	0.00	2.00	0.63	2.00	0.43	2.50	0.41	2.26	1.42	0.48
Total: C.W.C.	**125.28**		**22.09**	**17.58**	**25.98**	**20.70**	**29.63**	**23.03**	**29.70**	**19.98**	**28.68**	**25.34**	**13.18**
R&D Program													

`(1)	`(2)	(3)	`(4)	`(5)	`(6)	`(7)	`(8)	`(9)	`(10)	`(11)	(12)	(13)	(14)
16. R&D: Research, Evaluation studies & Mass Awareness activities	32.00	**2701**	2.50	2.78	15.00	9.36	4.00	2.09	8.00	5.61	13.06	8.00	1.88
Total: R&D Program	**32.00**	**2701**	**2.50**	**2.78**	**15.00**	**9.36**	**4.00**	**2.09**	**8.00**	**5.61**	**13.06**	**8.00**	**1.88**
Central Soil & Materials Research Station		**2701**											
17. Geo-Technical Investigations for River-valley Projects	16.00	**2701**	3.83	2.68	3.00	2.36	3.18	3.17	2.80	2.66	5.00	3.83	2.18
18. Applied/Basic Research in structures	6.00	**2701**	1.00	0.76	0.9	0.76	1.00	0.95	1.00	0.67	1.21	1.76	1.09
19. Advanced Research and consultancy	4.00	**2701**	0.65	0.60	0.65	0.64	0.71	0.77	0.80	0.81	0.92	0.92	0.62
20. Up gradation of Laboratory and Field Testing Facilities	6.00	**2701**	1.14	0.50	0.90	0.59	1.00	1.15	1.16	0.76	1.21	1.21	0.70
Total: CSMRS	**32.00**	**2701**	**6.62**	**4.54**	**5.45**	**4.35**	**5.89**	**6.04**	**5.76**	**4.90**	**8.34**	**7.72**	**4.59**
Central Water & Power Research Station		**2701**											
21. Schemes for R.S. Technique, Off-shore data, Earth Sciences Lab. etc.	3.77	**2701**	2.00	1.69	2.32	1.35	0.50	0.48	0.20	0.16	0.25	0.25	0.01
22. Modernization & up gradation of research facilities at CWPRS	20.00	**2701**	1.40	0.00	1.80	1.35	2.50	2.81	4.30	2.27	4.10	3.00	0.44
23. Improvement of canal control through modern techniques & technology	1.00	**2701**	0.10	0.00	0.15	0.01	0.30	0.12	0.30	0.00	0.60	0.60	0.01
24. Hydrology project	1.35	**2701**	3.70	0.80	0.30	0.31	0.25	0.00	0.30	0.00	0.50	0.25	0.02
Total: CWPRS	**26.12**	**2701**	**7.20**	**2.49**	**4.57**	**3.02**	**3.55**	**3.41**	**5.10**	**2.43**	**5.45**	**4.10**	**0.48**
National Institute of Hydrology		**2701**											
25. Cont. & strengthening of NIH & INCOH	13	**2701**	1.41	1.41	2.00	2.40	2.20	3.81	2.95	2.00	2.58	2.00	1.41
26. Continuation & strengthening. Of NIH Regional Centres including Centre for Flood Management and drought proofing studies	7.77	**2701**	1.00	1.00	1.00	1.20	1.26	0.00	1.91	1.44	1.34	1.20	1.00
27. Hydrology project	1.03	**2701**	0.55	0.53	0.30	0.30	0.20	0.00	4.41	0.00	13.56	0.76	0.56
Total: N.I.H.	**21.80**	**2701**	**2.96**	**2.94**	**3.30**	**3.90**	**3.66**	**3.81**	**9.27**	**3.44**	**17.48**	**3.96**	**2.97**
28. National water Development Agency	85.00	**2701**	16.50	15.30	20.00	18.61	35.00	21.00	25.00	17.03	41.00	21.00	13.27
Total: Major & Medium Irrigation	**322.20**		**57.87**	**45.63**	**74.30**	**59.94**	**81.73**	**59.38**	**82.83**	**53.39**	**114.01**	**70.12**	**36.37**
III Minor Irrigation													
29. Rationalisation of Minor irrigation statistics	40.00	**3601**	8.00	5.79	8.00	7.80	7.00	3.46	7.00	3.65	9.10	9.00	5.11
Central Ground Water Board													
30. GW Survey Exploration & Investigation	277.00	**2702**	60.00	53.75	60.00	50.08	50.00	50.63	54.00	53.97	66.49	62.50	38.20
31. CGWA	5.00	**2702**	1.50	1.75	1.50	1.80	1.5	1.23	1.86	1.43	1.78	1.72	0.80
32. Conjunctive use of G.W. & S.W.	2.00	**2702**	0.10	0.07	0.79	0.31	0.5	0.31	0.00	0.00	0.00	0.00	0.00
33. Rajiv Gandhi National Institute for Training	5.00	**2702**	1.30	0.29	1.00	0.48	1	0.65	1.00	0.57	1.29	0.93	0.44

`(1)	`(2)	(3)	`(4)	`(5)	`(6)	`(7)	`(8)	`(9)	`(10)	`(11)	(12)	(13)	(14)
34. Acquisition of land and building	20.00	**4702**	3.00	2.74	3.00	2.89	5.00	3.02	5.00	5.00	7.00	5.25	1.27
35. Hydrology project	18.57	**2702**	7.8	10.77	5.38	7.47	0.20	0.00	2.78	0.00	2.78	0.50	0.47
36. R&D Schemes of CGWB	2.00	**2702**	1.00	0.06	0.55	1.11	0.5	0.25	1.00	0.42	0.50	0.40	0.28
Total: C.G.W.B.	**329.57**		**74.70**	**69.43**	**72.22**	**64.14**	**58.70**	**56.09**	**65.64**	**61.39**	**79.84**	**71.30**	**41.46**
Total: Minor Irrigation	**369.57**		**82.70**	**75.22**	**80.22**	**71.94**	**65.70**	**59.55**	**72.64**	**65.04**	**88.94**	**80.30**	**46.57**
IV CAD Program													
37. R&D Schemes under CAD	5.00	**2705**	1.00	0.77	1.00	1.85	1.5	0.66	1.00	3.40	1.40	1.70	1.43
38. Command Area Development & Water Management Program	1208.00	**3601**	201.00	151.39	201.00	142.17	180	142.10	199.00	196.50	204.30	189.38	112.66
Total: CAD Program	**1213.00**		**202.00**	**152.16**	**202.00**	**144.02**	**181.50**	**142.76**	**200.00**	**199.90**	**205.70**	**191.08**	**114.09**
V Flood Control													
Central Water Commission													
39. Investigation for Teesta Hydel project, Rangit HE project II & IV and Manas Teesta Link	9.00	**2711**	3.07	2.62	2.92	2.35	2.50	2.36	2.74	2.07	3.47	3.00	1.37
40. FF in rivers common to India & Nepal	3.00	**2711**	0.30	0.05	0.27	0.02	0.28	0.05	0.21	0.00	0.12	0.12	0
41. Strengthening and modernization of FF & HO Network in Brahmaputra and Barak basin	14.00	**2711**	2.75	2.45	2.96	3.22	3.00	3.17	3.64	2.77	3.66	3.66	1.99
42. Hydrology project	15.13	**2711**	8.10	10.73	3.00	3.56	0.60	0.00	0.64	0.00	2.89	0.50	0.09
43. Establishment & modernization of flood forecasting network in India including inflow forecasts.	51.00	**2711**	3.40	3.49	7.85	5.83	6.00	5.18	18.36	9.31	16.65	8.00	7.48
44. Construction of residential/ non-residential /office buildings	25.00	**4711**	3.00	2.57	3.00	1.78	5.00	5.73	8.78	8.78	4.89	4.40	2.87
Total: C.W.C.	**117.13**		**20.62**	**21.91**	**20.00**	**16.76**	**17.38**	**16.49**	**34.37**	**22.93**	**31.68**	**19.68**	**13.80**
Schemes controlled by Indus Wing													
45. Brahmaputra Board	102	**2711**	20.00	14.00	20.00	17.81	20.00	16.33	21.76	18.79	28.12	16.76	14.00
46. Pagladia Dam Project	557.41	**2711**	45.00	0.00	45.00	0.01	40.00	-13.00	1.00	1.50	5.00	3.00	1.65
47. Harrange Drainage scheme	21.27	**2711**	5.00	5.00	5.00	10.13	0.00	4.44	0.00	0.00	0.00	0.00	0.00
48. New schemes for Majuli in Assam, Dibang project etc.	42.00	**2711**	0.50	0.00	5.00	17.73	15.00	3.92	40.00	11.00	14.45	12.51	10.90
49. Ganga Flood Control Commission	13.61	**2711**	2.30	1.80	2.10	2.02	2.29	2.09	2.50	2.40	2.75	2.71	1.98
50. Maintenance Of flood protection works of Kosi and Gandak projects	35.00	**2711**	4.00	8.39	6.00	4.18	6.00	3.46	6.00	0.00	5.24	3.24	0.00
51. Critical anti-erosion works in Ganga basin states	192.00	**2711 & 3601**	25.00	28.82	25	21.82	30.00	49.00	100.00	83.00	111.20	80.25	30.77

`(1)	`(2)	(3)	`(4)	`(5)	`(6)	`(7)	`(8)	`(9)	`(10)	`(11)	(12)	(13)	(14)
52. Extension of embankment on Lalbakeya, Kamla, Bagmati and Khando rivers	46.00	**2711**	5.00	1.50	5.00	0.00	3.00	0.00	14.00	13.53	32.25	25.00	0.00
53. Survey & Investigation of Kosi High Dam	30.00	**2711**	1.00	0.00	1.00	0.00	6.00	2.29	7.00	5.34	13.90	8.50	4.08
54. Joint observation on rivers common to Bangladesh & neighbouring countries	7.90	**2711**	4.00	0.19	2.00	0.43	0.80	0.37	2.50	0.26	1.50	1.50	0.12
55. Pancheshwar project	15.00	**2711**	5.00	4.49	3.60	2.15	2.40	1.49	2.50	1.53	2.13	2.12	1.18
Total: Flood Control	**1179.32**		**137.42**	**86.10**	**139.70**	**93.04**	**142.87**	**86.88**	**231.63**	**160.28**	**248.22**	**175.27**	**78.48**
VI Transport Sector													
56. Farakka Barrage Project	**140.00**	**5075**	**25.00**	**23.69**	**25.00**	**24.43**	**25.00**	**31.73**	**30.40**	**29.56**	**31.00**	**31.00**	**16.40**
Sub Total	**3231.56**		**507.01**	**383.38**	**522.72**	**394.58**	**499.00**	**381.14**	**621.00**	**509.37**	**700.00**	**550.00**	**292.33**
Schemes tranferred to States Sector													
57. Improvement of drainage in critical areas of India	50.00	**2711**	0.10	0.32	2.00	0.00	14.00	9.50	0.00	0.00	0.00	0.00	0.00
58. Critical anti-erosion works in coastal and other than Ganga basin states	16.00	**3601**	2.00	0.00	2.00	1.50	6.00	3.40	0.00	0.00	0.00	0.00	0.00
59. Flood control in Brahmaputra & Barak Valley	150.00	**3601**	10.00	0.00	10.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00
60. Flood proofing programme in North Bihar	8.00	**3601**	1.50	0.00	2.00	1.25	1.00	0.00	0.00	0.00	0.00	0.00	0.00
61. Repair, renovation and restoration of water bodies	0.00	**2702**	0.00	0.00	0.00	0.00	0.00	12.00	0.00	0.00	0.00	0.00	0.00
62. Artificial recharge of Ground Water	142.00	**2702**	26.36	7.69	15.00	2.33	40.00	0.00	0.00	0.00	0.00	0.00	0.00
Total- State Sector	**366.00**		**39.96**	**8.01**	**31.00**	**5.08**	**81.00**	**24.90**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Closed/completed schemes													
63. Cell for monitoring externally aided projects	0.43	**2701**	0.53	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64. IT Development	1.18	**2701**	1.00	1.03	0.28	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00
65. Sediment disposal research	0.08	**2701**	0.05	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66. Augmentation of water and power supply	0.24	**2701**	0.05	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
67. Staff colony Phase III	0.51	**4701**	0.30	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
68. National Projects Construction Corporation Limited	0.00	**2701**	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
69. Development of ground water and rain water harvesting in major cities	0.00	**2702**	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sub Total	**2.44**		**3.03**	**2.27**	**0.28**	**0.28**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Grand Total	**3600.00**		**550.00**	**393.66**	**554.00**	**399.94**	**580.00**	**406.04**	**621.00**	**509.37**	**700.00**	**550.00**	**292.33**