ANNUAL REPORT

2007-08

सत्यमेव जयते

GOVERNMENT OF INDIA
MINISTRY OF WATER RESOURCES
NEW DELHI

Contents

OVERVIEW

The Ministry of Water Resources in the Government of India is responsible for:-

(a) Development, conservation and management of water as a national resource; overall national perspective of water planning and co-ordination in relation to diverse uses of water.

(b) General policy, technical assistance, research and development, training, matters relating to irrigation, including multi-purpose, major, medium, minor and emergency irrigation works; hydraulic structures for navigation and hydropower; tube wells and groundwater exploration and exploitation; protection and preservation of ground water resources; conjunctive use of surface and ground water, irrigation for agricultural purposes, water management, command area development; management of reservoirs and reservoir sedimentation; flood control and management, drainage, drought-proofing, water logging and sea erosion problems; dam safety.

(c) Regulation and development of inter-State rivers and river valleys.

(d) Implementation of awards of Tribunals.

(e) Water quality assessment.

(f) Water Laws, legislation including International Water Law.

(g) International organisations, commissions and conferences relating to water resources development and management, drainage and flood control.

(h) Matters relating to rivers common to India and neighbouring countries; the Joint Rivers Commission with Bangladesh, the Indus Waters Treaty,1960; the Permanent Indus Commission.

(i) Bilateral and external assistance and co-operation programmes in the field of water resources development.

Organizational Setup

Union Minister of Water Resources	:	Hon'ble Prof. Saifuddin Soz.
Minister of State for Water Resources	:	Hon'ble Shri Jai Prakash Narayan Yadav
Secretary, Ministry of Water Resources	:	Shri U.N. Panjiar.
Additional Secretary	:	Shri S. Manoharan.

Other senior officers include Addl. Director General (Stats), Joint Secretary (Administration), Joint Secretary (Financial Adviser), Economic Adviser, and six Commissioners.

The Ministry has 3 Research Stations under its control:-

1. Central Water & Power Research Station, Pune,
2. Central Soil & Materials Research Station, New Delhi,
3. National Institute of Hydrology, Roorkee.

Organizations under the Ministry of Water Resources

The Ministry has 17 Organizations indicated below to assist it in carrying out its mandate, activities and programmes:-

Attached Offices

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

Subordinate Offices

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

Public Sector Undertakings

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

Registered Societies

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

Statutory Bodies

1. Narmada Control Authority
2. Brahmaputra Board
3. Betwa River Board
4. Tungabhadra Board

Important Activities Organized during the Year 2007-2008

Some of the important activities organized by the Ministry during the year 2007-08 are outlined hereunder:-

Her Excellency The President of India, Smt. Pratibha Devisingh Patil presenting the National Water Award, 2007 to Shri Popat Pawar from Hiware Bazar Gram Panchayat, District Ahmednagar, Maharashtra at the 'National Ground Water Congress-2007', in New Delhi on 11th September, 2007.The Union Minister for Water Resources, Prof. Saifuddin Soz and the Union Minister of Consumer Affairs, Food and Public Distribution and Agriculture, Shri Sharad Pawar are also seen.

The Prime Minister, Dr. Manmohan Singh being welcomed by the Union Minister for Water Resources, Prof. Saifuddin Soz at the inauguration of the 'National Ground Water Congress-2007', at Vigyan Bhavan, New Delhi on 11th September, 2007.

Presentation of National Water Award and Bhoomijal Samvardhan Puraskars

The Ministry of Water Resources instituted the National Water Award and Bhoomijal Samvardhan Puraskars for innovative practices on ground water conservation and augmentation. Award ceremony was held at Vigyan Bhawan, New Delhi during the valedictory session of National Ground Water Congress 2007. The prizes were given away by the Her Excellency, Hon'ble President of India Smt. Pratibha Devisingh Patil.

The National Water Award of Rs. 10 lakhs and a citation were conferred on the Hiware Bazaar Gram Panchayat of Ahmednagar district of Maharashtra. Bhoomijal Samvardhan Puraskars of Rs. 1 lakh each and a citation were given to the following Gram Panchayats/Municipality/NGOs namely:-

- Chilnala Watershed Development Association, District Nuapada, Orissa.
- Holy Cross Social Service Centre, Hazaribag, Jharkhand.
- Gopalpur Gram Panchayat, Gopalpur, District Bankura, West Bengal.
- Shree Vivekanand Research and Training Institute, Kutch, Gujarat.
- Gram Vikas Navyuvak Mandal, Laporia, Jaipur, Rajasthan.
- Dilasa Janvikas Pratishthan, MIDC Area Railway Station, Aurangabad.
- Deolali Pravara Municipal Council, District Ahmednagar, Maharashtra.
- Chief Functionary SUTRA, Jagjit Nagar, Solan, Himachal Pradesh.
- NARDEP, Vivekananda Kendra, Kanyakumari.
- Madhanagopalapuram Gram Panchayat, Cuddalore District, Tamil Nadu.
- Uthanur Gram Panchayat, Kolar District, Karnataka.
- Madikkai Gram Panchayath, Kasargod district, Kerala.
- Gorwa Gram Panchayat, Dewas, Madhya Pradesh.
- Bethany Society, Laitum Khrah, Shillong.

Information, Education and Communication (IEC) Activities

Celebration of World Water Day

The Ministry celebrated World Water Day on 22.03.2007 by holding a curtain raiser function which was inaugurated by the Hon'ble Prime Minister.

India International Trade Fair-2007

The Ministry of Water Resources participated in the 28th India International Trade Fair (IITF) at Pragati Maidan, New Delhi during the period 14th to 27th November, 2007. The pavilion of the Ministry was awarded 1st Prize i.e. Gold medal. Live models of rain water harvesting in the rural and hilly areas as well as high rise buildings in urban localities, models on the activities of CWC, CWPRS, NIH, CSMRS, CGWB and other organizations of the ministry were exhibited to depict wide variety of subjects concerning their activities.

Publication of Meghdoot Post Cards

On the occasion of Water Year-2007, the Ministry published 5 lakh Meghdoot Post Cards conveying messages of Rain Water Harvesting and recharge of Ground Water.

Hon'ble Prime Minister, Dr. Manmohan Singh inaugurating the "World Water Day Function" in New Delhi on 22nd March, 2007 alonwith The Union Minister for Water Resources, Prof. Saif-ud-din Soz and the Minister of State for Water Resources, Shri Jai Prakash Narayan Yadav .

The Union Minister for Water Resources, Prof. Saif-ud-din Soz with winners of Water Awards-2007, in New Delhi on 11th September, 2007

Release of Commemorative Postage Stamp

The Ministry got a commemorative postage stamp released with Water Year - 2007 as its theme. Hon'ble Union Minister of Communications and Information Technology released the commemorative postage stamp in a function organized on 28.12.2007.

MoWR's Tableau in the Republic Day Parade – 2008

For the first time, the Ministry participated in the Republic Day Parade- 2008 with its tableau on the theme of Water Conservation and Management.

The tableau of Ministry of Water Resources passing through the Rajpath during the Republic Day Parade-2008, in New Delhi on 26th January, 2008.

E-governance Applications

With a view to strengthen the E-governance applications, the Ministry implemented the Information Technology Strategic Plan under which the following activities were taken up:

i. A new web-enabled software **"Hydrological Observation Information System for Indus Basin"** has been developed in ASP.NET and SQL Server to provide more flexibility in compilation and trend analysis of Data & generation of report etc.

ii. RTI-MIS is being operated for redressal of grievances. List of Nodal Officers have been fed in the RTI-MIS software.

iii. The bilingual website of the Ministry has been redesigned and is available at the link:— (http://mowr.gov.in).

iv. LAN in MoWR has been Upgraded and expanded using latest switching methodology, latest types of cabling, wireless connectivity, in MOWR, Krishi Bhavan, Lok Nayak Bhavan, CGO Complex, Mohan Singh Place Building. A total of 337 Nodes including 130 new nodes have been installed.

Farmers' Participatory Action Research Programme

As per recommendations of the Sub-Committee on "More Crop and Income per Drop of Water", Ministry of Water Resources initiated Farmers' Participatory Action Research Programmes. During the year 2007-08, 5000 programmes have been sanctioned to 63 institutes with a cost of Rs. 24.46 crore.

Initiatives for Participatory Approach to Management of Water Resources

The Ministry of Water Resources has been emphasizing participatory approach for the management of water resources by involving not only various governmental agencies but also the users and other stakeholders in an effective manner in various aspects of planning, design, development and management of the water resources. With a view to ensure an appropriate legal and organizational framework for beneficiary participation in the management of irrigation water, the Ministry circulated a draft bill on Participatory Irrigation Management (PIM.). Till December, 2007, 13 States, namely, Andhra Pradesh, Assam, Bihar, Chattisgarh, Goa, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Rajasthan and Tamil Nadu have enacted legislation on PIM. So far 54330 Water Users Associations (WUAs) covering an area of 12.32 Million hectare have been formed in various States.

XI Plan Allocation for Irrigation, Flood Control and Command Area Development

Due emphasis has been given to the water resources development and management by the UPA Govt. The National Development Council in its 54th meeting endorsed the XI Plan Document which envisages overall allocation of Rs. 232311 crore for Irrigation, Flood Control and Command Area Development as whole. The allocation during X Plan was only Rs. 95700 crore. The XI Plan Document has identified the following programs as the core programmes of Ministry of Water Resources:-

i) River Management activities and works related to border rivers;

ii) Command Area Development and Water Management

iii) Accelerated Irrigation Benefits Programme

iv) Repair, Renovation and Restoration of Water Bodies.

v) Flood Management.

It has been further stated in the XI Plan Document that in recognition of the fact that the actual requirement of the water resources sector in general and the above schemes, in particular, would exceed the provisions made in the Plan Document, the size of the actual yearly allocation may exceed the pro-rata allocation during Annual Plan discussions and the issue of an annual increase could be revisited at the time of mid-term appraisal.

Important Conferences / Meetings /Discussions During the Year 2007-08

The Ministry of Water Resources held/ participated in a number of conferences, meetings and discussions both at the national and international levels. Some of the important conferences/meetings held are indicated below:-

The Vice President, Mohammad Hamid Ansari, the Union Minister for Water Resources, Prof. Saifuddin Soz, the Minister of State for Water Resources, Shri Jai Prakash Narayan Yadav and the Secretary Ministry of Water Resources, Shri U.N.Panjiar at the inauguration of the "World Water Day Function", in New Delhi on March 20, 2008.

- On the invitation of the Hon'ble Union Minister of Water Resources, a five member delegation led by HE Mr. Parviz Fatah, Minister of Energy, Islamic Republic of Iran visited India during 15-18 February, 2007. They held important discussions with the Hon'ble Union Minister of Water Resources and also visited the offices of Central Water Commission, National Institute of Hydrology, Roorkee and Indian Institute of Technology, Roorkee.
- The Ministry celebrated World Water Day on 22 March, 2007 by holding a curtain raiser function which was inaugurated by the Hon'ble Prime Minister.
- Hon'ble Union Minister of Water Resources convened a meeting on 8th June, 2007 and 18th September, 2007 at New Delhi to discuss issues relating to optimum utilization of water resources in Arunachal Pradesh and constitution of North East Water Resources Authority (NEWRA).
- Hon'ble Union Minister of Water Resources, Prof. Saifuddin Soz visited Shanghai, China on Ist June, 2007 to hold bilateral discussions with his Chinese counterpart, Mr. Chen Lei.
- The "Second International Experts Meeting on 30th Anniversary of Mar Del Plata UN Water Conference" was held at Zaragoza on 13-14 March, 2007. The Hon'ble Union Minister of Water Resources, Prof. Saifuddin Soz represented India at the conference.
- On 15th June, 2007, Hon'ble Union Minister of Water Resources visited the sites of the exploratory wells constructed by the Central Ground Water Board at Trikul Bal and Trigam Shadipora of Baramulla district in Kashmir Valley where ground water has been found under artesian conditions with very high discharge of 90000 litres to 138000 liters per hour.

- On 7th July, 2007 the Hon'ble Minister for Water Resources, visited Central Ground Water Board, Mid Eastern Region, Patna and held detailed discussions regarding arsenic and fluoride contamination in ground water.
- A meeting was taken by the Hon'ble Minister of State for Water Resources on 9th July, 2007 to review the status of water resource development projects in Bihar. The meeting was attended by the officers of Government of Bihar, Ganga Flood Control Commission, Central Water Commission and the Ministry of Water Resources.
- The First meeting of the Prime Minister's Council on Climate Change was held under the Chairmanship of the Hon'ble Prime Minister on 13th July, 2007. The Hon'ble Union Minister of Water Resources attended the meeting as a Member of the Council.
- The Hon'ble Prime Minister of India took a meeting with the Hon'ble Union Minister of Water resources on 16th July, 2007 to review the status of implementation of the National Common Minimum Programme (NCMP) component of inter-linking of rivers with particular focus on Peninsular rivers. Chairman, Central Water Commission, Additional Secretary (WR) and Director General, National Water Development Agency participated in the meeting.
- The National Ground Water Congress was held on 11th September, 2007, and was inaugurated by the Hon'ble Prime Minister of India. On this occasion, welcome address was given by Prof. Saifuddin Soz, Hon'ble Union Minister of Water Resources.
- The Ministry of Water Resources instituted the National Water Award and Bhoomijal Samvardhan Puraskars for innovative practices on ground water conservation and augmentation. The award ceremony was held in New Delhi on 11th September, 2007 as part of the valedictory session of National Ground Water Congress, 2007. The prizes were given away by Her Excellency, Smt. Pratibha Devisingh Patil, Hon'ble President of India, Prof. Saifuddin Soz, Hon'ble Minister of Water Resources, Shri Jai Prakash Narayan Yadav, Hon'ble Minister of State of Water Resources and Dr. M.S. Swaminathan, Hon'ble Member of Parliament, eminent scientists, farmers, school children, representatives of panchayati raj institutions and NGOs participated in the Congress.
- The 12th National Water Convention was held at Puducherry from 1st – 3rd November, 2007 to deliberate upon water related issues. Hon'ble Union Minister of Water Resources, Prof. Saifuddin Soz presided over the inaugural session. Hon'ble Union Minister of State for Water Resources, Shri. Jai Prakash Narayan Yadav gave the valedictory address at the convention. Additional Secretary (Water Resources) and other senior officials also participated in the convention.
- Hon'ble Minister of Water Resources and Secretary (Water Resources) visited Rohmoria area and Majuli Island on 13th and 14th November, 2007. During the visit, the Hon'ble Minister of Water Resources also visited erosion affected areas and held discussions with various public representatives and experts.
- At the initiative of the Hon'ble Minister of Water Resources, the year, 2007 was declared as "Water Year" by the Union Government. Throughout the year, a number of programmes were organized. A postage stamp on water and a first day cover was released by the Union Minister of Communications and Information Technology, Shri A. Raja in the presence of Hon'ble Minister of Water Resources in a function organized on 28th December, 2007.
- Hon'ble Union Minister of Water Resources attended the first Asia–Pacific Water Summit at Beppu, Oita (Japan) in the first week of December, 2007. He also attended the 3rd meeting of Steering Committee of the First Asia Pacific Water Summit and exchanged views with other participants of the Steering Committee.
- Hon'ble Union Minister of Water Resources, Prof. Saifuddin Soz, met His Excellency The President of Iran, Mr. Mahmoud Ahmadinejad on 24th November, 2007 during the 5th meeting of Governing Board of Regional Centre for Urban Water Management at Tehran.

CHAPTER 1

MAJOR PROGRAMMES

Accelerated Irrigation Benefits Programme (AIBP)

Accelerated Irrigation Benefits Programme (AIBP) was conceived in 1996 to provide financial assistance to the States to complete various ongoing projects in the country so that the envisaged irrigation potential of the projects could be created urgently. Since its formulation, the scope and coverage of the programme have been widened and liberalized over time.

Under Accelerated Irrigation Benefits Programme (AIBP), financial assistance is extended to the States for creation of irrigation potential by completion of identified ongoing irrigation projects. As per the present pattern of assistance under the AIBP, the Central Government provide grant to the irrigation projects as an incentive to the States for creating irrigation infrastructure in the country. AIBP has to meet the targets of the Bharat Nirman programme under which a major thrust is being given to irrigation and financial assistance is also provided to the irrigation projects under the Prime Minister's package for agrarian distressed districts.

As on date, major, medium and Extension, Renovation and Modernization (ERM) projects are eligible for central assistance under AIBP. The surface water minor irrigation schemes of special category States as well as schemes in drought prone and tribal areas in non-special category States are also eligible for central assistance under AIBP. A total of 233 major and medium irrigation projects have been included under AIBP for which central assistance in the form of loan/grant amounting to Rs.24747.4 crore has been released till December, 2007. This also includes central assistance of Rs.1077.13 crore released to the north eastern States. State-wise details of central assistance released under AIBP till December, 2007 are given in Table-I. Out of these 233 projects, 91 projects have been completed by July, 2007. Of the ultimate irrigation potential of 82.76 1akh ha to be created under AIBP assisted major and medium projects, irrigation potential created up to March, 2007 was 43.56 lakh ha which is about 53% of the ultimate potential of these projects. During 2006-07, irrigation potential created under AlBP from major/medium/minor irrigation projects/schemes was 9.36 lakh ha against the targeted potential of 9.00 lakh ha.

Up to March, 2007, 6205 surface water minor irrigation schemes were provided assistance under AIBP, out of which 4418 schemes have been completed. The ultimate irrigation potential of minor irrigation schemes included in AIBP was 3.85 lakh ha of which irrigation potential of 1.87 lakh ha has been created up to March, 2007. The performance has been satisfactory in respect of AIBP assisted minor irrigation schemes as these are having low gestation period.

So far, 30 out of 65 projects under the Prime Minister's Relief Package for agrarian distress districts in the States of Andhra Pradesh, Maharashtra, Karnataka and Kerala have been provided central assistance under AIBP. The grant released under the Prime Minister's Relief Package during 2006-07 was Rs.885.0885 crore while during 2007-08, total grant of Rs.886.555 crore has been released till December, 2007.

An evaluation of the AIBP has been carried out by the Ministry of Statistics and Programme Implementation (MOSPI). In their evaluation report of December, 2007, the MOSPI has observed that central assistance under AlBP projects has helped in accelerating project implementation, creation and utilization of irrigation potential. It has also led to the provision of quality irrigation in time leading to higher crop intensity, crop productivity, employment and income generation in the command areas. AIBP intervention has minimized drought impacts, protected areas from floods, provided drinking water and hydro electricity in multi purpose projects. In many projects, irrigation has recharged aquifers in and around the command areas increasing ground water levels for additional irrigation and other uses.

Table - I

Statewise details of Central Assistance(CA)/grant released under AIBP from 1996-97 to 2007-08

(Rs. Crore)

Sl. No.	State	Amount																Grand Total
		1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05			2005-06	2006-07	07-08 Grant (9.4.07)	2007-08	2007-08	
										Loan	Grant	Total	Grant	Grant		Grant	Grant	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16a)	(16b)	(16)	(17)
1	Andhra Pradesh	35.2500	74.0000	79.6700	65.0150	95.0200	281.6600	33.1860	205.5300	61.2829	26.2641	87.5470	311.3815	843.4220	80.6900	469.9092	550.5992	2662.2807
2	Arunachal Pradesh	0.0000	0.0000	0.0000	7.5000	7.5000	15.0000	1.5000	20.0000	1.0000	9.0000	10.0000	18.0000	27.0000			0.0000	106.5000
3	Assam	5.2300	12.4000	13.9500	14.5400	24.0770	14.5210	16.2738	19.2015	1.6930	15.2370	16.9300	34.9332	30.2685	13.9000	31.0980	44.9980	247.3230
4	Bihar	13.5000	5.1500	36.1850	129.6950	151.7750	3.4200	14.4805	74.6440	26.0505	11.1645	37.2150	16.2380	3.2300	30.9700	3.5500	34.5200	520.0525
5	Chhattisgarh	0.0000	4.5000	9.5000	10.5200	13.9300	48.2000	104.0000	74.6300	2.0475	0.8775	2.9250	7.6645	10.7050	30.6100	18.4640	49.0740	335.6485
6	Goa	0.0000	5.2500	0.0000	3.5000	61.6500	58.0000	0.0000	2.0000	0.4550	0.1950	0.6500		1.9100	18.3400		18.3400	151.3000
7	Gujarat	74.7730	196.9000	423.8200	272.7000	421.8500	581.6900	1000.3300	650.3590	484.7500	45.7500	530.5000	339.6000	121.8885	162.4200	187.5800	350.0000	4964.4105
8	Haryana	32.5000	12.0000	0.0000	0.0000	0.0000	0.0000	18.0000	7.7350	7.7945	3.3405	11.1350	6.0000	3.1700			0.0000	90.5400
9	Himachal Pradesh	0.0000	6.5000	5.0000	11.0470	18.0150	3.2440	8.1500	14.6920	0.3690	3.3210	3.6900	30.0785	3.9300	37.6200	12.3800	50.0000	154.3465
10	Jammu & Kashmir	1.3000	0.0000	0.0000	4.6800	10.4600	11.0700	34.9990	21.5450	1.2744	11.4701	12.7445	36.6878	37.7716	39.3000	49.7151	89.0151	260.2730
11	Jharkhand	0.0000	8.8900	11.6400	14.3450	5.7150	10.8200	9.6700	1.8330	14.8995	6.3855	21.2850	5.0370	1.2900	3.7100	2.0344	5.7444	96.2694
12	Karnataka	61.2500	90.5000	94.5000	157.1400	171.0000	492.5000	620.8500	266.4780	314.7921	81.5031	396.2952	140.7759	160.3729	193.8600		193.8600	2845.5220
13	Kerala	3.7500	15.0000	0.0000	0.0000	22.4000	11.2750	5.6650	31.0000	34.6080	14.8320	49.4400	9.3591	16.6468			0.0000	164.5359
14	Madhya Pradesh	63.2500	110.0000	81.2500	95.3250	151.3280	215.4100	220.0000	568.4400	361.6907	155.0103	516.7010	168.0966	48.3100	229.1200	68.0450	297.1650	2535.2756
15	Maharashtra	14.0000	55.0000	50.8600	49.8750	97.0200	39.1000	133.1341	164.3950	370.5002	158.7858	529.2860	167.3822	465.5213	234.8000	300.6300	535.4300	2301.0036
16	Manipur	4.3000	26.0000	10.7800	21.8100	1.5000	9.3600	19.5000	15.5000	1.3000	11.7000	13.0000	75.7035	156.3042		49.8070	49.8070	403.5647
17	Meghalaya	0.0000	0.0000	0.0000	2.6938	5.5120	4.4700	1.5000	1.0880	0.1744	1.5694	1.7438	1.5750	0.7500			0.0000	19.3326
18	Mizoram	0.0000	0.0000	0.0000	1.4330	1.4330	2.0000	0.7500	9.3000	0.5000	4.5000	5.0000	9.3150	14.2354	5.2600	16.6634	21.9234	65.3898
19	Nagaland	0.0000	0.0000	0.0000	2.7300	5.0000	5.0000	2.6590	8.0000	0.4000	3.6000	4.0000	7.9987	10.5995	4.0600		4.0600	50.0472
20	Orissa	48.4500	85.0000	71.5000	90.2500	100.3200	168.4750	179.5700	154.6850	16.9561	7.2669	24.2230	151.3742	133.8846	173.5800	211.8090	385.3890	1593.1208
21	Punjab	67.5000	100.0000	0.0000	42.0000	55.6200	113.6900	36.6600	0.0000				26.3166			13.5000	13.5000	455.2866
22	Rajasthan	2.6750	42.0000	140.0500	106.6650	78.4670	96.3150	174.3850	499.8370	247.0328	105.8712	352.9040	90.2952	11.6000	100.2600		100.2600	1695.4532
23	Sikkim	0.0000	0.0000	0.0000	1.3600	0.0000	2.4000	0.7500	0.7500	0.0750	0.6750	0.7500	0.9113	3.3236			0.0000	10.2449
24	Tripura	3.7730	5.1000	3.9750	34.6530	13.8830	21.0630	13.3947	13.3769	1.1000	9.9000	11.0000	31.9950	22.5131			0.0000	174.7267
25	Tamil Nadu	20.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000								0.0000	20.0000
26	Uttar Pradesh	43.5000	78.0000	76.5000	286.0000	315.9000	354.6900	359.0000	274.7850	123.1440	52.7760	175.9200	133.1280	81.8954	80.9400	11.8400	92.7800	2272.0984
27	Uttarakhand	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	25.1625	25.5525	3.8992	35.0925	38.9917	80.4387	84.7298	52.5700	61.5600	114.1300	369.0052
28	West Bengal	5.0000	20.0000	10.0000	25.0000	26.8250	38.6080	28.1330	3.1440	9.4227	4.0383	13.4610	0.0287	6.7000		7.0000	7.0000	183.8997
Total		500.0010	952.1900	1119.1800	1450.4768	1856.2000	2601.9810	3061.7026	3128.5009	2087.2115	780.1257	2867.3372	1900.3142	2301.9722	1492.0100	1515.5851	3007.5951	24747.4510

BHARAT NIRMAN : IRRIGATION SECTOR

Irrigation is one of the six components for development of rural infrastructure under Bharat Nirman. The irrigation component of Bharat Nirman aims at creation of irrigation potential of 10 million hectare (mha) in four years i.e., from 2005-06 to 2008-09.

The ultimate irrigation potential for the country has been estimated as 139.88 million hectare (mha) which includes potential through major and medium irrigation projects (58.46 mha), surface water based minor irrigation schemes (17.42 mha) and ground water development (64.00 mha). Irrigation potential of 102.77 mha is reported to have been created upto March, 2007.

Keeping in view the present status, the target for creation of irrigation potential under 'Bharat Nirman' is proposed to be met largely through completion of on going major and medium irrigation projects. Due emphasis has also been given to enhancing the utilization of completed projects / schemes. Further, development of new projects of minor irrigation to cater to the requirement of specific areas particularly to provide benefit to small and marginal farmers and tribals has also been included in Bharat Nirman.

Targets under Bharat Nirman

The targets and achievements under irrigation component of Bharat Nirman are given as below:

·	Total target for 2005-09	- 10.00 mha
·	Component-wise targets	
-	Major and Medium Irrigation Projects	4.20 mha
-	ERM of Major and Medium Irrigation Projects	1.00 mha
-	Minor Irrigation (Surface Water)	1.00 mha
-	Repair Renovation Restoration of Water Bodies	1.00 mha
-	Minor Irrigation (Ground Water)	2.80 mha

ACHIEVEMENTS OF IRRIGATION POTENTIAL UNDER BHARAT NIRMAN
(As reported by the State Governments)

(in thousand hectare)

Sl. No.	Name of State	Achievements during 2006-07
1	2	3
1.	Andhra Pradesh	231.275
2.	Arunachal Pradesh	3.324
3.	Assam	4.747
4.	Bihar	199.600
5.	Chhattisgarh	40.955
6.	Goa	1.233
7.	Gujarat	153.370
8.	Haryana	12.564
9.	Himachal Pradesh	4.423
10.	Jammu & Kashmir	25.355
11.	Jharkhand	23.710
12.	Karnataka	135.325
13.	Kerala	3.474
14.	Madhya Pradesh	103.550
15.	Maharashtra	210.000
16.	Manipur	0.000
17.	Meghalaya	2.554

1	2	3
18.	Mizoram	0.003
19.	Nagaland	2.058
20.	Orissa	43.750
21.	Punjab	36.439
22.	Rajasthan	100.010
23.	Sikkim	2.294
24.	Tamil nadu	23.877
25.	Tripura	3.985
26.	Uttar Pradesh	533.707
27.	Uttranchal	35.310
28.	West Bengal	5.432
	TOTAL	**1942.324**

NATIONAL PROJECT FOR REPAIR, RENOVATION AND RESTORATION OF WATER BODIES

The Government of India sanctioned a Pilot scheme of 'National Project for Repair, Renovation and Restoration (RRR) of Water Bodies directly linked to Agriculture' in January, 2005 at an estimated cost of Rs. 300 crore to be shared by Centre and States in the ratio of 3:1, proposed to be implemented during the remaining period of Xth Plan. The Scheme has been approved for 26 districts 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. 299.92 crores (Rs. 224.94 central share & Rs. 74.98 crores as State share). Against central share of Rs 224.94 an amount of Rs. 179.73 crore has been released to the States so far. These projects cover 1098 water bodies with a total original culturable command area of 1.72 lakh hectares. After RRR of water bodies are completed, an additional irrigation potential of 0.78 lakh hectares would be generated. Physical works for restoration of 794 water bodies in 13 States have been completed.

The Union Finance Minister in his budget speech during 2006-07 announced that the project for repair, renovation and restoration of water bodies would be expanded throughout the country through external assistance. Proposals received from the States of Tamil Nadu, Andhra Pradesh, Karnataka, Orissa and West Bengal in this regard were posed to the World Bank. World Bank Loan Agreement has been signed with Tamil Nadu for Rs. 2182 crore to restore 5763 water bodies having a CCA of 4 lakh hectares, with Andhra Pradesh for Rs. 835 crore for restoration of 3000 water bodies with a CCA of 2.5 lakh hectares, and with Karanataka for Rs. 259 crore to restore 1225 water bodies with a CCA of 0.52 lakh hectares.

PROJECTS ON "ARTIFICIAL RECHARGE TO GROUND WATER & RAIN WATER HARVESTING"

A demonstrative scheme on "Rain Water Harvesting and Artificial Recharge to Ground Water" has been taken up in the following areas:

i. **Lingala, Pulivendula Vemula and Vemalli blocks** in Kadapa district, Andhra Pradeshii. **Gangavalli block** in Salem district, Tamil Nadu

iii. **Mallur block** in Kolar district, Karnataka

iv. **Bel watershed,** Amla & Multai blocks in Betul District, Madhya Pradesh.

v. **Upper reaches of Choti Kali Sindh river** in parts of Sonkatch and Bagli blocks in Dewas District, Madhya Pradesh.

Under the scheme, recharge structures in over-exploited area were approved for implementation by the respective State departments under the overall technical guidance of CGWB with 100% funding by the Government of India. The approved cost of construction of recharge structures in cluster mode is Rs. 5.95 crores. The norms adopted in the implementation of National Rural Employment Guarantee Scheme (NREGS) by the Ministry of Rural Development are followed in the implementation of civil works under the present scheme. Demonstrative recharge projects on Artificial Recharge of Ground Water and Rain Water Harvesting are being implemented in the States of Karnataka, Tamil Nadu, Andhra Pradesh and Madhya Pradesh**.**

Scheme on "Artificial Recharge to Ground Water and Rain Water Harvesting"

Demonstrative projects on Artificial Recharge to Ground Water and Rain Water Harvesting are proposed to be taken up during XI Plan under the central sector scheme of Ground Water Management Regulation by CGWB, at an estimated cost of Rs.100 crores with 100% funding by the Central Government. Under the scheme, it is proposed to construct structures for artificial recharge and rain water harvesting through the implementing agencies / beneficiaries and panchayats.

COMMAND AREA DEVELOPMENT AND WATER MANAGEMENT

Background

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 through micro level infrastructure development and efficient farm water management. The programme aimed at integrating all activities related to irrigated agriculture in a co-ordinated manner with the assistance of multi-disciplinary teams under an Area Development Authority. The programme was restructured and renamed as Command Area Development and Water Management (CADWM) Programme with effect from 1st April, 2004.

Coverage

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 1974-75 till now 314 projects with a CCA of 28.65 mha have been included under the programme out of which 6 and 8 projects have been included during 2006-07 and 2007-08 respectively. After inclusion of new projects, deletion of completed projects and clubbing of some projects, there are 136 projects under implementation.

Programme Components

The components of the CADWM Programme are as follows:

a) Survey, planning and designing of on-farm development (OFD) 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) Construction of field drains, intermediate and link drains for letting out surplus water;
e) Correction of system deficiencies above the outlet upto distributaries of 150 cusec capacity;
f) 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;

g) Reclamation of waterlogged areas (with a minimum 10% beneficiary contribution) including use of location specific bio-drainage techniques to supplement conventional techniques for reclamation of waterlogged area;

h) Warabandi (without any central assistance);

i) Trainings/adaptive trials/ demonstrations through Water and Land Management Institutes (WALMI) and other institutions and monitoring and evaluation of the programme with 75% funding from the Government of India;

j) Institutional support to Water Users' Associations;

k) Establishment cost-limited to 20 % of OFD work items.

l) R & D activities.

Under the restructured programme, the thrust is on Participatory Irrigation Management (PIM) and, therefore, following features have been made mandatory for programme implementation:

i) Water Users' Associations (WUAs) have to be in position before project components are taken up so that beneficiaries are involved in the implementation of the programme activities;

ii) A minimum 10% beneficiary contribution has been made mandatory in the construction of field channels, reclamation of waterlogged areas and renovation of minor irrigation tanks to ensure increased beneficiary participation and thereby improve the quality of works;

Central assistance for correction of system deficiencies upto distributaries of 150 cusec capacity has been linked to the formation of Distributaries Committees and handing over of the distributaries to such Committees for maintenance in future.

Programme Implementation

The Command Area Development and Water Management Wing of the Ministry of WaterResources co-ordinates and monitors the implementation of the Command Area Development Programme at the National level. Proposals received from the States for inclusion of new projects examined and, if found techno-economically feasible, are included under the programme. Progress of the projects is monitored through physical and financial progress reports of the programme received from the States. The quality of work is ensured through monitoring, including field visits. Moreover, technical guidelines and manuals have been circulated to the States in this regard. Functionaries are trained on specific subjects from time to time, besides holding various meetings, workshops and seminars on different technical and managerial aspects.

Funding Pattern

The funding pattern for the programme is 50:50 on sharing basis between Centre and State/farmers for all the components. However, for State sponsored software components such as trainings of farmers and field functionaries and officials, adaptive trials and demonstrations, action research for Participatory Irrigation Management, seminars/ conferences/workshops, monitoring and evaluation of the programme etc. the funding pattern is 75:25 basis between the Centre and States. Apart from the above, national level training courses for senior level officers and monitoring and evaluation of the programme are sponsored by Central Government and full expenditure is borne by the Central Government.

Financial Achievements

An amount of Rs.3434.85 crores has been released to the States as central assistance under the CAD Programme upto 26th November, 2007 since its inception. During the year 2006-2007, an amount of Rs.188.887 crores was released to the States. An outlay of Rs. 300 crores has been provided under the central sector for implementation of the programme during 2007-2008 and an amount of Rs.217.00 crores has been released to the States till 31st December, 2007. Total release of central assistance made to the States under the Programme is given in the Table below:

Plan	Year	Approved Outlay	Release
IX Plan	1997-2002	854.77	764.27
X Plan	2002-2003	202.00	152.16
	2003-2004	202.00	144.02
	2004-2005	181.50	142.44
	2005-2006	200.00	199.89
	2006-2007	205.99	191.50
Xl Plan	2007 -08	300.00	217.00*

**Released upto 31.12.2007*

Physical Achievements

The core components of physical works are construction of field channels and field drains and implementation of warabandi (rotational water supply).

The physical progress under the various core components of the programme since its inception till March, 2007 is given below:

(in Million hectare)

Item of work	Cumulative achievements upto end of VIII Plan	Progress During IX Plan	X Plan	Cumulative achievements till end of X plan
Field Channels	13.953	1.802-	2.314	18.069
Warabandi	0.773	1.538	0.641	1. 765
Field Drains	8.643	0.351	1.124	11.305

Proposed Targets for XI Plan & 2007-08

Sl. No.	Item	XI Plan Physical	XI Plan Financial (central share)	2007 -08 Physical	2007 -08 Financial (central share)
1.	Field channel/full package OFD works	3.50	3060	0.4	200
2.	Field /intermediate/link drains	0.35	111	0.04	8
3.	Reclamation of waterlogged areas	0.5	900	0.10	20
4.	Correction of Conveyance of water	6.25	1800	0.02	12
5.	Establishment cost		606.60		46
6.	Software / misc. activities at national level		53		14
	Total (Rs. in crore)		7500*		300

**including other components like institutional support to WUAs etc.*

Correction of System Deficiencies

This component was inc1uded under the restructured CADWM Programme with the objective of improving supply of irrigation water at the outlet head. However, the progress under this component did not pick up as the irrigation systems are under the command and control of irrigation departments and the CADAs could not mobilize them to prepare the proposals on correction of system deficiencies. Also, it has been realized that correction of system deficiencies merely up to the distributaries will not be of much help in improving the water supply unless the system deficiencies of the entire irrigation network from main canals down to the minors are taken care of.

Renovation of Minor Irrigation Tanks

This component was included under the restructured CADWM programme with a view to augment water supplies in the command by integrating the renovated MI tanks with the main irrigation system. The Ministry of Water Resources also launched a separate scheme on restoration of water bodies with 75:25 funding pattern between the centre and the States as against the funding pattern of 50:50 under the CADWM programme. The financing pattern under the scheme being more attractive, the State Governments preferred to avail of central assistance under the scheme of restoration of water bodies and hence there has been no offtake of funds under this component of CADWM Programme.

Training Programmes

The Central Government provides financial assistance of 75% to the State Government for training of functionaries and farmers on various aspects of the CADWM programme. This includes various aspects of efficient water management technologies and agricultural practices, methods of survey and reclamation of waterlogged areas, participatory irrigation management etc. The training programmes are meant for officials of the State Government as well as the farmers. The national level training programmes for senior/middle level officers are sponsored and fully financed by the Ministry and are organized through various State/Central agencies. The senior level officers are trained on aspects of policy planning and preparation of action plans, while middle and junior level officers are trained on technical, procedural and implementation aspects. Farmers, on the other hand, are educated about agricultural development and efficient management of water for irrigation. They are also motivated and made aware about the benefits of Participatory Irrigation Management (PIM). During the year 2007-08, a total of 24 National Level Training courses have been organized.

INITIATIVES IN THE NORTH EAST

The north east region consists of seven States and Sikkim having geographical area of 265200 sq. km. of which 90,573 sq. km. is plain. The region has three main river basins namely, the Teesta, the Brahmaputra and the Barak, which form part of the Ganga-Brahmaputra-Meghna river system. North east India is endowed with enormous water resources. The combined annual flow of Brahmaputra and Barak rivers, before entering into Bangladesh is the highest among all river basins in the country. Significant initiatives taken by the organizations of the Ministry for the development of north eastern region are detailed below:-

North East Water Resources Authority

As per announcement made by the Hon'ble Prime Minister, inter Ministerial consultations and discussions with the State Governments were held for setting up North East Water Resources Authority(NEWRA). All States agreed to the proposal for constitution of NEWRA except Arunachal Pradesh.

A High level Group (HLG) to hold discussions and develop a consensus on utilizing the hydro power potential of Arunachal Pradesh and integrated development of the region through the setting up of NEWRA was constituted in December, 2006. The composition of HLG is given below:-

Hon'ble Minister of Water Resources	:	Chairman
Hon'ble Deputy Chairman, Planning Commission	:	Member
Hon'ble Chief Minister of Arunachal Pradesh	:	Member
Hon'ble Chief Minister of Assam	:	Member
Hon'ble Member (WR & Energy), Planning Commission	:	Member

The First meeting of the HLG was held in December, 2006. It was decided to prepare feasibility studies in respect of ten projects. Study reports in respect of 5 projects have been completed.

Important works in North East Region

The Ministry of Water Resources is executing a number of schemes and projects for the development of north east region. The details of some of the projects are indicated below:-

A. Pagladiya Dam Project: The preliminary works of Pagladiya Dam Project were initiated as approved by the Government of India at Rs. 542.85 crores (2000 price level).

The project envisages assured irrigation to a gross command area of 54,160 ha. flood benefit to 40,000 ha and incidental hydro power generation of 3 MW (I.C). In addition, 956 ha of land was acquired against 3238 ha for rehabilitation and resettlement purposes.

The construction activities were held up due to the non completion of Zirat (property) survey by the Government of Assam. However, after formation of the new administrative authority i.e. Bodoland Territorial Council (BTC) in the project area, the stalemate regarding Zirat survey as well as construction activities of Pagladiya Dam Project was resolved. BTC has informed the Brahmaputra Board to initiate action for starting Zirat survey for construction of the project. Due to change of design, cost escalation and revised R&R package, the cost of the project has been revised to Rs. 1069.40 crores.

B. Harang Drainage Development Scheme: The scheme was cleared during 9th Plan and revised to Rs. 30.49 crores during 10th Plan. On completion, it will benefit 11850 ha of chronically drainage congested areas in Barak Valley, Assam. The present progress is 97% and the balance works will be completed in due course.

C. Anti-Erosion work at Dhola-Hatighuli: An avulsion of River Dibang and Lohit jointly with Noa-Dehing had taken place near Dhola-Hatighuli area of Assam and resulted in large scale erosion on the left bank. The work of diversion of the river Dibang to its original course was taken up at a cost of Rs. 10.47 crores. (Phase-I) and also diversion of Lohit (combined with Noa-Dehing) at a cost of Rs. 5.22 crores. (Phase-II). The works were planned in phased manner as per morphological studies and have been completed.

D. Protection of Majuli Island, Assam: Majuli island is a chronically flood and erosion affected island in river Brahmaputra. The protection works of the island were taken up by the Board as approved by the Government. of India on the request of Government of Assam as under:

(i) To give immediate relief, work on flood and erosion control at an estimated cost Rs. 6.22 crores was taken up during 2003-04. This work was completed during 2004-05.

(ii) A scheme to provide flood protection and anti-erosion has been initiated at an estimated cost of Rs. 86.56 crores. The Expenditure Finance Committee approved the Phase-I of the scheme costing Rs. 41.28 crore in December, 2004 and the works are under execution. The progress of work upto December, 2007 is 65% . It is proposed to take up additional works as per recommendations of the Expert Committee. Physical model studies for firming up the long-term measures and its design parameters are being carried out at NEHARI, North Guwahati and laying of the model has been completed. The expenditure under the scheme up to December, 2007 is Rs. 27.78 crores.

The following schemes are also being implemented:-

- Barbhag Drainage Development Scheme: (Rs. 7.33 crores)
- Amjur Drainage Development Scheme: (Rs. 14.15 crores)
- Joysagar Drainage Development Scheme: (Rs. 2.13 crores)
- Kailasahar Drainage Development Scheme: (Rs. 4.18 crores)
- East of Barpeta Drainage Development Scheme: (Rs. 1.34 crores)
- Singla Drainage Development Scheme: (Rs. 3.54 crores)

- Jengrai Drainage Development Scheme: (Rs. 1.49 crores)
- Jakaichuk Drainage Development Scheme: (Rs. 2.96 crores)

In addition to above there are 18 projects in the construction stage for which design consultancy is being provided by D&R wing of Central Water Commission(CWC). There are 11 projects for which Detailed Project Reports (DPR) are under preparation. Detailed hydrological studies and design works in respect of these projects are in progress.

CWC has a large network of hydrological observation sites for collection of hydrological data and for issue of flood forecasts in North East region. At present CWC has 151 hydrological observation sites in the north east region and issues flood forecasts for 26 sites in the region including Sikkim. CWC is also monitoring the progress of 14 major/medium irrigation projects and about 800 minor irrigation schemes funded under AIBP.

The issues of large-scale soil erosion on hill slopes, needs to be tackled in order to save the land and people as well as irreparable damage to the infrastructure and ecology of the region. The Centre of National Institute of Hydrology has taken up a number of studies in consultation with States of the region as well as Brahmaputra Board, CWC, CGWB, etc., so as to evolve preventive action. Important among them are: representative basin studies in the basins of Meghalaya and Assam, groundwater quality studies in Assam; surface runoff studies in the Bhrahmaputra River and flood risk mapping in lower Assam.

Some of the important study areas are:- flood estimation, flood routing, structural and non-structural measures of flood management, flooding due to drainage congestion, integrated watershed management for flood control, development of hydrological data base management system, drainage congestion and erosion problems, water quality assessment and iron and fluoride level determination in Karbi-Anglong District of Assam.

The following projects/studies were taken up during the year 2007-08:

- Dam break studies for Kulsi, Jindhal, Noa Dhing and Lohit dams
- Studies on shifting of three typical rivers of North East (Kopili, Jia Bharali and Jia Gabharu) using remote sensing.
- Evaluation of flood erosion control measures at Majuli Island
- Determination of soil hydrologic properties and infiltration modeling in a hilly watershed.
- Estimation of site-specific design seismic parameters for Teesta HE Project, Sikkim
- Hydraulic model studies for flushing of sediment from Rangpo Reservoir, Chuzachen HE Project, Sikkim
- Model studies for downstream of Myntdu (Leshka) dam spillway, Meghalaya
- Consultancy for hydraulic model studies of Majuli and Jiabharali to be conducted at NEHARI for Brahmaputra Board, Guwahati, Assam

The Central Ground Water Board is conducting scientific and technical studies for ground water assessment, development and management in the North Eastern Region and has its annual work programme to carry out the work. The major achievements of the Board during 2007-08 up to 1st December 2007 are given below :

Sl. No.	**Activities**	**Achievements**
1.	Ground Water Management Studies	15000 sq. km (pre-monsoon) 5200 Sq.Km. (post-monsoon)
2	Ground Water Exploration	13 wells drilled in North Eastern Region

3.	Monitoring of Ground Water Wells	Monitored during April, August & November 2007 through a network of 522 Ground Water Monitoring Wells. The water samples were collected during the pre-monsoon monitoring.
4.	Water Quality Analysis	443 samples analyzed for basic constituents and 328 samples have been analyzed for heavy metals such as Cu, Zn, Fe, Mn, CO, Cd, Cr, Ni, Pb etc. ad 7 samples analyzed for specific purpose.
5.	Short Term Water Supply Investigations	25 investigations
6.	Geophysical Studies	VES (Vertical Electrical Sounding) – 41 Bore Hole Logging - 02
7.	Reports	Ground Water Year Book was issued, whereas the District Report, District Ground Water Brochures, State Report are under completion.
8.	Remote Sensing Studies	Preparation of Geomorphological Layers are in progress
9.	Estimation of Ground Water Resource of the entire Region based on GEC - 1997 Methodology	Completed

Embarkment pitching along the left bank of River Ganga under the flood protection works

FLOOD MANAGEMENT

Although flood management falls within the purview of State Governments, the Central Government has initiated various measures including provision of financial assistance to the States for flood management and anti erosion schemes. The details of Major Plan Schemes of Flood Control Sector for XI plan are given below.

Flood Management Programme – ***a State Sector Scheme***

A restructured scheme namely, "Flood Management Programme" amounting to Rs. 8,000 crore only has been 'in principle' approved by the Cabinet, under the State Sector in XI Plan by amalgamating following four on-going schemes of X Plan.

- Critical anti-erosion works in Ganga basin States – a Centrally Sponsored Scheme (CSS)
- Flood Control works in Brahmaputra Valley states – a State Sector Scheme (SS)
- Critical anti-erosion works in coastal and other than Ganga Basin States – a State Sector Scheme (SS)
- Improvement of Drainage in the critical areas of the country – a State Sector Scheme (SS).

The re-structured scheme of central assistance would cover all on-going and new works related to river management, flood control anti-erosion, drainage development and flood proofing including flood prone area development programme to be implemented by the state governments. Central Assistance to the state governments has also been proposed for the first time for restoration of damaged flood management works, based upon the recommendations of Task Force on Flood Management/Erosion Control-2004.

River Management Activities and Works related to Border Areas – a Central Sector Scheme

A central sector scheme has been formulated to cover 10 on-going works/ schemes of X plan (with 100% central assistance) alongwith some new works detailed as under:

1. Survey & Investigations of Kosi High Dam.
2. Pancheshwar Multipurpose Project.
3. Maintenance of food protection works of Kosi & Gandak Project.
4. Extension of embankments on Lalbakeya, Kamla, Bagmati & Khando rivers.
5. Hydrological Observations of rivers originating from Bhutan.
6. Joint Observations on rivers common to Bangladesh and neighbouring countries.
7. Flood Forecasting on rivers common to India and Nepal.
8. Ganga Flood Control Commission.
9. Grant in aid to Brahmaputra Board.
10. New Scheme for Majuli Island in Assam, Dibang Project etc.

In addition to above works, new works on common/ border rivers comprising river management, flood control and minor irrigation works, especially with Bangladesh are proposed under the scheme. It will also include any new works proposed on common/border rivers on the western sector i.e. Indus river system in XI Plan. Such works are proposed to be funded with 100% central assistance.

RATIONALISATION OF MINOR IRRIGATION STATISTICS (RMIS) SCHEME

A centrally sponsored plan scheme "Rationalisation of Minor Irrigation Statistics (RMIS)" is under implementation since VII five year plan. The main aim of RMIS scheme is to build up a comprehensive and reliable database in the minor irrigation sector for future planning. Under the RMIS scheme there is provision for conduct of census of minor irrigation schemes on quinquennial basis. For regular reporting and co-ordination of activities in respect of statistical data compilation on minor irrigation in States /UTs, statistical cells are functioning in the nodal departments of States /UTs with 100% grant in aid under the scheme.

Three censuses on minor irrigation projects have so far been conducted in the country. The third census of minor irrigation schemes with reference year 2000-01 is placed on website http://mowr.gov.in. The 4th census of minor irrigation projects is proposed to be conducted with

reference year 2005-06 and was launched in 2007. The States /UTs are in the process of training of the staff and field data collection.

FLOOD FORECASTING

The scheme has been prepared by amalgamating two on-going schemes of X plan namely, 'Establishment and modernization of flood forecasting network in india including inflow forecast' and 'Strengthening and modernization of flood forecasting and hydrological observation network in the Brahmaputra and Barak basin' of Central water Commission. Under the new scheme, it is proposed (i) to modernize the flood forecasting network by installing automatic water level and rainfall sensors at all the observation sites and satellite based transmission system for getting real time flood data expeditiously and (ii) to develop appropriate software/models for flood/ inflow forecasting to reduce the time for analysis of data. It is also proposed to extend the flood forecasting network in uncovered areas and integrate with the network of State Governments/ Projects Authorities/ National Disaster Management Authority (MHA).

HYDROLOGY PROJECT II

The Hydrology Project (Phase-I) was implemented with International Development Association (World Bank) assistance of SDR 75.1 million under a credit agreement with the Government of India. The Government of Netherlands provided a grant-in aid of Euro 14.64 million in the form of technical assistance under a bilateral Indo-Dutch agreement. This phase of the Project was implemented by nine States viz. Andhra Pradesh, Chhattisgarh, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa and Tamil Nadu and six Central agencies.

Hydrology Project Phase-ll has been taken up with the assistance of International Bank for Reconstruction and Development (World Bank). The objective is to extend and promote the sustained and effective use of Hydrological Information System(HIS) by all potential users concerned with water resources planning and management, public and private, thereby contributing to improved productivity and cost-effectiveness of water related investments in 13 States viz. Andhra Pradesh, Chhattisgarh, Gujarat, Karnataka, Madhya Pradesh, Kerala, Maharashtra, Orissa, Tamil Nadu, Goa, Punjab, Puducherry and Himachal Pradesh and 8 central agencies viz. Central Water Commission, Central Ground Water Board, India Meteorological Department, National Institute of Hydrology, Central Water and Power Research Station, Ministry of Water Resources, Central Pollution Control Board and Bhakra Beas Management Board which are participating in this phase of the Project.

Agreement for Hydrology Project Phase-II between International Bank for Reconstruction and Development (World Bank) and Government of India was signed on 19th January, 2006. The project has become effective from 5th April, 2006. The duration of the project would be 6 years and is estimated to cost Rs.631.83 crores supported with a loan of 104.98 million US $ from IBRD.

The project is being implemented with the support of National Level Steering Committee (NLSC) headed by Secretary, MoWR and three Hydrological Information System Management Groups (HISMGs), namely HISMG (Technical), HISMG (Data & Data Dissemination) and HISMG (Institutional Strengthening & Training). The overall administrative, management and coordination role rests with the MoWR.

So far, four meetings of Hydrological Information System Management Group - Technical (HISMG.-Tech.), two meetings each of Hydrological Information System Management Group - Data & Data Dissemination (HISMG-DD.) & Hydrological Information System Management. Group - Institutional Strengthening & Training (HISMG-IS&T) and one meeting of National Level Steering Committee (NLSC) have been held to take necessary decisions on various aspects of implementation of the project.

During the year. the Project Coordination Secretariat (PCS) of Ministry. National Institute of Hydrology (NIH) and Bhakra Beas Management Board (BBMB) issued Request for Proposal (RFP) for procurement of Technical Assistance (Implementation Support) and Management Consultancy worth Rs 25 crore, Decision Support System (Planning) Consultancy worth Rs. 34 crore and Decision Support System (Real Time) Consultancy worth Rs. 12 crore respectively. All of them have received technical and financial bids, completed technical evaluation of the proposals and are in the final stage of negotiations of the contracts. The consultants are to be in place by April to May 2008. In addition, there are three major consultancies on Hydrological Design Aids (HDA), viz. Hydrological Design Aids (Ground Water). Hydrological Design Aid~ (Surface Water) and Hydrological design Aids (Water Quality) of CGWB, CWC and Central Pollution Control Board (CPCB) respectively. These consultancies are in the intermediate stages of procurement.

The Union Minister for Water Resources, Prof. Saif-ud-din Soz, Smt Gauri Chatterji,former Secretary (WR) showing a certificate and gold trophy presented by Lt. Governor of Delhi Shri Tajendra Khanna for Central Government Pavilion adjudged First for Excellence in Display in the India International Trade Fair 2007, held at Pragati Maidan, New Delhi on 27th November, 2007.

Out of the four new States taking part in the project, hydrological data collection networks for ground water have been finalized for Goa, Punjab and Himachal Pradesh by the CGWB, whereas similar networks for surface water domain have been finalised for Himachal Pradesh and Goa. Implementing agencies are progressing well in collecting, validating and transforming various data for application in decision making. The long drawn problems in the application of the Hydrological Modeling Software (HYMOS), Ground Water Estimation and Management Software: (GEMS) and Water information System Data Online Management (WISDOM) software are being sorted out intensively.

Capacity building of the officers and the staff engaged in the implementation of the project has been done through workshops, seminars, conferences and training programmes, both national and international, on the World Bank procurement procedures, financial management and monitoring and on various ground water and surface water domain specific issues.

CHAPTER 2

REDRESSAL OF INTER-STATE RIVER ISSUES

Inter-State Water Disputes (Amendment) Act, 2002

Inter-State Water Disputes Act,2002 was originally enacted by the Parliament in 1956 for adjudication of disputes relating to waters of inter-state rivers and river valleys. In view of the Sarkaria Commission recommendations, Inter-State Water Disputes Act, 1956 has been amended and "The Inter-State Water Disputes (Amendment) Act, 2002" (No. 14 of 2002 dated 28th March, 2002) has been enacted. The Act came into force from 6th August, 2002. The amendments include time frame for constitution of the Inter-State Water Disputes Tribunals and prescribes time limit for the tribunals to give their awards. As per the amendment, Central Government will have to constitute a Tribunal within a period of one year from the date of receipt of a request from any State Government. The award of the Tribunal shall have the force of decree of Supreme Court.

Inter-State Water Disputes Tribunals

Mahadayi/Mandovi River Water Dispute

In July, 2002, the State Government of Goa made a request under Section 3 of the Inter-State River Water Disputes Act, 1956 (as amended) for the constitution of the Tribunal under the said Act and refer the matter for adjudication and decision of dispute relating to Mandovi river. The issues mentioned in the request included the assessment of available utilisable water resources in the basin at Various points and allocation of this water to the 3 basin States keeping in view priority of the use of water within basin as also to decide the machinery to implement the decision of the tribunal etc. The Hon'ble Union Minister for Water Resources convened an inter-State meeting on 4.4.2006 at the level of Chief Ministers of the States of Goa, Karnataka and Maharashtra. The Government of Goa wanted constitution of tribunal and reference of the dispute to the Tribunal. Accordingly, the Central Government in the MoWR concluded that the dispute contained in the request of State of Goa of July, 2002 cannot be resolved by negotiation and initiated further action in the matter as per the provisions of Inter-State River Water Disputes Act., 1956.

Meanwhile, Govt. of Goa filed a Suit in the Supreme Court for setting up of Water Disputes Tribunal for adjudication of the above river water dispute and an Interlocutory Application (IA) for stay in the construction activities in September 2006. The Suit with the Application has been listed on four occasions before the Court i.e. 28th September, 19th October, 27th November 2006 and 5.09.2007. During its hearing on 27th November 2006, the learned Solicitor General prayed to the Court to file additional affidavit on behalf of Union of India (UOI) to take a specific stand on the issue mentioned in the order dated 19.10.06 and 5.9.2007. The issue in the said order is the contention of the state Govt. of Karnataka that the approval of Central Govt. is not required when the project is undertaken by the State from its own fund. Affidavit, indicating the stand of UoI in this regard based upon the comments received from Ministry of Finance, Planning Commission and Ministry of Environment & Forests has been sent to the Government Counsel on 01.02.2008 for taking necessary action.

Vansadhara River Water dispute

The State of Orissa ‘ sent a complaint to the Central Government under Section 3 of the Inter-State River Water Disputes (ISRWD) Act, 1956 regarding water disputes between the Government of Orissa and Government of Andhra Pradesh pertaining to Inter-State River Vansadhara for constitution of a Inter-State Water Disputes Tribunal for adjudication. The main grievance of the State of Orissa in the complaint sent to the Central Government is basically adverse effect of the executive action of Govt. of Andhra Pradesh in undertaking the construction of the aforesaid flood flow canal at Katragada and failure of Govt. of Andhra Pradesh to implement the terms of inter-State agreement understanding etc. relating to use, distribution and control of waters of inter-State river Vansadhara and its valley. It has also raised the issue of scientific assessment of available water in Vansadhara at Katragada and Gotta Barrage and the basis for sharing the available water. Accordingly, Secretary(WR) convened an inter- State meeting on 24.4.2006 at New Delhi to explore the possibility of finding out negotiated settlement of the dispute. In the meeting, both the States agreed that yield of the river is to be shared between Orissa and Andhra Pradesh on 50 – 50 basis. Both States also agreed that CWC will reassess the yield of the Vansadhara basin by utilizing the yield series upto 2005 for which necessary utilization data shall be furnished by the concerned State Government expeditiously. Based on the conclusions reached in the meeting, Central Government is hopeful of finding the negotiated settlement of the dispute. In continuation of this process, another inter-State meeting at the level of Additional Secretary, MoWR was convened on 5th -6th December, 2006 in which the follow-up action taken on the decision of the previous Inter-State meeting was reviewed. In the meeting, both States agreed to resume the dialogue process among themselves.

Another Inter-State meeting at the level of Principal Secretaries of the States was convened on 2.3.2007 under the Chairmanship of Additional Secretary, MoWR. Divergent views emerged the meeting and it was felt appropriate to request Secretary, MoWR to hold another meeting with the Chief Secretaries of the States.

Meanwhile, a writ petition was filed by Orissa in this regard which came up in for hearing on 30.4.2007 before Hon’ble Supreme Court. Supreme Court adjourned the matter for filing Counter Affidavits. During the hearing Additional Solicitor General informed the Court that the same may be adjourned for a longer period and meanwhile Central Government will once again try for negotiated settlement. Therefore, Secretary, MoWR proposed meeting with the Chief Secretaries of two States on 18.5.2007 which was rescheduled to 15.6.2007 and again to 05.07.2007 due to inability expressed by the Chief Secretary Government of Orissa to attend the same. However, the meeting finally could not be held as Chief Secretary, Government of Orissa informed that he was unable to attend the meeting as no useful purpose will be served to hold the meeting till Government of Andhra Pradesh stops construction of the project.

Thus the matter is now subjudice.

Krishna Water Disputes Tribunal

Constitution of the Tribunal

The Krishna Water Disputes Tribunal (KWDT) was constituted on 2nd April, 2004 for adjudication of the dispute relating to sharing of waters of Inter-State River Krishna and river valleys thereof.

Progress in adjudication of the dispute

The KWDT passed orders on June 9, 2006 on the Interim Relief Application filed by the party States of Maharashtra, Karnataka and Andhra Pradesh declining to give interim relief as sought in the application and at the same time indicating certain norm with a view to facilitate adjudication of the dispute before the Tribunal. Subsequently, State of Andhra Pradesh filed Interlocutory Application under Section 5(3) of the ISRWD Act, 1956 seeking further explanation/guidance on the Order of the Tribunal of June 9, 2006 which is pending. The Tribunal in its hearing held in September and October, 2006 has framed 29 issues adjudication of the dispute before it. Further hearings of the Tribunal are continuing on monthly basis.

Party States, have so far filed 75 Interlocutory Applications (IAs) All the 75 IAs filed so far have been disposed of by passing necessary orders and placing the documents/reports/data on record. After hearing all the Party States, orders were pronounced on 27th April, 2007 on three review applications (I.A. No.26/06, 27/06 and 28/06) filed by the State of Andhra Pradesh against the orders passed by the Tribunal in respect of I.A. No. 5/2005, I.A. No. 7 of 2005 and I.A. No. 8 of 2006.

Oral evidence of the Witnesses started during the current year beginning with the State of Karnataka followed by the State of Maharashtra. Evidence of the two witnesses of the State of Karnataka and four witnesses of the State of Maharashtra has so far been recorded. Evidence of the witnesses of the State of Andhra Pradesh is continuing. After conclusion of the evidence on behalf of all the Parties, final arguments on the issues framed earlier would begin clearing any other matter that may arise in between during the course of the proceedings.

Expenditure incurred by the Tribunal

(i)	Expenditure during 2006- 07	Rs. 88.55Lakhs
(ii)	Cumulative Expenditure up to 3/07	Rs. 230.34 Lakhs
(iii)	Budget Allocation for 2007-08	
	BE – 2007-08	Rs. 127.00 Lakhs
	RE - 2007-08	Rs. 118.00 Lakhs

Cauvery Water Disputes Tribunal (CWDT)

Constitution of the Tribunal

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.

Progress in adjudication of the dispute before CWDT

The Cauvery Water Disputes Tribunal has submitted its reports and decision under section 5 (2) of Inter State River Water Dispute Act,1956 to Government on 5th February,2007. Under Section 5(3) of the Inter State River Water Dispute Act, 1956, the Central Government as well as party States have sought further clarification/guidance in this regard.

The Tribunal took up the petitions of the Party States for consideration on 10th July, 2007. In its order the Tribunal inter-alia observed as under :-

"It appears that the State of Karnataka, the State of Tamil Nadu and the State of Kerala filed Special Leave Petitions against the aforesaid decision of this Tribunal dated 5th February, 2007 before the Supreme Court. The Supreme Court has granted Special Leave. The appeals are pending. According to us, in this background, these applications under Section 5(3) of the said Act should be listed for orders after disposal of the appeals by the Supreme Court".

Expenditure incurred by the Tribunal

i)	Expenditure incurred by the Tribunal during 2006-07	Rs. 115.47 Lakhs.
ii)	Cumulative Expenditure up to 3/07	Rs. 1074.17 Lakhs
iii)	Budget Allocation for 2007-08	
	BE 2007-08	Rs. 127.00 Lakhs
	RE 2007-08	Rs. 132.02 Lakhs

Monitoring of the Implementation of Interim Order of CWDT

Under the provisions of Section 6 A of the ISWD Act, 1956, the Central Government has notified a Scheme called Cauvery Water (implementation of the Order of 1991 and all subsequent Related Orders of the Tribunal) Scheme, 1998, consisting of Cauvery River Authority and Monitoring Committee. The Cauvery River Authority consists of the Prime Minister as Chairperson and Chief Ministers of the basin States as members. The Monitoring Committee consists of Secretary, MOWR as Chairperson, Chief Secretaries and Chief Engineers of the basin States as Members and Chairman, Central Water Commission as Member. The Authority is required to give effect to the implementation of the Interim Order dated 25th June 1991 of the Tribunal and its related subsequent orders. During the Water Year 2007-08, starting from June, 2007, as per the Interim Order, an inflow of 196.10 TMC was required at Mettur upto January, 2008. Against this an inflow of 322.80 TMC has been received at Mettur upto January,2008.

Ravi and Beas Waters Tribunal

The Ravi and Beas Tribunal which was constituted on 2nd April, 1986 had submitted its report on 30th January, 1987. The report was circulated in May, 1987. A reference was made to the Tribunal in August, 1987 comprising reference from the Central Government and references received from Governments of Punjab, Haryana and Rajasthan, seeking guidance on certain points in the report.

The period for forwarding of the report by the Tribunal has been extended upto 5th February, 2008. The Tribunal's hearings have become dependent on the outcome of a Presidential reference related to Punjab Termination of Agreement Act, 2004.

CHAPTER 3

INTERNATIONAL CO-OPERATION WITH NEIGHBOURING COUNTRIES

Introduction

The three major river systems of India namely Ganga, Brahmaputra and Indus cross international borders. This Ministry is responsible for strengthening international co-operation on matters relating to these rivers by way of negotiations with neighbouring countries concerning river waters, water resources development projects and operation of international treaties relating to water.

India-Bangladesh Co-operation

Indo-Bangladesh Joint Rivers Commission

An Indo-Bangladesh Joint Rivers Commission (JRC) is functioning since 1972 with a view to maintaining liaison to ensure the most effective joint efforts in maximizing the benefits from common river systems, which is headed by Water Resources Ministers of both the countries. A total of 36 meetings have been held so far. Last meeting was held in September, 2006 followed by field visit. The next meeting is likely to be held at New Delhi shortly.

Treaty on Sharing of Ganga/ Ganges Waters at Farakka

A Treaty was signed by the Prime Ministers of India and Bangladesh on 12th December 1996 for sharing of Ganga/Ganges waters at Farakka during the lean season. As per the Treaty, the Ganges water is being shared at Farakka (which is the last control point on river Ganga in India) during lean period, from 1st January to 31st May every year, on 10-daily basis as per the formula provided in the Treaty. The Treaty is valid for a period of 30 years.

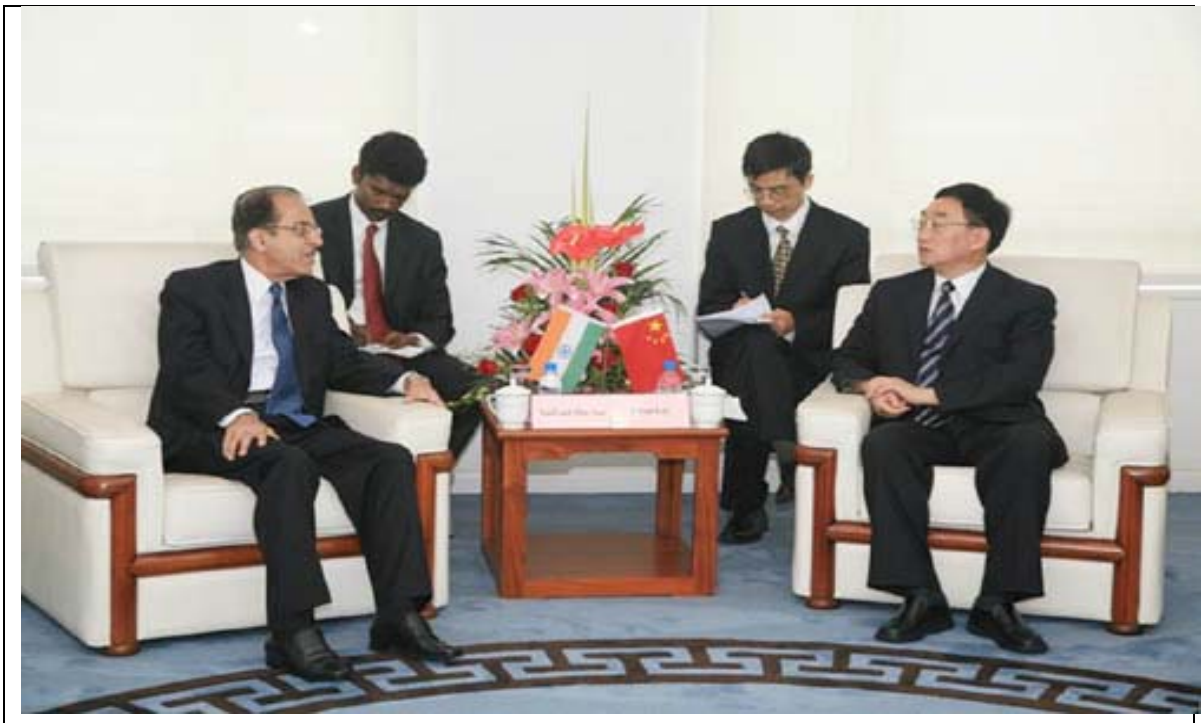
The sharing of water as per the Treaty is monitored by a Joint Committee headed by Members of JRC from both sides. Three meetings of the Joint Committee are held every year. The Treaty is being implemented to the satisfaction of both the countries since 1997. the last meeting was held in September, 2007 at Dhaka in which the Annual Report of 2007 was finalized and approved.

Sharing of Waters of River Teesta

A Secretary level meeting between India and Bangladesh on matters relating to water resources sector was held at New Delhi on 7th and 8th August, 2007. During the meeting both sides agreed ‘in principle’ on various pending issues and decided that these will be put up for consideration in the next JRC meeting for final decision.

Co-operation in Flood Forecasting

India is providing the flood data of Farakka for Ganga (from 15th June to 15th October), and the flood data on Pandu, Goalpara and Dhubri for Brahmaputra river and of Silchar for Barak river during monsoon period (from 15th May to 15th October) to Bangladesh for the use of their flood forecasting and warning arrangements, besides the data of river Teesta, Manu, Gumti, Jaladhaka and Torsa, etc. The transmission of flood forecasting information from India during the monsoon, being supplied free of cost has enabled the civil and military authorities in Bangladesh to take precautionary measures and shift the population affected by flood to safer places. Data on flood during the monsoon, 2007 was communicated to Bangladesh as per the understanding.



The Union Minister for Water Resources, Prof. Saifuddin Soz in a bilateral meeting with his Chinese counterpart Mr. Chen Lei, in Shanghai, China on June 01, 2007.

The Minister for Water Resources of Nepal, Mr. Gyanendra Bahadur Karki meeting with the Union Minister for Water Resources, Prof. Saifuddin Soz, in New Delhi on March 08, 2007. The Minister of State for Water Resources, Sh. Jai Prakash Narayan Yadav is also seen.

India-Bhutan Co-operation

A scheme titled "Comprehensive Scheme for Establishment of Hydro-meteorological and Flood Forecasting Network on Rivers Common to Indiaand Bhutan" is in operation. The network consists of 35 hydro-meteorological/ meteorological stations located in Bhutan and maintained by the Royal Government of Bhutan with funding from India. The data received from these stations is utilized in India by the Central Water Commission for flood forecasts. A Joint Expert Team (JET) consisting of officials from India and Royal Government of Bhutan continuously reviews the progress and other requirements of the scheme. The 23rd meeting of the JET was held in October, 2007 in Bhutan.

India-China Co-operation

In 2002, the Government of India had entered into an MOU with China for provision of hydrological information on Yaluzangbu/Brahmaputra river in flood season by China to India. In accordance with the provisions contained in the MOU, China is providing hydrological information (water level, discharge and rainfall) in respect of three stations, namely Nugesha, Yangcun and Nuxia located on river Yaluzangbu/ Brahmaputra from 1st June to 15th, October every year, which is utilized for flood forecasts by the Central Water Commission.

An agreement regarding the provision of hydrological data of one site on Sutlej (Lanquen Zangbo) was also concluded during the visit of Hon'ble Premier of China in April, 2005 for which an MoU has been signed. Chinese side has provided hydrological information from the monsoon of 2007.

During the visit of Hon'ble President of People's Republic of China to India in November, 2006, it was agreed to set up a expert level mechanism to discuss interaction and co-operation on provision of flood season hydrological data, emergency management and other issues regarding trans-border rivers as agreed between them. The first meeting of Joint Expert Group for Indo-China co-operation on water resources was held at Beijing, China from 19-21 September, 2007. The meeting was useful in understanding each other's position.

India – Nepal Co-operation

A Treaty on integrated development of Mahakali (Sharda) River including Sharda Barrage, Tanakpur Barrage and Pancheshwar Multipurpose Project was signed between Government of India and Government of Nepal in February, 1996, which came into force in June, 1997 (Mahakali Treaty). The Treaty is valid for a period of 75 years.

Pancheshwar Multipurpose Project

Pancheshwar Multipurpose Project is the central piece of Mahakali Treaty. Required field investigations for the Pancheshwar Multipurpose Project having an installed capacity of 5600 MW at Pancheshwar with irrigation and incidental flood control benefits and a re-regulating structure to meet primarily the irrigation requirements downstream in Uttar Pradesh, have been completed. The Detailed Project Report (DPR) is to be finalized after mutually resolving the pending issues. During the 2nd Inter ministerial meeting on Indo-Nepal matters (IMC), it was decided that a project entity namely, "Pancheshwar Development Authority (PDA)" may be set up in accordance with Mahakali Treaty to expedite the finalization of DPR. A shift in Indian approach to resolve the pending issues was also agreed to.

In order to undertake the joint investigations of Sapta Kosi High Dam Multipurpose Project and Sun Kosi Storage cum Diversion Scheme; a Joint Project Office (JPO) was set up in Nepal in August, 2004 to take up field investigations and preparation of Joint DPR. The preparation of joint DPR was originally scheduled to be completed within a period of 30 months but the work could not be completed due to various reasons including the increase in scope of work. A CPIB meeting was held on 3rd September, 2007 under the Chairmanship of Secretary (Expenditure), Ministry of Finance. The Committee recommended for approval of revised cost estimates of Rs. 70.55 crore for the project with a revised time frame for completion of works by September, 2008.

Flood and Erosion Control

In order to prevent spilling of flood waters from Lalbakeya, Bagmati, Khando and Kamla rivers from Nepal side into Bihar, India and Nepal have agreed to extend the embankments along these rivers in Indian territory to Nepal and tie to high ground in Nepal with corresponding strengthening of embankments on Indian side. In this connection, a Standing Committee on Embankment Construction (SCEC) has been constituted which is responsible for planning, design and construction of these embankments. Last meeting (9th) of this Committee was held in September, 2007 in Nepal. In the meeting, it was decided that preparation of DPR for extension of embankment along Lalbakeya river upto Phase II may be taken up and the DPR for Khando river should be prepared as soon as possible. It was also decided that both Indian and Nepalese side would provide information to each other regarding the operation of infrastructure such as gate operations, flood levels, discharge along the Lalbakeya, Bagmati, Kamla and Khando rivers and its tributaries.

Indo-Pakistan Co-operation

Under the Indus Waters Treaty, 1960, India and Pakistan have each created a permanent post of Commissioner for Indus Waters. Each Commissioner is the representative of his Government for all matters arising out of the Treaty and is to serve as the regular channel of communication on all matters relating to implementation of the Treaty. The two Commissioners together form the Permanent Indus Commission.

During 2007- 08, the Commission held its 99th meeting in India in May-June, 2007. Besides, one Secretary level talks on Tulbul Navigation Lock as part of composite dialogue was held in India in August, 2007.

The Neutral Expert, appointed by the World Bank in May, 2005 on Pakistan's request, settled the differences raised by Pakistan on the design of Baglihar HEP (J&K), in February, 2007.

In fulfillment of the requirements of Indus Water Treaty of 1960, the daily data of 280 hydrological sites on six basins, The Indus, The Jhelum, The Chenab, The Ravi, The Beas and The Sutlej of Indus system was sent to Pakistan every month.

Irrigated cropped area statistics for Indus, Jhelum and Chenab basin has been sent to Pakistan for the crop year 2006-07.

Flood warning communications were sent by India to Pakistan for their benefit through telephones and radio broadcasts during the period from 1st July to 10th October, 2007, for Indus system of rivers.

CHAPTER 4

EXTERNAL ASSISTANCE IN WATER RESOURCES SECTOR

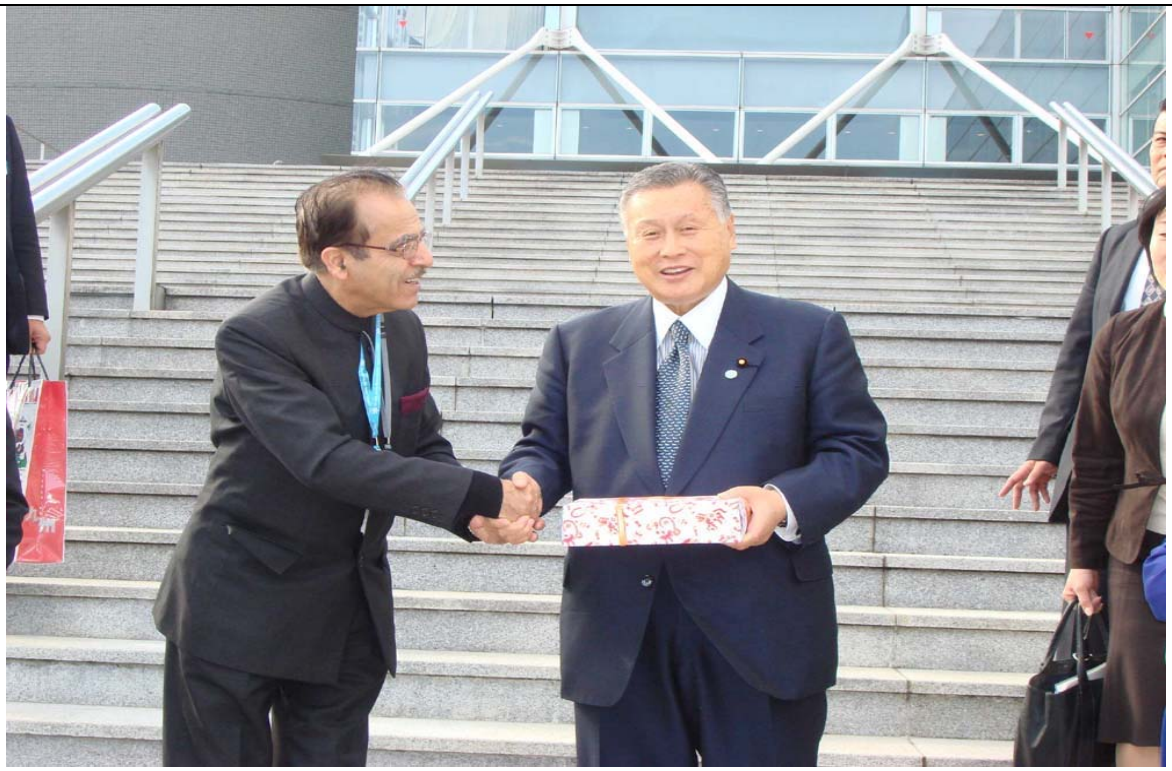
The World Bank continues to be the primary source of external assistance in the water resources sector. Assistance is also being availed from multilateral/bilateral agencies and countries. A brief account of ongoing 13 externally aided projects being implemented in various States with assistance from the World Bank and other bilateral agencies namely - Japan Bank for International Cooperation (JBIC) and Kreditanstalt fur Wiederaufbau (Kfw), Germany is as under:-

EXTERNALLY ASSISTED ON-GOING PROJECTS

A. WORLD BANK *(in Million Donor Currency)*

S.No	State	Name of Projects	Assistance amount
1.	Karnataka	Karnataka Community Based Tank Management Project CR.3635-IN	SDR 80 Revised SDR 63.420
2.	Madhya Pradesh	Madhya Pradesh Water Sector Restructuring Project LN 4750-IN	US$ 394.020
3.	Rajasthan	Rajasthan Water Sector Restructuring Project Cr.3603-IN	SDR100.02
4.	Uttar Pradesh	UP Water Sector Restructuring Project Cr.3602-IN	SDR 90.471
5.	Maharashtra	Maharashtra Water Sector Improvement Project-LN4796-IN	US$ 325
6.	Multi State	Hydrology Phase II Cr.4749-IN	US$ 104.980
7.	Tamil Nadu	Tamil Nadu Irrigated Agriculture Modernization and Water Bodies Restoration and Management Projects Cr. 4846-IN & Cr.4255-IN	US$485/Rs.2085.50Cr.
8.	Andhra Pradesh	Andhra Pradesh Community Based Tank Management Project Cr. 4291-IN & Cr.4857-IN	Rs. 835.00 Cr./ US$ 189
9.	Karnataka	Karnataka Community Based Tank Management Project Cr.3631-1-IN	Rs. 259.00 Cr./ US $ 64
B.	**ASIAN DEVELOPMENT BANK (ADB)**		
10.	Chattisgarh	Chattisgarh Irrigation Development Sector Project (Loan No. 2159-IND)	US$46.108
C.	**BILATERAL ASSISTANCE (JBIC JAPAN – LOAN)**		
11.	Andhra Pradesh	Modernization of Kurnool-Cuddapah Canal	(Tranche-I) Yen 16049 (Tranche-II) Yen 4773
12.	Orissa	Rengali Irrigation Project	(Tranche-I) Yen 844.227 (Tranche-II) Yen 6342
13.	Rajasthan	Rajasthan Minor Irrigation Improvement Project	11555
14.	Andhra Pradesh	Andhra Pradesh irrigation Livelihood Improvement Project	23974
D.	**GERMANY**		
15.	Maharashtra	Minor Irrigation Project	EURO 23.008
16.	Himachal Pradesh	Minor Irrigation & Rural Water Supply Project	EURO 2.659

A Scheme for development of Bihar Flood Management Information System is also being implemented by the Government of Bihar through grant of US$ 0.557 Million under DFID Trust Fund.



The Union Minister for Water Resources, Prof. Saif-ud-din Soz, presenting gift to the former Prime Minister of Japan, Mr. Yoshiro Mori on 4th December, 2007

Japan International Co-operation Agency (JICA)

The "Development of Ground Water in Uttar Pradesh" is under implementation with assistance from JICA. In addition, the "Integrated Water Resources Management for Poverty Eradication and Sustainable Development" in Andhra Pradesh has been recommended to the Japanese side for consideration of JICA.

During the financial year 2007-08, an amount of Rs. 44.270 crores has been received from the external funding agencies and utilized till October, 2007 by the Central/State Governments for implementation of various externally aided projects in water resources sector.

PROJECTS UNDER CONSIDERATION

A. WORLD BANK ASSISTANCE

S.No.	Name of Project	Cost (Rs.in Crores/US $)
1.	Dam Safety Assurance, Rehabilitation and Disaster Management Project Phase-II(Multi-state)	917.00
2.	Andhra Pradesh Water Sector Development Project, Modernization and Rehabilitation of Nagarjuna Sagar Project.	2250.00
3.	Mahanadi Basin Development Plan	3493.10

B. ASIAN DEVELOPMENT BANK

S.No	Name of the Project	Amount of Assistance	Status
1	Orissa Integrated Irrigation Agriculture & Water Management Project	US $ 0.875	Yet to be negotiated. The amount represents
2	Integrated Coastal Zone Management and Related Investment Project	US $ 0.25	Draft Final Report of Consultant's Recommendations expected in 2008
3	Sustainable Coastal Protection and Management Project	US $ 1.00	Work on the process for engagement of consultant for project preparation initiated. The amount represents Project Preparation Technical Assistance (PPTA)
4	Flood Control and Mitigation Project (Assam) & Flood Control and Mitigation Project (Arunachal Pradesh)		Yet to be finalised

CHAPTER 5

RESEARCH AND DEVELOPMENT

Research and Development Programme

The Ministry of Water Resources has three organizations vis; Central Water and Power Research Station (CWPRS), Central Soil and Materials Research Station (CSMRS) and National Institute of Hydrology (NIH) which are fully devoted to research and development in the water sector. CWPRS is the premier national institute for research in the area of hydraulics of water resources structures related to irrigation, hydropower, navigation, coastal works and related instrumentation. CSMRS is involved in research related to construction materials, concrete technology, geophysics, rock mechanics, soil mechanics and rockfill testing technology. NIH is devoted to systematic and scientific studies in all aspects of hydrology with the objective of improving the present practices in planning, design and operation of water resources projects.

Promotion of Research in Water Sector

The Ministry of Water Resources provides financial assistance to promote research work in the field of water resources sector. The assistance is provided by way of grants to academicians / experts in the Universities, IITs, recognised research and development laboratories / institutes, Water Resources / Irrigation Departments of the Central and State Governments in the country and NGOs for carrying out research and studies related to water resources sector. Research proposals of applied nature as well as basic research are considered for financial assistance.

The co-ordination of the programme for providing financial assistance for research and development is done by Research & Development Divisionunder the Policy & Planning Wing of the Ministry. Considering wide range of topics covered under water resources engineering, five Indian National Committees (INCs) namely INCH (Hydraulics), INCOH (Hydrology), INCID (Irrigation & Drainage), INCGE (Geo-Technical Engineering) and INCCMS (Construction Materials & Structures) have been constituted to provide necessary technical and advisory support for the implementation of R&D programme. The Members of these Committees are drawn from various Central and State Government Agencies as well as experts from academic and research organisations.

Indian National Committee on Hydraulic Research

The Indian National Committee on Hydraulic Research (INCH) was constituted in the year 1990, the apex body in hydraulics with the responsibility of co-ordinating various research activities in the field of management of floods, hydraulic structures, river and estuarine hydraulics, river morphology, ground water hydraulics, instrumentation for seismic and geophysical measurements, open channel flow, pipe flow, hydraulic machinery, city water supply and ports and harbours. During the year 2007-08, 21 research schemes were under implementation.

Indian National Committee on Hydrology

The Indian National Committee on Hydrology (INCOH) constituted in the year 1982, the apex body in hydrology, both surface and ground water, with the responsibility of co-ordinating various research activities in the field of meteorology, surface water hydrology, evaporation control, ground water hydrology and management, instrumentation, real time systems, application of GIS and remote sensing. The secretariat of INCOH is located at National Institute of Hydrology, Roorkee.

In pursuance of its objectives, the Committee has brought out 26 state-of-art reports in hydrology in the country. The Committee has also provided financial support for organising seminars, conferences etc. for dissemination of knowledge and promoting education and training in hydrology.

The Committee is participating in the activities of International Hydrological Programme (IHP) of United Nations Educational, Scientific and Cultural Organisation (UNESCO) by organizing regional courses and workshops.

During the year 2007-08 35 research schemes were under implementation, out of which 3 research schemes have been completed. The Research & development session of INCOH was held in September, 2007 at Udaipur.

Indian National Committee on Irrigation and Drainage

The Indian National Committee on Irrigation and Drainage (INCID) was constituted in the year 1990, the apex body in irrigation and drainage with the responsibility of co-ordinating various research activities in the field of irrigation, drainage, agronomy, water management, environmental impact and socio-economic aspect of water resources projects, plasticulture development, geo-textiles. This is working as National Committee for India for the International Commission on Irrigation and Drainage (ICID). INCID contributes to various ICID meetings/ workshops/ conferences and to other international conferences. INCID is also involved in bringing out technical publications in the form of manuals, reports, bulletins, seminar proceedings etc. during the year 2007-08, 38 research schemes were under implementation out of which 5 schemes have been completed. The research and development session of INCID was held in February, 2008 at Hyderabad.

Indian National Committee on Geotechnical Engineering

The Indian National Committee on Geotechnical Engineering (INCGE) was constituted in the year 1991, the apex body in geotechnical engineering with the responsibility of co-ordinating various research activities in the field of rock mechanics and tunneling technology; soil mechanics and foundation engineering; and instrumentation and measurement techniques. Its secretariat is located at CSMRS, New Delhi. During the year 2007-08, 38 research schemes were under implementation under the supervision of INCGE. Out of this 2 schemes has been completed. The research and development session of INCGE was held in February, 2008 at New Delhi. In pursuance of its objectives, the Committee has published 3 state-of-art reports in geotechnical engineering in the country.

Indian National Committee on Construction Materials & Structures

The Indian National Committee on Construction Materials & Structures (INCCMS) was constituted in the year 1992, the apex body in construction materials and structures with the responsibility of co-ordinating various research activities in the field of management of construction materials, concrete technology and structures. Like INCGE, its secretariat is also located in CSMRS, New Delhi. During the year 2007-08, 11 research schemes were under implementation under the supervision of INCCMS, out of which 2 schemes have been completed. The research and development session of INCCMS was held in February, 2008 at New Delhi.

Status of Research and Development Schemes

Since 1992, 275 research schemes have been sanctioned by various academic and research institutions of the Ministry of Water Resources. Out of which 157 schemes have been successfully completed, six schemes foreclosed and 112 schemes are under progress in various academic and

research institutions. About 15 new research proposals are under consideration of the Ministry for funding under the research and development programme.

Study regarding Gaps in Irrigation Potential Created and Utilised

The Ministry of Water Resources has awarded a study to examine the various issues related to the gap between irrigation potential created and utilised and for suggesting measures for reducing the gap in the country to four Indian Institutes of Management (IIMs), namely IIM Ahmedabad, IIM Bangalore, IIM Lucknow and IIM Calcutta. Memorandum of Understanding for the study was signed between the IIMs and the Ministry in August, 2007. The study is scheduled to be completed within a period of 8 months.

New Activities Proposed during XI Plan

With a view to addressing the research problems in proper perspective, the State Government institutions such as engineering/irrigation research institutions, water and land management institutes are being actively involved in (a) efficiency studies for completed major and medium irrigation projects; (b) effect of climate change on water resources and studies in respect of vulnerability assessment and adaptation; (c) reservoir sedimentation studies; (d) post-facto evaluation and management plan for optimal benefit from the resources; and (e) initiation of benchmarking of irrigation projects for performance improvement.

Water Quality Assessment Authority

The Water Quality Assessment Authority (WQAA) was constituted in May, 2001 with the powers and functions to improve the quality of national water resources, has been continued during the XI Plan period (2007–12). The Authority is headed by the Secretary, Ministry of Environment and Forests as the Chairman and the Commissioner (B&B), Ministry of Water Resources as the Member Secretary. The Authority has 12 Members.

The main achievements of the Authority so far are as follows:

- ✓ 9th and 10th meetings of the Water Quality Monitoring Committee (WQMC) were held on 2nd April, 2007 and 10th August, 2007 respectively and follow up action on the decisions taken in the meetings on the water quality issues was taken up.
- ✓ State Level Water Quality Review Committees have been constituted in 34 States/UTs to co-ordinate works assigned to them in respect of water quality such as water quality monitoring network, identification of problem areas etc.
- ✓ The WQAA has decided that while approving water quality related projects, a holistic view about water quality management aspect needs to be adopted and considered for funding.
- ✓ Inter-action among all the States and the concerned central agencies was organized in which the role of water quality review committees in water ‘quality management, identification of problem areas and hot spots, evaluation of existing system of monitoring network and implementation of awareness and graded training were emphasized.
- ✓ The Water Quality Monitoring Committee (WQMC) has been constituted by WQAA for reviewing water quality related matters on a continuous basis with the help of three Standing Groups.
- ✓ A National Level Workshop on Development of Water Quality Management Plan for State level water quality review committees was organized at Lucknow (U.P.) by CPCB under the aegis of WQAA .The guidelines for Water Quality Management Plan were deliberated in the workshop

CHAPTER 6

ORGANISATIONS AND INSTITUTIONS

CENTRAL WATER COMMISSION

Introduction

Central Water Commission at New Delhi is an attached office of the Ministry of Water Resources. It is a premier technical organisation in the country in the field of water resources since 1945. The Commission is entrusted with the general responsibility of initiating, co-ordinating and furthering, in consultation with the State Governments, schemes for control, conservation and utilization of water resources throughout the country for the purpose of flood control, irrigation, drinking water supply and power development.

Organisational Setup

Central Water Commission is headed by a Chairman with the status of an Ex-Officio Secretary to the Government of India. The Commission has three technical wings, namely:

- Designs and Research Wing
- Water Planning and Projects Wing
- River Management Wing

Each wing is headed by a Member with the status of an Ex-Officio Additional Secretary to the Government of India. The activities of the wings are carried out by 18 units at the headquarters, each headed by a Chief Engineer. The National Water Academy, Pune headed by a Chief Engineer is also a part of the Commission. Besides, the Commission also has 13 regional organisations, each headed by a Chief Engineer.

MAJOR ACTIVITIES

Hydrological Observations

Central Water Commission at present operates a national network of about 878 hydrological observation stations covering gauge, discharge, silt and water quality. The basic data collected by field units are processed and validated at sub-divisions, divisions and circle level and authenticated data in the form of Water Year Book, Sediment Year Book and Water Quality Year Book is then transmitted to CWC (HQ) for storage, updating and retrieval. The dissemination of data to bonafide users are processed as per the data request received in regional offices of CWC as well as at Head Quarters by P&D Unit as per norms and guidelines. Under Hydrology Project, five regional data centres have been set up at Nagpur, Bhubaneshwar, Hyderabad, Gandhinagar and Coimbatore for storage of data. At National Surface Data Storage Centre, data of the above regions of CWC is stored and combined catalogue of metadata is hosted on the website.

Water Quality Monitoring

Central Water Commission is monitoring water quality at 371 key locations covering all the major river basins of India. It has a three-tier laboratory system for analysis of the parameters. 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 Divisional Headquarters to analyse 25 types of physico-chemical characteristics and bacteriological parameters of river water. 4 Level-III/II+ laboratories are functioning at Varanasi, Delhi, Hyderabad and Coimbatore where 41 parameters including heavy elements/toxic parameters and pesticides are analysed periodically. The data generated are computerized in the database system and disseminated in the form of hydrological yearbook, status reports and bulletins. Water quality year books are published and water quality bulletins are issued regularly.

The Ministry of Environment and Forests constituted the Water Quality Assessment Authority (WQAA) at national level vide the extraordinary notification in the Gazette of India dated 22nd June 2001 under the provisions of Environment (Protection) Act 1986, for co-ordinated efforts in maintaining the quality of work of national water resources. The notification issued by the Ministry of Environment and Forests while constituting WQAA, envisaged the setting up of State Level Water Quality Review Committee (SLWQRC), a State representative body, comprising members from the Central and State Water Quality Monitoring agencies, selected educational/research institutes and user agencies which have demonstrated interest in water quality monitoring.

Flood Forecasting and Inflow Forecasting

Flood forecasting activities of CWC cover almost all major flood prone inter-State river basins of India. At present there are 147 level forecasting stations on major rivers and 28 inflow forecasting stations on major dam/barrages. It covers 9 major river systems in the country, including 70 river sub-basins pertaining to 15 States. Normally forecasts are issued 12 to 48 hours in advance, depending upon the river terrain, the location of the flood forecasting sites and base stations.

During the flood season (May to October, 2007), 8159 flood forecasts (6477 level forecasts and 1682 inflow forecasts) were issued, out of which 7922 (97.1%) forecasts were within the accuracy limits.

Survey and Investigation

More than 200 irrigation and hydro-electric projects have been investigated by CWC and the Detailed Project Reports (DPR) have been prepared and submitted to the concerned authorities. At present 14 projects (12 in India and 2 in Nepal) are under investigation by CWC.

CWC has also carried out investigations of more than 30 projects in the neighbouring countries in Bhutan, Myanmar and Nepal. Pancheshwar Multi Purpose Project has been investigated by the Joint Project Office – Pancheshwar Investigation (JPO-PI). Joint Project Office for survey and investigation of Sapta Kosi High Dam Multipurpose Project and Sun Kosi Storage-cum-Diversion Dam, has also been opened in Nepal.

Morphological Studies

The study of river morphology and implementation of suitable river training works as appropriate has become imperative for the nation as large areas of the country are affected by floods every year causing severe damage to life and property in spite of existing flood control measures taken both by Central and State Governments. . Problems are aggregating mainly due to large quantity of silt/sediment being carried and deposited in its down stream reaches. The special behaviour of the river needs to be thoroughly investigated for evolving effective strategies to overcome the problems posed by it. Considering the seriousness of the problems, CWC has taken up the morphological studies of 6 flood prone rivers viz. Brahmaputra, Kosi, Gandak, Ghaghra, Sutlej, Ganga in reach from Allahabad to Baxar using remote sensing techniques in addition to field surveys and collection of related data during the Xth Five Year Plan.

Morphological study of rivers deals with aggradation/degradation, shifting of the river course, erosion of banks, etc. and remedial measures against erosion and other related problems. 18 morphological studies of rivers, 8 volumes of morphological atlas of rivers and 17 other monitoring status/sedimentation/ mathematical model reports of rivers have been done by CWC based on data collected by field survey. Among Himalayan rivers, morphological studies of rivers Ghaghra, Sutlej and Gandak using remote sensing techniques are under progress. Among Himalayan rivers, studies of rivers Ghagra, Sutlej and Gandak using remote sensing techniques have been prepared and examination of reports are under progress and have spilled over to the 11th Five Year Plan.

Coastal Erosion

The Indian coastline is 7516.60 km long out of which about 1450 km is affected by sea erosion. Almost all the maritime States/UTs are facing erosion problems of varying magnitudes.

Realizing the need of overall planning and cost effective solution to the coastal problems, the Govt. of India constituted Beach Erosion Board in the year 1966, under the Chairmanship of Chairman CWC. with the objective of ensuring development in the protected coastal zone. The Beach Erosion Board was reconstituted and renamed as Coastal Protection And Development Advisory Committee (CPDAC) by the Ministry of Water Resources, Govt. of India, in April 1995, under the Chairmanship of Member (RM) CWC, with representatives of all coastal States and related central departments. The Beach Erosion Board has held 24 meetings in all. while the CPDAC has held 10 meetings.

Hydrological Studies

Detailed hydrological studies are carried out by the Central Water Commission at various stages of the projects for assessment of quantities of available water and its time distribution, estimation of design flood, sediment rate and its distribution pattern in the reservoir. These details are essentially required to:

(i) Carry out optimum planning for the available water resources;
(ii) Design the structure from safety consideration;
(iii) Estimate the life of reservoir.

Hydrological studies are made in connection with Detailed Project Reports prepared by CWC. 103 projects were dealt by CWC during the year 2007-08 from hydrological point of view, out of which 12 projects were dealt as consultancy work and 91 projects were dealt for hydrological studies/review work.

CWC has come up with an Indian version of regional models for rational estimation of design flood. The country has been divided into 7 zones and further 26 hydro meteorologically homogeneous sub- zones. So far 21 flood estimation reports covering 24 sub-zones have been published. The periodic revision/updating of these reports are carried out whenever additional data is received.
Work for preparation of PMP atlas for Ganga, Brahamputra, Barak, Indus and Krishna Basins has been taken up through consultancy. Development of hydrological design aids is being handled in CWC under World Bank aided Hydrology Project – II.

Design

The Central Water Commission is actively associated with design of mega water resource projects in India and neighbouring countries viz. Nepal, Bhutan and Afghanistan by way of design consultancy / technical appraisal of the projects. Four design units are functioning to cater to specific requirements and to attend to special design related problems of different regions. These units have specialized directorates for hydel civil design, concrete & masonry dam design, embankment design, gates design, barrage and canal design.

At present, CWC is carrying out design consultancy in respect of 110 projects out of which 78 projects, including 18 from north eastern region are at construction stage while the remaining 32 projects (including 11 from north eastern region) are either at investigation or at DPR stage. In addition to above, special studies have been carried out in respect of 5 projects.

Dam Safety

There are 4050 existing large dams in the country. In addition 475 large dams are under construction. About 60% of these dams are more than 20 years old. Appropriate measures for the maintenance of such structures are critical for their safety. Dam Safety Organization of CWC acted as nodal agency in the implementation of the World Bank assisted “Dam Safety Assurance and Rehabilitation Project (DSARP)” in which 4 States i.e. Madhya Pradesh, Rajasthan, Orissa and Tamil Nadu participated. Basic dam safety measures were provided for 182 dams, while 55 dams were taken up for rehabilitation and rectification works. The success of this project led to the framing of a fresh proposal named as “Dam Safety Assurance, Rehabilitation and Disaster Management Project (DSARDMP)” now renamed as “Dam Rehabilitation and

Improvement Project (DRIP)". This project aims to improve the safety and optimum sustainable performance of selected existing dams and associated appurtenances by setting up a Dam Safety and Improvement Fund (DSIF) with the participation of World Bank, Central/State Governments and other institutional funding agencies. The project aims to cover 13 States namely Andhra Pradesh, Bihar, Chattisgarh, Gujarat, Jharkhand, Kerala, Madhya Pradesh, Maharashtra, Orissa, Tamilnadu, Uttar Pradesh, Uttarakhand and West Bengal.

The World Bank has prepared a draft working paper on Dam Rehabilitation and Improvement Fund (DRIF). The 4th meeting of the National Level Steering Committee (NLSC) was held on 20th April, 2007 to discuss various issues related to the project, including funding mechanism. In this regard, consultants have been engaged for conducting these studies for 10 existing projects in Gujarat, Maharashtra, Madhya Pradesh and West Bengal.

18th meeting of "National Committee on Seismic Design Parameters (NCSDP)" was held on 5th July, 2007 in which seismic design parameters for 14 projects were discussed. The committee approved the coefficients and response spectra for 8 projects and accorded conditional approval to 2 projects. With a view to standardise the procedure, the "Draft Guidelines for Site Specific Seismic Study for River Valley Projects" have been prepared.

Environmental Management and Rehabilitation-Resettlement Issues

Central Water Commission is represented in the committees set up at National and State level by the Ministry of Environment & Forests for recommending clearance of river valley and hydro-electric projects. A National Environmental Monitoring Committee for River Valley Projects (NEMCRVP) has been set by the Ministry of Water Resources to monitor implementation of Environment Management Plan and observance of environmental safeguards as per environmental clearance. Member (Water Planning & Projects) is the Chairman of this inter-ministerial multidisciplinary NEMCRVP having representatives of the Ministries of Environment and Forests, Agriculture and Co-operation, Tribal Affairs and Water Resources, besides Planning Commission. Inter-ministerial National Environmental Monitoring Committee for River Valley Projects (NEMCRVP) visited Krishna Koyna Lift Irrigation Scheme and Dudhganga Project (Maharashtra) during 7th to 10th February, 2007 during which its 58th, 59th meetings were held on 10th February, 2007 at Kolhapur.

Project Appraisal

During the year 2007-08, technical examination of 31 irrigation projects were completed. 23 irrigation and 6 flood protection projects were cleared by the Technical Advisory Committee. 114 irrigation schemes (62 Major & Medium) and 47 flood management schemes/master plans are under different stages of appraisal.

Project Monitoring

Central Water Commission monitors the progress of selected ongoing irrigation projects. Each project under general monitoring is visited by the monitoring team at least once a year and detailed monitoring report is prepared and issued to all concerned for necessary action. At present during 2007-08, CWC is carrying out general monitoring of 104 ongoing major, medium and extension, renovation and modernization (ERM) projects.

The major, medium and selected minor surface water irrigation projects receiving Central Loan Assistance under Accelerated Irrigation Benefits Programme (AIBP) are also monitored by CWC. As part of AIBP monitoring, the projects are inspected twice a year and monthly expenditure reports and the Management Information System Reports giving physical and financial status of AIBP projects on quarterly basis are obtained from the project authorities for review. The recommendations of CWC form the basis for release of funds by the Ministry of Water Resources/ Ministry of Finance. CWC is monitoring 126 major and medium projects under AIBP.

Monitoring of Reservoir Level and Live Storage Capacity

During the year, Central Water Commission monitored water storages of 81 important reservoirs of the country having total live storage capacity of 151.77 BCM which constitute about 67% of the total live storage of 225 BCM created in the country. 44 more projects have been identified for inclusion in the monitoring system. Inclusion of 44 reservoirs will raise the number of projects under monitoring to 125 and storage capacity from 151.77BCM to 156.69 BCM i.e. about 69.64 % of the total capacity of 225 BCM created so far.

Application of Remote Sensing Technique in Water Resources Sector

During the 11th Five Year Plan, it has been proposed to take up following projects/ studies.

(1) Satellite remote sensing based reservoir sedimentation assessment studies for 100 reservoirs (out of which 80 studies will be carried out by the out-source agencies and 20 in-house)

(2) Development of water resources information system for the entire country has been taken up along with ISRO/DOS

(3) Completion of spill over reservoir sedimentation assessment studies (15 nos.)

A study with the objective to assess the irrigation potential created up to March, 2005 using high-resolution data by identification and mapping of the irrigation network in two selected AIBP irrigation projects namely Upper Krishna and Teesta Command taken up as per the advice of the Planning Commission have been completed.

Benchmarking of Irrigation Projects

Benchmarking in water industry is in use in developed countries for quite some time. This concept is now being acknowledged as a potent management tool in irrigation sector in India as well. Accordingly, a core group under the Chairmanship of Member (WP&P), CWC for benchmarking of irrigation systems in India set up by MOWR, is playing an active role as a co-ordinator as well as a facilitator by way of providing technical support to the State Governments. National/ regional/ project level workshops are being organized by CWC in various States to facilitate concerned State Governments to take up benchmarking of irrigation projects in their respective States. First national workshop on benchmarking of irrigation projects was organized in February, 2002 at Hyderabad and since then, 7 regional workshops and 4 project level workshops have been organized in various parts of the country.

Irrigation Performance Overview of Completed Irrigation Projects

The Central Water Commission has taken up the performance evaluation studies of completed irrigation projects as a pilot project, covering various aspects such as system performance, socio-economic, agro-economic and environmental aspects.

Performance evaluation studies of irrigation projects were taken up in the country for the first time in early seventies. Performance evaluation studies of 9 major and medium irrigation projects located across the country were taken up during X Plan. Studies of 2 projects are expected to be completed during 2007-08 and the remaining 7 projects during 2008-09.

Hydrographic Survey of Important Reservoirs

Capacity survey of reservoirs is a continuing scheme. A Scheme for covering 15 more reservoirs under capacity survey during X Plan at an estimated cost of Rs. 329.00 lakh was sanctioned by MOWR in February, 2003. Upto the end of X Plan, spill over works of 3 reservoirs from IX Plan (finalization of report) and survey of 4 new reservoirs have been completed in all respects and survey of another 3 reservoirs are in progress.

During XI Plan, a scheme for covering 20 more reservoirs under capacity survey at an estimated cost of Rs. 364.50 lakhs has been prepared for sanction.

Integrated River Basin Planning

The National Water Policy, 2002 recognises the Integrated Water Resources Development and Management in an environmentally sound basis. A case study on "Integrated River Basin Planning & Management of Sabarmati River Basin" (Gujarat portion) using the RIBASIM model was completed. The final report of the study was printed and circulated. A comprehensive system study for Damodar River Basin was carried out. A training course on integrated River Basin Planning & Management was organized by BPMO in CWC at New Delhi which was attended by participants from states and Central Government.

Under HPII a decision support system (Planning) is proposed to be developed for which NIH Roorkee is the Nodal agency and Basin Planning & Management Organisation of CWC is providing necessary technical inputs in this regard.

The National Water Policy also states that for planning, development and management of water resources a river basin/sub-basin should be taken as hydrological unit and multi disciplinary unit should be set up to prepare comprehensive plans taking into account various use of water so that available water can be put on optimum use. The guidelines for preparation of river basin master plan prepared earlier(1990) are under revision.

CWC is providing necessary technical inputs for the development of Decision Support System(planning) for Integrated Water Resources Development and Management under World Bank aided Hydrology project II.

Reservoir Operation

During the year 2007-08, 18th meeting of the Joint Operation Committee (JOC) of the Rihand Dam (UP) was held on 24th Sept., 2007 to finalise the releases for the year 2007-08 from Rihand Reservoir to meet the irrigation requirements of the Indrapuri Barrage (Bihar). The 19th meeting of JOC was held on 28th November, 2007 to revisit the release pattern proposed in the 18th meeting for the year 2007-08 and address the issue of lowering of Minimum Draw Down Level (MDDL) in Rihand Reservoir.

Museum and Library

An engineering museum fully devoted to water resources development in the country has been set up at Delhi. Various aspects of the development in the field of water resources in India are illustrated through self-explanatory working models. Central Water Commission library has an extensive collection of more than 1,04,000 books and journals which are widely referred by water resources engineers/organisations. A new library-cum-auditorium building has been constructed.

National Water Academy and Other Training Activities

National Water Academy at Pune is functioning as a Centre of Excellence for in-service training of Water Resources Engineering Personnel of State Governments, Central Water Commission and other Central organizations. During the year 2007-08, 29 courses were conducted at NWA benefiting 691 officers. So far, the Academy has conducted 252 courses, in which 5923 officers have been trained since its inception in 1988.

In addition, the Training Directorate at Headquarter has organized 10 courses during 2007-08. So far the Training Directorate of CWC has also conducted 416 courses on various topics related to Water Resources Development. About 11,692 officials have undergone training through these courses.

CENTRAL GROUND WATER BOARD

Organisation

The Central Ground Water Board is entrusted with the responsibilities of scientific management studies, exploration, monitoring, assessment, augmentation and regulation of ground water resources of the country. The data generated from various studies provide a scientific base for user agencies for water resource planning. 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 alsoorganizes various training courses for personnel of its own as well as Central/ state government organizations engaged in ground water related activities.

The Central Ground Water Board is headed by the Chairman and has four main wings namely- i) Sustainable Management & Liaison, ii) Survey, Assessment & Monitoring, iii) Exploratory Drilling & Materials Management and iv) Training and Technology Transfer. Each wing is headed by a Member. The Board has 18 Regional offices, each headed by a Regional Director, supported by 17 Engineering Divisions and 11 unit offices for undertaking various field activities.

Achievements

Ground Water Management Studies

Ground Water Management Studies are being carried out to have first hand information on the changes in the ground water scenario with reference to time, due to changes in various input and output parameters and due to human interference. This forms the base for developmental activities and policy making. Special priority is being given forsuch studies in hilly areas, valley fill areas, tribal areas, drought areas, urban areas, over-exploited areas, low ground water development areas, mining areas, industrial areas, naturally contaminated areas, farmers distress areas, coastal areas, canal command areas, water logged areas and areas having problems of water quality due to geogenic sources. A target of 1.64 Lakh sq.km. was assigned in the Annual Action Plan 2007-08. During 2007-08 an area of 1.58 Lakh sq. km was covered during pre-monsoon period and post-monsoon studies have been completed in 1.59 Lakh sq. km .

Ground Water Exploration

Ground Water Exploration is being carried out to study the sub-surface hydrogeological setup and to evaluate various aquifer parameters of different aquifer systems. The entire exercise is aimed at quantitative & qualitative evaluation of ground water in the area. It is being carried out by the Board through a fleet of 87drilling rigs (33 Direct Rotary, 41 Down the Hole and 13 Percussion Combination types) and also through outsourcing. During 2007-08 699 wells have been constructed against a target of 817 wells.

The Exploratory Well at a Village 'Trigam Shadipora' Baramula District (J&K)

Exploratory wells have also been constructed in the arsenic affected areas of Bihar, U.P & West Bengal. Exploration has also been done in fluoride infested area of Madhya Pradesh where fluoride free zones have been delineated.

High yielding wells with discharge ranging from 7200 lph to 234,000 lph have been constructed in the states of Andhra Pradesh, Himachal Pradesh, Jammu & Kashmir, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa and Tamil Nadu. This is expected to help in identifying ground water sources and in guiding the states to take action with regard to ground water development for drinking water supply.

Monitoring of Ground Water Regime

The Board is monitoring the ground water levels in the country four times a year (in the month of January, May, August and November) through a network of 15142 Ground Water Observation Wells. The ground water samples collected during the pre-monsoon monitoring are analysed for the purpose of ascertaining the changes in chemical quality of ground water. Monitoring of ground water observation wells for May, August, November 2007 & January 2008 have been completed and reports describing fluctuation of water levels during each measurement compared to monitoring of previous year, decadal average and pre-monsoon period have been compiled to have detailed information regarding short term and long term changes in the ground water regime.

Geophysical Studies

The Board undertakes geophysical studies as an integral part of its activities to support and supplement ground water management studies, ground water exploration and short-term water supply investigations to demarcate bedrock configuration and thickness of overburden, saline-fresh water interface etc. During 2007-08, 1336 Vertical Electrical Soundings, and geophysical logging of 147 bore holes have been conducted in various parts of the country.

Water Quality Analysis

There are 16 Regional Chemical Laboratories in the Regional offices of the Board. Chemical analysis of water samples collected during various studies are analyzed in these laboratories. All the Laboratories are equipped with Atomic Absorption Spectrophotometer in order to carry out the analysis of toxic elements and heavy metals. Four chemical laboratories are also equipped with Gas Chromatograph (GC) to take up the analysis of organic pollutants (Pesticides etc). Thirteen laboratories are equipped to carry out bacteriological analysis. 17530 samples have been analyzed, out of which 15304 samples were analysed for basic constituents, 1961 samples for heavy metals such as Cu, Zn, Fe, Mn, CO, Cd, Cr, Ni, Pb etc, 103 samples for organic constituents and 162 samples for specific chemical constituents during 2007-08.

Short Term Water Supply Investigations

Central Ground Water Board assists various organizations in the country to solve their immediate water supply problems. It also provide estimation of water supply against the projected demand. It helps defense establishments on priority basis, in the selection of sites for tubewells and solving water supply related problems. Besides, it assist Urban, Railways, industrial establishments and other organizations of the government in locating industrial water supplies. During 2007-08, 178 investigations have been carried out for augmentation of water supply to such establishments.

Technical Scrutiny of Major and Medium Irrigation Schemes / Proposals

As per the directives of the Planning Commission, the Board is scrutinizing the major and medium irrigation project reports/proposals sent by the State Governments / Central Water Commission / Command Area Development & Water Management Wing of the Ministry of Water Resources. During the year 2007-08, 19 major irrigation project proposals of Central Water Commission were examined and area specific recommendations were made.

The Board also scrutinizes Research & Development proposals submitted to the Indian National Committee on Irrigation and Drainage (INCID) for funding from the point of view of its necessity, quality and cost. During the year 2007-08 following 2 R&D proposals were received from INCID and were examined.

i. "Estimation of Irrigation Return Flow in parts of the selected Canal Command areas in Uttarakhand & Haryana"
ii. "Environment impact, Socio-economic aspects and Policy issues for managing water resources in hot arid region".

Scheme on "Artificial Recharge to Ground Water & Rain Water Harvesting" Under Surveys, Exploration & Investigation Scheme Of CGWB

Demonstrative projects on Artificial Recharge to Ground Water and Rain Water Harvesting are proposed to be taken up during XI Plan under central sector scheme of "Ground water Management Regulation" by CGWB, at an estimated cost of Rs.100 crores with 100% funding by the Central Government. Under the scheme, it is proposed to construct structures for artificial recharge and rainwater harvesting through implementing agencies / beneficiaries and panchayats. The scheme will demonstrate the efficacy of artificial recharge and rain water harvesting techniques in identified areas selected on scientific basis in different hydrogeological situations and encourage implementing agencies to replicate successful models in similar set ups.

Central Ground Water Board, in coordination with concerned State Government departments takes up recharge and rain water-harvesting projects in following areas on priority basis:

i. Over-exploited / Critical Blocks
ii. Urban areas showing steep decline in ground water levels
iii. Drought prone & water scarcity area
iv. Coastal areas
v. Sub-mountainous / hilly areas
vi. Area with geo-genic contamination of ground water.

During 2007-08, a total of 21 studies on Artificial Recharge to Ground Water and Rain Water Harvesting were carried out by the Board in areas falling in 13 States.

Basic Hydrogeological Research/Special Studies

During Xth plan it was proposed by CGWB to take up Special Studies/ R&D Studies covering different areas like urban hydrogeology, mapping of water logged areas and feasibility study for anti-water logging measures, conjunctive use studies, sea water ingress , remote sensing studies, mathematical modeling studies, isotopic studies, studies in Arsenic affected areas, etc. Emphasis has been given for evolving new methodologies during the studies for arriving at meaningful conclusions. During Annual Action Plan 2007-08, 22 Special studies were undertaken.

Central Ground Water Authority (CGWA)

Central Ground Water Authority has been constituted by Government of India in January, 1997 with the mandate to regulate and control ground water development and management in the country under Environment (Protection) Act, 1986. Activity wise achievements during 2007-08 are summarized below:

a. Regulation of Ground Water Development

The CGWA has notified 43 Blocks/ Mandals / Talukas etc. in the country for regulation of groundwater development in the states of Haryana, Punjab, Uttar Pradesh, Rajasthan, West Bengal, Gujarat, Andhra Pradesh, Madhya Pradesh, NCT Delhi and Union Territory of Diu. This is in exercise of powers under Section 5 of Environment Protection Act, 1986.

b. Registration of Ground Water Structures

Another 65 Blocks / Mandals / Talukas in the country have been notified for registration of groundwater structures in the states of Haryana, Punjab, Uttar Pradesh, Gujarat, Andhra Pradesh, Karnataka, Kerala, Tami Nadu, Madhya Pradesh, Maharashtra, NCT Delhi and Union Territory of Pondicherry during 2007-08.

c. Regulation of Ground Water Withdrawal by 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 applications of new industries/projects to CGWA for NOC/ permission to withdraw ground water. The proposals received are evaluated on case to case basis, based on site specific recommendations of Central Ground Water Board. During the period 2007-08, 44 industries have been accorded NOC's.

d. Registration of Drilling Agencies

Registration of water well drilling agencies is being undertaken by CGWA to develop micro level data base on ground water development and to control indiscriminate drilling activity in the country. The registration certificates which were issued earlier to drilling agencies expired on 31st March, 2007. The fresh / renewal of registration is presently being done for a period of 5 years and the registration fee which was being charged earlier has been waived. During the period 2007-08, 135 drilling agencies were registered with CGWA including renewal of registration certificates.

e. Mass Awareness and Training programmes

Mass Awareness and Training Programs are being conducted by CGWA as part of the Annual Action Plan. During the period (April to February 2008) 7 Mass Awareness and 8 Water Management Training Programmes have been conducted by the Regional Office of CGWB at Bhubaneswar, Kolkata and Hyderabad. In addition the following activities were also carried out.

i. CGWB, Jaipur organized an exhibition of 5 days in Bharat Nirman Mela at Nimbahera, district Chittorgarh to create awareness among common people. Large number of people from the town and nearby villages visited the exhibition. District Ground Water Brochure (Chittorgarh district) was released during the inaugural function. Jaipur District Ground Water Brochure was also released in the conference hall of CGWB, Jaipur office.

ii. As part of observance of Water Year 2007, a seminar was organized by the Chief Engineer, Siliguri Zone of Military Engineering Service, Siliguri on 13th July 2007. On this occasion, a team of Scientist from Central Ground Water Board, Kolkata delivered technical lectures on various aspects of ground water management and scope of augmentation of ground water through artificial recharge, utilizing surplus rain water.

iii. Working models on rain water harvesting were put on display at Kendriya Vidhyalaya, Pragati Vihar, Lodhi Road for spreading awareness among the students and staff.

f. Technical Designs for Rain Water Harvesting

During 2007-08, CGWA provided technical designs to individuals, RWA's, Infrastructure projects etc, for Rain Water Harvesting to encourage artificial recharge to ground water. Directions have been issued by CGWA in 839 over-exploited and 226 critical blocks across the country to promote rain water harvesting for augmenting the ground water resources through artificial recharge.

g. Appointment of Authorized Officers by CGWA

CGWA in exercise of powers under section 4, of Environment Protection Act, 1986 appointed district level Authorized Officers for the purpose of regulation and control of ground water development and management in areas where regulatory directions are in force. So far 35 District Collectors/ Deputy Commissioners have been appointed as authorized officers during 2007-08.

h. Meeting of CGWA

Important decisions on various issues pertaining to regulation and control of ground water development and management are discussed / deliberated in regular meetings of CGWA. The 23rd meeting of CGWA was held on 28.08.2007.

Rajiv Gandhi National Ground Water Training and Research Institute

Thirteen training courses including one special training course out of proposed 16 training programmes have been conducted successfully during 2007 – 08 under Rajiv Gandhi National Ground Water Training and Research Institute. A total of 230 professionals have been trained during the year 2007-08.

NATIONAL WATER DEVELOPMENT AGENCY

National Water Development Agency (NWDA) was established in July, 1982 as a registered society under the Societies Registration Act, 1860 with head quarter at New Delhi and is fully funded by the Government of India through grants-in-aid.

The main functions of the agency are:

(a) To carry out detailed surveys and investigation of possible reservoir sites and inter-connecting links in order to establish feasibility of the proposal of Peninsular Rivers Development and Himalayan Rivers Development Components forming part of the National Perspective for Water Resources Development prepared by the then Ministry of Irrigation, now the Ministry of Water Resources.

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

(c) To prepare feasibility reports of the various components of the scheme relating to Peninsular and Himalayan Rivers development.

(d) To prepare detailed project reports 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 undertake all such other activities which the Society may consider necessary, incidental, supplementary or conducive to the attainment of the above objectives.

Organisational Setup

The NWDA is headed by the Director General of the rank of Additional Secretary to Government of India. He is the Principal Executive Officer of the Society, responsible for the proper administration of the affairs and funds of the Society assisted by Chief Engineer (HQ) and Directors and is also responsible for co-ordination and general supervision of the activities of the Society. NWDA has 2 field organisations each headed by a Chief Engineer, 5 Circles each headed by a Superintending Engineer, 15 Divisions each headed by an Executive Engineer and 10 Sub-Divisions each headed by an Assistant Executive Engineer/Assistant Engineer.

NWDA has completed water balance studies of 137 basins/sub-basins, water balance studies at 71 diversion points toposheet and 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, identification of 30 links for preparation of feasibility reports, 16 link projects under Peninsular and 14 link projects under Himalayan Rivers Development Components of National Perspective Plan.

MAJOR ACTIVITIES

Inter Basin Water Transfer

The National Water Development Agency has been carrying out studies of National Perspective Plan for water resources development. It comprises of two components, namely;

(a) Peninsular Rivers Development Component and
(b) Himalayan Rivers Development Component.

Peninsular Rivers Development Component

National Water Development Agency has completed collection of data and water balance studies of all 137 basins/sub-basins and 52 identified diversion points (including 3 additional studies), 58 reservoir studies, toposheet studies of 18 links including 1 additional study and all 18 pre-feasibility reports. Based on these studies, NWDA has identified 16 water transfer links under Peninsular Component for surveys and investigations and preparation of feasibility reports(FRs). So far FRs of 14 links in the Peninsular component have been completed and FR of another one link is in progress. Detailed Project Report (DPR) of one link namely Ken- Betwa has also been taken up which is likely to be completed during 2008.

Himalayan Rivers Development Component

The studies in respect of Himalayan Rivers Development Component were started by NWDA during the year 1991-92. The Himalayan Component envisages construction of storage reservoirs on the principal tributaries of the Ganga and the Brahmaputra in India, Nepal and Bhutan, along with interlinking the canal systems to transfer surplus flows of the eastern tributaries of the Ganga to the west, apart from linking of the main Brahmaputra and its tributaries with the Ganga and Ganga with Mahanadi.

NWDA has completed water balance studies at all 19 diversion points, toposheet studies of 16 storage reservoirs and 19 water transfer links and pre-feasibility reports of 14 links. Based on these studies, NWDA has identified 14 water transfer links under Himalayan Component for surveys and investigations and preparation of feasibility reports.So far FRs of 2 links (Indian portion) in the Himalayan Component have been completed and the balance are in progress in Indian portion.

Benefits from Inter Basin Water Transfer Link Schemes

The National Perspective Plan would give additional benefits of 25 mha of irrigation from surface waters, 10 mha by increased use of ground waters, raising the ultimate irrigation potential from 140 mha to 175 mha and generation of 34000 MW of power, apart from the incidental benefits of flood control, navigation, water supply, fisheries development, salinity and pollution control etc. in various States.

National Water Development Agency has identified the States which are to be benefited from the inter-basin water transfer links and assessed the annual irrigation benefits likely to accrue to the concerned States from these link schemes. While the Himalayan Component of the inter-basin water transfer proposal will benefit directly Uttar Pradesh, Uttrakhand, Haryana, Rajasthan, Gujarat, Assam, West Bengal, Bihar, Jharkhand and Orissa and enrich the Peninsular Component from the surplus waters of Brahmaputra, the Peninsular Component will benefit Andhra Pradesh, Orissa, Karnataka, Tamil Nadu, Kerala, Puducherry, Madhya Pradesh, Rajasthan, Maharashtra and Gujarat.

National Common Minimum Programme

The National Common Minimum Programme (NCMP) of the Government envisages that the UPA Govt. will make a comprehensive assessment of the feasibility of linking the rivers of the country starting with the South bound rivers. This assessment will be done in a fully consultative manner. It will also explore the feasibility of linking sub-basins of rivers in States like Bihar. Accordingly, five priority links have been identified in Peninsular component to bring consensus among the concerned states to take up their DPR. Consensus reached in respect of one priority link namely Ken- Betwa as given below. Further the work of preparing PFRs/ FRs have been added as function of NWDA.

Other Initiatives

(a) 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 and Uttar Pradesh on 25th August, 2005 for preparation of Detailed Project Report (DPR) of Ken-Betwa link by the Central Government, the preparation of Detailed

Project Report (DPR) of the Ken-Betwa link project is being done by NWDA. The survey and investigation works for preparation of DPR of this link project have been started by NWDA in January, 2006. The Ministry of Water Resources constituted a Committee headed by Chairman, CWC in February, 2006 to monitor and supervise the overall preparation of DPR of this link project.

A Steering Committee under the Chairmanship of Secretary (WR) has been constituted by MOWR in June, 2006 to review the progress for preparation of DPR works of Ken-Betwa link.

Four meetings of the Monitoring Committee were held (one during 2005-06 and two during 2006-07 and 4th meeting was held on 3rd September, 2007). As decided in the 1st meeting, two Committees, one for hydrological studies under Chief Engineer(HQ), NWDA and the other for socio-economic & environmental studies under Chief Engineer (EMO), CWC have been constituted in May, 2006 to prepare TOR for the respective studies, to recommend suitable agency for award of the studies and to monitor and review the studies of DPR of Ken-Betwa link. The Hydrology Committee has held seven meetings while the Committee on Socio-Economic and Economic Impact Analysis(EIA) studies has held ten meetings. The work of socio-economic & EIA studies have been awarded in April, 2007 after getting approval of TOR for EIA studies from MOE&F.

(b) Consensus Group Headed by Chairman, CWC

The objective of the Consensus Group headed by Chairman, CWC is to discuss and expedite the process of arriving at consensus amongst the States regarding sharing of surplus water in river basins/sub-basins and quantum of surplus water to be transferred from surplus basins to deficit basins/areas as per the proposals of interbasin water transfer of NWDA and helping the States. The Consensus Group held its 8th and 9th meetings on 1st February, 2007 & 28th June, 2007 respectively to sort out the issues involved in the link projects of Par-Tapi-Narmada and Damanganga-Pinjal and Parbati-Kalisindh-Chambal link.

(c) Intra-state links

In the meeting taken by Additional Secretary (WR) on 19th February, 2007, the Government of Bihar informed that PFR of six links submitted by the Govt. of Bihar are being prepared by them and they will take help from NWDA wherever necessary. For firming up the 15 Intra-State links as proposed by the Government of Maharashtra, NWDA is holding discussions with the Government of Maharashtra. The Government of Maharashtra has prioritized 2 intra state links which are under study in NWDA. NWDA has also agreed to take up the study of Damanganga-Sabarmati-Chorwad link proposed by the Government of Gujarat. Vamsadhara-Rushikulya link proposal of the Government of Orissa has been examined and a request made to furnish details of water availability, levels etc. The Government of Jharkhand has proposed for transfer of surplus water from South Koel basin to Kharkai basin, NWDA has advised the Government of Jharkhand to supply details of the proposal for further study during a meeting on 27th July, 2007.

CENTRAL WATER & POWER RESEARCH STATION

Central Water and Power Research Station (CWPRS), established in 1916, is the premier hydraulic research institute offering comprehensive research and development support to a variety of projects dealing with water, energy resources development and water-borne transport; disseminating expertise and research findings amongst hydraulic research fraternity; and aiding and promoting research activities at various institutions besides training of research manpower. CWPRS is recognized as the Regional Laboratory for Economic and Social Committee for Asia and Pacific (ESCAP) since 1971.

For providing solutions to complex problems referred to CWPRS, the methodologies adopted include — investigations using physical and mathematical models, field investigations, desk studies and/ or a combination of these. CWPRS also undertakes allied works such as collection of field data, site investigatios using seismic reflection/ refraction surveys, evaluation of site-specific seismic parameters and testing of civil engineering materials and water samples. Another area of activity is calibration of flow meters/ current meters. CWPRS has made significant strides in the application of remote sensing techniques for providing solutions to river and coastal engineering problems. The requirements of accurate and reliable instrumentation for data acquisition and control systems for physical model studies/ prototype

measurements are met by in-house developments. CWPRS, with an interdisciplinary approach in its activities, thus provides unique services to the country and the ESCAP region.

CWPRS provides specialised services through physical and mathematical model studies in river training and flood control, hydraulic structures, harbours, coastal protection, foundation engineering, construction materials, pumps and turbines, ship hydrodynamics, hydraulic design of bridges, environmental studies, earth sciences and cooling water intakes. The major laboratories of CWPRS are given below:-

- Hydrology and Water Resources Analysis
- River Engineering
- Reservoir and Appurtenant Structures
- Coastal and Offshore Engineering
- Ship Hydrodynamics
- Hydraulic Machinery
- Earth Sciences
- Mathematical Modelling
- Instrumentation and Control Engineering
- Foundations and Structures

Research Activities

CWPRS carries out basic, applied and field-oriented research through the ten major laboratories mentioned above under one umbrella at Khadakwasla, Pune. During the year, seventy technical reports based on applied research studies were submitted to various project authorities. CWPRS undertakes assignments on a *no-loss no-profit* basis. During 2007-08, 125 new studies, pertaining to the three major sectors of water resources, energy and water borne transport, were awarded by various project authorities to the institution.

Some of the important studies carried out by CWPRS during the current year are listed below:-

- Assessing flow pattern in the pond during floods for different gate openings of Farakka Barrage, WB
- Proposed side weir at Katragada on Vamsadhara river, Srikakulam district, AP
- Proposed control structures across river Indravati and Jouranalla, Chattisgarh
- Assessing effect of Akshardham bund on the flow condition in Yamuna at Delhi
- Hydraulic model studies for modified design of the proposed road bridge across river Yamuna 600 m downstream of Wazirabad Barrage, New Delhi
- Revised design of spillway, energy dissipater, irrigation sluice and power intake of Salma dam project, Afghanistan
- Studies for desilting chamber, Chutak HE project, J&K
- Barrage and power intake of Loharinag-Pala project, Uttaranchal
- Desilting basin of Uri HE project, stage II, J&K
- Discharging capacity of Omkareshwar dam spillway, MP, with partial gate operation
- Assessing velocities for log-boom design in the reservoir of Tala HE project, Bhutan
- Tunnel spillway of Parbati HE project stage III, HP
- Modified layout of Parbati dam spillway stage II, HP
- Silt flushing tunnel beyond desilting chamber, Loharinag Pala HE project, Uttarakhand
- Hydraulic model studies for Chamera dam spillway stage III, HP
- Spillway and power intake of Teesta low dam project stage III, WB
- Model studies for scour downstream of Myntdu (Leshka) Dam spillway, Meghalaya
- Additional hydraulic model studies for chute and tunnel spillway of Dhauliganga HE project, Uttaranchal
- Proposed weir across river Damodar for raw water intake at Chandrapura TPS, DVC, Bokaro, Jharkhand

- Spillway plunge pool and diversion channel of Nimoo Bazgo (Alchi) HE project, J&K
- Studies for 2007 construction stage of Sardar Sarovar dam spillway, Gujarat
- Development of Fisheries Harbour at Honnavar, Karnatakad
- Flushing of sediment from Rangpo reservoir, Chuzachen HE project, Sikkim
- River training measures for cut and cover section of silt flushing tunnel, Nathpa Jhakri HE project, HP
- Tidal hydrodynamics and sediment transport studies for development of Dighi port, Maharashtra and Porbandar port, Gujarat
- Estimation of site specific design seismic parameters for Pench diversion project, MP; Teesta HE Project Stage VI, Sikkim; and Kelo dam project, Chhattisgarh
- Assessment of sedimentation in Yeldari, Mula, Surya, Donlevagi, Upper Vaitarana and Girna reservoirs using satellite imageries
- Immediate flood protection measure for river Ambika near Sonwadi and Kaccholi villages, Navsari, Gujarat
- Analysis and design of anti surge device for the rising mains of Nerla (Paghora) lift irrigation scheme, Maharashtra
- Analysis and interpretation of dam instrumentation data for period Jan 2003 - Dec 2006 for non-overflow-block 25, Indira Sagar dam, MP
- Area drainage studies for Koderma Thermal Power Station, Jharkhand for DVC
- Dam break studies for estimation of maximum water level at Kaiga, Karnataka
- Safe grade elevation at Kakrapar site due to dam break of Ukai

Field Studies

- Estimation of site specific seismic ground motion for upper Narmada project, MP and Mankulam HE project, Kerala
- Seismic refraction survey and cross hole seismic studies for Rupsiabagar-Khasiabara HE project, Uttarakhand
- Monitoring of stresses using strain gauges on the penstock bifurcation during hydro test - Varahi HE project stage II, KPCL, Banglore
- Non destructive testing of stilling basin of Sardar Sarovar Project, Gujarat
- Studies for identifying suitable repair material for treatment of leakages, Manikdoh dam, Maharashtra
- Non destructive testing of ozar pick up weir on Pravara river, Ahmednagar irrigation division, Maharashtra
- Geophysical survey for detection of seepage along Nangal Hydel channel, Punjab
- For different agencies, more than 1,000 current/ flow meters were calibrated

Plan Schemes

Following plan schemes were under implementation at CWPRS during the period.

- R&D programme in water sector to be implemented by MoWR – R&D in Apex Organisation; CWPRS component
- Hydrology Project (Phase II)

CENTRAL SOIL AND MATERIALS RESEARCH STATION

The Central Soil and Materials Research Station (CSMRS), an attached office of the Ministry of Water Resources, is a premier institute in the country located at New Delhi which deals with field and laboratory investigations, basic and applied research on problems in geomechanics, concrete technology, construction materials and associated environment issues, having direct bearing on the development of irrigation and power in the country and functions as an adviser and consultant in the above fields to various projects and organizations in India and abroad.

Broadly, the spheres of activities of CSMRS encompass the following disciplines: -

- Soil mechanics and foundation engineering including soil dynamics, geotextiles, soil chemistry and rockfill technology
- Concrete technology, drilling technology for sub-surface characterisation and construction materials
- Rock mechanics including instrumentation, engineering geophysics and numerical modelling
- Concrete chemistry, electronics and information technology

Investigation for Projects

Investigations for as many as 35 river valley projects and other civil engineering structures have been handled successfully. The investigation comprised of field and laboratory investigations for soil, rock, geosynthetics, water and construction, materials. Further more, quality control aspect of ongoing projects, instrumentation, diagnostic investigations etc., formed a part of the works undertaken. Some of such important projects are:

- Saptakosi H.E.Project, Nepal
- Sun Kosi Storage-cum-Diversion Scheme, Nepal
- Bowala Nand Prayag H.E.Project, Uttranchal
- Koteshwar H.E.Project, Uttanchal
- Ken –Betwa Link Canal Project, M.P.
- Uri Hydel Project, J & K
- Myntdu Leshka Project, Meghalaya
- Salma Dam Project, Afghanistan
- Sardar Sarovar Multipurpose Project, Gujarat
- Kotlibhel H.E.Project, Uttranchal
- Tehri Dam Project, Uttrakhand

Ongoing Plan Schemes

CSMRS is implementing plan scheme named "Geotechnical Investigation and Research for River Valley Projects." The following activities under the scheme are on hand:

- Testing concrete cores from various existing dams in order to evaluate the health and to suggest appropriate remedial measures accordingly.
- Installing various instruments such as stress meters, strain meters, deflection measuring instruments, crack meter, pressure cells etc. at project sites.
- Analysis of instruments/test data using latest software.
- Submission of feasibility reports to the project authorities based on indepth investigations.
- Monitoring alkali-silica reaction in concrete in the prototype and determining the residual alkali-aggregate reaction expansion potential of concrete in the laboratory.
- Studies for evaluation of effectiveness of various grout materials.
- Safety and environmental aspects with particular reference to water resources projects.
- Numerical modelling and analysis.
- Implementation of information strategy plan in respect of Information Technology related works in CSMRS
- Establishment of calibration unit at CSMRS.
- Institutional co-operation programme between CSMRS and Norwegian Geotechnical Institute (NGI) in the field of safety evaluation and risk assessment for ageing dams in India.

During the year, under the above plan scheme, major equipments such as data acquisition system, digital multimeter, Fourier Transform Infrared Spectrophotometer, Portable drilling machine and state of art softwares were procured and installed. The equipments were not only used for conducting various types of investigations but also for applied research. The instrumentation data received from few projects was examined and analysed using latest softwares.

Self Sponsored Research Projects

Some of the important areas of research are**:-**

- Effect of fines on liquefaction potential of soils
- Correlation of ultrasonic pulse velocity and strength characteristics of concrete
- Correlation between point load test index and compressive strength
- Effect of settlement and strength properties of soils by addition of Indian jute/coir membranes.
- Effect of pH on physical and engineering properties of soils.
- Development of advanced chemical method for characterisation of aggregate.

The research schemes were in progress during the year. The investigations into correlation between Point Load Strength Index and Uniaxial Compressive Strength of different rock types revealed that such correlation exist for a particular rock type only. No broadbase generalisation for various types of rocks are possible.

Scheme on Correlation between Ultrasonic Pulse Velocity and Strength Characteristics of Concrete on large number of samples received from various projects; led to better understanding of strength characteristic of different types of concrete using non destructive testing method.

Training Programmes

CSMRS has conducted 5 training programmes on the following subjects:

- Application of Rock Engineering in Tunneling Projects (in collaboration with SMEC for officers of Border Road Organization.
- Water Quality and its Management (jointly organized by CSMRS and National Institute of Hydrology)
- Practical training to the officers of WAPCOS from Salma Dam Project, Afghanistan.
- Investigations for Safety of Dams.
- 21st Induction Training course for newly recruited Asstt.Directors of Central Water Commission.

A total of 124 officers from various Central Government, State Government organizations, public sector enterprises, autonomous organizations and private oganizations attended these training programmes.

CSMRS- NGI Institutional Co-operation Programme

CSMRS and NGI, Oslo have once again entered into a collaboration programme in the field of safety evaluation and risk assessment for ageing dams in India. Under the present institutional cooperation programme, with the Norwegian Geotechnical Institute, Oslo, Norway work has been done on stability analysis of earth and rockfill dam.

NATIONAL INSTITUTE OF HYDROLOGY

Introduction

The National Institute of Hydrology, a Society, established in December 1978, is conducting basic, applied and strategic research in the fields of hydrology and water resources development. The Institute is fully aided by the Ministry of Water Resources, Government of India.

Objectives

- To undertake, aid, promote and co-ordinate systematic and scientific work on all aspects of hydrology;
- To co-operate and collaborate with other national and international organisations in the field of hydrology;
- 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;
- 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.

Organisation

The Union Minister of Water Resources is the President of the NIH Society and the Union Minister of State of Water Resources is its Vice-President. The Ministers-in-Charge of Irrigation / Water Resources in the States (ten States to be nominated for every three years by the President of the Society), the Secretaries of the Ministries in the Government of India concerned with water and related areas, and eminent experts in hydrology and water resources are Members of the Society. The Secretary, Ministry of Water Resources, Government of India, is the Chairman of the Governing Body. The Director of the Institute is appointed by the Government of India and is the Principal Executive Officer of the Society.

The Institute has set up six regional centers to deal with the area specific hydrological issues of different regions in the country and for providing effective interaction with the States in the region. These centres are: Hard Rock Regional Centre, Belgaum; Centre for Flood Management Studies for Brahmaputra, Guwahati; Western Himalayan Regional Centre, Jammu; Centre for Flood Management Studies for Ganga, Patna; Deltaic and East Coast Regional Centre, Kakinada; and Ganga Plains (South) Regional Centre, Sagar. The studies and research in the Institute are carried out under five scientific themes 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 themes are: (i) Surface Water Hydrology (ii) Ground Water Hydrology (iii) Environmental Hydrology (iv) Water Resource Systems and (v) Hydrological Investigations.

Major Research Areas

- Hydrology of extremes
- Impact of climate change on water resources
- Groundwater modeling and management
- Sustainable water systems management
- Surface water modelling and regional hydrology
- Environmental hydrology

Studies and Research

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 research

Sponsored Research Activities

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 2007-08, the Institute has completed studies for six sponsored projects that were taken up earlier. In addition, six new projects were taken up during the year. The titles of the completed and ongoing sponsored projects are given below:

1. Assessment of groundwater quality in 24 metropolitan cities in India.
2. Land-use change, watershed service and socio-economic impact in the western ghats region.
3. Estimation of probable maximum flood for Pulichintala Dam, District: Krishna, Andhra Pradesh.
4. Irrigation efficiency study of Saran main canal system.and Upper Morhar Irrigation Scheme.
5. Streamflow modelling of Bhagirathi River: hydrograph separation using isotope and geochemical techniques.
6. Seasonal characterization of ablation, storage and drainage of melt runoff and simulation of streamflow for Gangotri Glacier.
7. Integrated hydrological study for sustainable development of two hilly watersheds in Uttaranchal.
8. Development of non-linear data driven model for flood forecasting for rivers.
9. Hydrological and multi-reservoir simulation studies for Detailed Project Report of Ken-Betwa Link.
10. Study of glacier contribution in the streamflow of Bhagirathi River at Loharinag Pala Power Project (4x150 MW and Dhauliganga River at Tapovan Vishnugad Power Project (4 x 130 MW) site and its influence on long term sustainability
11. Real time flood inundation mapping in Sabarmati Basin.

12. Performance evaluations of anti-erosion work at Arjunpur in Buxor (Bihar) and floodprotection work of Raunahi embankment on the right bank of river Ghaghra (U.P).
13. National programme on isotope fingerprinting of waters.
14. Surface water and groundwater interaction at selected locations along river Yamuna in Delhi.
15. Regional hydro-geological studies around Kasnau-Matasukh Lignite Mines, Nagaur (Rajasthan).

Developed and evaluated the revised standarised precipitation index (SPI) and effective drought index (DVI) for integrated assessment of vulnerability to drought in temporal and spatial domain within the State of Madhya Pradesh, Andhra Pradesh, Maharashtra, Karnataka and Orissa.

Laboratories

The Institute has following well equipped laboratories with state-of-art instruments to provide the necessary support to field studies of nuclear hydrology, remote sensing and GIS, soil water, snow and glacier and water quality.

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 2007-08, the Institute has organized the following activities:

1.	Training Course on Groundwater	Roorkee
2.	Training Workshop on SWDES and HYMOS	Shimla
3.	Workshop on Integrated Water Resources Management (IWRM)	Roorkee
4.	Training Course on Integrated Hydrological Studies of Lakes for Sustainable Human Benefits	Chandigarh
5.	Training Workshop on SWDES and/or HYMOS	Chennai
6.	Training Course on Water Quality Management	Delhi
7.	Prediction of Hydrological Variables for Ungauged Basins	Pune
8.	Workshop on Application of RS and GIS in Water Resources Management	Roorkee
9.	Training workshop on SWDES and/or HYMOS	Trivandrum
10.	Workshop on Project Hydrology	Roorkee

Technical Publications

The research output of the Institute is published in the form of reports and reviewed scientific papers. During the year 2007-08, the Institute has published 56 papers in reputed international and national journals and 60 papers in the proceedings of international and national conferences and symposia. About 48 reports based on studies and researches in hydrology have been prepared during the year. Besides these publications, the scientists of NIH have published 7 chapters in various books.

One Issue of Hydrology Review Journal- Jal Vigyan Sameeksha (JVS) on the topic “Impact of climate change in water resources” was published during the year 2007-2008. Also a State-of-art report on the topic “Flood of August 2006 in Arid Rajasthan: Causes, Magnitude and Strategies by A.S. Faroda and D. C. Joshi” was published during the year 2007-2008. Financial support was provided to nine organizations for organizing seminar/symposium, etc. Input to IHP-VII (2008-2013) were provided on behalf of the MoWR; the IHP- VII implementation plan was finalized by the UNESCO in consultation with the national committees including the INCOH.

BRAHMAPUTRA BOARD

The Brahmaputra Board is a statutory body set up by an Act of Parliament called Brahmaputra Board Act (Act 46 of 1980) under Ministry of Water Resources. The Board functions from Guwahati. The jurisdiction

of the Board covers the entire area of the seven States in the North Eastern Region falling under Brahmaputra and Barak Valley. The limits of Brahmaputra Board were extended to cover the entire area of Sikkim and Northern part of West Bengal falling within Brahmaputra and Barak Basin.

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 due importance to the development and utilization of Water Resources of the Brahmaputra and Barak Valleys for irrigation, hydropower, navigation and other beneficial purposes. Its assignment also includes preparation of detailed Project Report of the dams and other Projects identified in the Master Plan as approved by Central Government and to take up construction & Maintenance of the projects approved by the Central Government.

Since inception, the Brahmaputra Board has been performing its statutory functions like preparation of Master Plans for flood moderation, improvement of drainage congestion along with integrated development of the basin to ensure proper utilization of vast water resources of the North.-Eastern Region. These Master Plans are of immense utility for water user agencies of the region.

Organization

The Board consists of 4 full time Members comprising of the Chairman, Vice-Chairman, General Manager and the Financial Adviser and 17 part time Members representing 7 States of the North Eastern Region, North Eastern Council, concerned Ministries namely Water Resources, Finance, Agriculture, Power, Surface Transport and Organisation of Government of India, namely Central Water Commission, Central Electricity Authority, Indian Meteorological Department and Geological Survey of India.

Activities of Brahmaputra Board

The Master Plan preparation has been taken up in 3 parts.

Part-I : Main Stem of Brahmaputra
Part- II : Barak and its tributaries and
Part-III : Tributaries of the river Brahmaputra & Barak and the rivers in Tripura (52 Nos)
So far, 36 Master Plans out of 54 have already been approved by Govt. of India.

Brahmaputra Board has identified 41 drainage congested areas in Brahmaputra and Barak basin i.e. 29 in Brahmaputra Basin, 8 in Barak Basin and 4 in Tripura.

The North Eastern Hydraulic & Allied Research Institute (NEHARI) was established near Guwahati with facilities of Hydraulic Modeling, Soil Testing, Concrete and Rock Mechanics Laboratory in association with CSMRS and CWPRS. The Board has successfully carried out sample testing as requested by various organizations like NEEPCO, CWC, NEC, NHPC, and State Govt of Assam, Manipur, Meghalaya and Mizoram for their on-going projects.

So far, NEHARI has completed physical model studies of (i) Jiadhal River (ii) River Brahmaputra from Porvita to South Salmara (iii) Majuli Island and (iv) Kameng River.

Schemes under execution by the Board

(A) Pagladiya Dam Project
(B) Harang Drainage Development Scheme
(C) Protection of Majuli Island
(D) Barbhag Drainage Development Scheme
(E) Protection of Kushiabil and Durgajan village at Dimapur (Nagaland)
(F) Avulsion of Brahmaputra at Dhola- Hatighuli

(G) Amjur Drainage Development Scheme
(H) Other 6 Drainage Development Schemes namely:
1) Joysagar Drainage Development Scheme.
2) Kailasahar Drainage Development Scheme.
3) East of Barpeta Drainage Development Scheme.
4) Singla Drainage Development Scheme.
5) Jengrai Drainage Development Scheme:
6) Jakaichuk Drainage Development Scheme.

Critical Flood Control and anti-Erosion

The Govt. of India approved for taking up critical flood control and anti erosion schemes in Brahmaputra and Barak Valley for Rs. 150 crore with the funding pattern of 90% grant and 10% loan under State sector during X plan. In order to incorporate the Immediate Category and Short Term-I Category of measures recommended by the Task Force for Flood Management/ Erosion Control for N.E. States including North Bengal & Sikkim, subsequently this schemes was revised and sanctioned for an amount of Rs. 225.00 crore for X plan.

During the year 2007-08, a comprehensive scheme 'Flood Management Programme' - a State Sector Scheme was approved by the Government of India, and central grant provided to North East States for flood control and anti -erosion measures.

GANGA FLOOD CONTROL COMMISSION

Ganga Flood Control Commission is a subordinate office of the Ministry of Water Resources 'established in 1972 with its headquarters at Patna.

Organisation

The Commission has been assigned the task of preparing comprehensive plans for flood management of the river systems in the Ganga basin, phasing/sequencing of programme of implementation, monitoring, performance evaluation etc. of various flood management schemes, assessment of adequacy of waterways under road and rail bridges and providing technical guidance to the basin states namely West Bengal, Bihar, Jharkhand, Uttar Pradesh, Uttaranchal, Chhattisgarh, Madhya Pradesh, Delhi, Haryana and Rajasthan on flood management. The Commission also accords technical clearance of flood management schemes of the Ganga basin.

The Commission is headed by a Chairman with two full time Members and other supporting officers and staff. The representatives of concerned central ministries and departments as well as the Engineer-in-Chief/Chief Engineers of the basin states are part time members / permanent invitees.

Achievements During the Year 2007-08

Maintenance of Flood protection works of Kosi and Gandak Projects

The Flood Protection works on river Kosi and Gandak is being done based on site inspection after every flood season and on the recommendations of Kosi High Level and Gandak High Level Committees respectively. The reimbursement of expenditure incurred for maintaining the flood protection works executed in Nepal portion is done by Government of India after utilisation certificate of the same based on the recommendations of KHLC/GHLC is received from the respective State Government of Bihar for Kosi and Uttar Pradesh (for Gandak).

Updating of Comprehensive plan for flood management

Comprehensive plans for flood management for all the 23 river systems of the Ganga basin have already been prepared between 1975 and 1990. The updating of the Comprehensive Plans is under way. This is a continuing activity of GFCC. upto March 2006, Comprehensive Plans for 22 river systems have been updated.

Monitoring of important flood management schemes

GFCC is monitoring the following flood management schemes:

- Ghea-Kunti Drainage scheme, West Bengal
- Tamluk basin drainage scheme ,West Bengal

- Urgent Development work in the Sunderbans in West Bengal
- Maniram Domingarh Embankment scheme, U.P.
- In addition, the following centrally sponsored schemes are also being monitored:
- Critical anti-erosion schemes being executed by the states of West Bengal, Bihar, Jharkhand, Uttar Pradesh and Uttaranchal.
- Extension of embankments along Lalbakeya, Kamla, Bagmati and Khando rivers
- Maintenance of flood protection works of Kosi and Gandak Projects.

FARAKKA BARRAGE PROJECT

The principal components of Farakka Barrage Project are :

- A 2245 metre long Barrage across river Ganga with 109 No. bays and Head Regulator of 11 No. bays.
- A 213 metre long Barrage across river Bhagirathi at Jangipur with 15 No. bays.
- 38.38 Km. long Feeder Canal with 1133 cumecs (40,000 cusecs) carrying capacity
- Navigation locks at Farakka, Jangipur and Kalindri, Lock Channels, Shelter Basins, Navigation Lights and other infrastructures.
- Left Afflux Bundh of Farakka Barrage of 33.79 Km. in right bank and 7 Km. in left bank and 16.31 Km. of Afflux Bundh of Jangipur Barrage.
- Two road-cum-rail bridges and two road bridges across the Feeder Canal.
- A number of Regulators at different locations in both Murshidabad and Malda Districts of West Bengal.
- Bhagmari Syphon at RD. 48.00 of Feeder Canal and Jetties shelter basin at RD. 62.532 of Feeder Canal.

Objective Achieved

- The increased upland supplies from Ganga at Farakka into Bhagirathi have improved navigability, reduced salinity in the system and ensured sweet water supply to Kolkata and surrounding areas from Farakka since its commissioning in 1975.
- The road-cum-rail bridges built across river Ganga at Farakka had established direct communication link to the North-Eastern States, Sikkim, Bhutan and Nepal.
- The Hooghly-Bhagirathi, the Feeder Canal and the navigation Lock at Farakka is now a part of the Haldia-Allahabad Inland Waterway (National Waterways No. 1) which has opened a new era of inland Navigation in Eastern India.
- Water supply needs to NTPC, 2,000 MW Thermal Station has been met from Feeder Canal of FBP successfully.

In addition Farakka Barrage Project has been entrusted with responsibility of executing anti erosion works on river Ganga in a stretch of 120 Km. (40 Km. up-stream and 80 Km. down-stream of Farakka Barrage) and on various tributaries of river Ganga in North Bengal. These anti erosion works have been successfully executed by Farakka Barrage Project and as a result of the same, lives and property of millions of inhabitants located along the banks and its tributaries in North Bengal have been saved. As a result of successful implementation of anti erosion works; during XIth Five Year Plan; an amount of Rs. 415.17 crores have been earmarked for taking up additional anti erosion works on river Ganga and its tributaries at various vulnerable locations which have been decided and approved by various Committees constituted by MoWR as under :-

- Farakka Barrage Project Advisory Committee (PAC) under the Chairmanship of Additional Secretary, MoWR, Govt. of India. .
- Technical Advisory Committee (TAC) under the Chairmanship of Member, Design & Research, CWC and Ex. Officio Additional Secretary to Govt. of India.

Farakka Barrage Project has over the years provided uninterrupted water diversion from Ganga into Bhagirathi with interalia improved navigability, reduction in salinity to ensure sweet water to Kolkata and

its surrounding areas and also ensuring smooth navigation in Haldia - Allahabad waterways. The road cum rail bridge constructed downstream of barrage on river Ganga at Farakka has been safeguarded and maintained successfully over the years considering this to be an important communication link between North- East part of India. This project has also been instrumental in attracting the establishment of Super Thermal Power Station by NTPC and setting up of various large industries by the private sector near Farakka due to assured water supply from this project.

NARMADA CONTROL AUTHORITY

In pursuance of the decision of the Narmada Water Disputes Tribunal (NWDT) under Clause-XIV of its final order, the Government of India framed the Narmada Water Scheme, which, inter-alia, constituted the Narmada Control Authority and Review Committee, in 1980 for proper implementation of the decisions and directions of the Tribunal.

The Narmada Control Authority (NCA) has been vested with powers for the implementation of the orders of the Tribunal with respect to the storage, apportionment, regulation and control of the Narmada water, sharing of power benefits from Sardar Sarovar Project (SSP), regulated release of water by Madhya Pradesh, acquisition of land likely to be submerged under the Sardar Sarovar Project by the concerned States, compensation, resettlement/rehabilitation of the oustees, and sharing of costs and implementation of the environmental safeguard measures.

Organisation

The Authority is headed by the Secretary, Ministry of Water Resources, Government of India, as its Chairman, with Secretaries of the Union Ministries of Power, Environment and Forests, Social Justice & Empowerment, and Tribal Welfare, Chief Secretaries of the four party States, one Executive Member and three full time Members appointed by the Central Government, and four part time Members nominated by the party States, as Members.

The Review Committee for Narmada Control Authority (RCNCA), headed by the Union Minister of Water Resources comprises of the Union Minister for Environment and Forests and Chief Ministers of four party States viz. Madhya Pradesh, Rajasthan, Maharashtra and Gujarat as Members, who can suo-moto or on the application of any party State or Secretary to the Government of India, Ministry of Environment & Forests, review any decision of the Authority. The expenditure of NCA is borne by the party States.

Meetings of Narmada Control Authority

The Narmada Control Authority held two meetings on 1st May and 16th November, 2007 during the period under report till December, 2007 in which issues relating to resettlement and rehabilitation, environment, administrative matters and other project related matters were discussed.

Monitoring of Projects

The NCA has been monitoring the progress of construction works of the Indira Sagar Project and Unit-II (Canals) of Sardar Sarovar Project and bringing out half yearly status reports for the period ending September and March of each year. The works of dam (Unit-I) and power house (Unit-III) of Indira Sagar Project have been completed, hence it was decided by the NCA to discontinue monitoring of ISP and bringing out biannual status report of Indira Sagar Project after September, 2006. The bi-annual status report of NMC of Sardar Sarovar Project in Gujarat and Rajasthan for the period ending March, 2007 was brought out by the NCA.

Progress of works of Narmada Projects monitored by NCA:-

(i) Indira Sagar Project

Although the works of Dam of Indira Sagar Project was completed upto its full height but the filling of reservoir was permitted by the Hon'ble High Court of M.P., Jabalpur bench only upto EL. 260.0 m. against FRL EL. 262.13 m. The Indira Sagar Canal construction works are in progress, Ist phase from 0 Km. to 70 Km. out of total length of 248.65 Km. main canal works alongwith corresponding distribution network is in advanced stage of completion to create irrigation potential of 36,100 ha. by March, 2008.

(ii) Narmada Main Canal of Sardar Sarovar Project

The works of Narmada Main Canal (Unit-II) of Sardar Sarovar Project in Gujarat has been completed up to 357.196 Km. out of a total length of 458.318 Km. The work of balance NMC reach Km. 357.196 to Km. 458.318 in Gujarat is in progress, Government of Gujarat had earlier planned, as an interim arrangement, to deliver about 500 cusecs of Narmada water to Rajasthan by the end of May, 2007, which has now been deferred to March, 2008. The work of entire length of 74 Km. of Narmada canal in Rajasthan has been completed and the balance work of distributaries is in progress.

Environmental Monitoring Activities

NCA monitors various surveys, studies and implementation of environmental safeguard measures in respect of Sardar Sarovar Project and Indira Sagar Project as per terms of Narmada Water Scheme and various clearances issued to the project by the Central Government including clearance from environmental angle issued by the Ministry of Environment and Forests . Accordingly, the following activities are monitored by NCA:

1. Phased catchment area treatment
2. Compensatory aforestation
3. Command area development
4. Flora, fauna and carrying capacity of surrounding area
5. Seismicity
6. Health aspects
7. Archaeological and anthropological aspects

Resettlement and Rehabilitation Activities

(A) Sardar Sarovar Project (SSP)

The R&R progress is being monitored effectively by the monitoring machinery, i.e., Resettlement and Rehabilitation (R&R) sub-group of the Narmada Control Authority chaired by the Secretary to the Government of India, Ministry of Social Justice and Empowerment and also by a Task Force constituted by the NCA in its 72nd meeting. In addition, Chairperson of R&R sub-group and NCA's officials undertake field visits as and when required to the submergence villages and R&R sites. The Table given below indicates overall cumulative progress of R&R of project affected families (PAF), up to September, 2007:-

Progress of Resettlement and Rehabilitation (R&R)

STATE	Total Project Affected Families (PAFs)	Total PAFs resettled	Balance Families to be resettled
1	2	3	4
GUJARAT	4737+	4726	11
MAHARASHTRA			
(a) In Gujarat	880*	806	74
In Maharashtra	3283*	3009	274
Total (i)	4163	3815	348++
MADHYA PRADESH			
(a) In Gujarat	13792*	5685	8107$$
(b) In Madhya Pradesh	25577*	18965	6612$$
	Total (ii)	39369	24650 14719
Total (i+ii)	48269	33191	15078

\+ *In Gujarat 2 newly declared PAFs have been included.*
++ *Tentative.*
$$ *The figures are tentative & allocation of PAFs for R&R in Gujarat is yet to be ascertained.*
* *This number may change after taking option of PAFs for R&R & declaration of genuine PAFs by GRA/State Government.*
The figures are based on the progress report submitted by GOMP & GOM in the 70th R&R Sub-group meeting held on 20.09.2007.
Note: *Gujarat, the name of 315 PAFs from MP resettled ex-party have been cancelled & 2 PAF from Maharashtra have changed their option.*

Canal Bank Plantation in Sardar Sarovar Project command

(B) Indira Sagar Project (ISP)

In compliance to the decision taken by the R&R sub-group of NCA in its 67th, 68th and 70th meetings, the NCA Secretariat pursued Narmada Hydro-electric Development Corporation (NHDC) for furnishing information related to 250 villages involving declared 40026 PAFs upto FRL and also details about the additional PAFs related to Tapu Land, error in survey at FRL, and backwater of FRL. Out of 250 villages/towns, the NHDC has furnished information related to 149 villages and one Town and the information related to 42 R&R sites developed so far includes 34 R&R sites developed by NHDC/Government of Madhya Pradesh and 8 R&R sites developed by PAFs themselves.

Energy Management Centre (EMC) OF NCA

Energy Management Centre (EMC) is co-ordinating activities of power generation of Sardar Sarovar Power (SSP) complex (6x200 + 50x50 MW) in consultation with Western Regional PowerCommittee (WRPC), Western Regional Load Despatch Centre (WRPLDC), Central Electricity Authority (CEA) and beneficiary States and concerned State Electricity Boards for power generation planning, daily scheduling, monitoring of generation, transmission and energy accounting etc. During the year 2007-08 (April, to October, 2007), the total energy generation of SSP complex was 3253.44 MU which was shared among the party States in the ratio prescribed under the provisions of NWDT Award.

Progress of Canal Head Power House (CHPH)

All the five units of CHPH are already commissioned. The total energy generation from CHPH during 2007-08 (April to October, 2007) was 168 MU.

Progress of River Bed Power House (RBPH)

All the six units of RBPH have already been commissioned. Most of the civil, electrical and mechanical works have been completed. The workof installation of computerized control system (CCS) is under progress. All the tests including testing of units in synchronous condenser operation mode were undertaken by SSNNL under the supervision of the representative of manufacturers of generating units. The total energy generation from RBPH during 2007-08 (April to October. 2007) was about 3085 MU.

SARDAR SAROVAR CONSTRUCTION ADVISORY COMMITTEE

Composition and Functions

The Sardar Sarovar Construction Advisory Committee (SSCAC) was constituted in 1980 by the Government of India in accordance with the directives of the Narmada Water Disputes Tribunal (NWDT) with a view to ensure efficient, economical and early execution of Unit-I (Dam and Appurtenant works) and Unit-III (Hydro Power works) of the Sardar Sarovar Project. The Secretary, Government of India, Ministry of Water Resources, is the Chairman of the Committee. The Officers of the Departments like Irrigation, Power, Finance and Revenue etc. concerned with the construction of the project, of the four party States viz. Gujarat, Maharashtra, Rajasthan and Madhya Pradesh along with their counterparts from Government of India and the Narmada Control Authority, are Members of the Committee. The Committee has a full time Secretary of the rank of the Chief Engineer belonging to the Central Water (Engineering) Service. The Secretariat of the Committee is located at Vadodara.

Sardar Sarovar Construction Advisory Committee (SSCAC) Meeting

The 75th meeting of the SSCAC was held on 16th November, 2007, wherein important decisions were taken on matters relating to the following issues:

- Insurance coverage for Sardar Sarovar Power Project (SSP).
- Maximization of power generation through CHPH.
- Payments of share cost of Sardar Sarovar Project by the party States.
- Extension of time limit for construction of Vadgam Saddle Dam/Canal Head Power House (Civil Works) and appurtenant works for SSP.
- Annual development plan (2007-2008) of Unit-I (Dam and Appurtenant) works and Unit-III (Hydro Power) works of SSP.
- Extension of time limit and revision of rates for construction of Tail Race Channel (TRC) for underground River Bed Power House of SSP as recommended by PSC.

Permanent Standing Committee (PSC) Meetings

The Sardar Sarovar Construction Advisory Committee has a sub committee named the Permanent Standing Committee (PSC), with the Executive Member, Narmada Control Authority as the Chairman, and representatives from the Ministry of Water Resources, Central Water Commission, Central Electricity Authority and all the four party States as Members. The Secretary, SSCAC is the Member Secretary of the PSC. The 93rd and 94th meetings of the PSC of SSCAC were held on 6th July, 2007 and 14th November. 2007 respectively at New Delhi.

Progress of Main Dam Works

Regarding progress of work, permission for raising the spillway blocks to EL 100 m was given by the NCA in its 66th emergency meeting held on 14th May, 2003 along with permission to construct 3.0m high hump on blocks no. 31 to 45, leaving the blocks 30 and 46 as such. This work was completed by the end of June, 2003. Subsequently, the NCA in its 70th meeting held on 13th March, 2004 granted permission for raising the blocks no.30 to 46 to EL 110.64 m level. Besides these blocks, the blocks numbering 29,47,48,49 and 50 – which were at EL 105 m level were also required to be raised to the EL 110.64 m level for achieving the effective dam height of 110.64 m. The work with the total quantum of 164699 m^3 of concreting commenced on 17th March, 2004 and was completed on 30th June, 2004. In the 76th emergency meeting of NCAheld 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 height of the spillway of Sardar Sarovar Dam to EL 121.92 m level. The work of raising these blocks was completed on 31st December, 2006.

The status of overall progress of main Dam works achieved upto November, 2007 is given below.

Particulars	Revised Est. Qty.	Progress up to November, 2007	% work completed
Excavation (Lakh Cu.m)	64.00	63.59	99.36%
Concreting (Lakh Cu.m)	68.20	65.76	96.43%
Drilling & Grouting (Th. running metre)	282	250.45	88.81%

Progress of Canal Head Power House (CHPH)

The civil and electrical works of Canal Head Power House were completed in all respects in January, 1998; however, power could only be generated after the dam had attained the height of EL 110.64 m (Minimum Draw Down Level). all the five Units of CHPH(1x50 MW) have been commissioned successfully.

Progress of River Bed Power House (RBPH)

The work of the River Bed Power House was held up due to development of stress zone in the powerhouse cavern and non-receipt of embedded parts for the Turbine Generator (TG) Sets owing to some contractual problems. The issue of supply of T.G. Sets was resolved with the signing up of a fresh agreement with M/s. Sumitomo Corporation of Japan.

All the civil and electrical works of RBPH are complete and the 1st to 6th Units of RBPH have been commissioned. Total 3404.77 million units energy was generated from the both powerhouses during the year 2007-08 up to November, 2007.

Progress of Irrigation Bye-Pass Tunnel (IBPT)

The Irrigation Bye-Pass Tunnels (IBPT) arrangement comprises of two circular tunnels of 5.5 m finished diameter across the right bank hill connecting the main reservoir with the first irrigation pond. The twin IBPTs, with invert level of EL 88.39 m at the inlet, will have a discharge capacity of about 283.12 cumecs (10,000 cusecs) at reservoir level of 97.53 m and 424.81 cumecs (15,000 cusecs) at reservoir level of 110.64m.

The work of IBPT is almost completed except installation of service gates and hydraulic hoist. Excavation, rock covering concreting, installation of steel liner, concreting around steel liner and service gate hoist chamber etc are completed.

BANSAGAR CONTROL BOARD

Organisation and Composition

The Bansagar Control Board was set up by the Government of India through a resolution in January, 1976. The resolution was amended in 1990. The resolution was in accordance with an agreement reached between the Governments of Madhya Pradesh Uttar Pradesh and Bihar on the 16th September,1973 for sharing the waters of River Sone and the cost of the Bansagar Dam. The main features of the resolution are as below:

“In consultation with the Governments of Madhya Pradesh, Bihar and Uttar Pradesh, it has been decided to set up the Bansagar Control Board with a view to ensuring the efficient, economical and early execution of Bansagar Dam including all connected works in Madhya Pradesh, but excluding the canal systems which

will be executed by respective States namely, Madhya Pradesh, Uttar Pradesh and Bihar. The Bansagar Control Board will be in overall charge of the project including its technical and financial aspects."

The Union Minister of Water Resources is the Chairman of the Board and the Minister of State for Water Resources, Union Minister of Power, Chief Ministers, Ministers-in-charge of Irrigation and Finance of the three States and Minister-in-charge of Electricity Department of Madhya Pradesh are its Members.

Bansagar Dam Project

Bansagar Dam on Sone River, a joint venture of the States of Madhya Pradesh, Uttar Pradesh and Bihar is being executed by the Water Resources Department, Government of Madhya Pradesh under the directions of the Bansagar Control Board. The States are carrying out the execution of the canals and power systems independently.

The benefits and cost of the dam, including land acquisition and rehabilitation, are shared by Madhya Pradesh, Uttar Pradesh and Bihar in the ratio of 2:1:1.

Components of Bansagar Dam

The Bansagar Dam envisages construction of-:-

i) 67.5 m high masonry dam including rock fill flanks across the Sone river just downstream of the gorge at Kusumah (Deolond). Length of Masonry dam, left rock fill dam and right rock fill dam are 670.00 m, 161.00m and 185.00 m respectively.
ii) Six low earth dykes, four on the left bank of Sone River and two on its right bank with a total length of 6.95 km.
iii) Kuteshwar limestone deposits protection works.

Benefits from the Project

Irrigation Benefits		
(i)	Annual irrigation in M.P. (in the districts of Rewa, Sidhi, Satna and Shahdol).	2.49 lakh hectare
(ii)	Annual irrigation in U.P. (in the districts of Mirjapur and Allahabad)	1.5 lakh hectare
(iii)	Annual irrigation in Bihar	0.94 lakh hectare towards stabilizing irrigation through old Sone canal system

Power Benefits		
(i)	Power generation in Madhya Pradesh	425 MW

Progress of Works

The left and right rock fill dam have been completed up to top level i.e. R.L. 347 M. All masonry non-overt1ow blocks and both the key block on either side have been completed upto top elevation at R.L. 317 M. spillway blocks have been raised upto crest level (R.L. 326.4 M) and spillway piers & bridge have been completed. Fabrication and erection of 18 Nos. radial crest gates and stop-log gates have also been fully completed. All construction sluices have been - plugged and. gates lowered. Works on installation of Irrigation sluice gates have been fully completed. Work on all the six saddles has also been fully completed.

Works on some of the residual works of the dam viz. improvement to the approach roads to thedam, construction of high level bridge on Chottee Mahanadi river in the submergence area, etc. are in progress, which are likely to be completed by June, 2008.

BETWA RIVER BOARD

Organisation and its Composition

A decision to harness the available water resources of Betwa River was taken in a meeting held on 22nd July, 1972 between the Chief Ministers of Uttar Pradesh and Madhya Pradesh. Further Uttar Pradesh and Madhya Pradesh in a meeting held on 9th December, 1973 agreed for setting up of a tripartite control board for the speedy, smooth and efficient execution of the various inter-state projects of both the States. Betwa River Board (B.R.B.) was constituted in 1976 by an Act of Parliament to execute the Rajghat Dam Project and Power House. The project authority started construction of the project under the overall guidance of Betwa River Board after promulgation of Betwa River Board Act, 1976. The benefits and cost of the above projects are being shared equally by both the State Governments.

The Union Minister of Water Resources is the Chairman of the Board. Union Minister of Power, Union Minister of State for Water Resources, Chief Ministers and Ministers-in-charge of Finance, Irrigation and Power of the two States are its Members. An Executive Committee of the Board headed by Chairman, Central Water Commission manages the activities of the Board.

Rajghat Dam Project

The Rajghat Dam with appurtenant structures has been constructed across river Betwa to provide irrigation facilities to 1.38 1akh ha. in Uttar Pradesh and 1.21 lakh ha in Madhya Pradesh with power generation of 45 MW through Rajghat Hydro Electric Project at the toe of dam on left flank. The costs as well as benefits of the project are to be shared equally by both the States. Construction work of dam and power house is almost complete.The project is under O & M stage from October, 2005.

Land Acquisition

The dam submerges 38 villages in U.P and 31 villages in M.P . Compensation to affected villages in M.P is almost complete. In U.P. the District Administration of Lalitpur has paid the land compensation of 25 villages and for balance 13 villages, the land properties are being acquired through mutual negotiation by the Betwa River Board. The filling of reservoir up to FRL of RL 371.00 meter may not be possible till the acquisition of land and property of balance 13 submerged villages is completed.

Planning and Present Status of Rajghat Power House Work

The estimate of Rajghat Hydro Electric Project at 1997 price level was Rs. 131.26 crores which included Rs. 58.41 crores for the civil works. The revised cost of the civil works of Power House is Rs. 66.89 crores at December, 1999 price level and same has been furnished by BRB to MPEB. MPEB have contributed Rs 59.51 crores. The total expenditure incurred in civil works of Rajghat Power House till June, 2007 is Rs. 63.5 crores.

The three units of Power House have been tested and commissioned during 1999-2000. The power generation was 931, 1328, 1335 and 305 lakh units during the year 2004-05, 2005-06, 2006-07 and 2007-08 respectively up to October, 2007.

Utilization of present storage

The Phase-l of the construction of Dam up to spillway crest level was completed in 1992 and since then the reservoir storage is being utilized downstream in Betwa Canal System (U.P.) and Bhander Canal System (U.P. and M.P.). The impounding of water above crest level has started since 1999-2000. The reservoir (FRL 371.00m) filled up during the last five years is given below:

SI. No.	Year	Filling level
1.	2003-2004	370.00 m
2.	2004-2005	370.00 m
3.	2005-2006	369.85 m
4.	2006-2007	370.20 m
5.	2007-2008	366.75 m

Financial Position of BRB

The financial position of Rajghat Dam and Rajghat Power House Project is given below:-

Rajghat Dam

Sl.No.	Item	U.P.	M.P.	Total
1.	Apportioned cost as per revised cost estimate	150.300	150.300	300.600
2.	Contribution received upto 10.9.06	150.300	150.300	300.600
3.	Gross expenditure as on 30.6.07	-	-	310.80
4.	Balance available with BRB as on 30.6.07			9.79

Rajghat Power House

Item	Civil works by BRB	E/M works by MPEB
Revised cost estimate of work component	66.89	72.85
Contribution received up to 30.6.07	59.51	Expenditure has been made by MPSEB directly
Balance to be contributed	7.38	
Net expenditure incurred upto 30.6.07	63.21	
Balance available with BRB as on 30.6.07	(-) 3.70	

TUNGABHADRA BOARD

The Tungabhadra Board was constituted by the the President of India in exercise of the powers vested under sub section (4), section 66 of the 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.

Organization

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 the 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 Government, and is reviewed fromtime to time during the water year. The regulation of water is carried out in accordance with the agreed working table.

Status of Activities

Irrigation

The Tungabhadra Reservoir is filled up to the full reservoir level this year. The inflow into the reservoir from June to October, 2007 was 13,154.031 million cumec (mcum) (464.531 thousand million cubic feet (TMCft.).

The utilization of water by the States of Karnataka and Andhra Pradesh till the end of October, 2007 was 1187.437 mcum (41.934 TMCft) and 600.996 mcum (21.224 TMCft) respectively as against the likely abstraction of 4,314.280 mcum (151.000 TMCft) for the water year 2007-2008. Evaporation losses from June to October 2007 were 136.855 mcum (4.833 TMCft) to be shared by Karnataka and Andhra Pradesh in the ratio of 12.5 :5.5. A total quantity of 8,295.237 mcum (292.944 TMCft) of water has out flowed over spillway including extra power generation.

Hydro Power

Two power houses are maintained by the Tungabhadra Board, with a total installed capacity of 72 MW, and a target of 146 million units of power generation is envisaged during the water year 2007-2008. The power generated is shared between the States of Karnataka and Andhra Pradesh in the ratio of 20:80.

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 27th October, 2004. The mini hydel plant comprises of 3 units of 2.75 MW each. The power generated is purchased by the Transmission Corporations of Karnataka and Andhra Pradesh in the agreed ratio of 20:80.

Fisheries Development

The Tungabhadra Reservoir has a water spread area of 378 sqkm 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 fishing rights of the reservoir have been auctioned for the year 2007-08 to a local Fishermen's Co-operative Society for Rs.45,00,120. In order to facilitate preservation of fish catch, the Board is running an ice-cum-cold storage plant. Quality fishnets are also manufactured in the fish net making plant run by the Board.

Board Meeting

During the year, the Tungabhadra Board held three meetings till the end of October, 2007.

UPPER YAMUNA RIVER BOARD

"Upper Yamuna" refers to the reach of Yamuna from its origin at Yamunotri to Okhla Barrage at Delhi. An MoU was signed on 12th May, 1994 amongst the basin States of Himachal Pradesh, Uttar Pradesh, Haryana, Rajasthan and Delhi, for sharing the utilisable surface flows of river Yamuna up to Okhla. The MoU also provided for creation of a "Upper Yamuna River Board" to implement the said agreement.

Accordingly, the Central Government constituted the Upper Yamuna River Board in 1995 as a subordinate office under the Ministry of Water Resources. After creation of Uttaranchal State in 2000, the resolution was modified to include Uttaranchal also in the Board.

The resolution also provides for constitution of a Review Committee, to be known as the Upper Yamuna Review Committee (UYRC), comprising the Chief Ministers (Governor in case of President's rule) of the co-basin States as Members and Union Minister/Minister of State for Water Resources as Chairman, to supervise the working of the Upper Yamuna River Board (UYRB).

Functions of UYRB

The functions of the Board include all aspects of water management in the Upper Yamuna basin, viz. implementation of the water sharing agreement; water allocation; water accounting and data warehousing; monitoring and upgrading the quality of surface and ground water; controlling the ground water extraction; co-ordination of the construction of all projects in the basin, integrated operation of all the projects, watershed development and catchment area treatment plans.

Activities of UYRB

The Board has been making tentative seasonal distribution of water to basin States at various distribution points. The Board has also been engaged in resolving the Inter-State issues amongst the basin States related to water distribution and issues related to benefits and cost sharing from the proposed storage projects in Yamuna Basin. The Board has held 32 meetings so far. The last meeting was held on 3rd September, 2007.

Pursuant to decisions taken in the 3rd UYRC meeting held on 12th April, 2006, a Steering Committee had been constituted to expedite construction of Kishau, Renuka & Lakhwar Vyasi storage projects in Upper Yamuna basin. This Committee held its 2nd meeting on 5th September, 2007, during which the States were urged to agree to implementation of pending resolution of cost and benefits. However, the States desired the resolution of issue of cost & benefit first, which has since been assigned to the Chairman, UYRB.

Pursuant to the decision taken in the 3rd UYRC meeting, an Empowered Committee under Principal Secretary (Irrigation), Govt. of Rajasthan has been set up to sort out the issue of supply of water to Rajasthan from Tajewala. This committee has held 5 meetings, including 2 meetings during 2007-08 and has circulated its draft report for the views of its Members.

CHAPTER 7

UNDERTAKINGS OF THE MINISTRY

WATER AND POWER CONSULTANCY SERVICES (INDIA) LTD

Introduction

WAPCOS Limited, Government of India undertaking, is a premier international consultancy organization. Formally, incorporated as a Company in 1969, WAPCOS has been providing to various domestic and overseas clients, consultancy in a diverse range of engineering services dealing with 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, with total backup from State and national level organizations operating in relevant fields, and it provides a wide range of comprehensive technical services.

Recognition

WAPCOS has been rated as "excellent" by the Department of Public Enterprises during the last four years in succession and has been awarded Prime Minister's "MOU Award for Excellence in Performance" for the year 2005-2006. The Department of Public Enterprises, Ministry of Heavy Industries and Public Enterprises, Government of India have selected WAPCOS amongst the top ten central public enterprises for this award. The Company has also received "MOU Excellence Certificate" for the year 2004-05. WAPCOS has received "EEPC All India Export Award" under the category of "Star Performer in 2005-2006: Engineering Services: Large Enterprises" and "EEPC (Northern Region) Award" under the category of "Project Export/Consultancy Services-Large Enterprises in 2004-2005".

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; survey and investigations, etc. The Company has recently amended its Articles of Association to provide for developmental projects in India and abroad.

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 and maintenance, quality assurance and management, software development and human resource development.

Business Development

WAPCOS has identified new thrust areas for focused attention. Some of the new fields of services identified are - rural electrification; water harvesting; low cost sanitation; lakes and wetlands; roads; information, education and communication; capacity building/institutional

strengthening; water quality monitoring; city development plans, tribal areas development, storm water drainage and rural development. Liberalized and competitive business environment demands constant liasioning and interaction with organizations having market interests allied to Company's nature of services. For initial introductions and to get foothold in new areas, the Company entered into joint ventures with national and international consultancy organizations. In order to provide state-of-the-art technology for consultancy services in India, WAPCOS associated with DHI (Danish Hydraulics Institute, Denmark) and Hydro Tasmania, Australia for submission of proposals under international competitive bidding. Similarly, for projects abroad, WAPCOS has entered into strategic alliances with consultants already having base in other countries. The efforts are bearing fruits and WAPCOS has secured/ likely to secure some prestigious projects in Cambodia, Bhutan, Ethiopia, Sudan, Laos, Myanmar, Mozambique, Lesotho, Ghana, Afghanistan and Royal Kingdom of Saudi Arabia.

The Company's main strength lies in its technical expertise, knowledge and presence in business areas, image as a "technical consultancy" organization, experience of working in India and Asian / African region, top management orientation and ability to improve its business performance and productivity.

Recognition with International organizations and Operations Abroad

WAPCOS has successfully completed/on-going consultancy assignments abroad in 40 countries and is registered with various international funding agencies for participating in funded projects of World Bank/ International Bank for Reconstruction and Development, African 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 Co-operation (ITEC) Programme, Overseas Economic Co-operation Fund, Japan Bank for International Co-operation (JBIC) etc. Apart from India, WAPCOS is currently engaged in providing consultancy services in Afghanistan, Bhutan, Cambodia, Ethiopia, Eritrea, Laos, Lesotho, Rwanda, Sudan, Swaziland, Uganda, Zambia and Zimbabwe.

Performance

Since its inception, the performance of the Company has been steadily growing. The Company has managed its business operations from its own resources without recourse to any borrowings, loan or any other form of financial assistance. WAPCOS has been able to pay consistently high percentage of dividends on its paid up capital and has been able to effect skillful utilization of available human resources to match up with the job requirements.

Financial Performance for the year 2006-07

The financial performance of the company for the year 2006-2007, alongwith the comparative figures for 2005-2006, is indicated below:-

Rupees in Lakhs)

PARTICULARS	2006-07	2005-06
A. INCOME		
(i) Consultancy and contract income	12810.01	11118.74
(ii) Other misc. income	630.57	72.23
Total Income (A)	**13440.58**	**11190.97**
EXPENDITURE		
(i) Consultancy and contract expenses	10413.87	8481.54
(ii) Administrative & general expenses	975.68	924.60
(iii) Depreciation	58.14	60.16
(iv) Provisions	215.96	145.09

Total Expenditure (B)	11663.65	9611.39
Profit for the year (A) – (B)	1776.93	1579.58
Add: Prior period adjustments	85.76	(4.28)
Profit before tax	1862.69	1575.30

The turnover of the Company for the year 2006 – 2007 shows an increase of 15% over the previous year. The profit before tax has been Rs.1862.69 lakh, which is an increase of 18.24% over last year's. Due to continuing stringent cost control measures adopted by the Company, the administrative and general expenses as % of the project expenses have been brought down to 11.38% as against 12.50% in the last year. The Company has achieved "excellent" rating for the 4th year in succession with a composite score of "1.10" under the MOU system of Company's performance evaluation by the Department of Public Enterprises.

NATIONAL PROJECTS CONSTRUCTION CORPORATION LIMITED (NPCC)

National Projects Construction Corporation Limited (NPCC) an ISO 9001-2000 certified, a Government of India enterprise was established in the year 1957 as a premier construction company to provide the necessary know how and resources for construction of canal systems, irrigation and river valley projects, dams and barrages, hydel and thermal power projects, industrial structures, road and bridges, buildings and townships, airfields etc. At present, the Corporation is having 66 working units / 230 sites of national importance. NPCC is one of the few construction companies in the Government sector having expertise and equipment for construction of tunnels, which form a major component for any hydro-electric project. During the year up to December, 2007, the Corporation has bagged new works valued Rs.1329 crores as against Rs.900 crores in the previous year, an increase of 47.22% compared to the previous year. The order book position as on 31ST January, 2008 touched Rs. 3586.43 crores as against the previous year's figure of Rs.2795.00 crores an increase of 34.95%. NPCC also has an ambitious target to take up mega projects on public-private participation basis.

In view of the improvement in the performance of the Corporation in the last year, a revival plan has been recommended by the Board of Reconstruction of Public Sector Enterprise and is under the consideration of the Ministry of Water Resources.

The authorized capital of the Company is Rs. 30 crores and its paid up capital is Rs. 29.84 crores.

Major Works Secured During The Year 2007-08. (Up to December, 2007)

- PMGSY works for 2200 Kms. in 6 Districts of Bihar valued at Rs. 847 crores.
- Raising of Ash Dyke of NTPC Farakka for Rs. 5.50 crores.
- Site leveling of Farakka STPP for Rs. 5.40 crores.
- Various buildings of Assam Riffles in North East Region for Rs. 95.27 crores.
- Quarter/Hostel etc. at Angul for NALCO for Rs. 17.38 crores.
- Various works in State of Mizoram for Rs. 50 crores.
- PMGSY works in Jharkhand at 3 District for Rs. 300 crores.

Turnover

The turnover (gross) of the Corporation during last five years and the achievement for the current year 2007-08 is given below:

(Rs. in crores)

Year	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
Turn-over	227.62	302.88	305.64	577.66	721.80	462.97 up to Jan, 2008

Works under Execution

At present, the Corporation is working on 66 units/ 230 sites spread all over the country. These include- fencing works in Tripura, Mizoram, Meghalaya and Assam Rifle works in different States of North East. Some of the major projects in hand are as follows:-

Irrigation and River Valley Projects

- Dolaithabi Barrage in Manipur, Kalsi Barrage Project (Tripura) & RCC Barrage works in Unhel Ujjain in M.P.

Hydroelectric Projects

- Maneri Bhali Project (Head Race Tunnel, Surge Shaft, Pen Stocks) in (Uttranchal)

Thermal Projects

- Construction of New Ash Pond area of NTPC at Talcher Super Thermal Power Project in Orissa.
- Ash Dyke works (Stage I & II), off site civil works, raw water reservoir at Sipat STPP in Chhatisgarh.
- Off site civil works for Kahalgoan STPP in Bihar.
- Ash Dyke lagoon – I, site leveling work for stage– III of NTPC in Farakka.

Miscellaneous Projects

The Corporation has under taken several construction assignments relating to buildings, roads, hospitals, bridges, flyovers etc. Some of these works are indicated below:

- Flyover works at Noida and 410 dwelling units for MES at Jhansi in UP.
- Administrative block and other works of Patel Chest Institute & Institutional building for CRPF, Vasantkunj in New Delhi.
- Two Nos. Tunnel work for Jammu – Baramulla Rail Link Project for Konkan Railway in J&K State.
- Construction of DMRC main laboratory cum administrative building at Jodhpur in Rajasthan.
- RCC bridge at Kawamara, Manughat, Fisheries College at Agartala, Hospital Building work at headquarter complex of TTADC in Tr'ipura.
- College of Horticulture and Fisheries at Pasighat in Arunachal Pradesh, CRPF Transit camp at Ambari and Barracks at Khatkhati in Assam. Assam Rifles quarters at different locations in the State of Nagaland, Arunanchal Pradesh, Manipur, Mizoram, Meghalaya, Tripura, Sikkim and Assam.
- Storm water drains, (III & IV), Gali Anjaneya Temple Flyover in Banaglore. quarters. and Allied Services, LCA production facility, HAWK production facility, finished goods Hanger in Aerospace Division, at HAL (BC).

CHAPTER 8

ROLE OF WOMEN IN WATER RESOURCES MANAGEMENT

Women in particular contribute significantly in agricultural production. The women workforce time is estimated to be around 70 to 80% of the total work force time in the agriculture sector. Role of women in water resources management and conservation has been duly recognised. The National Water Policy 2002 while stressing on participatory approach in water resources management, specifically provides for necessary legal and institutional changes to be made at various levels for the purpose of ensuring appropriate role for women.

In pursuance of the provisions in the National Water Policy 1987, (and also 2002), farmers are to be involved progressively in various aspects of management of irrigation systems, particularly in water distribution and collection of water charges. The Ministry of Water Resources, while issuing guidelines in April, 1987 was specifically emphasized that the States consider representation of women in the Water Users' Associations (WUAs) at all levels. As a consequence, many States have amended their Irrigation Acts or come out with specific Acts on Participatory Irrigation Management. Some of the State Governments have taken initiative and have made specific provisions for women's participation.

The representation of women is not adequate in view of the magnitude of the problem. Considering the importance of women in terms of their numerical strength and the significant contribution they make to the agricultural labour force, there is a need to encourage participation of women in greater strength Water Users' Associations can contribute significantly in this regard and bring in a new culture among the water users.

Madhya Pradesh has attempted to ensure that all farm owners, be it men or women, are made rightful members of the outlet committee. Efforts have also been made to ensure that where there are no women members, at least one woman from the area must be taken even if she is not a landowner. Further at least one woman shall be nominated to the Governing Body of the Association.

CHAPTER 9

PROGRESSIVE USE OF HINDI

During the year, effective measures were taken in the Ministry of Water Resources for the progressive use of Hindi for official purposes. Efforts were made to ensure compliance of various orders/ instructions issued by the Department of Official Language. Along with translation of important documents, the Hindi Section of the Ministry implements the official language policy of the Union Government in the Ministry and all the organisations under administrative control of the Ministry.

Hon'ble Minister of State Shri Jai Prakash Narayan (centre)with Shri S. Manoharan, Additional Secretary Ministry of Water Resources (right), Shri Ram Mohan Mishra, Joint Secretary Ministry of Water Resources (left), in a meeting of Hindi Advisory Committee held on 21st December, 2007 at Pune

A meeting of Hindi Advisory Committee was held on 21st December, 2007 at Pune under the chairmanship of the Hon'ble Minister of State for Water Resources. In this meeting Hon'ble Minister of State highlighted the importance of Hindi and gave awards to three organisations for doing appreciable work in Hindi.

The second sub-committee of the Parliamentary Committee on Official Language inspected various offices of Central Ground Water Board, at Jodhpur, Delhi and Chandigarh; Central Water Commission, at Vadodara, Hyderabad and Raipur; Water and Power Consultancy Services(I) Ltd. at Kolkota and National Water Development Agency, at Hyderabad and National Institute of Hydrology, Jammu and suggested measures for the progressive use of Hindi.

The Official Language Implementation Committee of the Ministry under the Chairmanship of Joint Secretary (Admn.) has been meeting regularly. Timely action was taken on the decisions taken in these meetings. Significant progress has been made in the implementation of the Rajbhasha Hindi in the Ministry.

To encourage healthy competition among the organizations under the Ministry for doing maximum work in Hindi, the Rajbhasha Vaijayanti Shield for the year 2006-07 was awarded to WAPCOS, Central Water Commission and Central Soil and Materials Research Station for first , second and consolation prizes respectively

Hindi Fortnight was organized in the Ministry during September, 2007, during which activities and competitions like Rajbhasha Quiz, Hindi Noting and Drafting, Hindi Essay, Typing and Stenography and Sulekh were organized. Officers and other employees of the Ministry enthusiastically participated in these competitions.

To encourage the staff to do their work in Hindi, noting and drafting competitions were organised during the year. Hindi workshops were also organized with a view to promoting the use of Hindi in official work, during which information regarding Official Language Act/Regulations was provided and participants were trained to do official work in Hindi.

Director (OL) and Dy. Director(O.L) inspected some of the offices of the Ministry of Water Resources situated outside Delhi. Assistant Director (O.L) inspected sections of the MOWR and oversaw the compliance of Official Language Policy. Instructions were given for rectification of the deficiencies during such inspections. Regular monitoring of the work being done in Hindi in the Ministry and its attached/subordinate offices was done through quarterly reports. Director (OL) and Assistant Director(OL) delivered lectures in the workshops organized by the attached/subordinate offices of the Ministry to educate them about the provisions of Official Language Policy.

CHAPTER 10

STAFF WELFARE

INTRODUCTION

The total strength in the various organizations of the Ministry in Group A, B, C and D is 13681 The policies of the Government with regard to welfare, personnel and e-governance are being implemented in the Ministry.

The Administration Section of the Ministry is primarily responsible for the establishment, personnel and administrative matters of the officers and staff of the Ministry (proper) besides being the cadre controlling authority of posts borne on CSS/ CSSS/ CSCS sanctioned in the Ministry (proper) and those in Central Water Commission & Central Soil & Materials Research Station. Other aspects of the administration like filling up of posts by direct recruitment/ deputation/ promotion, termination of probation, confirmation, grant of financial upgradation under Assured Career Progression Scheme, release of annual increments, pay fixation, maintenance of confidential reports, sanction of TA/LTC advance, house building advance, motor car/ scooter/ cycle advances, GPF advances/ withdrawals, framing/ amendment of recruitment rules, finalisation of pension/family pension cases, leave of all kinds, forwarding of applications etc., are also dealt with.

As part of developing the human resources, 22 officials of the Ministry were sent on training to various institutes to enhance their skills and capacity building.

Minority Welfare

In accordance with the guidelines issued by the Ministry of Welfare (now the Ministry of Social Justice and Empowerment) in March, 1990, the Ministry is monitoring the recruitment of minority communities and representation of minorities in Selection Commission/ Boards in the Ministry and the organisations under it.

Monitoring of Reservation for SC/ST/OBC

The Schedule Caste/ Schedule Tribe/ Other Backward Classes Cell forms part of the Administration Section. It provides secretariat assistance to the Liaison Officer for the Schedule Caste/ Schedule Tribe, and Liaison Officer for Other Backward Classes in discharging their functions on various matters relating to reservation for Schedule Caste/ Schedule Tribe/ Other Backward Classes in Government services and carrying out inspections of reservation rosters and on allied matters in respect of various organisations of the Ministry.

The Right to Information Act, 2005

The Right to Information Act, 2005 came into effect from 12.10.2005. As provided under Section 4(1) (b) of the Act, 17 manuals in respect of Ministry (proper) and its organizations were prepared and have been placed in the Ministry's website. Central Public Information Officers and Central Assistant Public Information Officers in respect of the Ministry and its organizations have been designated in terms of section 5 (1) and (2) of the said Act. The related instructions has been hosted in the website of the Ministry and concerned organizations. Coordination Section have been assigned the task of receiving the requests made under the RTI Act by the applicants concerning the Ministry (proper). After making

proper entries in the register of all the applications and the fee received, the applications are forwarded to the concerned Central Public Information Officers (CPIOs) in the Ministry or to the Nodal Officers designated for this purpose in the Ministry (proper) and the organizations under the Ministry, as the case may be, for taking further necessary action. The particulars of the Appellate Authorities, CPIOs and the Nodal Officer in respect of Ministry (proper) are indicated in Annexure VII.

Redressal of Staff Grievances

A Grievances Redressal Cell is in existence in the Ministry of Water Resources, which looks into the grievances of staff of all the organizations under the Ministry. Director (Coordination & PPP) has been designated as Director (Public & Staff Grievances). Most of the grievances received are related to service matters, payment of pensionary benefits etc. Due attention is given to the disposal of grievances within a reasonable period.

Committee for Complaints on Sexual Harassment of Women Employees

In accordance with the guidelines laid down by the Hon'ble Supreme Court of India, a Committee has been constituted to look into the complaints of the female employees working in the main secretariat of the Ministry. The Committee has been reconstituted on 30th October, 2007 with the following composition: -

1.	**Ms. Meeta Singh, Director (C & PPP)**	**—**	**Chairperson**
2.	**Shri N.K. Gupta, U.S.(Admn.)**	**—**	**Member**
3.	**Ms. Prisca Poly Mathew, S.O (PP)**	**—**	**Member**

The Committee submits it's findings to the Joint Secretary (Admn.) for necessary action. The Committee holds its meetings from time to time and meets the women employees in the Ministry and its organizations in Delhi to find out if they have any complaints regarding sexual harassment. During the year 2006-07, the Committee received no complaint from the women employees working in the Ministry proper. Similar Committees have also been constituted in the organizations under this Ministry.

CHAPTER 11

VIGILANCE

The Vigilance Wing of this Ministry looks after the vigilance/disciplinary matters pertaining to the Ministry and the organizations under its administrative control. This Wing functions under the guidance, supervision and control of a part time Chief Vigilance Officer of the level of Joint Secretary assisted by a part time Deputy Secretary and a Section. The Vigilance Wing deals with various aspects pertaining to vigilance and disciplinary matters of all the employees of the Ministry(proper) and all Group A and B Officers of the attached/subordinate offices as well as Group-A Officers of other organizations including Public Sector Undertakings under the administrative control of the Ministry.

The Vigilance Wing also functions as a link between the Ministry and the Central Vigilance Commission and other Authorities in disciplinary/vigilance matters. It also tenders advice on vigilance matters. It also tenders advice on vigilance matters to the Attached and Subordinate Offices, PSUs, Statutory Bodies, Registered Societies etc. under the Ministry, in consultation with CVC and CBI and other agencies/ Departments, wherever required. This Wing also monitors the disciplinary cases and related matters of the organizations under the Ministry.

This Wing takes measures for preventive vigilance activities such as capacity building for system improvement, streamlining and simplification of procedures for bringing in greater transparency in disposal of the works etc.

In August, 2007, a meeting with the CVOs/VOs of the organization (Delhi & NCR) was held under the chairmanship of Joint Secretary(A) and CVO. The participants reached a consensus to formulate a need based plan and work on it with a long term perspective. Among other measures, strengthening the preventive vigilance mechanism was major area, which was identified for action. As per the said decision, the organizations under the Ministry are carrying out surprise/preventive vigilance inspections of the field units regularly. Some of the organizations have also organized Training programmes for its officials about the vigilance procedures, besides sending the staff to ISTM, etc. for training. Apart from the above, the “List of officers of Doubtful Integrity” and the “Agreed List” are being prepared in consultation with CBI to monitor the functioning of officials whose integrity is doubtful. The Ministry observed Vigilance Awareness Week from 12th to 16th November, 2007.

The Vigilance Wing is also responsible for calling for the Annual Property Returns of all Group A and B Officers and monitoring them. Annual Property Returns for the year ending 2007 have been called for and after the returns are received, the same are being computerized.

CHAPTER 12

APPOINTMENT OF DISABLED PERSONS

Monitoring of Reservation for Physically Handicapped

Monitoring of the recruitment of physically handicapped is being done to ensure fulfillment of three per cent quota for the category by the Ministry as well as various organisations under it. Periodic reports on the progress made are being sent regularly to the Ministry of Social Justice & Empowerment. Accordingly, 3% of posts/vacancies (1% for each Orthopaed, Blind & Hearing Handicapped) are reserved to be filled up from physically handicapped persons. The physically handicapped persons are given facilities, concession and relaxation at the time of test/interview as per rules on the subject matter. The posts identified to be filled up by the disabled persons in Groups A, C & D (Group-B, being all promotional posts) categories as per revised list of posts notified by the Ministry of Social Justice and Empowerment, are filled up as per the requirement of the different offices under this Ministry. The relevant reservation rosters as prescribed by the Government are also maintained for plotting the reservation of disabled persons.

ANNEXURE – I

STAFF STRENGTH OF THE MINISTRY OF WATER RESOURCES

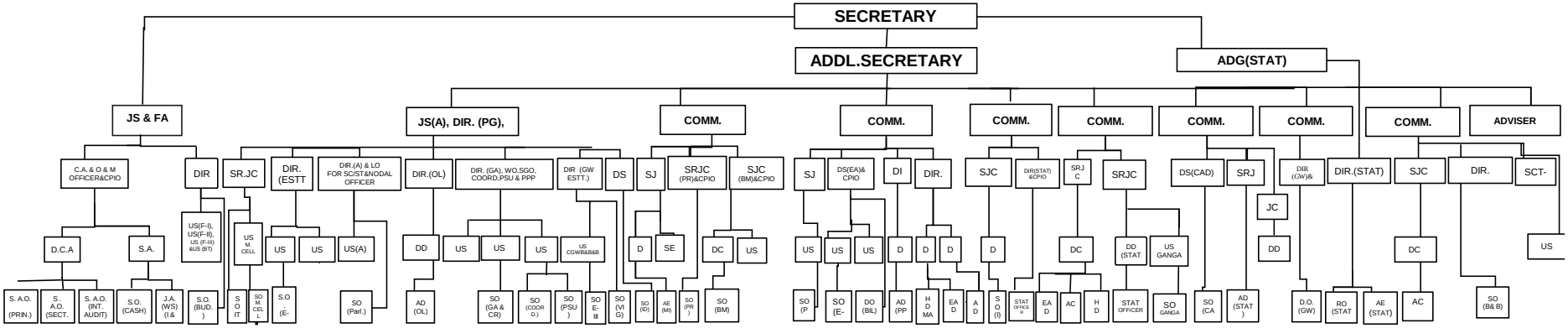
Sl. No.	Name of Office	Group A					Group B										Group C					Group D					Grand Total				
							(Gazetted)					(Non Gazetted)																			
		Total	SC	ST	PH	OBC	Total	SC	ST	PH	OBC	Total	SC	ST	PH	OBC	Total	SC	ST	PH	OBC	Total	SC	ST	PH	OBC	Total	SC	ST	PH	OBC
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
1	Ministry of Water Resources	85	6	1	-	3	53	10	-	-	1	88	14	4	-	8	89	22	5	5*	9	85	41	5	1**	3	400	93	15	6	24
2.	Controller of Accounts, Ministry of Water Resources	2	1	-	-	-	87	7	-		1	-	-	-	-	-	114	30	8	-	15	27	11	2	-	4	230	50	10	-	19
3.	Central Water Commission	555	68	20	3	9	405	56	7	4	6	412	72	11	2	5	1737	300	58	9	79	784	232	82	6	11	3893	728	178	24	110
4.	Central Soil & Materials Research Station	60	10	2	1	3	35	4	2	-		36	4		-	6	115	27	8	2	3	84	32	5	2	3	330	77	17	4	15
5.	Central Water & Power Research Station	144	21	4	2	8	65	13	4	1	2	146	22	9	2	18	423	63	28	12	17	305	75	25	12	14	1083	194	70	29	59
6.	Central Ground Water Board	388	57	16	-	26	305	48	16		20	183	33	8	3	13	1799	343	126	10	106	1191	286	69	7	97	3867	767	235	20	262
7.	Farakka Barrage Project	13	1	1		1	20	7	2	1		40	5	1	1		368	56	12	5	9	214	35	4	4	1	655	104	20	11	11
8.	Ganga Flood Control Commission	19					12	1				2		1			41	9				15	5	1	2	1	89	15	2	2	1
9.	Bansagar Control Board	2	-	-	-	-	-	-	-	-	-	1	-	-	-	-	9	-	-	-	-	7	-	-	-	-	19	-	-	-	-
10.	Sardar Sarovar Construction Advisory Committee	4	1		-	1	1	-	-	-	-	-	-	-	-	-	6	1	-	-	-	4	1	-	-	2	15	3		-	3
11.	Brahmaputra Board	80	3	1	-	-	-	-	-	-	-	-	-	-	-	-	381	51	30	4	40	161	25	11	5	6	622	79	41	9	53
12.	Betwa River Board	11	-	-	-	-	19	-	-	-	-	17	-	-	-	-	75	7	-	-	-	1	1	-	-	-	123	8	-	-	-
13.	Narmada Control Authority	32	4	-	-	2	8	-	1	-	-	6	-	-	-	-	79	17	4	3	12	39	9	3	1	1	160	30	8	4	15
14.	National Water Development Agency	62	4				59	7	1			16	2				351	54	19	13	5	123	37	10	1	3	611	104	30	14	8
15.	National Institute of Hydrology	81	9	2	1	6	-	-	-	-	-	50	6	-	-	1	70	17	-	2	4	51	18	-	-	5	252	50	2	3	18
16.	Water & Power Constultancy Services (I) Ltd.	284	32	3	2	7	63	7	2	1		34	6	3	1	3	71	15	2	1	8	42	19	9	1		494	79	14	6	18
17.	National Projects Construction Corporation Ltd.	330	18	1		2						216	15	-	-		197	27	3	5	2	88	10	2	-	-	830	70	6	5	4
Total																											13681				

*In group C post two physically handicapped employee is also SC,OBC

**In group D post one physically handicapped employee is Visually Handicapped

Organisational Chart of Ministry of Water resources (As on 01.10.2007)

Annexure II



Legends:

A	Administration	DCA	Deputy Controller of Accounts	I	Indus	RO	Research Officer
AC	Assistant Commissioner	DD	Deputy Director	INT AUDIT	Internal Audit	SA	Senior Analyst
ACA	Assistant Controller of Accounts	DIR	Director	ID	Infrastructural Development	SAO	Senior Accounts Officer
AD	Assistant Director	DO	Desk Officer	JA	Junior Analyst	SC	Scheduled caste
ADDL	Additional	DS	Deputy Secretary	JC	Joint Commissioner	SCT	Scientist
AE	Assistant Engineer	E	Establishment	JD	Joint Director	SECT	Secretariat
AEA	Additional Economic Advisor	EA	External Assistance	JS	Joint Secretary	SGO	Staff Grievances Officer
AgE	Agricultural Engineering	EAD	Extra Assistant Director	LO	Liaison Officer	SJC	Senior Joint Commissioner
BIL	Bilateral Aid	ER	Eastern Rivers	M. Cell	Media Cell	SO	Section Officer
BM	Basin Management	ESTT	Establishment	MI	Minor Irrigation	ST	Scheduled Tribe
BUD	Budget	Eco	Economic	O&M	Organisation and Methods	STAT	Statistics
B&B	Brahmputra & Barak	F	Finance	OL	Official Language	T	Technical
C&E	Coordination & Evaluation	FA	Financial Advisor	P	Projects	US	Under Secretary
C	Coordination	FT	Foreign Training	Parl	Parliament	VIG	Vigilance
CA	Controller of Accounts	GA	General Administration	PG	Public Grievances	WB	World Bank, Water Bodies
CAD	Command Area Development	GB-FBP	Ganga Basin-Farakka Barrage Project	PP	Policy & Planning	WeM	Web Master
CGWB	Central Ground water Board	GW	Ground Water	PPP	Public Private Partnership	WM	Water Management
COMM	Commissioner	HoD	Head of Department	PR	Projects	WO	Welfare Officer
CVO	Chief Vigilance Officer	HoO	Head of Office	PRIN	Principal	WS	Work Study
DC	Deputy Commissioner	HP	Hydrology Project	R&D	Research & Development		
		H D Man	Head Draftsman	RMIS	Rationalisation of MI Statistics		

ANNEXURE-III

List of Postal Addresses of Heads of Organisations under The Ministry of Water Resources

S. No.	Name of the Organisation	Head of the Organisation
	Government of India Ministry of Water Resources, Room No. 412, IV Floor, Shram Shakti Bhavan, Rafi Marg,New Delhi-110 001.	Shri U.N.Panjair, Secretary Tel No. 23710305, 23715919 Fax. 23731553
Attached Offices		
1.	Central Water Commission, Room No. 326, Sewa Bhawan, R.K. Puram, New Delhi	Shri B S Ahuja, Chairman Tel. No.26108855 Fax: 26108614
2.	Central Soil and Materials Research Station, Room No. 309, Hauz Khas, New Delhi-110016	Shri. Murari Ratnam, Director Tel. No. 26961894, 26967980 Fax: 26853108
Subordinate Offices		
3.	Farakka Barrage Project, P.O. Farakka Barrage, Distt. Murshidabad-742212 (W.B.)	Shri Naresh Kumar, General Manager Tel. No. 03485-253644
4.	Ganga Flood Control Commission, Sinchai Bhawan, III floor, Patna-800015	Shri A.K.Bajaj, Chairman Tel. No. 0612-2222294
5.	Central Water and Power Research Station, P.O. Khadakwasla, Pune-411024	Smt. V. M. Bendre, Director Tel. No. 020-24380511/ 24380652 Fax: 020-24381004
6.	Central Ground Water Board, Jamnagar House, New Delhi	Shri B. M Jha,, Chairman Tel. No. 0129-24190750,129 – 2425870 Fax: 23382051 & 95129-2412524
7.	Bansagar Control Board, Samab Colony, Rewa (Madhya Pradesh)	Shri S. K. Haldar, Secretary Tel. No. 07662-226318
8.	Sardar Sarovar Construction Advisory Committee, Narmada Bhawan, A Block, IV Floor, Vadodara-390001	Shri Nirmal Jot Singh, Secretary Tel. No. 0265-2421438 Fax 0265-2437262

9.	Upper Yamuna River Board 202, “S”, Sewa Bhawan, R.K. Puram, New Delhi	Shri B. S. Ahuja, Chairman Tel. No. 26108590 Fax: 26195289
Public Sector Undertakings		
10.	Water and Power Consultancy Services (India) Limited, 5th Floor, ‘Kailash’, 26, Kasturba Gandhi Marg, New Delhi-110001	Shri D. Datta , Chairman & Managing Director Tel. No. 23313881/23313502 Fax: 23313134
11.	National Projects Construction Corporation Limited, Plot No. 67-68, Sector-25, Faridabad (Haryana)	Shri Arbind Kumar, Chairman & Managing Director, Tel. No. 95129-2231269
Autonomous Bodies		
12.	National Institute of Hydrology, Jal Vigyan Bhawan, Roorkee-247667 (Uttaranchal)	Dr. K.D, Sharma, Director Tel. No. 01332-272106 Fax: 01332-272123/ 273976
13.	National Water Development Agency, 18-20, Community Centre, Saket, New Delhi-110017	Shri A.D. Bhardwaj, Director General Tel. No. 26519164
Statutory Bodies		
14.	Narmada Control Authority, BG-113, Scheme No. 74-C, Vijay Nagar, Indore-452010	Shri V.K. Jyothi, Executive Member Tel. No. 0731-557276
15.	Brahmaputra Board, Basistha, Guwahati	Shri Rajan Nair, Chairman Tel. No. 0361-2301099/ 2302527 Fax: 0361-2301099/ 2307454/ 2308588
16.	Betwa River Board, Nandanpura, Jhansi-284003	Shri S.C.Gupta, Chief Engg. & Secretary Tel. No. 0517-2480183
17.	Tungabhadra Board, Tungabhadra Dam, Taluk: Hospet, Distt: Bellary, Karnataka State, PIN: 583225	Shri O.P.Khanda, Chairman Tel. No. 08394-439113 Fax: 08394-439112

Annexure IV

LIST OF POSTAL ADDRESSES OF DIRECTORS OF PUBLIC GRIEVANCES/ STAFF GRIEVANCES IN THE MINISTRY OF WATER RESOURCES AND ITS VARIOUS ORGANISATIONS

S. No.	Name of the Organization	Address	Name & Designation of P.G./ S.G. Officer
1.	Ministry of Water Resources	Room No.627, Shram Shakti Bhavan, New Delhi-110001 (Tele No. 23710170)(Fax No. 23710253) e-mail: dscoord-mowr@nic.in	Ms. Meeta Singh, Director (C&PPP) & Director (PG/SG)
2.	Narmada Control Authority	Narmada Sadan, Sector-B, Scheme No. 74-C, Vijay Nagar, Indore – 452010(MP) (Tele No. 0731-2551144) (Fax No. 2551144) e-mail: mem.power.nca@nic.in	Shri Major Singh, Member (Power) & (Staff/Public) Grievance Redressal Officer
3.	Bansagar Control Board	Bansagar Control Board, Samab Colony, Rewa (MP) (Tele No. 07662-226318), 0755-2762059 (Tele Fax No. 07662-242433 e-mail: bansagar@sancharnet.in	Shri Soumitre Haldar, Secretary & Director (Staff / Public Grievances)
4.	Betwa River Board	Betwa River Board, Nandanpura, Jhansi-284003 (Tele No. 0517-2480183) (Fax No. 0517-2480237)	Shri A.C. Vohra, Secretary & Director (Staff/Public Grievances)
5.	Central Ground Water Board	CGWB, CHQ, Faridabad (Tele No. 95129-2413050) Fax No.95129- 2419059	Shri Bhajan Singh, Supdt. Engg. & Staff Grievances Officer
		CGWB, CHQ, Faridabad –121 001. (Tele No.95129-2413321 & (Fax No. 95129-2412524) e-mail: cgwb@nic.in , hp_cgwb@nic.in	Shri Sunil Kumar, Sr. Hg. Scientist 'D', Public Grievances officer
6.	Central Soil and Materials Research Station	Room No. 508 (New Building, CSMRS, Hauz Khas, New Delhi – 110 016 (Tel No. 26563140/Ext. 603) (Fax No. 26853108) e-mail: skbabbar@nic.in	Shri S.K. Babbar, Joint Director & Director (Staff & Public Grievances)
7.	Central Water Commission	Room No. 311 (S),3rd Floor Sewa Bhawan, R.K. Puram, New Delhi-110066 (Tele No. 26187232) (Fax No. 26195516) e-mail: secymail@nic.in	Shri V.K. Chawla, Secretary & Grievances officer
8.	Central Water & Power Research Station	Central Water & Power Research Station, P.O. Khadakwasla Research Station, Pune – 411024 (Tele No. 020-24103200, 24381801) (Fax No. 020-24381004) e-mail: wapis.mah@nic.in	Shri P.K. Khare, Joint Director & Chairman (Grievance Cell) Staff Grievance & Public Grievance
9.	Farakka Barrage Project	P.O. Farakka Barrage, Distt. Murshidabad, West Bengal-742212 (Tele No. 03485 – 253285) (Fax No. 03485-253608)	Shri B.N. Sharma, Superintending Engineer (Coord.) & Director (Staff Grievances)
			Shri P.K. Alagh, Superintending Engineer & Director (PG)

S. No.	Name of the Organization	Address	Name & Designation of P.G./ S.G. Officer
10.	Ganga Flood Control Commission	Ganga Flood Control Commission, Sinchai Bhawan, IIIrd Floor, Patna-800015 (Tele No. 0612-2233591) e-mail: dir-adm-gfcc@nic.in & dir-mp2-gfcc@nic.in	Shri Bibhas Kumar, Director (Adm) & Director (Staff Grievances & Public Grievances)
11.	National Institute of Hydrology	Jal Vigyan Bhawan, Roorkee-247667 (Uttaranchal) (Tele No. 01332-276416 (O), 272909 & 272718,276416 (Fax No. 01332-272123) e-mail: svnrao@nih.ernet.in	Dr. S.V.N. Rao, Scientist F & Chairman, Grievance Cell
12.	National Projects Construction Corporation Limited	NPCC Ltd., Plot No. 67-68, Sector 25, Faridabad (HNA) (Tele No. 95129 -2442546) (Fax No. 95129-2552546) e-mail: anupkumar@npccindia.com	Shri S. Basak, AGM (P&A) Chairman (Grievance Committee) (Staff Grievances) Shri Anup Kumar AGM (C), Director (Public Grievances)
13.	National Water Development Agency	18-20, Community Centre, Saket, New Delhi-110017 (Tele No. 26852735) (Fax No. 26960841) e-mail: cehqnwda@rediffmail.com	Shri N.K. Bhandari, Chief Engineer (HQ) & Staff Grievance officer
14.	Sardar Sarovar Construction Advisory Committee	Sardar Sarovar Construction Advisory Committee, Narmada Bhavan, "A" Block 4th Floor, Vadodara – 390001 (Tele No. 0265-2421272) Fax No. 0265-2437262 (Telefax) e-mail: jbabu50@rediffmail.comS	i Janardhana Babu, Deputy Secretary & Director (Grievances) & Director (Public Grievances)
15.	Water & Power Consultancy Services (India) Ltd.	76-C, Institutional Area, Sector-18, Gurgaon-122015 (Haryana) (Tele No. 95124-2397394) (Fax No. 95124 – 2397392, 2348022) e-mail: wapcos@vsnl.com	Shri D.S. Pahwa, General Manager (P&A) & Director (Staff Grievances) Shri S.K. Ahuja, CVO & Director (PG)
16.	Brahmaputra Board	Basistha, Guwahati – 781029 (Tele No.0361-2307453 & 2307453, 2301099/2307454) (Fax No. 0361-2308588) e-mail: bbrd_ghy@sify.com	Shri G.P. Singh, Secretary & Director (Staff/Public Grievances)
17.	Upper Yamuna River Board	Upper Yamuna River Board, Wing No. 4, Ground Floor, West Block No. 1, R.K. Puram, New Delhi-66 (Phone No. 26174147) e-mail: uyrb-mowr@nic.in	Shri S.K.Sinha, Member Secretary & Director of Grievances
18.	Tungabhadra Board	Tungabhadra Board, Tungabhadra Dam, Taluk: Hospet, Distt: Bellary, Karnataka State, PIN: 583225	Shri L.A.V. Nathan, Secretary & Director of Grievances

BUDGET AT A GLANCE
(SECTOR-WISE)

(Rupees in crore)

Sl No.	Sector/ Organisation /Scheme	Actuals 2006-07		BE 2007-08		RE 2007-08		BE 2008-09		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**	1.69	19.73	0.00	20.76	0.00	22.20	0.00	22.53	22.53
II	**Major & Medium Irrigation**									
1.	Central Water Commission	20.05	81.07	2.00	84.52	1.80	85.44	2.30	85.68	87.98
2.	Central Soil and Materials Research Station	6.51	4.27	0.00	4.95	0.00	4.90	0.00	4.85	4.85
3.	Central Water & Power Research Station	2.12	22.81	0.00	22.60	0.00	24.31	0.00	23.50	23.50
4.	National Water Development Agency	18.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5.	National Institute of Hydrology	3.38	4.68	0.00	4.95	0.00	5.18	0.00	5.20	5.20
6.	Research and Development Programme	5.79	0.00	30.00	0.00	34.20	0.00	60.00	0.00	60.00
7.	National Projects Construction Corporation Limited	0.00	15.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8.	Sutlej Yamuna Link Canal Project	0.00	0.00	0.00	25.00	0.00	15.00	0.00	25.00	25.00
9.	Boards & Committees	0.00	0.89	0.00	3.45	0.00	2.53	0.00	3.87	3.87
10.	Development of Water Resources Information System	0.00	0.00	30.00	0.00	20.00	0.00	46.00	0.00	46.00
11.	Hydrology Project	0.00	0.00	33.00	0.00	13.60	0.00	44.00	0.00	44.00
12.	Investigation of Water Resources Development Schemes	0.00	0.00	30.00	0.00	27.30	0.00	37.00	0.00	37.00
13.	Information, Education and Communication	0.00	0.00	2.00	0.00	5.17	0.00	13.00	0.00	13.00
14.	River Basin Organization/ Authority	0.00	0.00	0.50	0.00	0.10	0.00	1.00	0.00	1.00
15.	Dam Safety Studies and Planning	0.00	0.00	1.00	0.00	0.30	0.00	1.60	0.00	1.60
16.	Infrastructure Development	0.00	0.00	4.00	0.00	3.35	0.00	5.00	0.00	5.00
	Total: Major & Medium Irrigation	**56.62**	**129.52**	**132.50**	**145.47**	**105.82**	**137.36**	**209.90**	**148.10**	**358.00**
III	**Minor Irrigation**									
1.	Central Ground Water Board	69.60	55.46	0.00	55.70	0.00	59.70	0.00	57.70	57.70

Sl No.	Sector/ Organisation /Scheme	Actuals 2006-07		BE 2007-08		RE 2007-08		BE 2008-09		Total
		Plan	Non-Plan	Plan	Non-Plan	Plan	Non-Plan	Plan	Non-Plan	
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
2.	Rajiv Gandhi NGWTRI	0.61	0.00	1.50	0.00	0.83	0.00	2.10	0.00	2.10
3.	Surface Water Schemes	8.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.	R. & D. Programme##	0.49	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	74.00	0.00	63.20	0.00	107.00	0.00	95.00
6.	Infrastructure Development	0.00	0.00	4.55	0.00	1.41	0.00	7.00	0.00	7.00
	Total : Minor Irrigation	**79.33**	**55.46**	**80.05**	**55.70**	**64.44**	**59.70**	**116.10**	**57.70**	**161.80**
IV.	**Command Area Development**									
1.	Command Area Development Programme	189.96	0.00	300.00	0.00	285.66	0.00	0.00	0.00	0.00
2.	R. & D. Programme##	1.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total: Command Area Development	**191.60**	**0.00**	**300.00**	**0.00**	**285.66**	**0.00**	**0.00**	**0.00**	**0.00**
V.	**Flood Control**									
1.	Central Water Commission	21.33	36.92	0.00	36.24	0.00	37.92	0.00	37.40	37.40
2.	Ganga Flood Control Commission	2.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.	Emergent Flood Protection Measures in Eastern and Western Sectors	0.00	2.64	0.00	3.00	0.00	3.00	0.00	3.00	3.00
4	Survey & Investigation of Kosi High Dam Project	5.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5.	Maintenance of flood protection works of Kosi and Gandak Projects	2.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6.	Pancheshwar Multipurpose Project	1.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7.	Joint Observation on common Rivers with Bangladesh and neighbouring countries	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8.	Critical anti-erosion works in Ganga Basin States	74.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9.	Extension of embankments on Laibakeya, Kamla, Bagmati and Khando rivers	18.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sl No.	Sector/ Organisation /Scheme	Actuals 2006-07		BE 2007-08		RE 2007-08		BE 2008-09		Total
		Plan	Non-Plan	Plan	Non-Plan	Plan	Non-Plan	Plan	Non-Plan	
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
10.	Schemes for the benefit of North Eastern States & Sikkim	18.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	-Brahmaputra Board	3.00	0.00	1.00	0.00	1.35	0.00	2.00	0.00	2.00
	-Pagladia Dam Project	12.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	-New schemes for Majuli island in Assam, Dihang Project, etc. Sub Total (S.No.10)	34.28	0.00	1.00	0.00	1.35	0.00	2.00	0.00	2.00
11.	Flood Forecasting	0.00	0.00	16.00	0.00	12.74	0.00	23.00	0.00	23.00
12.	River Management Activities and Works related to Border Areas	0.00	0.00	46.00	0.00	50.75	0.00	160.00	0.00	160.00
13.	Infrastructure Development	0.00	0.00	3.45	0.00	2.25	0.00	26.00	0.00	26.00
	Total : Flood Control	**160.26**	**39.56**	**66.45**	**39.24**	**67.09**	**40.92**	**211.00**	**40.40**	**251.40**
VI. 1.	**Transport Sector** Farakka Barrage Project	24.58	24.29	33.00	24.99	37.99	25.47	75.00	25.60	100.60
	TOTAL (I to VI) *	**514.08**	**268.56**	**612.00**	**286.16**	**562.00**	**285.65**	**612.00**	**294.33**	**906.33**
VII.	**AIBP and other Water Resources Programme ****	**2373.59**	**0.00**	**3580.00**	**0.00**	**$$**	**0.00**	**5550.00**	**0.00**	**5550.00**
	GRAND TOTAL	**2887.67**	**268.56**	**4192.00**	**286.16**	**562.00**	**285.65**	**6162.00**	**294.33**	**6456.33**

*Source of financing : *Demand No.103 – Ministry of Water Resources for 2008-2009 (excluding AIBP)*

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

$$ Figure is not available with the Ministry of Water Resources.

All this activities have been merged in a consolidated scheme of Research and Development (during XIth Plan) shown at Sl. No. 6 under Major & Medium Irrigation.

ANNEXURE-VI

AUDIT OBSERVATIONS PERTAINING TO MINISTRY OF WATER RESOURCES

Delay in submission of accounts by the autonomous bodies

An autonomous body is required to complete its accounts within three months and make available for audit. Audited accounts should be laid before Parliament within nine months of the close of the accounting year. Betwa River Board, Jhansi and Brahmaputra Board, Guwahati submitted their accounts late and the audit report were issued to them on 10th July, 2006 and 22nd December, 2005 respectively for the audit report of year 2004-05

Disbursement

The major part of disbursement on grants-in-aid to States/ Union Territories Governments, capital outlay and investments were made in the month of March, 2006/ during last quarter of financial year as per details below;

Sl. No.	Description of Grant & Major Head	Total expenditure under major head	Expenditure in March	% of expenditure in March to total expenditure	Expenditure incurred in last quarter	% of expenditure incurred in last quarter of year
104-Ministry of Water Resources						
172	2705-Command area development	3.40	2.11	62	2.22	65
173	4701-Capital outlay on major & medium irrigation	.94	.94	100	.94	100
174	4702-Capital outlay on minor irrigation	3.83	3.83	100	3.83	100
175	4711-Capital outlay on flood control projects	6.97	6.97	100	6.97	100
176	7601 loans & advances to state govt	1.61	1.61	100	1.61	100

Unspent Provision of Rs. 100 crore or more

7.4 Unspent provision of more than Rs 100 crore, need a detailed explanatory note to the Public Accounts Committee, The unspent provisions were attributed by the Ministries/Departments to some of the schemes failing to take off. Details of the unspent provisions are given below.

(Refers to Paragraph 7.4)

Details of unspent provision exceeding Rs 100 crore under a grant/appropriation

(Rupees in crore)

Sl. No.	**Grant No. and Controlling Ministry**	**Amount of unspent provision**
Civil **Revenue -Voted**		
32.	104-Ministry of Water Resources	112.53

Injudicious re-appropriation to sub-heads

Test check of accounts revealed that matters relating to grant/appropriation, re-appropriation was injudicious as detailed below:

(Rupees in crore)

Sl. No.	**No. and name of Grant**	**Major Head**	**Sub Head**	**Amount of re-appropriation**	**Final unspent provisions under sub-head after re-appropriation**
Civil					
13.	104-Ministry of Water Resources	2702 Minor Irrigation	2702.02.005.102.01 Water Survey, Exploration and Investigation	2.06	2.39

Annexure VII

Wing wise information of Appellate Authorities in Ministry (proper)

Sl. No.	Name, address & other particulars of Appellate Authority	Name of the Wing
1.	Shri Ram Mohan Mishra, Joint Secretary (Admn.), Room No. 403, Shram Shakti Bhavan, Rafi Marg, New Delhi. Tel: 011-23710343 Fax: 011-23710343 Email: jsadm-mowr@nic.in	Administration & Ground Water
2.	Shri M.E. Haque, Commissioner (PP), Room No. 404, Shram Shakti Bhavan, Rafi Marg, New Delhi. Tel: 011-23711946 Fax: 011-23711946 Email: commpp-mowr@nic.in	Policy & Planning
3.	Shri Narender Kumar, Commissioner (B&B), Room No. 8A, Lok Nayak Bhavan, New Delhi. Tel: 011-24694752 Fax: 011-24652459 Email: commgwhp-mowr@nic.in	Brahmaputra & Barak
4.	Shri S.P. Kakran, Commissioner (Ganga), Room No. 827, CGO Complex, Lodhi Road, New Delhi. Tel: 011-24368238Fax: 011-24362780 Email: commer-mowr@nic.in	Ganga
5.	Dr. Veerpal, Commissioner (CAD &WM), Room No. 236-A, Krishi Bhavan, New Delhi. Tel: 011-23382256 Fax: 011-23382256 Email: commcadwm-mowr@nic.in	Command Area Development & Water Management

6.	Ms. Ananya Ray, Joint Secretary & Financial Advisor, Room No. 401, Shram Shakti Bhavan, Rafi Marg, New Delhi. Tel: 011-23710297 Fax: 011-23710343 Email: fawr-mowr@nic.in	Finance
7.	Shri Indra Raj, Commissioner (PR), Room No. 411, Shram Shakti Bhavan, Rafi Marg, New Delhi. Tel: 011-23710107 Fax: 011-23350051 Email: commpr-mowr@nic.in	Projects
9.	Shri V.K. Arora, Additional Director-General, Cabin No. 1, 'B' Wing, Ground Floor, Shastri Bhavan, New Delhi. Tel: 011-23071080 Fax: 011-23071080 Email: adg-mowr@nic.in	Minor Irrigation Statistics

LIST OF CPIOS

S. No.	Name & Designation	Address	Phone No.	e-mail address
1	Shri Anoop Seth, Deputy Secretary (External Assistance)	Room No. 422, Ministry of Water Resources, Shram Shakti Bhawan, Rafi Marg, New Delhi – 110001	23716747	anoop.seth@nic.in
2	Shri D.P. Bankhwal, Director (Brahmaputra and Barak)	Ministry of Water Resources, Brahmaputra and Barak Wing, 2nd Floor, Lok Nayak Bhawan, Khan Market, New Delhi	24690828	dirhp-mowr@nic.in
3	Shri S.P.S. Chauhan, Senior Joint Commissioner (Ganga)	Ministry of Water Resources, Room No. 804, C.G.O. Complex, Lodhi Road, New Delhi	24360611	sjcer2-mowr@nic.in
4	Shri A.S.P. Sinha, Senior Joint Commissioner (Ganga)	Ministry of Water Resources, C.G.O. Complex, Lodhi Road, New Delhi	24361393	srjcer2-mowr@nic.in
5	Shri Inderjit Singh, Director (Command Area Development and Water Management)	Ministry of Water Resources, Room No. 199F, Krishi Bhawan, New Delhi	23382481	cadwmds-mowr@nic.in

6	Dr. Kavita Gutru, Controller of Accounts	Pay and Accounts Office, Ministry of Water Resources, Room No. 241, A Wing, Shastri Bhawan, New Delhi	23386644	ca-mowr@nic.in
7	Shri K. Vohra, Senior Joint Commissioner (Basin Management)	Room No. 431, Ministry of Water Resources, Shram Shakti Bhawan, Rafi Marg New Delhi – 110 001	23714129	sjcbm-mowr@nic.in
8	Shri V.K. Nagpure, Senior Joint Commissioner (Projects)	Room No. 631, Ministry of Water Resources, Shram Shakti Bhawan, Rafi Marg New Delhi – 110 001	23710131	sjcpr-mowr@nic.in
9	Shri A.K. Suri, Deputy Secretary (Basin Management)	Room No. 625, Ministry of Water Resources, Shram Shakti Bhawan, Rafi Marg New Delhi – 110 001	23714350	usbm-mowr@nic.in
10	Shri Bhupinder Singh, Deputy Commissioner (Basin Management)	Room No. 428B, Ministry of Water Resources, Shram Shakti Bhawan, Rai Marg, New Delhi – 110 001	23718165	dcbm-mowr@nic.in
11	Shri Sohan Singh Saini, Deputy Secretary (Ground Water Establishment)	Room No. 635, Ministry of Water Resources, Shram Shakti Bhawan, Rafi Marg New Delhi – 110 001	23711370	-
12	Shri Vijay Kumar, Director (Indus)	Room No. 830, Ministry of Water Resources, C.G.O. Complex, Lodhi Road New Delhi	24361467	dirindus-mowr@nic.in
13	Shri A.K. Srivastava, Director (Minor Irrigation)	Ministry of Water Resources, Room No. 6, B Wing, Shastri Bhawan, New Delhi	23389496	dirmi-mowr@nic.in
14	Shri Sat Pal, Director (Administration)	Room No. 421, Ministry of Water Resources, Shram Shakti Bhawan, Rafi Marg, New Delhi – 110 001	23711988	diradmn-mowr@nic.in
15	Smt. Meeta Singh, Director (General Administration)	Room No. 628, Ministry of Water Resources, Shram Shakti Bhawan, Rafi Marg, New Delhi – 110 001	23710170	dircoord-mowr@nic.in

16	Shri R. Mohan Kumar, Deputy Secretary (Establishment)	Room No. 423, Ministry of Water Resources, Shram Shakti Bhawan, Rafi Marg New Delhi – 110 001	23711875	dsest-mowr@nic.in
17	Shri Yogendra Singh, Director (Water Bodies)	Room No. 623, Ministry of Water Resources, Shram Shakti Bhawan, Rafi Marg New Delhi – 110 001	23714734	dirwb-mowr@nic.in
18	Shri P.S. Chakraborti, Under Secretary (Water Bodies)	Room No. 626, Ministry of Water Resources, Shram Shakti Bhawan, Rafi Marg New Delhi – 110 001	23714374	-
19	Shri N.K. Gupta, Under Secretary (Administration)	Room No. 424, Ministry of Water Resources, Shram Shakti Bhawan, Rafi Marg New Delhi – 110 001	23710333	usadmn-mowr@nic.in
20	Smt. Asha Mehta, Section Officer (Coordination)	Room No. 19, Ministry of Water Resources, Shram Shakti Bhawan, Rafi Marg New Delhi – 110 001	23766160	coord-mowr@nic.in
21	Dr. Veer Pal, Senior Joint Commissioner (Information, Education and Communication)	Room No. 425, Ministry of Water Resources, Shram Shakti Bhawan, Rafi Marg New Delhi – 110 001	23766135	cadwmagri-mowr@nic.in
22	Shri Rajeev Kumar Arora, Director (Infrastructure Development)	Ministry of Water Resources, Room No. 299, Krishi Bhawan, New Delhi	23384564	dirid-mowr@nic.in
23	Shri Vinay Kumar, Senior Joint Commissioner (Projects and Planning)	Room No. 629, Ministry of Water Resources, Shram Shakti Bhawan, Rafi Marg New Delhi – 110 001	23719503	sjcpp-mowr@nic.in
24	Shri Gopal Dass, Under Secretary (Establishment-II)	Room No. 633, Ministry of Water Resources, Shram Shakti Bhawan, Rafi Marg New Delhi – 110 001	23716928	use2-mowr@nic.in

25	Shri Naveen Kumar Dubey, Section Officer (Establishment-II)	Room No. 435, Ministry of Water Resources, Shram Shakti Bhawan, Rafi Marg New Delhi – 110 001	23718620	etwo-mowr@nic.in
26	Shri Srikanta Panda, Director (Finance)	Room No. 621, Ministry of Water Resources, Shram Shakti Bhawan, Rafi Marg New Delhi – 110 001	23711360	dirfin-mowr@nic.in
27	Shri Rajeev Kumar, Director (Ground Water)	Room No. 621, Ministry of Water Resources, Shram Shakti Bhawan, Rafi Marg New Delhi – 110 001	23716683	dirgw-mowr@nic.in