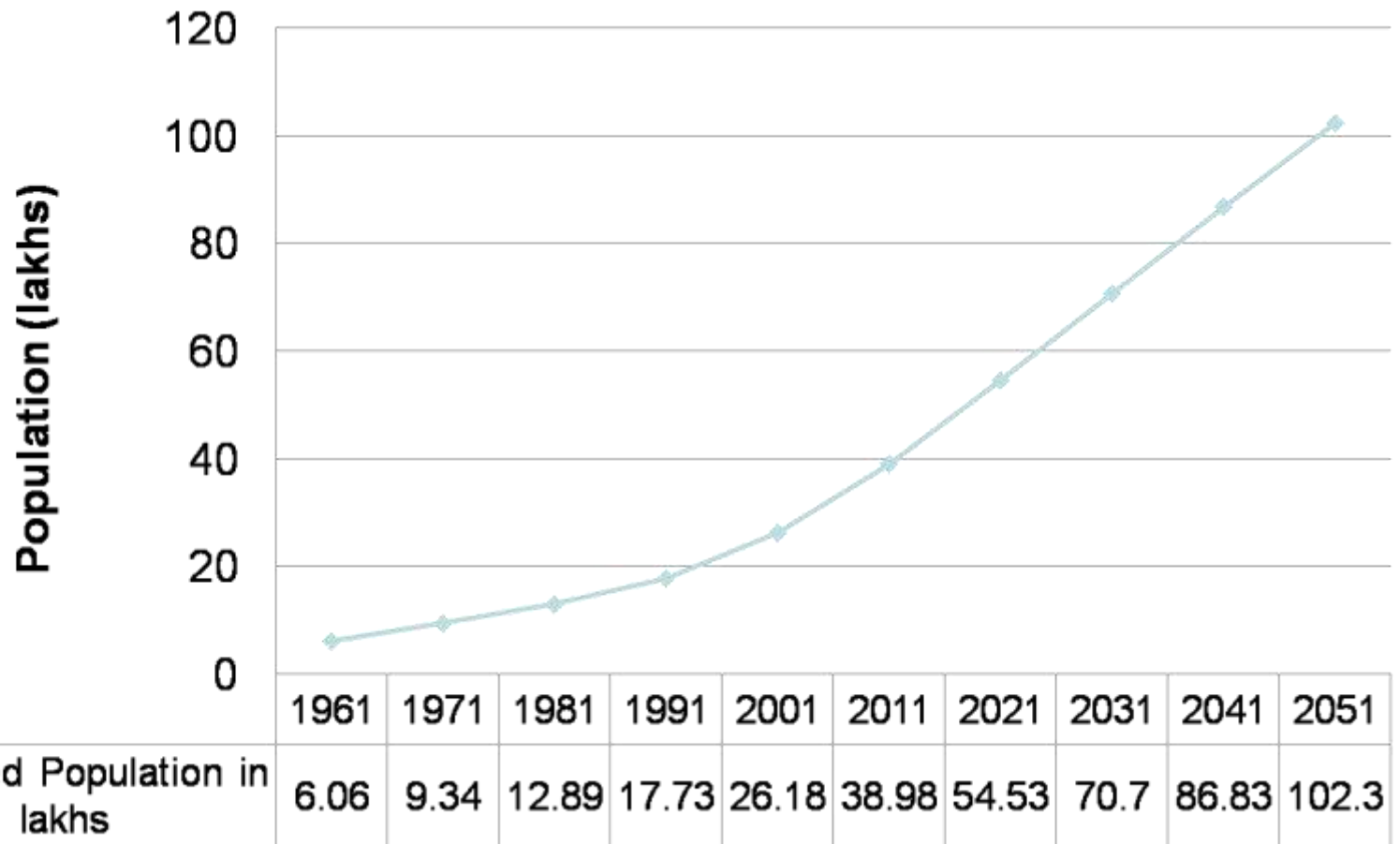


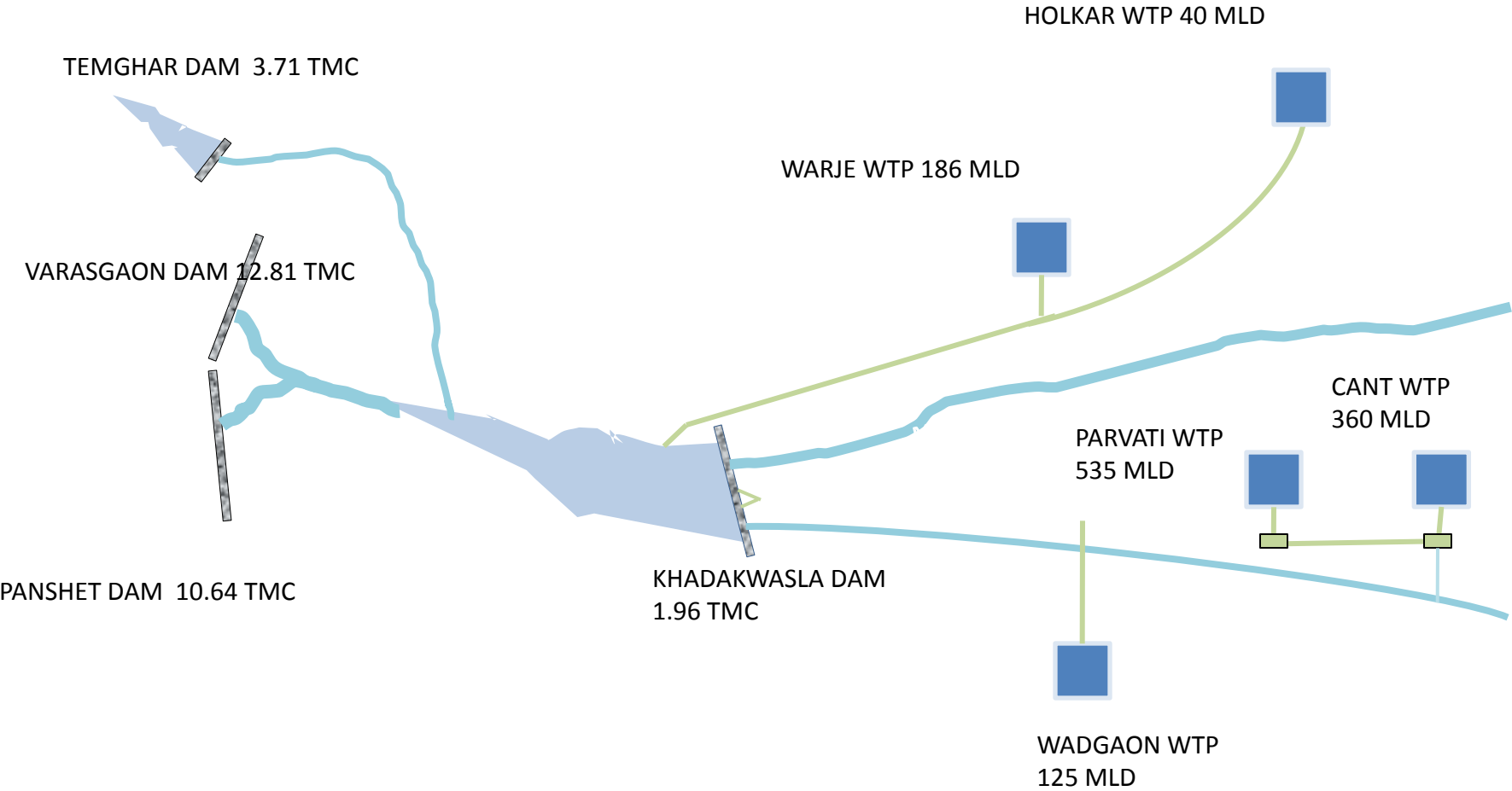


PUNE MUNICIPAL CORPORATION WATER SUPPLY AND DRAINAGE DEPT

Projected Population



RAW WATER SOURCE



WATER SUPPLY

WATER SOURCES

THE CITY OF PUNE DRAWS WATER FROM THE FOLLOWING SURFACE SOURCES.

KHADAKWASLA DAM , PANSHET DAM ,
WARASGAON DAM & TEMGHAR DAM .

THE TOTAL LIVE STORAGE OF ALL THE 4 DAMS IS AROUND
30 TMC

THE TOTAL WATER SUPPLIED TO THE CITY IS AROUND
14.5 TMC (1250 MLD)

AROUND 70 % OF THE TOTAL REQUIREMENT OF THE CITY IS
FULFILLED THROUGH CLOSED CONDUIT OF 3000 mm Dia,

30% OF THE TOTAL REQUIREMENT OF THE CITY IS FULFILLED
THROUGH OPEN CANAL.

WATER ALLOCATION TO THE CITY

AS PER THE AGREEMENT BETWEEN PUNE MUNICIPAL CORPORATION AND STATE IRRIGATION DEPARTMENT, THE CITY HAS BEEN ALLOCATED 11.50 TMC (900 MLD) OF WATER ANNUALLY AGAINST WHICH THE CITY CONSUMES AROUND 14.5TMC (1250MLD) OF WATER

CONSIDERING THE GROWTH OF THE CITY PUNE MUNICIPAL CORPORATION HAS APPROACHED THE STATE IRRIGATION DEPT. FOR INCREASING THE WATER ALLOCATION FOR CITY'S DRINKING PURPOSES TO 19 TMC (1500 MLD).

WATER SUPPLY IN THE CITY



PMC draws from Khadakwasala Dam through

- 3000 mm MS gravity main
- Mutha right bank canal

Description	Capacity (mld)
Parvati Water Works	535
Cantonment Works	360
Holkar Water Works	60
Warje Water Works	186
Wagholi Water Works	26
Wadgoan Water Works	125
Total	1292

- Population of the city is 3.8 million
- Daily supply to the city is 1222 MLD
- Gross Per capita supply 321 lpcd
- As per PMC data actual supply is 866 MLD – or 228 LPCD
- Overall sewage generation can be estimated to be 728 MLD
- Per capita supply as per norms 150 lpcd

WARJE WTP



CITY WATER DISTRIBUTION SYSTEM

56 STORAGE RESERVOIRS WITH A TOTAL STORAGE CAPACITY
OF 400 ML i.e 30% OF THE DAILY DEMAND

A NETWORK OF AROUND 2500 Kms. THE PIPE SIZES IN THE
WATER SUPPLY SYSTEM VARY FROM 80 mm TO 3000mm.

PROBLEMS IN WATER DISTRIBUTION

UNDULATED TOPOGRAPHY OF THE CITY (SAUCER SHAPE)

UNPLANNED DISTRIBUTION NETWORK.

OLD DISTRIBUTION NETWORK

SCOPE OF WORK FOR CONSULTANT

- COLLECTION OF INFORMATION REGARDING WATER SUPPLY FROM WATER SUPPLY DEPT.
- CARRYOUT HYDRAULIC ANALYSIS OF THE EXISTING WATER SUPPLY DISTRIBUTION NETWORK
- PREPARATION OF DMA's, LEAK DETECTION STUDIES & QUANTIFICATION OF LEAKAGE IN THE SYSTEM
- PREPARATION OF REMODELLING PLAN TO BRING LEAKAGE TO LESS THAN 15%.
- PREPARATION OF ESTIMATES FOR EQUITABLE WATER SUPPLY ACROSS THE CITY
- SUBMISSION OF DETAILED PROJECT REPORT TO FINANCING AGENCY.

CONTD

- PREPARATION OF TENDER DOCUMENTS.
- COMPLETING THE TENDERING PROCESS AND SELECTION OF CONTRACTORS FOR EXECUTION OF WORKS.
- SUPERVISION OF WORKS AS PROJECT MANAGEMENT CONSULTANTS.
- CARRYOUT PUBLIC AWARENESS CAMPS.
- SUPERVISE THE WORKS AS CONSULTANTS DURING THE OPERATION & MAINTENANCE PERIOD OF THE CONTRACTOR.
- TRAIN THE ENGINEERS FROM PMC FOR NETWORK ANALYSIS, LEAK DETECTION SCADA ETC.

PROGRESS OF WORK IN EQUITABLE WATER SUPPLY PROJECT

- COLLECTION OF INFORMATION REGARDING WATER SUPPLY FROM WATER SUPPLY DEPT.
- CARRYOUT HYDRAULIC ANALYSIS OF ALL THE WATER SUPPLY ZONES OF THE EXISTING WATER SUPPLY DISTRIBUTION NET WORK.
- PREPARATION OF DMA's FOR THE CITY (TOTAL 327 DMA's)
- FINALISATION OF REPORT REGARDING 100% METERISATION ACROSS THE CITY.
- FINALISATION OF SCOPE OF WORK FOR 5 DMA's WHICH ARE TO BE TAKENUP FOR IMPLEMENTATION AS PILOT STUDY SHORTLY.
- PREPARATION OF DETAILED PROJECT REPORT AS PER GUIDELINES OF JNNURM IS IN PROGRESS.

AMBITIOUS ONGOING PROJECTS FOR FUTURE

- EQUITABLE WATER SUPPLY SCHEME FOR THE CITY.
- LAYING CLOSED CONDUIT OF 2500 mm Dia FROM KHADAKWASLA DAM TO PARVATI WATER WORKS TO AVOID UPTAKE FROM OPEN CANAL.
- CONSTRUCTION OF 200 MLD WATER TREATMENT PLANT AT WARJE WATER WORKS.
- LAYING CLOSED CONDUIT OF 1600 mm Dia FROM KHADAKWASLA DAM TO WARJE WATER WORKS.
- CONSTRUCTION 5 SERVICE RESERVOIRS

PROJECTS IN PIPELINE

- CONSTRUCTION OF 500 MLD CAPACITY WTP AT PARVATI WATER .
- CONSTRUCTION OF 300 MLD CAPACITY WTP AT CANTONMENT
- CONSTRUCTION OF 250 MLD CAPACITY WTP VADGAON.
- IMPLEMENTATION OF EQUITABLE WATER SUPPLY SCHEME.
- CONSTRUCTION OF JACKWELL ON THE UPSTREAM OF KHADAKWASLA DAM.
- CONSTRUCTION OF TUNNEL FOR CONVEYING WATER FROM PARVATI WATER WORKS TO CANTONMENT WATER WORKS
- DEVELOPMENT OF NEW SOURCE AT BHAMA – ASKHED , WATER TREATMENT PLANT OF 200 MLD CAPACITY , CONSTRUCTION OF NEW RESERVOIRS , DEVELOPMENT OF DISTRIBUTION SYSTEM . ETC

FACTS ABOUT WATER SUPPLY & SEWAGE GENERATION IN PUNE CITY

	PHASE – I (2005)	PHASE – II (2010)	PHASE – III (2025)
WATER SUPPLY (MLD)	791	1050	1506
SEWAGE GENERATION (MLD)	567	700	1090

EXISTING SEWAGE TREATMENT PLANTS FUNDED BY PUNE MUNICIPAL CORPORATION

Sr.No.	Name of STP	Capacity
1	Dr.Naidu (Existing)	90 MLD
2	Bhairoba	130 MLD
3	Tanajiwadi	17 MLD
4	Erandwane	50 MLD
5	Bopodi	18 MLD
	Total	305 MLD

❖ All the works carried out in the phase 1 were done through internal funding of the Pune Municipal Corporation.

SEWAGE TREATMENT PLANTS
FUNDED BY JNNURM PHASE -I

Sr.No.	Name of STP	Capacity
1	Baner	30 MLD
2	Mundhwa	45 MLD
3	Kharadi	40 MLD
4	Naidu	115 MLD
5	Vithlwadi	32 MLD
	Total	262 MLD



BHAIROBA STP : 130 MLD

Bhairoba+ K'nagar	=Total
100 + 30	=130 MLD

Process: Conventional Activated
Sludge Process.

DATE OF COMMISSIONING : July 03



TANAJIWADI STP : 17 MLD CAPACITY

Funded by P.M.C

PROCESS : Bio Towers followed by
Diffused Aeration
Activated Sludge Process.

DATE OF COMMISSIONING : April 04





MUNDHWA STP : 45 mld
PROCESS : Sequential
Batch Reactor.
STATUS : Commissioned
in March 2009

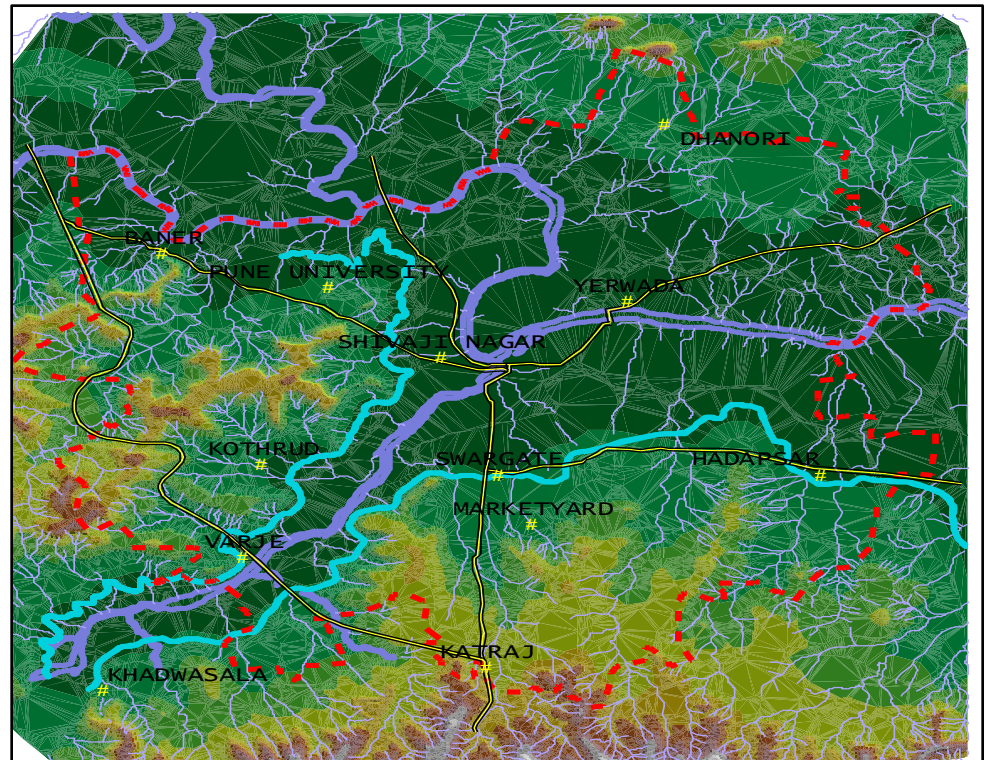
VITHHALWADI STP : 32 MLD
PROCESS : Extended Aeration
Process.
STATUS : Commissioned in
March 2009





Objective of the Assignment

- To design a project to collect and treat 100% sewage generated in the City of Pune
- To present the project under NRCD to seek funding



PUNE CITY



Key problems for ensuring 100% collection and treatment of sewage

- High rate of water supply – resulting in higher sewage flows
- Inadequate / old conveyance or transmission lines causing sewage to flow in Nallas
- Problems with the collection system (unconnected areas, leaking main lines etc)
- treatment capacity – some existing plants inefficient
- Space availability at the right locations for sewage treatment
- Sewage flow Insufficient s from upstream outskirts of the city





Steps involved

- Prepare base map and define drainage districts
- Collection of data for existing water supply, sewage network and treatment capacity
- Carryout detailed ward-wise population projections
- Estimation of drainage district-wise sewage flows
- Analyse gaps in collection system (conveyance mains and transmission mains)
- Analyse gaps in treatment capacity
- Design for new infrastructure and improvements
- Cost estimation

COMPONENTS INCLUDED IN DPR



- Collection system in Balewadi area (43Km)
- Trunk mains & Conveyance mains (12Nos, 46.03Km)
- STP's for 100% treatment of sewage generated by city up to year 2044
- (Financial provision for 2024) – 10 STP's, 383MLD
- Up-gradation of 2 Intermediate Pumping stations
- Capacity Building

PROPOSED STP'S IN DPR (YEAR 2024)

Sewage District	Existing STP		Proposed STP's		Total
	Process	Capacity in MLD	Process	2024	Total
SD1- Matsy Bij Kendra	00	00	MBR	08	08
SD2- Mundhawa	SBR	45	SBR	45	90
SD3- Bhairoba	ASP+Ar. Dig.	130	SBR+Power	70	200
SD4- Naidu	ASP	90 (To be dismantled)	SBR+Power	125	125
SD4- Naidu	ASP	115	00	00	115
SD5- Vithalwadi	ASP	32	00	00	32
SD6- Vadgaon	00	00	ASP+Power	20	20
SD7- Warje	00	00	EA	25	25
SD8- Kothrud	ASP	50	00	00	50
SD9- Tanajiwadi	Bio-Tower+EAP	17	EA	19	36
SD10- Bopodi	EAP	18	SBR	21	39
SD11- Baner	SBR	30	00	00	30
SD14 – Mental Hospital	00	00	ASP+Power	36	36
SD15- Kharadi	SBR	40	SBR	14	54
Total		567		383	860

Summary



Sr. No	Particulars	Estimated Cost (Lakhs)
1	Collection System in Baner & Balewadi	17,48.67
2	Trunk Sewer, Conveyance Mains & Rising Mains	77,90.34
3	<u>Proposed STP'S for year 2024</u>	348,99.69
4	IPS & Express Feeder cost	870.4
5	Public awareness & capacity building cost	41.25
	Total	45,350.35
6	Escalation charges for 2011-12	4535.03
	Total	49885.38
	Escalation charges for 2012-13	4988.54
		54,873.92
	Other Charges	7,682.35
	O&M Cost for 5 years	17223.40
	TOTAL PROJECT COST	79,779.67

INITIATIVES TAKEN BY PMC

- PMC HAS MADE NECESSARY MODIFICATIONS IN THE BUILDING CONTROL RULES & HAS MADE IT MANDATORY FOR ALL HOUSING SCHEMES WITH MORE THAN 150 TENEMENTS TO HAVE STP's & REUSE THE TREATED SEWAGE FOR FLUSHING , GARDENING ETC.
- PMC HAD STARTED IMPLEMENTING A SCHEME OF RECYCLING 500 MLD TREATED SEWAGE FOR IRRIGATION.
- PMC HAS MADE IT MANDATORY TO IMPLEMENT RAINWATER HARVESTING IN ALL NEW UPCOMING HOUSING SCHEMES.

THANK YOU