

AGARTALA MUNICIPAL COUNCIL



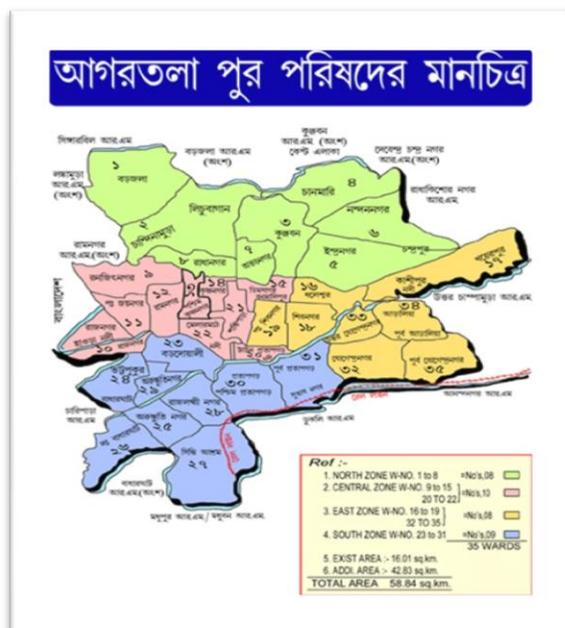
CASE STUDY ON SEPTAGE MANAGEMENT UNDER AGARTALA CITY

BY

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Brief introduction of Agartala City:

Agartala is the capital of the Indian state of Tripura and is second largest city in North-east India after Guwahati, both in municipal area and population. The city is governed by the Municipal Corporation, Agartala lies on the bank of Haora River and is located 2 km from Bangladesh. Agartala has temples and palaces. As per 2011 census, Population of Agartala city is 399,688 with around one lakh migrating population daily. Percentage of literacy according to 2011 census is 93.88, higher than the national literacy rate. The Nobel laureate Indian poet Rabindranath Tagore visited the city more than once and also built a house that still exists. The historical book Rajamal contains all incidents and the historic stories of Agartala. From 1901 to 1971 the city remained in a negligible development progress with only a 8 sq km or area but from 1981 Agartala started to expand and increase its connectivity in various fields along with its city area with 58.84 sq km, greater Agartala is planned as of 2011 with an additional of 92 sq km Haora is the most important rivers in Tripura. Agartala city lies on the banks of the Haora River, which actually originates in Baramura Hills and merges into the Titlas River across the Bangladesh border. The river basin catchment area is approximately 488sq.km. The city of Agartala is located lower elevations than areas surrounding it, specifically making it look like a saucer. Agartala is Located on NH-44. It is the Capital & Main City of Tripura State and also Administrative, Business, industrial, Educational & Health Center having Airport and Railway facility.



Agartala Municipal Council (AMC):The Capital Agartala (new) was founded in 1838 AD by Maharaja Krishna Kishore Manikya (1830-49 AD). The Agartala Municipality was instituted in 1871 AD during the reign of Maharaja Chandra Manikya (1862-96 AD). The 1st British Political Agent, Mr. A.W.B. Power appointed for hill Tipprah in 1871 AD, was offered the honour of being the Chairman of the Agartala Municipality. The Municipal Administration in Agartala was established in 1874 A.D and the city became a planned city by the then Maharaja Bir Bikram Manikya Bahadur in 1940s. This erstwhile Princely State Capital of Tripura merged with India on 15th October 1949.

Brief Information of AMC:

- Four Zones- South, North East and Central,
- Number of wards-35
- Total Area- 58.84 Sq Km and
- Density of 6,251/Sq km (16,190/sq mile) .
- No of Households is- 90000
- Population-400000
- Migrating population-100000/day
- Present Chairperson- Dr.PrafullaJit Sinha

Tentative Figures in the field of sanitation:

- Household No across Agartala City-90000(Tentative)
- Septic tank Number- 70000(tentative)
- Dry Latrines/Un-Sanitary latrines- 20000

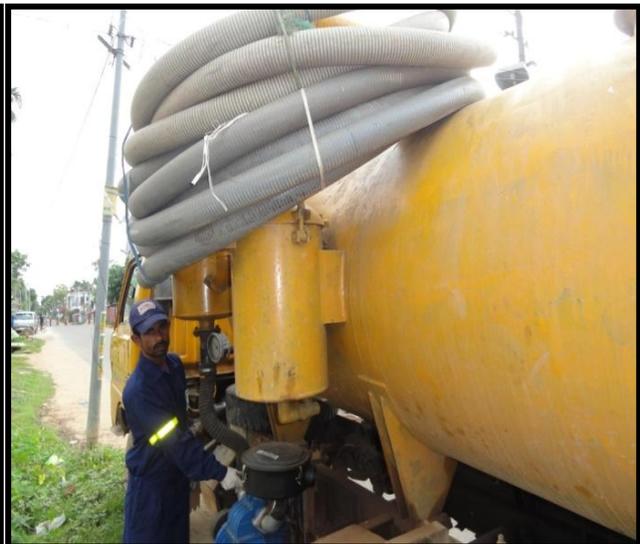
As per the report of the Tripura state Pollution Control Board 1145 Kaccha latrines on the bank of Haora river have direct connection into the Haora river.

Septage (Waste from Septic Tanks) Management at Present: Municipal council is practicing mechanical septage collection by cess-pool since many years.

1. Manual
2. Mechanical

Manual: As there are 70000 septic tanks and one septic tank gets full and requires cleaning within on an average 8-10 years. This means each year about 7000 septic tanks are being cleaned in Agartala City out of which AMC got only 940 orders last year. This means remaining 6000 septic tanks have been cleared manually in the last year. Thus unofficially manual cleaning of septic tanks in vogue and septage thus cleared flown into storm water drainage, flowing to Bangladesh across borders raising international concern.

Mechanical: AMC has two no of cess-pool machines. Daily about 4-5 septic tanks are cleaned. Disposal at present is un scientific. Septage is dumped in the landfill untreated. In 2012-13 AMC got around 940 orders for mechanical septage clearance and collected fees of Rs. 852766 @ rate of Rs. 900/trip. But the figure of 940 is very small.



Cess-pool operation under progress

Difficulties and problems faced by AMC :

- Only two functioning cess pools which can cater only 6-8 orders per day
Lack of ability of AMC to cater entire orders and pendency problem
- No access too narrow lanes and gullies as the cess pool can not enter
- High expenditure per trip of cess pool and very subsidized rate
- No scientific disposal of septage at present
- Lack of awareness of cess-pool services due to less publicity by AMC
- No any compulsory practice of construction of soak pit along with septic tank, overflow pipe of septic tank is put into storm water drainage leading to pollution of water bodies of city and international water.

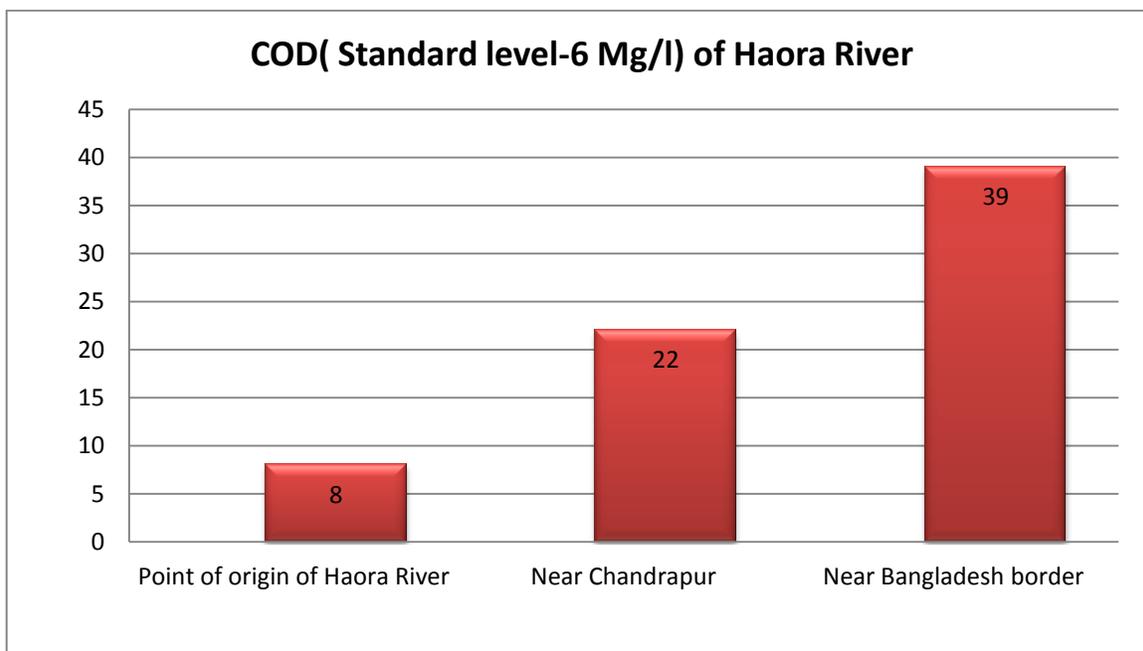
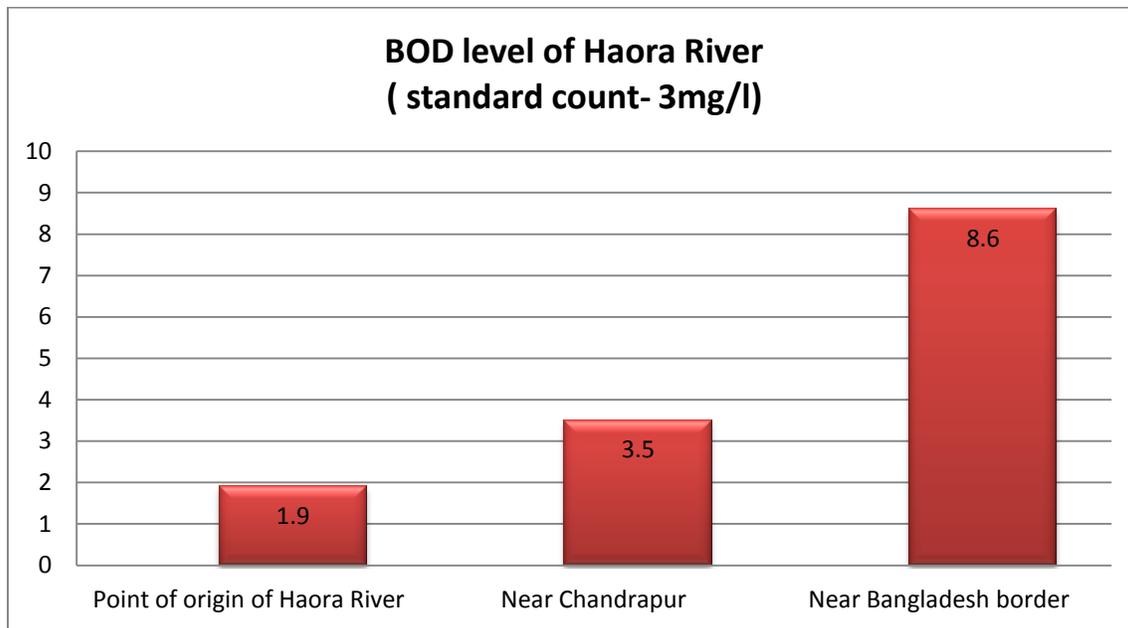
- As per The Tripura Pollution Control Board Survey 1145 latrines along the Haora river have direct connection into the river

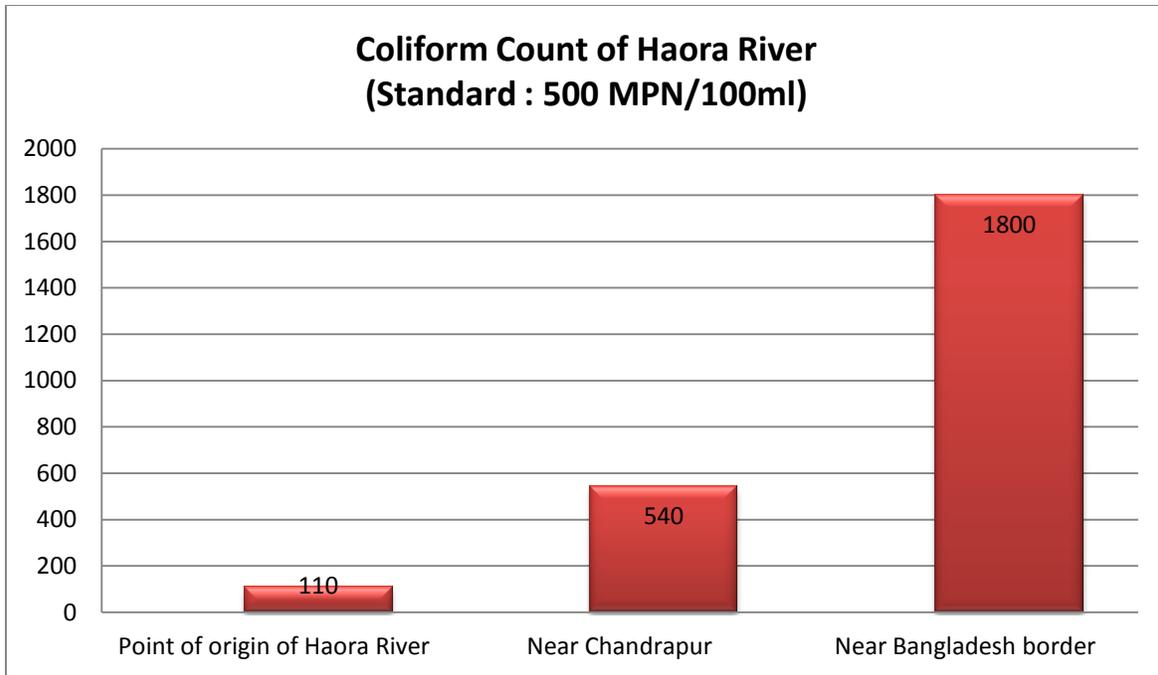
Extent of Pollution of Water bodies under Agartala City: The Central Pollution Control Board identified the river stretch along the City of Agartala for the Haora River to be one of the grossly polluted stretches in minor river basins in India and has recommended immediate conservation measures. The Tripura Pollution Board carried out assessments and recommended the implementation of a comprehensive sewerage collection and sewage treatment system for the City of Agartala.

Extent of pollution of Haora river as per the Report of the Tripura State Pollution Control Board 2011 is as follows.

SN	Parameters	Standard Value	Locations		
			Point of origin of Haora River	Near Chandrapur Agartala	Near Bangladesh border
1	Temperature	-	28.5	30.0	30.5
2	Total Dissolved solids(mg/l)	500	156	174	220
3	Total suspended solids(mg/l)	-	26	46	180
4	pH	6.5-8.5	7.65	7.34	8.10
5	Colour (l/m)	10	2.5	10.2	12.6
6	Turbidity(NTU)	-	5	26	38
7	Alkalinity	-	69.34	120.20	143.02
8	DO(Mg/l)(Dissolved Oxygen)	6	7.2	6.24	5.6
9	BOD(mg/l)(Biochemical Oxygen Demand)	3	1.9	3.5	8.6
10	COD(Mg/l)(Chemical Oxygen Demand)	6	8	22	39
11	Total Coli form(MPN/100 ml)	500	110	540	1800
12	Phosphates(mg/l)	-	0.010	0.020	0.065
13	Hardness(Mg/l)	300	59.55	84.36	178.65
14	Calcium(Mg/l)	80.10	15.91	23.86	35.79
15	Magnesium(Mg/l)	24.28	4.8	6.02	21.63
16	Chloride(Mg/l)	250	7.2	9.6	24
17	Nitrate(Mg/l)	20	0.02	0.025	0.060

18	Nitrite(Mg/l)	-	0.01	0.035	0.040
19	Ammonical Nitrogen(mg/l)	1.2	nil	0.016	0.025





Abovementioned figures indicate that Haora river becomes grossly polluted in Agartala City before it crosses the international border into Bangladesh.

Main reasons of Pollution of Haora River and other Water bodies of Agartala City:

1. Practice of manual cleaning of septic tanks and throwing of the septage thus collected into the storm water drainage which ultimately flows to Haora and other water bodies of the city.
2. In most of the households there is no soak pit attached to the septic tank for soaking the overflow of septic tank. The overflow is directly put into the storm water drainage which ultimately flows to Haora and other water bodies of the city. As per the Tripura Building Rule 2004 soak pit is mandatory for all the septic tanks.
3. Large number of kaccha latrines. There are about 20000 kaccha latrines in the city. Most of these latrines are directly connected with the storm water drainage or some water channels or river.

Action Plan of Agartala Municipal Council for Scientific Septage Management:

1. Sewerage Scheme Under North Zone:

Agartala Municipal council has taken up Rs 102.21 Crore Scheme under progress JNNURM for North Zone of Agartala Municipal Council –to be operational by March 2014. Almost 70 % work completed. The components are-

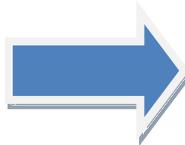
1. Sewerage House Connections and pipelines-11000 sewerage connections, 95 km and 3500 manholes
2. Sewage Pumping Stations- 9 no.
3. Sewage Treatment and Disposal Facilities-8 MLD capacity



2. Action Plan for Mechanical Septage Collection under other three zones of AMC:



Mechanical collection of septage



Proposed treatment of septage in STP

- i. As mentioned above the target of AMC is to clean 6000-7000 septic tanks mechanically per year using cess-pool machines. For this AMC is going to procure two number of split type cess-pools which can enter inside narrow lanes and gullies of the city. Also two conventional cess pools are going to be procured shortly thus taking the total number of cess-pools to six from the present two upto December 2013. If one cess-pool can clear 4-5 septic tanks per day then six cesspools can clear 20-25 septic tanks per day. Thus the target of 6000-7000 per year can be achieved.
- ii. Treatment of the septage thus collected shall be done in the 8 Million Liters per Day Capacity Sewage Treatment Plant (STP) which is going to be operational by March 2014 under the JnNURM Scheme where pure water will be generated out of this septage which can be used for horticulture/agricultural purpose..
- iii. Simultaneously AMC will be taking steps for massive public awareness through print, electronic media, small movies clips on SWM, various mass programmes, by pamphlets, leaflets etc especially during the coming Durgapuja period.
- iv. Proposal for legal action against those who put the septage and overflow of the septic tanks into the stormwater drains thus violating Tripura Building Rule-2004

3. Integrated Low Cost sanitation (ILCS) Scheme implementation under AMC

Integrated Low Cost sanitation is scheme for urban poor under Ministry of HUPA, Government of India. Already a DPR for construction of 18790 ILCS units across the city of Agartala has been approved by the Government of India in 2012 and till date more than 2500 ILCS units have already been constructed under this scheme. Agartala Municipal council is trying hard to complete the target of construction of 18970 no of Integrated Low Cost Sanitary Latrines by the end of March 2014, which will help to eliminate the practice of dry latrines and open air defecation from Agartala City and shall help significantly to reduce the contamination level of the rivers and water bodies.



By implementing all the above mentioned measures it will be possible for Agartala Municipal Council to reduce pollution level of all the water bodies of Agartala including the Haora river to significant extent within the coming one to two years.

Aim: To make City of Agartala fully clean and green by effective contribution and active participation of all the stake-holders under Agartala Municipal council



References:

- Report of Tripura State Pollution Control Board on Haora River -2011
- Statistical data and information from Central Pollution Control Board Website