

CHAPTER - 3

WATER SUPPLY & SANITATION

Delhi Jal Board is responsible for procurement of raw water, its treatment and supply of potable water in Delhi. Delhi Jal Board gives bulk supply of potable water to Delhi Cantonment Board and NDMC for distribution in areas under their respective jurisdictions. In the areas of Municipal Corporations, Delhi Jal Board is responsible for supply of drinking water through its water supply distribution network comprising of Water Treatment Plants, Transmission mains, peripheral lines and internal water distribution network.

Raw water for Delhi is drawn from Ganga River (470 cusec), Yamuna River (755 cusec) and Bhakhra Beas Management Board (495 cusec). With the intervention of the Hon'ble High Court in a public interest matter CW(P): 4931/2013, about 80 MGD raw water has become available to Delhi on account of savings in seepage losses after commissioning of Carrier Lined Channel called Munak Canal which has been constructed at the cost of Delhi. It has enabled Delhi to commission its three water treatment plants at Bawana, Okhla and Dwarka. About 80 MGD of ground water is also being drawn through Ranney Wells and Tube Wells by Delhi Jal Board to meet the water requirement.

As per Yamuna Water Sharing Agreement signed in May, 1994 among the Northern Region States of Himachal Pradesh, Haryana, Uttar Pradesh, Punjab and Delhi, 0.724 BCM Yamuna water was allocated to Delhi. Uttarakhand was part of the Uttar Pradesh at that time. This share is divided into 3 blocks period of the year i.e. July to October, November to February and March to June. Delhi is getting its full share of supply for meeting its growing drinking water requirements.

Under the MoU of 1994 upstream storage dams in Upper Yamuna Basin are considered essential to conserve and utilize the monsoon flows of Yamuna in a regulated manner. Accordingly, three storage dams namely Renuka, on River Giri, in Sirmaur Distt. of Himachal Pradesh, Kishau across River Tons, a tributary of river Yamuna in Uttarakhand and Lakhwar-Vyasi Dam on river Yamuna near Lakhwar village in District Dehradun of Uttarakhand have been proposed. These dams have been declared National projects and 90% funding of the construction cost shall be provided by Govt. of India and balance shall be contributed by the five Basin States.

Govt. of Delhi paid an amount of ₹ 215 Cr. to the HP Govt. for land acquisition for Renuka Reservoir. The DPR of the project has already been prepared and approved. Earlier entire cost of the construction of Renuka Reservoir was to be financed by Delhi Govt. Now Renuka Reservoir project has been declared as a national project and as such the Govt. of India will finance the cost of its construction. However, construction work of this project could not be started as clearance from Ministry of Environment and Forest is still awaited. MoU regarding sharing of raw water among basin states is yet to be drafted and finalized.

The construction of Kishau Dam through Tehri Hydro Development Corporation and Lakhwar-Vyasi Dam through National Hydro Power Corporation is also yet to be started.

The ground water, the only resource available to fill the gap between drinking water requirement of the National Capital Territory and the raw water available is in a very critical condition as the pace of ground water recharge is far behind the pace of ground water exploration. Delhi Jal Board is very much concern on this scenario of very fast depleting ground water level in Delhi. Delhi Govt. prepared draft Delhi Water Board (Ground Water Amendment) Bill 2006 which is yet to be approved by Delhi Legislative Assembly.

On sewerage front NDMC and Delhi Cantonment Board, the two local bodies are responsible for providing sewerage facilities in their respective areas. For the area under jurisdiction of MCD, DJB is responsible for providing sewerage facilities. Since more than 95% of the total area is within the jurisdiction of DJB, the total sewage treatment is being taken care of by DJB.

At present, the sewage treatment installed capacity of all 22 treatment plants is 684 MGD. However, actual treatment capacity utilization is around 430 MGD of sewage only.

The statement showing Proposed Outlay for 2015-16 is given here under:

[₹ In crore]

Particulars	Approved Outlay 2014-15	Revised Outlay 2014-15	Approved Outlay 2015-16
Urban Water Supply	1239.20	1043.00	489.00
Rural Water Supply	10.00	10.00	10.00
Urban Sanitation	363.00	515.50	586.00
Rural Sanitation	2.50	2.50	5.00
TYADB	2.00	2.00	0.00
YAP-III	25.00	25.00	10.00
JNNURM	358.30	402.00	350.00
NRCP-CSS	62.13	0.00	18.00
Total	2062.13	2000.00	1468.00

The Scheme-wise details of Water Supply & Sanitation Sector are given below:-

WATER SUPPLY

1. PROVIDING WATER SUPPLY IN UNAUTHORIZED COLONIES

Annual Plan Outlay 2015-16 : ₹ 14000 Lakh (₹ 11000 Lakh For capital assets)

Piped Water Supply network has been extended in 1044 unauthorized colonies. The work in 33 colonies is in progress and the 179 colonies are under tender stage.

To give immediate relief to public in pockets/ areas with water shortage, additional tubewells have been bored/ re-bored and about 900 water tankers will be deployed for supplying potable water to far-flung areas, JJ Clusters, rural villages; re-settlement Colonies, unauthorized colonies and deficit prone areas. It is proposed to provide piped water supply in 250 unauthorized colonies during the year 2015-16.

2. REPLACEMENT OF OLD DISTRIBUTION AND TRUNK TRANSMISSION SYSTEM

Annual Plan Outlay 2015-16 : ₹ 9000 Lakh (Loan)

DJB has undertaken major works for replacement of critical stretches of water main in leakage prone portions especially of pre-stressed concrete (PSC) in a length of approx. Km of various sizes. It is proposed to lay 250 km of new and replace old water lines in 2015-16.

3. IMPROVEMENTS OF EXISTING WATER WORKS

Annual Plan Outlay 2015-16 : ₹10000 Lakh (Loan)

The renovation of coagulation and filtration system at Chandrawal WW no.1 and renovation of Bhagirathi Water Works have been completed. Three pilot projects i.e. Mehrauli & Vasant Vihar, Malviya Nagar and Nangloi are in progress for improvement of water service delivery based on PPP Model. A work of rehabilitation and augmentation of Raw Water Main of P&V series ranney wells is in progress, which will be completed by December 2015.

4. RANNEY WELLS & TUBE WELLS IN URBAN AREAS

Annual Plan Outlay 2015-16 : ₹ 2000 Lakh (Loan)

About 80 MGD of ground water is being explored through Ranney Wells and Tube Wells of Delhi Jal Board. For augmentation of ground water supply, the work of rehabilitation and automation of tube wells and Ranney wells at Palla has been taken up which will increase water supply from 19 mgd to 35 mgd. Ranney well W1&W2 are also being redeveloped for augmentation of water supply.

5. STAFF QUARTERS & OFFICE ACCOMMODATIONS

Annual Plan Outlay 2015-16 : ₹1000 Lakh (Loan)

The work of Construction of Customer Care Centre (CCC) at G.K.-I has been completed. The proposal for construction of 4 such CCC is being prepared. A new office at Varunalya is also proposed.

6. LAYING OF WATER MAINS IN REGULARIZED UNAUTHORIZED COLONIES

Annual Plan Outlay 2015-16 : ₹ 100 Lakh (Loan)

A provision of ₹ 1 crore has been kept for lying and maintaining water supply network in regularized unauthorized colonies.

7. RAW WATER ARRANGEMENTS

Annual Plan Outlay 2015-16 : ₹ 250 Lakh (For capital assets)

- a) To bridge the gap of around 200 MGD in raw water needs, DJB has been pursuing the matter of construction of 3 upstream storage dam projects (Renuka, Kishau and Lakshwarvysi) on River Yamuna in close cooperation with other basin states. DJB has paid ₹ 214.83 cr to Himachal Pradesh for conducting initial studies and for land acquisition. The MoU for sharing of water among basin states is yet to be finalized. All the 3 projects have been declared National Projects recently by the Government of India. An amount of ₹ 50.00 crore is earmarked for Renuka dam project for the year 2015-16.
- b) CWC has submitted the pre-feasibility report (PFR) for additional barrage at Palla which is being scrutinized. Such barrage will store monsoon period flows apart from being an anti flood measure.
- c) To increase the pondage at river Yamuna on up Stream of Wazirabad Bridge, the work of dredging of silt from River Yamuna is in progress.

8. DISTRIBUTION MAINS AND RESERVOIRS

Annual Plan Outlay 2015-16 : ₹ 4500 Lakh (Loan)

For ensuring optimal utilization of available water and its equitable distribution, DJB planned to construct 53 additional underground (UGRs). Out of these, 46 UGRs are already commissioned. The UGRs at Rohini Sector-7 will be commissioned by October 2015 and Karala by March 2016. For 2 UGRs, DJB is liasoning with DDA and DC offices for provision of adequate plots of land in Bijwasan and Rajokari. 1 UGR at Mundaka and 1 at Najagarh come under PPP.

9. EAP FUNDING- REHABILITATION OF WTP AT WAZIRABAD

Annual Plan Outlay 2015-16 : ₹ 1000 Lakh (Loan)

To achieve equitable distribution of water in Wazirabad WTP Command Area by Improvement of WTP, Water Supply Network including Service connection and Reducing Non-Revenue Water, a Project has been envisaged with tentative cost of ₹ 2243 Crores and proposed to be funded through Loan from Asian Development Bank (ADB). 70% of the Project cost will be financed through Loan from ADB and the remaining 30% will be funded by GNCT Delhi. The old WTP constructed in three phases will be renovated/rehabilitated/reconstructed along with comprehensive rehabilitation and improvement of water network with focus on creation of DMAs, distribution SCADA and continuous Water Supply thereby leading to the ultimate objective of upgrading citizen's living standard. The project has been cleared by Screening Committee of Department of Economic affairs (DEA) Govt. of India. Project Preparatory Technical Assistance (PPTA) has been extended by ADB and

the appointment of Project Management Consultant (PMC) is in process. The loan agreement is proposed to be signed in the First Quarter of 2015. All procurement and consulting service are being undertaken through advance contracting actions that will be retroactively financed by ABD loan.

10. WATER SUPPLY IN URBAN VILLAGES

Annual Plan Outlay 2015-16 : ₹1000 Lakh (Loan)

Tenders for the work of construction of 6 ML capacity UGR at Mahipalpur and its feeder and peripheral main have been awarded and being taken up in 2015-2016.

11. WATER SUPPLY IN RE-SETTLEMENT COLONIES

Annual Plan Outlay 2015-16 : ₹ 450 Lakh (For capital assets)

A provision of ₹ 4.50 crore has been kept for water supply in 45 Resettlement Colonies. For other squatters, the proposal of taking over those has been initiated by DUSIB. The survey has been conducted and the estimates are being prepared for providing water supply network.

12. AUGMENTATION OF WATER SUPPLY IN JJ CLUSTER

Annual Plan Outlay 2015-16 : ₹ 80 Lakh

A provision of ₹ 0.80 crore has been kept for maintaining and improvement of water supply in 643 JJ Cluster.

13. INFORMATION TECHNOLOGY INFRASTRUCTURE/CAPACITY BUILDING

Annual Plan Outlay 2015-16 : ₹ 800 Lakh (For capital assets)

A provision of ₹ 8 crore has been kept for improvement of Revenue Management System through Information Technology.

14. WATER QUALITY CONTROL

Annual Plan Outlay 2015-16 : ₹ 300 Lakh (For capital assets)

A provision of ₹ 3 crore has been kept for testing of Quality of Water for which testing operator have been appointed.

15. METERING AND LEAKAGE MANAGEMENT

Annual Plan Outlay 2015-16 : ₹ 2000 Lakh (Loan)

The work of installation of 3 lakh AMR and 1 lakh non AMR meters under phase -I is in progress. Tenders have been invited for Phase-II comprising of procurement and installation of 3 lakh domestic AMR Water Meter and 1 lac non AMR Water Meters. The work under Phase-I is likely to be completed by 2015.

16. ENVIRONMENTAL GREENERY & LANDSCAPING

Annual Plan Outlay 2015-16 : ₹ 300 Lakh (For capital assets)

A provision of ₹ 3 crore has been kept for maintenance of plants and filling of land scarping.

17. EAP FUNDING – REHABILITATION OF CHANDRAWAL WTP & ITS COMMAND AREA

Annual Plan Outlay 2015-16 : ₹ 2000 Lakh (Loan)

DJB, through JICA Technical study, has framed Master Plan for water supply 2021 based on water demand of all areas. The Master Plan has been developed for extension of rehabilitation of water supply facilities (new reservoirs, Treatment Plants, new command areas and transmission network) by considering three water availability scenarios. Further rehabilitation of Chandrawal WTP command area has been proposed which includes rehabilitation of treatment plant, transmission/distribution mains, service pipes and meters. The project cost is around ₹2018 Crores. The project cost will be funded through Official Development Assistance (ODA). The loan from Japan International Co-operation (JICA) to the tune of 85% and the balance 15% cost will be shared by the Govt. of NCT of Delhi (GNCTD). M/s Tokyo Engineering Consultant Co. Ltd. and Consortium has been appointed as project management consultant for the project.

The work of providing consultancy services for JICA assisted Delhi water supply improvement project in Chandrawal Treatment Plant command area has commenced from 22.11.2013. The budget provision for the year 2015-16 has been kept as ₹ 20 Crore which includes ₹17.00 Crore through JICA and ₹ 3.00 Crore from GNCTD.

18. RURAL WATER SUPPLY

Annual Plan Outlay 2015-16 : ₹1000 Lakh (For capital assets)
(₹ 930 lakh in General and ₹ 70 lakh in SCSP)

A provision of ₹ 10 crore has been kept for supply of water through tankers/pipe line in rural areas.

19. WATER CONSERVATION MISSION

Annual Plan Outlay 2015-16 : ₹ 20 Lakh

A provision of ₹ 20 lakh has been kept for Water Conservation Mission.

20. Use of Treated Effluent

Annual Plan Outlay 2015-16 : ₹ 100 Lakh (For capital assets)

To augment water availability in Delhi and reduce stress on potable water, DJB wants to take up a plan to increase the use of treated effluent for horticulture and non drinking purposes. For this laying of necessary infrastructure from Sewage Treatment Plant to the nearest point of potential users is required to facilitate them to use treated effluent. In the first instance, the area within 5 KM range of existing treated effluent pipeline carrying effluent from Okhla up to Tilak Bridge will be taken up.

Jan Jal Prabandhan Yojna:

Six colonies i.e. Gautampuri near Aali Gaon, Aya Nagar, Sainagar, Kair, Sonia Vihar A Block & Begam vihar B Block have been identified for implementing this scheme. Detailed filed survey done, estimate prepared, tenders to be invited today. The broad scope of work comprises of following works:

1. Providing network for potable, non-potable and sewer.
2. Construction of STP upto tertiary level effluent of bathing standards.
3. Construction of storage tanks with BPS

The estimated cost of the work is ₹ 95.32 Crore

B. Sewerage Sector

Present Status: DJB has 22 wastewater treatment plants (684 MGD installed capacity) 22 sewage treatment plants (STPs) are at Okhla, Keshopur, Coronation Pillar, Kondli, Rithala, Vasant Kunj, Yamuna Vihar, Ghitorni, Narela, Pappan Kalan, Najafgarh, Delhi gate nallah, Sen Nursing Home nallah, Rohini, Nilothi CWG village, Molarband, Bakkerwala, Chilla, Kapashera, Timarpur (Oxidation Pond) and Mehrauli.

DJB has a network of 7000 km of sewers with 192 km of trunk network and about 1508 km of peripheral network. There are 42 major SPSs across Delhi. As the estimated wastewater generation is 680 MGD, ever since inception, DJB has strived to augment sewage treatment capacity which has increased from 334 MGD in 1998 to 684 MGD by 2015.

The existing sewerage treatment plants (STP) are not currently being utilized to their optimum capacity due to blockage of sewers, settlement of old and deteriorated sewers and extensive unsewered areas. Only about 55 % of the population is connected to the sewerage network. Thus of the estimated 680 MGD of wastewater generation, only 430 MGD is getting treated at 22 wastewater treatment plants which have installed capacity of 684 MGD.

In recent times, the sewerage services have been under strain in wake of explosive unplanned population growth and growing water resource scarcity. The obvious manifestations are the increasing generation - treatment gap, poor quality of treatment and low quality of water in river Yamuna. This is also manifested in the Service Level Benchmarks.

Proposed Indicator	Benchmark	Status
Coverage of Waste Water Network Services	100%	55 %
Collection Efficiency of Waste Water Network	100%	65 %
Adequacy of waste water treatment capacity	100%	100%
Quality of waste water treatment	100%	94.6 %
Extent of recycling of treated waste water	20%	35 %
Efficiency in redressal of customer complaints	80%	80 %
Efficiency in collection of sewerage charges	90%	85 %

** SLB Handbook of Ministry of Urban Development*

As is apparent, the sewerage services need to be enhanced by improving network coverage, transmission and treatment efficiencies and metering / zonal data. Hence DJB is further working on following initiatives for better sewerage facilities for the capital:-

1. TRUNK SEWERS

Annual Plan Outlay 2015-16 : ₹ 6000 Lakh (Loan)

There is a network of 192 km of trunk sewers in Delhi of which 50 km trunk sewers was desilted and partly rehabilitated. Sewer rehabilitation work of around 55 km of trunk sewer and 25 km of peripheral sewer was taken up in 2008. All the sewers have been commissioned. Sewer rehabilitation work of Pitampura, Shakurbasti, C.V. Raman Marg and Rohatak Road etc., is under progress. In phase-II, the remaining peripheral sewer lines have been taken up for rehabilitation.

Following work of rehabilitation of Trunk sewer will be started in 2015-16:

- Trunk Sewer No.5 & Jhilmil Colony sewer sizes varying from 1600-2100mm dia in Kondli Zone.
- Trunk Sewer No.4 & Narwana Road, Anand Vihar & Vikas Marg Sewer of sizes varying 450-1600mm dia in Kondli Zone.

2. SEWAGE TREATMENT PLANTS:

Annual Plan Outlay 2015-16 : ₹ 17000 Lakh (Loan)

Delhi Jal Board has already achieved the sewage treatment capacity of 684 mgd against the requirement of 680 mgd at present. However to meet future demand, following Waste Water Treatment Plants are under tender stage:

- a) 70 mgd at Coronation (i/c 30 mgd rehabilitation of old STPs)
- b) 8 mgd at Delhi Cantt.
- c) 14 decentralized STPs in the command of Najafgarh & Supplementary drains as per NGT orders.

3. RENOVATION OF EXISTING PLANTS & PUMPING STATIONS

Annual Plan Outlay 2015-16 : ₹ 6000 Lakh (Loan)

The Possangipur SPS has been recently commissioned. Preet Vihar SPS has been completed to the extent of 70% & Kalyanpuri SPS 60%.

4. SEWERAGE SYSTEM IN REGULARIZED UN-AUTHORIZED COLONIES

Annual Plan Outlay 2015-16 : ₹ 9000 Lakh (Loan)

DJB is gradually extending sewerage system in remaining unsewered area, viz. over 1600 provisionally regularized colonies, 1080 JJ clusters, 135 Urban villages, 189 Rural villages and 44 unauthorized regularized colonies. The work of laying of sewerage facility in 209 colonies has been completed and the work in 300 colonies is under progress.

PREPARATION OF SEWERAGE MASTER PLAN FOR 2031

A sewerage Master Plan prepared by an International Consultant M/s AECOM for 2031 year has been finalized which facilitates to assess and map the condition of the existing drainage infrastructures, suggest for creation of additional infrastructures to cater to the sewage discharge in future & preparation of estimates for providing sewerage network in unsewered areas.

5. SEWERAGE FACILITIES IN URBAN VILLAGES

Annual Plan Outlay 2015-16 : ₹ 300 Lakh (Loan)

Urban Villages: Out of 135 Urban Villages, 129 villages have been provided sewerage facilities till December, 2014.

6. SEWERAGE FACILITIES IN RESETTLEMENT COLONIES

Annual Plan Outlay 2015-16 : ₹ 300 Lakh (Loan)

A provision of ₹ 3 crore has been kept for maintenance of sewerage facilities in 44 resettlement colonies.

7. SEWERAGE FACILITIES IN UNAUTHORIZED COLONIES

Annual Plan Outlay 2015-16 : ₹ 20000 Lakh (For capital assets)

A provision of ₹200 crore has been kept for sewerage facilities in 1639 unauthorized colonies. Out of which the work in 209 colonies has been completed. The work is in progress in 300 colonies. Laying of sewer lines in these colonies shall be taken up in phase manner.

8. SEWERAGE FACILITIES IN RURAL VILLAGES

Annual Plan Outlay 2015-16 : ₹ 500 Lakh (For capital assets)

Rural Villages: For providing sewerage facilities in the 189 rural villages. Sewerage works in 34 villages have been completed. & in remaining villages, the estimate/tenders were under process where land for SPS/STP will be made available by land owing department. M/s AECOM will prepare the scheme while preparing the Master Plan

9. JNNURM PROJECTS

Annual Plan Outlay 2015-16 : ₹ 35000 Lakh

(a) REHABILITATION OF TRUNK SEWER

Annual Plan Outlay 2015-16 : ₹ NIL

The project - Rehabilitation of Trunk Sewer has been completed. The provision has been made against ACA amount to be released by GOI.

(b) INTERCEPTOR SEWER

Annual Plan Outlay 2015-16 : ₹ 35000 Lakh
(₹ 21500 Lakh For capital assets and ₹ 13500 Lakh under Loan)

An innovative solution to deal with the pollution in river Yamuna was evolved by DJB and has been widely endorsed. This involves laying of interceptor sewer along the Najafgarh Drain, Supplementary Drains and Shahdara Drain (total length 59 kms). The interceptor sewer will be laid along these drains below the bed level of the drains and all the drains carrying wastewater from unsewered areas will be trapped and conveyed to the existing STPs. The project has been designed in such a way that the interceptor sewer works as the trunk sewer for the presently unsewered areas in long term. Further DJB has strived to ensure that this project complements with its ongoing and mid-term sewerage projects. The project was appraised by CPHEEO and recommended to the Ministry of Urban Development for sanction of ₹ 1357.71cr under JNNURM. The Expenditure Finance Committee of the central Government has accorded approval for funding in January, 2010 and CCI has also

approved in May 2010. The works of 6 packages have been awarded to three different agencies in July, 2011 with stipulated period of completion of 36 months.

M/s Engineers India Ltd. was appointed as Project Management Consultant to implement this concept. To complete the work in a time bound manner, the project has been divided into six packages. All the six packages of the project were awarded to three different agencies at the total cost of ₹ 1976 crore which includes 10 years O&M also. The project has been funded under JNNURM. 78% work has been completed.

(c) MODIFICATION OF SEWERAGE PROJECTS- NILOTHI & PAPPANKALAN

Annual Plan Outlay 2015-16 : NIL

Construction of 20MGD STP at Nilothi, Const. of 20MGD STP at Pappan kalan and Const. of 11 MGD SPS at Possingi Pur work is in progress. Sewer line from Janak Puri Distt. Centre to Keshav Pur STP is under process. Work award, P/L/J 2000 M.M. diameter. Sewer Line from Sunil Bakshi Marg to Najaf Garh Drain work awarded, permission of road cutting awaited, P/L/J 1400 M.M. dia sewer Line from Kirti nagar Metro Stn. to Sunil Bakshi Marg permission for road cutting being perused.

10. YAMUNA ACTION PLAN PHASE- III

Annual Plan Outlay 2015-16 : ₹ 1000 Lakh (Loan)

MODERNIZATION & REFURBISHMET OF STP / SPS -

The STPs at Okhla, Kondli, Coronation Pillar and Rithala as also the SPSs at Kilokri, Ring Road, Haiderpuri, Jagriti and Preet Vihar are quite old. Refurbishment & modernization of existing sewer network and Sewerage Treatment Plants for improving conveyance efficiency of sewer network and for enhancing treatment effectiveness and quality is being taken up in 3 sewerage zones of Kondli, Okhla and Rithala under YAP – III. The STPs at Kondli, Okhla and Rithala for which a proposal of ₹1650 crore has already been approved with JICA funding to the tune of 85% consultants for the project have been appointed who are working on various aspects to that the works can be taken up. Existing STPs will be up graded as per the norms laid by Ministry of Environment & Forests / CPCB / DPCC.

The following projects under YAP-III are to be started:

- Construction of New Okhla phase-I Waste Water Treatment Plant (WWTP) of 136 MLD & power generation on turnkey basis & then demolition of existing Phase-I WWTP
- Rehabilitation & Up gradation of Okhla Phase-II (55MLD), phase-III(205MLD) & Phase-IV(168MLD) WWTPs

11. Centrally Sponsored Scheme of National River Conservation Plan (NRCP)

Annual Plan Outlay 2015-16 : ₹ 1800 Lakh

The National River Conservation Directorate (NRCD) in the Ministry of Environment, Forests and Climate Change is implementing the Centrally Sponsored Schemes of National River Conservation Plan (NRCP) and National Plan for Conservation of Aquatic Eco-systems'(NPCA) for conservation of rivers, lakes and wetlands in the country. The objective of the River Action Plans is to improve water quality of rivers through implementation of pollution abatement schemes in identified polluted stretches of rivers. NPCA aims at conserving aquatic ecosystems (lakes and wetlands) through implementation of sustainable conservation plans, and governed with application of uniform policy and guidelines.

The Centrally sponsored Scheme of National River Conservation Plan (NRCP) is being implemented by the central Government jointly with the State Government on a cost-sharing basis. The pollution abatement works under NRCP presently cover identified polluted stretches of 39 major rivers in 185 towns spread over 20 States in the country. The sanctioned cost of the projects under NRCP is ₹8100.48 crore (including ₹433 crore incurred under GAP). The sewage treatment capacity of 4417 mld has been created under River Action Plans.

Pollution Abatement Works so far:

The following pollution abatement works are taken up:

Interception and Diversion works to capture the raw sewage flowing into the river through open drains and divert them for treatment. (I&D)

- i) Sewage Treatment Plants for treating the diverted sewage. (STP)
- ii) Low Cost Sanitation works to prevent open defecation on river banks. (LCS)
- iii) Electric Crematoria and Improved Wood Crematoria and Improved Wood Crematoria to conserve the use of wood and help in ensuring proper cremation of bodies brought to the burning ghats. (EC&IWC)
- iv) River Front Development works such as improvement of bathing ghats etc. (RED)
- v) Other Measures like plantation, public awareness etc.

Funding Pattern for NRCP

The funding pattern for the river cleaning programme has undergone several changes over the years. The GAP Phase I which started in 1985 was a 100% Centrally Sponsored scheme. The funding pattern has changed to 50:50 between the Central Government and the State Governments in 1993. This was revised again to 100% GOI funding w.e.f. 01.04.1997. The funding pattern is 70:30 between Centre and States with effect from 01.04.2001. The Yamuna Action Plan is being implemented with a funding pattern of 85:15 between the Central Government and the State Governments.

To supplement efforts of State Governments in abatement of pollution of river Yamuna, Yamuna Action Plan (YAP) was launched by the Government of India with financial assistance from Japan International Cooperation Agency (JICA) in a phased manner as well as from internal resources. The first phase of YAP which was started in April, 1993 in the three States of UP, Delhi & Haryana covering 21 towns was completed in February, 2003 at a cost of ₹703.10 crore and 38 sewage treatment plants with treatment capacity of 753.25 mld, (of which 401.25 mld in U.P., 322 mld in Haryana and 30 mld in Delhi) were created. YAP Phase-II was started in 2003 also with JICA assistance. An expenditure of ₹811.31 crore has been incurred in three States of Delhi, Haryana and Uttar Pradesh under this phase. New sewage treatment capacity of 189 mld (Delhi 135 mld and Uttar Pradesh 54 mld) was created and rehabilitation of 328 mld existing STP capacity at Delhi was done under this phase.

The Central Government has approved Phase-III of YAP at a total cost of ₹1656 crore for Delhi with loan assistance from JICA. The project cost will be shared between the Govt of India and the Government of NCT of Delhi on 85:15 basis. The share of Gol in the project will be ₹1407.6 crore and that of Govt of NCT of Delhi will be ₹248.40 crore. Loan agreement with JICA has already been signed. The project is scheduled for completion by December, 2018.

The proposed works under the project are :

- a) Rehabilitation/modernization of STPs, total 814 mld capacity at Okhla, Kondli and Rithala in Delhi
- b) Setting up of tertiary treatment facilities at the above STPs
- c) Construction of a new state of art STP in place of old STP of 136 mld capacity at Okhla.
- d) Rehabilitation of sewer lines/rising mains in the two catchments of Kondli and Rithala
- e) Public Outreach Activities.

The project is being implemented by DJB under the supervision of the Department of Urban Development, Government of NCT of Delhi. Project Management Consultant (PMC) has been appointed by DJB to assist in project implementation. DPR, for 6 components of the project have been submitted by DJB, which are various stage of appraisal by independent appraisal agency (IIT, Delhi & IIT, Roorkee) / under processing in the Ministry for sanction.