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SWOT ANALYSIS FOR IMPROVING WASTE WATER MANAGEMENT IN AMOD TOWN, BHARUCH

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Abstract: Water is vital to the existence of all living organisms, but this valued resource is increasingly being threatened as human populations grow and demand more water of high quality for domestic purposes and economic activities. Among the various environmental challenges of that India is facing this century, fresh water scarcity ranks very high. Thus in this study focus should be on waste water management. This study is represents an existing waste water management system of Amod town, bharuch, Gujarat. India, being an economy in transition from a developing to a developed nation, faces two problems. On the one hand there is a lack of infrastructure and on the other, an ever-increasing urban population. The urban population in India has jumped from 25.8 million in 1901 to about 1.21 billion in 2011. Similarly Amod town population is also increase up to 20,000 in 2015 compare to 15,237 in 2011 (as per Amod nagarpalika annual report) they demand 2.7 MLD water supply as per 135 LPCD, and waste water generation is 2.1 MLD. The majority of towns and cities have no sewerage and sewage treatment services. Amod town is also not having any kind of treatment facilities for waste water management. This has thrown up two self-perpetuating problems, viz. shortage of water and sewage overload. Many cities have expanded beyond municipalities, but the new urban agglomerations remain under rural administrations, which do not have the capacity to handle the sewage. Management of sewage is worse in smaller towns. The sewage is either directly dumped into rivers or lakes or in open fields. In this study main focus is the analysis existing waste water management facilities in Amod town with the help of SWOT analysis.

Key words: **Gujarat Water Supply & Sewerage Board (GWSSB), SWOT analysis, waste water management**

1. INTRODUCTION

Water is vital to the existence of all living organisms, but this valued resource is increasingly being threatened as human populations grow and demand more water of high quality for domestic purposes and economic activities. Among the various environmental challenges of that India is facing this century, fresh water scarcity ranks very high. The key challenges to better management of the water quality in India are temporal and spatial variation of rainfall, improper management of surface runoff , uneven geographic distribution of surface water

resources, persistent droughts, overuse of groundwater, and contamination, drainage, and salinization and water quality problems due to treated, partially treated, and untreated wastewater from urban settlements, industrial establishments, and run-off from the irrigation sector besides poor management of municipal solid waste and animal dung in rural areas. India, being an economy in transition from a developing to a developed nation, faces two problems. On the one hand there is a lack of infrastructure and on the other, an ever-increasing urban population. The urban population in India has jumped from 25.8 million in 1901 to about 387 million (estimated) in 2011. This has thrown up two self-perpetuating problems, viz. shortage of water and sewage overload. It is estimated that by 2050, more than 50 per cent of the country's population will live in cities and towns and thus the demand for infrastructure facilities is expected to rise sharply, posing a challenge to urban planners and policymakers. Public services have not been able to keep pace with rapid urbanization. Water supply, sanitation measures, and management of sewage and solid wastes cover only a fraction of the total urban population. There is clear inequity and disparity between the public services received by the inhabitants, depending on their economic strata. Slum dwellers have always received least attention from the civic authorities. The rapid growth of urban population has taken place due to huge migration of population (mostly from rural areas and small towns to big towns) and inclusion of newer rural areas in the nearest urban settings, apart from natural growth of urban population. The majority of towns and cities have no sewerage and sewage treatment services. Many cities have expanded beyond municipalities, but the new urban agglomerations remain under rural administrations, which do not have the capacity to handle the sewage. Management of sewage is worse in smaller towns. The sewage is either directly dumped into rivers or lakes or in open fields.

2. STUDY AREA PROFILE

Amod is a Municipality city in district of Bharuch, Gujarat. The Amod city is divided into 7 wards for which elections are held every 5 years. The Amod Municipality has population of 15,237 of which 7,813 are males while 7,424 are females as per report released by Census India (2011).

Figure 1: loction of amod town

Population projections up to 2041

Amod town decadal avg. population growth is 2.74%, which lesser then other town in bharuch district. Population projections for Amod town are given in table:1.

Table 1projected population for amod town

Population	2011	2016	2021	2031	2041
Amod	15237	20000	31908	43816	55724

Population projection and net water demand up to 2041

The population projection translates to an increase in net water demand in Amod.
(Refer table: 2)

Table 2 waste water demand in Amod town

Sanitation infrastructure	2016	2021	2041
Population	20000	31908	55724
Net water demand 135 LPCD (MLD)	2.7	4.3	7.5
Waste water generation(MLD)	2.1	3.44	6.01

Net Water demand will be 2.7 MLD in 2016 and increase to 4.3 MLD in 2021 and 7.5 MLD in 2041. This translate to a waste water generation (@ 80% of net water consumed) to be 2.1 MLD in 2016, increasing to 3.44 MLD in 2021 and 6.01 MLD in 2041.

3. WASTE WATER MANAGEMENT

Network, coverage, and connections:

For batter collection of waste water Amod town is divided in to 3 different zones according to topography. In Amod sewerage collection network is established by the Gujarat Water Supply & Sewerage Board (GWSSB). At present establishment of this network is under progress activity. 70% work is completed; reaming 30% will be completed till JUN, 2016. This network is covered major part of Amod town. All most all houses are connected with main sewerage line and very few and doing on site sanitation. There toilets are linked with septic tank.

Figure 1 sewage network in Amod
Source: GSSWB

Treatment facilities:

In Amod town at present treatment facilities is not available. But for future need Amod Nagarpalika got permission for making a sewerage treatment plant, capacity of **5.20MLD** at site which is located near to the solid waste disposal site at Amod-Pursha road. For this construction land acquisition from Gujarat gov. is completed. Construction of this STP is comes under the Gujarat Water Supply & Sewerage Board (GWSSB).

Connection:

Around 90% of houses in Amod are covered under the sewerage network made by Gujarat Water Supply & Sewerage Board (GWSSB). In this network at micro level 1 distribution

collection unit constructed per 2 houses. And all houses covered in this network are connected with this collection unit. Further distribution collection unit is connected with manhole through RCC pipeline connection with appropriate diameter. Further manhole is connected with rising main and rising main is connected with main sewerage line having 500dia. Through main sewerage line waste water is transferred to the STP.

Revenue:

The Sewerage System run by the Gujarat Water Supply & Sewerage Board (GWSSB) does not generate any revenue, apart from new connection charges and is maintained by the grants obtained from the State Government. A proposal to levy 60 % of the monthly water charge as sewer cess from each consumer, where sewerage network is available, is under the consideration of Amod Nagarpalika.

Conclusion from survey:

During the inspection of existing sewerage network in Amod, I found that in this system waste water collected through pipe line and surface runoff, and disposal in to lake which is located in Amod gamtal area. There are no provision for and kind of treatment facilities. And no provision for storm water drainage. Schematic diagram off existing waste water flows in Amod is located in fig.

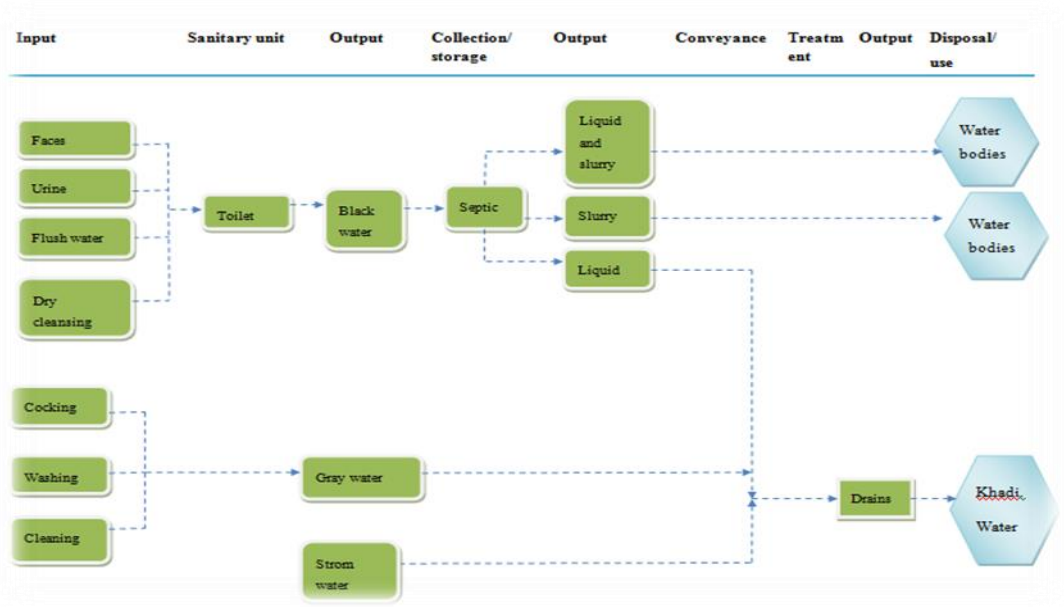

Figure 2 existing waste water collection network in amod

Demand projections:

Table: 3 shows the level of waste water generation according to given population projection and the projected water demand

Table 2 sewerage generation demand

Particulars	Year			
	2011	**2016**	**2021**	**2041**
Population	15237	20000	31908	55724
Household	3059	4015	6900	12000
Gross water supply demand (at 170 LPCD) in ,MLD	2.5	3.4	5.42	9.47
Net water supply demand (at 135 LPCD) in ,MLD	2.0	2.7	4.30	7.52
Waste water generation (at 80% of net supply) in MLD	1.6	2.1	3.44	6.01

A report of Amod Nagarpalika indicate that waste water generate in area of Amod Town is 1.6 MLD at present (2014-15 report). At this stage there are no provision for treatment facilities for waste water, this leads to generate some unhygienic spot. This situation demand urgent development of sewage treatment facilities in Amod town.

4. FINDINGS FROM SWOT ANALYSIS

Strength	Weakness	Opportunities	Threat
• Almost most of houses covered with GWSSB sewerage network. • Separation of gray water and black water are at source level is common. • 70.88% people use individual toilet facilities.	• No provision for further treatment of waste water in existing sewerage treatment network. • Due to flat terrain topology make natural gravitational flow difficult – due to this condition Necessitates for sewage pumping station at frequent intervals. • No provision for leakage in the sewerage network.	• First step in sanitation plan is already taken now focus should be on improvement . • Focus should be on generating some revenue from waste water. • Adept treatment such that it will help in generating revenue to the Nagarpalika.	• Implementation and maintenance of proper collection, transport, treatment and disposal of waste is demand huge investments. • For implementation of sewerage network arrangement of fund is very difficult in particular Amod.

5. REFERENCES

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