Sector	Urban Development
Sub - sector	Water Supply and Sewerage
Profile No.	UD-08
Project Title	Improvement of Water Supply and Sewerage Systems at Mehsana town

Project Description

Mehsana town is the administrative headquarter of Mehsana district, and is situated at a distance of about 75 kms from Ahmedabad on Ahmedabad – New Delhi National Highway.

Mehsana town and outer growth areas including Nagalpur has witnessed robust growth in the recent period.

The proposed project envisages water supply to the town from Narmada Canal, thereby ensuring assured and continuous water supply. The proposed project also envisages improving the sewerage system of the town. The project is to be implemented with public private participation.

Water supply

The proposed water supply project for Mehsana is intended with the following goals:

- To provide adequate, safe water supply facilities to the residents of Mehsana Town
- To improve the quality of life of the residents, as well as the local environment in the town
- To sustain economy of the area through better socio-economic activities and increased productivity of the town as well as the State

Present Status of water supply

The water supply needs of the present population of Mehsana town are being fulfilled by the Nagarpalika from number of tube wells. These tube wells have been drilled by Nagarpalika in different areas, as per water supply needs. The town is divided into two water distribution zones, viz. Highway Feeder Zone and City Feeder Zone.

Highway Feeder Zone - The zone is being supplied water through 10 existing tube wells having depths ranging from 289 m to 377.58 m.

City Feeder Zone - Water supply need to the zone is fulfilled by 13 existing tube wells with depths ranging from 240 m to 371.61 m.

The supply to both the zones is for about one to two hours per day, depending on the availability of ground water during different seasons.

Issues in water supply

Owing to over-utilization of alluvial deposits in Mehsana town, deterioration in ground water quality has taken place, attributed to salinity ingress from deeper saline aquifers and western saline areas, bordering the Rann of Kachchh.

Also, the concentration of fluorides in ground water varies from 2 to 6 mg/l. Considering these facts, it is understood that ground water extraction is not advisable to ensure continuous water supply to the town.

Moreover, the ground water levels have been depleting at a considerable rate, which is as high as about 8 meters per year in certain areas.

Water demand

The water demand for highway Feeder and City Feeder zones for the years 2001, 2005, 2020 and 2035 AD (at the rate of 140 lpcd) are as follows:

Year	Water Demand (MLD)		
	Highway Feeder Zone	City Feeder Zone	Total
2001	5.96	8.95	14.91
2005	6.50	9.76	16.26
2020	8.97	13.46	22.43
2035	12.39	18.59	30.98

Considering the above mentioned issues, GWSSB has proposed and approved regional water supply project based on Narmada Canal (M-2 section) for rural as well as urban areas of Mehsana Taluka of Mehsana District.

Project Components

The proposed project of GWSSB is anticipated to cover 118 villages of 6 regional rural water supply schemes for augmentation at the rate of 70 lpcd. The project also includes a special provision of water supply to Mehsana town at the rate of 140 lpcd. Thus, the project would facilitate bulk water supply to Mehsana town to the tune of 22.23 MLD, and an additional 6.66 MLD for industrial purpose, which totals to 28.89 MLD of water in this project.

The water demand of Mehsana Taluka is worked out at 75.17 MLD including industrial water demand for the urban area. A pipeline of 1000 mm. diameter of 24.50 km length will be laid by Gujarat State Drinking Water Infrastructure Co. Ltd. Gandhinagar. The other works like filtration plant, pump houses, pumping machineries, rising mains, storage structures, etc. will be implemented by GWSSB.

Project Cost Estimates

The major cost estimates have been for the proposed water supply project:

Sr.	Components	Cost (INR million) Phase – I (2020 AD)	Cost (INR million) Phase – II (2035 AD)
1	RCC U/G sumps pump house and chlorination room.		
	Highway feeder zone		
	Phase – I (20.17 lac litre capacity)	8.163	-----
	Phase – II (17.30 lac litre capacity)	-----	3.34
	City feeder zone		
	Phase – I (12.00 lac litre capacity)	7.05	-----
	Phase – II (25.90 lac litre capacity)	-----	4.79
2	Mechanical and Electrical installation at pump house		
	Highway feeder zone		
	Phase – I	7.492	-----
	Phase – II	-----	3.50
	City feeder zone		
	Phase – I	18.635	-----
	Phase – II	-----	9.553
3	RCC RSRS		
	Highway feeder zone		
	2.5 lac litre capacity – 1 no.	2.075	-----
	City feeder zone		
	2.5 lac litre capacity – 4 no.	-----	7.845
4	Pipe line for distribution system		
	Highway feeder zone		
	Phase – I	9.295	-----
	Phase – II	-----	5.308
	City feeder zone		
	Phase – I	9.242	-----
	Phase – II	-----	19.933
5	Renovation of existing O/H tanks / ESRs such as gravity grouting and repairing of container, staging, etc.		
	Highway feeder zone Phase – I	0.60	-----
	City feeder zone Phase – I	0.90	-----
6	Miscellaneous civil works such as compound walls, internal roads, sanitary block, etc.		
	Highway feeder zone Phase – I	0.236	-----
	City feeder zone Phase – I	0.158	-----
7	Power connection charges, gardening, tree plantation, etc.		
	Highway feeder zone	2.50	-----
	City feeder zone	2.50	-----
	Sub-Total	44.594	59.277
	5% contingency	4.73	2.964
	Grand Total	**161.56 million**	

Means of Finance

The means of finance for the proposed project will be as under:

- Central Government – 80%
- State Government – 10%
- ULB / Parastatal share / Loan from Banks or Financial Institutions – 10%

Sewerage

Key observations of the existing sewerage system of Mehsana town and out growth (OG) areas are:

- Population growth – the population in Mehsana town and OG areas has been projected to increase from 156,950 in 2006 to 237,084 in 2031.

Sr.	Name of Area of Mehsana town and OG areas (A)	Population					
		2006	**2011**	**2016**	**2021**	**2026**	**2031**
1	Highway zone	44,710	47,048	49,399	52,102	54,845	57,743
2	City zone	67,060	70,570	74,100	78,151	82,258	86,612
	Total (A)	**111,770**	**117,618**	**123,499**	**130,253**	**137,013**	**144,355**
	Nagalpur (B)						
3	Gamtal zone	28,820	36,099	40,760	48,039	52,575	57,600
4	Royalnagar zone	16,360	19,250	22,550	26,000	30,410	35,129
	Total (B)	**45,180**	**55,349**	**63,310**	**74,039**	**82,985**	**92,729**
	Total (A) & (B)	**156,950**	**172,967**	**186,809**	**204,292**	**220,088**	**237,084**

Source: PWC report

- **Sewerage system** – It is semi functional and having low coverage, poor operation and maintenance.
- **Sewage treatment plant & machinery** – Improper functioning due to poor maintenance
- **Tariffs** – Scientific tariff setting mechanism is not followed by the service provider.
- Manpower shortage at present in the municipality

Looking to the dilapidated condition of existing infrastructure in the town, GIDB has initiated efforts to improve the sewerage system of the Mehsana town.

The project envisages improvement of sewerage system in Mehsana with private sector participation on Build – Operate – Transfer (BOT) basis.

Project Components

The project is designed for a period of 25 years from 2006 to 2031 and would be executed in two phases:

- Phase 1 – Period 2006 to 2021
- Phase 2 – Period 2021 to 2031

The project components include:

- **Renovation** – includes cost of repairs of existing sewerage system, pumping stations, pumps, etc.
- **Acquisition and replacement** – includes acquisition and replacements of assets (primarily pumps)
- **Civil construction** – includes cost of construction of pumping stations and one time electrification cost
- **Pipeline** – includes the cost of laying the pipelines in existing and new areas
- **Treatment plants** – includes the cost of improvements in the existing treatment plant

Project Cost

The total estimated capital cost for improvement of sewerage system of Mehsana town and OG areas is as follows:

Function	**Project cost (INR million)**					
	Total cost	**0-5 Years**	**5-10 Years**	**10-15 Years**	**15-20 Years**	**20-25 Years**
Sewerage system						
Renovation	5.6	5.6	0	0	0	0
Acquisition and replacement	7.61	1.8	1.65	0.15	2.36	1.65
Civil construction	3.0	1.5	0	0	1.5	0
Pipeline	262.305	165.707	0	0	96.598	0
Treatment plant	5.5	5.5	0	0	0	0
Total	**134.107**	**180.107**	**1.65**	**0.15**	**100.458**	**1.65**

Source: PWC report

The table above indicates the estimated investment, based on the project components and framework. The estimates exclude the cost of ongoing augmentation work in Mehsana town.

Agencies to be contacted

Gujarat Urban Development Company Limited

Gujarat Infrastructure Development Board (GIDB)

Industrial Extension Bureau

Mott MacDonald India