

CHAPTER - 4

IRRIGATION AND FLOOD CONTROL

INTRODUCTION

Irrigation & Flood Control Department is entrusted with the responsibility of providing irrigation facilities to the farmers of rural villages of Delhi through Effluent received from Sewage Treatment Plant as well as through a Network of State tube-wells available in the rural areas, maintaining the embankments constructed on both sides of river Yamuna in the jurisdiction of Govt. of NCT of Delhi, maintenance of 63 nos. of major storm water drains e.g. Supplementary drain, Najafgarh Drain, Trunk Drain No. I & Trunk Drain No. II, Gazipur drain, Pankha Road Drain, Palam Drain, Nasirpur Drain, Mungeshpur Drain, Nangloi Drain etc., including construction of bridges over these drains. Besides this, Irrigation & Flood Control Department is also equipped with machinery such as draglines, bulldozers, dredger and heavy duty electrical and diesel pump sets which are utilized for removal of drainage congestion during monsoon from low lying areas.

MINOR IRRIGATION

Irrigation in Delhi mainly depends upon ground water and partly upon surface water. Irrigation from the ground water is provided through shallow cavity tube-wells, whereas surface irrigation by way of utilizing treated effluent water in North, South and West Districts from the existing sewage treatment plants located at Burari (Coronation Pillar), Okhla and Keshopur. Western Yamuna canal system under the control of Haryana Government is also being utilized for irrigation purposes in North-West District.

FLOOD CONTROL

The National Capital Territory of Delhi has experienced floods in the past, mainly from Sahibi Nadi (Passing through Najafgarh Drain in Delhi) and Yamuna River. Local Drainage system has also been found inadequate to meet the requirement when there is heavy rain fall in the catchments of these drains or during inflow of flood water from adjoining states through Yamuna River in Delhi. Several flood mitigating measures like raising and strengthening of Yamuna marginal embankments, remodeling and lining of various drains have been taken up over the years to avoid repetition of flood.

Revised Outlay & Expenditure of Annual Plan 2013-14, Approved Outlay & Revised outlay of Annual plan 2014-15 and Outlay for Annual Plan 2015-16 for Minor Irrigation & Flood Control Sector are as under:

[₹ in crore]

Sector	Annual Plan 2013-14		Annual Plan 2014-15		Annual Plan 2015-16
	Revised Outlay	Expenditure	Approved Outlay	Revised Outlay	
I & FC	70.00	69.41	82.00	84.00	65.00

MINOR IRRIGATION:

Ground Water Recharge & Water Conservation

Annual Plan 2015-16 : ₹ 5 Lakh (Capital)

i) Water conservation, Recharge of ground water and Creation of water detention basin etc.

Due to uncontrolled exploitation of ground water resources and inadequate ground water re-charge measure, the ground water in Delhi has been continuously depleting over the last several years. The groundwater situation in Mehrauli and Najafgarh Block and Alipur Block are critical. In order to reverse this trend, the Dept. has taken-up number of water harvesting schemes such as creating pondage in the bed of N.G. Drain, making recharging pits/trenches in Mungeshpur Drain, Bawana Escape, Mundella Bund etc.

ii) Construction of artificial recharge well in the existing ponds in villages in NCT of Delhi.

FLOOD CONTROL

1. Embankment schemes including Access Roads & Bridges, Anti Erosion Works and Beautification works

Annual Plan 2015-16 : ₹ 5150 Lakh (Capital)

The embankment schemes envisage construction, strengthening and beautifications of embankments of river/drains under the jurisdiction of I&FC Deptt.

1.1 Major Drainage Schemes

1.1.1 Covering of Irrigation Channel from Okhla Treatment Plant to main road of village Jasola in Okhla Constituency. (Estimated Cost: ₹ 209.00 lakh)

Open Irrigation Channel carrying treated effluent available from of Okhla Treatment Plant, passing through Abadi area of village Jasola creates unhygienic insanitary condition, foul smell and has become place for mosquito breeding and health hazards to the local residents. The covering of channel is

being carried out to use this space as internal road by residents of the area. The A/A & E/S is yet to be issued and work will spill over to next financial year.

- 1.1.2 Development of two Parks one on right bank of Najafgarh Drain between RD 30450m to RD 31970m and another at downstream of Kakraula Regulator Opp. Vipin Garden. (Estimated Cost: ₹ 234.00 lakh)

E/S issued in the year 2013-14. The work is in progress 82% works has been completed and scheme is likely to be completed in the current financial year.

- 1.1.3 Providing plinth protection and drainage chutes on inner side slope of left and right side banks and wheel guards on outer side of N.G. drain from Amberahi Bridge to Kakraula Bridge. (Estimated Cost: ₹ 376.72 lakh)

- 1.1.4 Strengthening of existing testing laboratory of I&FC Deptt., at L.M. Bund office complex. (Estimated Cost: ₹ 85.00 lakh)

E/S has been issued in the financial year 2012-13. Out of which few equipments/machines for testing of material has been procured and installed. However, the balance machineries are under process of purchasing and thereafter installation will take place. This scheme will spill over to next financial year.

1.2 REMODELING / IMPROVEMENT OF EXISTING DRAINS

Remodeling / improvement of existing drains are being carried out to accommodate additional discharge generated on account of new habitation/township/industrial park as these drains are passing through rural areas which was not developed and now under development/likely to be developed.

- 1.2.1 Remodeling of Kirari Suleman Nagar Drain from RD 3700 to 6100 (By constructing RCC through section 3700 to 6090m). (Estimated Cost: ₹ 889.00 lakh (Revised))

E/S has been issued in the year 2007-08. The work is in progress 79% work has been completed and the scheme spill over to next financial year.

- 1.2.2 Remodeling of drain No. 6 from RD 0m to RD 14725m. (5 bridges). (Estimated Cost: ₹ 744.00 lakh)

- 1.2.3 Remodeling of Kirari Suleman Nagar Drain by constructing RCC trough section from RD 3700 m to RD 2445 m. (Estimated Cost: ₹ 570.32 lakh (Revised))

E/S has been issued in the year 2007-08. The work is in progress 54% works has been completed and the scheme spill over to next financial year.

1.3 OTHER SMALL DRAINAGE IMPROVEMNET SCHEMES

- 1.3.1 Providing and laying dry stone pitching on bank of Trunk Drain No. 1 from RD 20m to RD 480m. (Estimated Cost: ₹ 98.00 lakh)

E/S has been issued in the year 2012-13. The work is in progress and likely to be completed in the current financial year.

- 1.3.2 Improvement of Trunk Drain No. 1 from RD 6265m to RD 5900 and 6650m to RD 6345m. (Estimated Cost: ₹ 398.00 lakh)

E/S has been issued in the year 2012-13. The work is in progress and likely to spill over to current financial year.

- 1.3.3 Demolition of pipe culverts and reconstruction of RCC box culverts at RD 1508m to RD 1534m, RD 1662m, RD 1788m, RD 1872m of Burari Creek. (Estimated Cost: ₹ 150.00 lakh)

- 1.3.4 Restoration of damaged lining portion between RD 0m to 1135m and 3250 to 1600m of Jahangirpuri drain (Both sides). (Estimated Cost: ₹ 84.51 lakh)

- 1.3.5 Development of Bhalswa Nursery on left bank of Supplementary Drain. (Estimated Cost: ₹ 175.54 lakh)

- 1.3.6 Construction of guard wall from RD 3250m to RD 1135m including restoration of inspection path constructed on R/B of Jahangirpuri drain. (Estimated Cost: ₹ 141.81 lakh)

- 1.3.7 Extension of Nasirpur drain on DDA land up to Railway line (off take point). (Estimated Cost: ₹ 40.87 lakh)

1.4 ACESS ROADS & BRIDGES

- 1.4.1 Construction of RCC culvert at out falling point of Mundka peripheral drain at RD 2345m across Hirankudna road. (Estimated Cost: ₹ 22.00 lakh)

- 1.4.2 Construction of inspection path right side of KSN drain by constructing RCC wall from RD 6090m to RD 7850m. (Estimated Cost: ₹ 262.00 lakh)

- 1.4.3 Construction of two lanes RCC bridge at RD 18300m of Supplementary drain at Dal Mil Gali, Budh Vihar. (Completed) (Estimated Cost: ₹ 256.00 lakh)

- 1.4.4 Construction of two lane RCC bridges at RD 2117m (Sarangpur) on N.G. Drain. (Estimated Cost: ₹ 719.00 lakh)

- 1.4.5 Construction of two lane RCC Bridge across NG Drain at RD 44060m to connect Shivaji Enclave & Road No. 33 West of Punjabi Bagh. (Estimated Cost ₹ 539.00 lakh)

- 1.4.6 Demolition of existing pipe culverts and reconstruction of RCC box culverts at RD 1181m, 1266m, 1337m, 1419m & 1478m of Burari Creeks. (Estimated Cost: ₹ 192.93 lakh)
- 1.4.7 Construction of RCC double lane bridge at RD 23800m, U/S of existing foot Bridge, across Supplementary Drain. (Estimated Cost: ₹ 356.50 lakh)
- 1.4.8 Demolishing of Single lane bridge and Reconstruction of Double lane bridge at RD 17220M, RD 18928M, RD 24115M, RD 30849M and RD 31204M at Mungeshpur drain. (Estimated Cost: ₹ 454.00 lakh)
- 1.4.9 Construction of two no. steel truss Foot Bridge on NG drain upstream and downstream of Bharat Nagar at RD 57232m. (Estimated Cost: ₹ 133.70 lakh)
- 1.4.10 Demolition of existing pipe culver and reconstruction of RCC culverts at RD 610m, 1866m, 2910, 3510, 3700m of Banker link drain. (Estimated Cost: ₹ 134.07 lakh)
- 1.4.11 Construction of inspection road from RD 9024m to RD 10362m and re-surfacing of existing road from RD 4610m to RD 9024m including protection wall on the l(left side) inner edge of Mungeshpur drain from RD 4610m to RD 10362m. (Estimated Cost: ₹ 315.00 lakh)
- 1.4.12 Construction of double lane RCC Bridge at RD 12740m of supplementary drain. (Estimated Cost: ₹ 356.00 lakh)
- 1.4.13 Demolishing and reconstruction of single lane RCC bridge at RD 4919m of (Ghummenhera) on Najafgarh Drain. (Estimated Cost: ₹ 487.00 lakh)
- 1.4.14 Demolishing 4 NO. culverts on a single lane bridge in construction of double lane bridge in lieu thereof at RD 4580m, 4756, 4947 and 5300m KSN drain. (Estimated Cost: ₹ 57.73 lakh)
- 1.4.15 Construction of bridge on downstream of G.T. Road Bridge near RD 4950m of drain No. 6. (Estimated Cost: ₹ 195.00 lakh)
- 1.4.16 Construction of bridge downstream of G.T. Road Bridge near RD 19550m of Bawana escape. (Estimated Cost: ₹ 199.36 lakh)
- 1.4.17 Construction of additional RCC double lane bridge across Supplementary drain (U/S of existing bridge at RD 23218m). (Estimated Cost: ₹ 295.00 lakh)
- 1.4.18 Construction of double lane steel grader bridge D/S of existing Mughal bridge across old course of N.G drain. (Estimated Cost: ₹ 494.00 lakh)
- 1.4.19 Construction of RCC trough section from RD 0m to 865m of Khera Kalan drain in Alipur Block. (Estimated Cost: ₹ 165.48 lakh)

- 1.4.20 Construction of RCC box culvert at RD 1865m of Relief drain to connect shree ram colony and Rajiv Vihar. (Estimated Cost: ₹ 177.48 lakh)
- 1.4.21 Construction of Double lane R.C.C. Bridge on up stream of existing Lagat Pur B\bridge at RD 1670m of Supplementary drain. (Estimated Cost: ₹ 422.10 lakh)
- 1.4.22 Demolishing of single lane bride and reconstruction of double lane bridge at RD 34849m at Mungeshpur drain. (Estimated Cost: ₹ 81.00 lakh)
- 1.4.23 Construction of inspection path on right bank of N.G. Drain from RD 48315m (Rohtak Road) to RD 46870m. (Estimated Cost: ₹ 235.43 lakh)
- 1.4.24 Construction of single lane RCC bridge at RD 20360m and RD 20690m of Supplementary Drain (U/S and Downstream of adjoining existing foot brides). (Estimated Cost: ₹ 388.28 lakh)
- 1.4.25 Construction of steel grider bridge D/S for Riffle Range Bridge at RD 55516 of N.G Drain. (Estimated Cost: ₹ 239.92 lakh)
- 1.4.26 Construction of RCC retaining wall between RD 21450m to RD 21660m of Supplementary Drain. (Estimated Cost: ₹ 465.61 lakh)
- 1.4.27 Demolition and Reconstruction of bridges at RD 670m, 890m, 7285m and 8690m at Bawana Drain. (Estimated Cost: ₹ 256.00 lakh)

New Schemes likely to be taken up in the current financial year.

- 1.4.28 Widening of two lane bridge at RD 8750m TD No. 1 at Babarpur. (Estimated Cost: ₹ 230.00 lakh)
- 1.4.29 Demolishing & Re-construction of two lane R.C.C. bridge at RD 1260 M of New Drain. (Estimated Cost: ₹ 365.00 lakh)
- 1.4.30 Construction of Double Lane RCC bridge on Sarita Vihar Drain at RD 900 mt. & 1200 mtr. (Estimated Cost: ₹ 134.00 lakh)
- 1.4.31 Resurfacing of inspection path of Right Marginal Embankment from RD 0 m. to RD 10500 m. (Estimated Cost: ₹ 475.00 lakh)
- 1.4.32 Construction of inspection path on right bank of Najafgarh drains from RD14414m to 16100m (Badusarai Bridge to Haryana Border Line) in N.G. Block. (Estimated Cost: ₹ 92.00 lakh)
- 1.4.33 Improvement of inspection path on left bank of Mungeshpur drains between RD 36789m to RD 26550m of Mungeshpur drain. (Estimated Cost: ₹ 250.00 lakh)
- 1.4.34 Resurfacing of inspection path of Right Marginal Embankment from RD 0 m. to RD 10500 m. (Estimated Cost: ₹ 475.00 lakh)

- 1.4.35 Construction of inspection path on right bank of Najafgarh drains from RD 14414m to 16100m (Badusarai Bridge to Haryana Border Line) in N.G. Block. (Estimated Cost: ₹ 92.00 lakh)
- 1.4.36 Improvement of inspection path on left bank of Mungeshpur drains between RD 36789m to RD 26550m of Mungeshpur drain. (Estimated Cost: ₹ 250.00 lakh)
- 1.4.37 Demolishing of pipe culverts and reconstruction of RCC box culverts at RD 675m, RD 770m & 1407m on ghoga drain. (Estimated Cost: ₹ 99.00 lakh)
- 1.4.38 Demolition & re-construction of RCC bridge at RD 1350 m & RD 1480 m of Nangloi Drain. (Estimated Cost: ₹ 63.00 lakh)
- 1.4.39 Demolishing and Re-construction of culverts at RD 6090 m of Kirari Suleman Nagar Drain. (Estimated Cost: ₹ 27.00 lakh)
- 1.4.40 Providing and laying bricks on edge flooring from RD 4150m to RD 7850m of KSN Drain. (Estimated Cost: ₹ 85.00 lakh)
- 1.4.41 Raising of wall of trough section from RD 4150m to RD 7850m of KSN drain. (Estimated Cost: ₹ 84.00 lakh)
- 1.4.42 Construction of Regulator at off take point at RD 34500m of Supplementary Drain. (Estimated Cost: ₹ 1198.00 lakh)
- 1.4.43 Raising of existing service road and remodeling of side drain on cite side from RD 900m to 3800m along L.F. Bund. (Estimated Cost: ₹ 787.00 lakh)

New Scheme (The proposed new schemes may be taken up for execution after clearance from TAC, FCB and EFC and A/A & E/S issued thereafter)

- 1.4.44 Construction of two lane R.C.C Bridge at Bhikam Singh Colony RD 3965m of T.D. No. I (Trans Yamuna)
- 1.4.45 Construction of two lane R.C.C Bridge at near Kendriya Vidhyalya at RD 2870m of T.D. No. I (Trans Yamuna).
- 1.4.46 Construction of two lane RCC skew bridge across Pankha road drain at RD 3015m at C-I, Janakpuri, Red Light improvement of T-Junction at Pankha road, Janakpuri, New Delhi. (West Distt.)
- 1.4.47 Construction of R.C.C Culvert at RD 2000m of Karawal Nagar Drain for joining Kamal Vihar and Ankur Enclave. (Trans Yamuna)
- 1.4.48 Remodeling of 7 Nos. existing culvert on Bihari Pur drain (RD 0m to 1000m). (Trans Yamuna).

- 1.4.49 Construction of Double Lane RCC Bridge on Sarita Vihar Drain at RD 900m (South East Distt.)
- 1.4.50 Construction of Double Lane RCC Bridge on Sarita Vihar Drain at RD 1200 mt. (South East Distt.)
- 1.4.51 Construction of inspection road on right bank of NG Drain from RD 14416m to 16100m (Badusarai bridge to Haryana Border line) in N.G. Block. (South West)
- 1.4.52 Construction of two lane RCC skew bridge across Pankha road drain at RD 3015m at C-I, Janakpuri, Red Light improvement of T-Junction at Pankha road, Janakpuri, New Delhi. (West Distt.)

1.5 Anti Erosion Works in River Yamuna

1.6 Protection of Government Land.

Construction of drains with proper embankments and space for movement, land had been acquired by Irrigation & Flood Control Department for construction of a large number of major and minor drains. As such it has become essential to protect the Government land belonging to Irrigation & Flood Control Department from encroachment by suitable measures viz. constructing walls, fencing along the boundaries of drains wherever required and feasible.

- 1.6.1 Restoration of roads and construction of protection wall on both banks inner as on Mungeshpur drain RD 0m to 2740m. (Estimated Cost: ₹ 453.00 lakh)
- 1.6.2 Construction of boundary wall between RD 4150m to RD 6090m of KSN Drain. (Estimated Cost: ₹ 172.90 lakh)
- 1.6.3 Restoration of road and construction of brick masonry Guard wall on left bank of Supplementary drain from RD 14100m to 16436mt. (Estimated Cost: ₹ 261.44 lakh)
- 1.6.4 Construction of Toe drain along L/S land boundary of Supplementary drain between RD 1700m to RD 1050m. (Estimated Cost: ₹ 112.00 lakh)
- 1.6.5 Raising repairing of boundary wall R/S & L/S with providing and fixing concertina coil fencing at TD No. II between RD 0m to 4580m. (Estimated Cost ₹ 52.19 lakh)
- 1.6.6 Construction of Boundary wall on right marginal embankment from RD 0m to RD 3000m. (Estimated Cost: ₹ 225.00 lakh)
- 1.6.7 Construction of Boundary wall on left side of NG drain from Goela Outfall to Kakraula village bridge. (Estimated Cost: ₹ 240.00 lakh)

New Schemes likely to be taken up in the current financial year

1.6.8 Construction of boundary wall from RD 10500 M to RD 18360 M along land boundary towards countryside of RME to protect the Government land from unauthorized construction in nearby area (Estimated Cost: ₹ 584.00 lakh)

1.6.9 Construction of boundary wall along the road on the left bank of Supplementary drain from Vikaspuri Bridge (RD 28080m) to MID Aquaduct (RD 26060m). (Estimated Cost: ₹ 127.00 lakh)

2. MAJOR DRAINAGE SCHEME

Annual Plan 2015-16 : ₹ 800 Lakh (Capital)

2.1 Construction/ Drainage Work

2.2 Procurement of Machinery/ equipments

2.2.1 Procurement of Heavy Machinery such as Bulldozers, Hydraulic Excavators, Dredger, Draglines, Pump Sets, Gen. Sets etc.

Procurement of Machines for desilting & maintenance of Drains

S. No.	Name of the Machinery	Quantity (No.)	Cost (₹ in crore)
1	(a) Big size dredger	4	21.00
	(b) Amphibious Excavator	4	
2	Hydraulic Excavator with Extended Boom	10	6.00
3	Hydra Crane (16 Tonne)	2	0.49
4	J.C.B Machine	3	0.62
Total			28.11

E/S has been issued in the year 2012-13. 16 No. Machines are under process of procurement from DGS&D and likely to be delivered in the current financial year.

3. Charged Expenditure

Annual Plan 2015-16 : ₹ 5 Lakh (Capital)

Expenditure attributed to the directive of force of law will be met under this head.

4. Survey Model Studies/ Preparation of Master Plan for Drainage & flood Control/ Water Development Schemes

Annual Plan 2015-16 : ₹ 40 Lakh (Revenue)

- 4.1 Survey, Model Study and Hydrological Data Collection & Investigation for new Schemes (Covering of Drains/Nallahs)
- 4.2 Preparation of Master Plan for Drainage for N.C.T. of Delhi. The Department of Civil Engineering, IIT, Delhi has been appointed as consultant for preparation of Master Plan for Drainage 2021 and work is in progress.
- 4.3 Establishment of Quality Control and Material Testing Laboratory

5. TRANS YAMUNA AREA DEVELOPMENT BOARD (TYADB)

Annual Plan 2015-16 : ₹ 500 Lakh (Capital)

In order to accelerate the development process in Trans Yamuna Area, a board has been set up to guide & frame suitable program on the advice of concerned Hon'ble MLA from Trans Yamuna Area. The Board provides additional funds to various agencies. After identifying the issue connected with planned growth of the area with a view to reducing wide disparity in the existing infrastructure are enumerated & guidelines issued by the Board for bringing about improvement in the area. I&FC is also an executing agency under Trans Yamuna Development Board similar for works recommended by the board.