

NAG RIVER BASIN ACTION PLAN



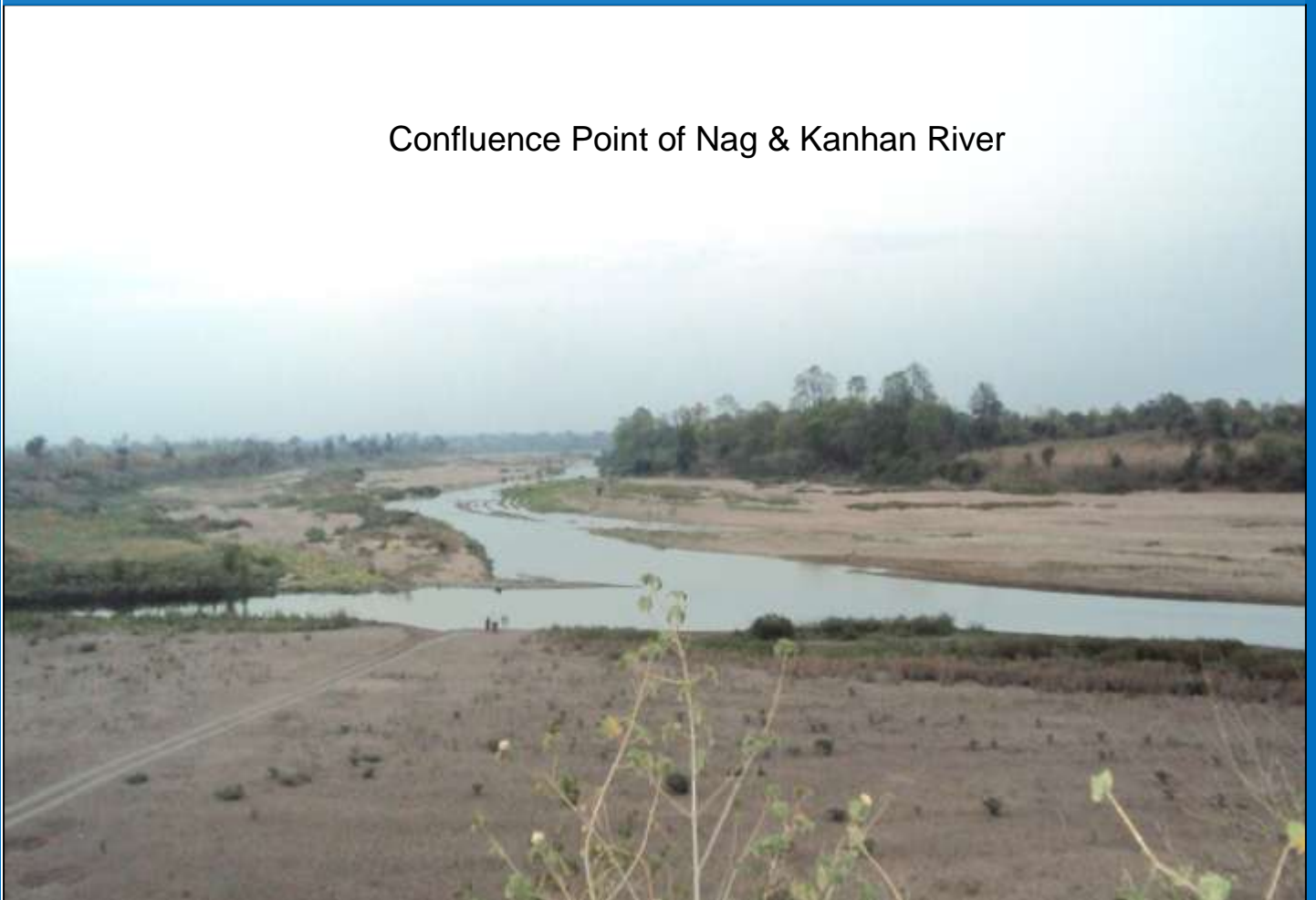
PREPARED BY

**MAHARASHTRA POLLUTION
CONTROL BOARD**

REGIONAL OFFICE, NAGPUR

MAY-2011

Confluence Point of Nag & Kanhan River



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CHAPTER-1

Introduction

1.0 City of Nagpur is named after the Nag River. Nag River originates from a lake called Ambazari, which is located to the west of Nagpur City. Please see **Figure-1.1** (layout of Nagpur city). Catchment of Ambazari lake was the present MIDC area and also some area beyond. Hence recharge of the lake was perennial. Overflow of lake constituted the river Nag. Overflow weir is also shown in **Figure-1.2**. There is another lake called Gorewada, which is to the north-west of the city and its overflow constitutes origin of another river called Pili. This river ultimately meets the river Nag.

2.0 City of Nagpur has experienced very fast urbanization during the past 50 years. Exponential and rapid rate of growth has resulted in increased use of water which has increased generation of sewage. Settlement of population has been along the rivers cited above. Resulting wastewater is not being treated adequately thereby resulting in discharge of untreated waste water into these rivers thereby causing i) deterioration of quality of receiving water and ii) disturbing the eco system.

It needs to be mentioned that, Environment Department, Govt. of Maharashtra has given a status of notified river to Nag river

Classification of water of Nag River Basins / Sub-Basin by Environment Department, Government of Maharashtra. Notification is reproduced below. Environment Department, Government Of Maharashtra has classified 20 main rivers & their sub basins in A- I, A-II, A-III & A-IV on their best designated use.

Sr No.	Name of the River	Strech of A-I class	A-II class	A - IV Class
1.	Nag River	---	Origin to Ambazari Lake	Ambazari Lake are Confluence with Kanhan River
2.	Pioli River	---	Origin Lake Gorewada Tank	Gorewada Tank to Confluence with Nag River

3.0 Nagpur city has a Municipal Corporation and is the Sub Capital of the State of Maharashtra. Population of Nagpur city is about 27, 00,000 as per 2001 census. Water supply to the Nagpur City is about 520 MLD and sewage generation is around 420 MLD.

Nagpur Municipal Corporation has inadequate infrastructure to collect and treat the entire sewage generated from the city. Civic bodies have not been in a position to develop adequate environmental infrastructure for protection of environment resulting in increased pressure of environmental degradation primarily due to discharge of untreated / partially treated into the Nag river & Pili river, parts of Nag river basin. These rivers are grossly polluted and river water is unfit for any use.

4.0 Deteriorated water quality of the Nag River can be responsible to affect water quality at Gosikhurd Dam. This dam is constructed on Wainganga River at Gosikhurd Village. Substantial quantity untreated sewage is being released into dam water via the Nag & Kanhan rivers. These have large hydraulic load of the untreated sewage.

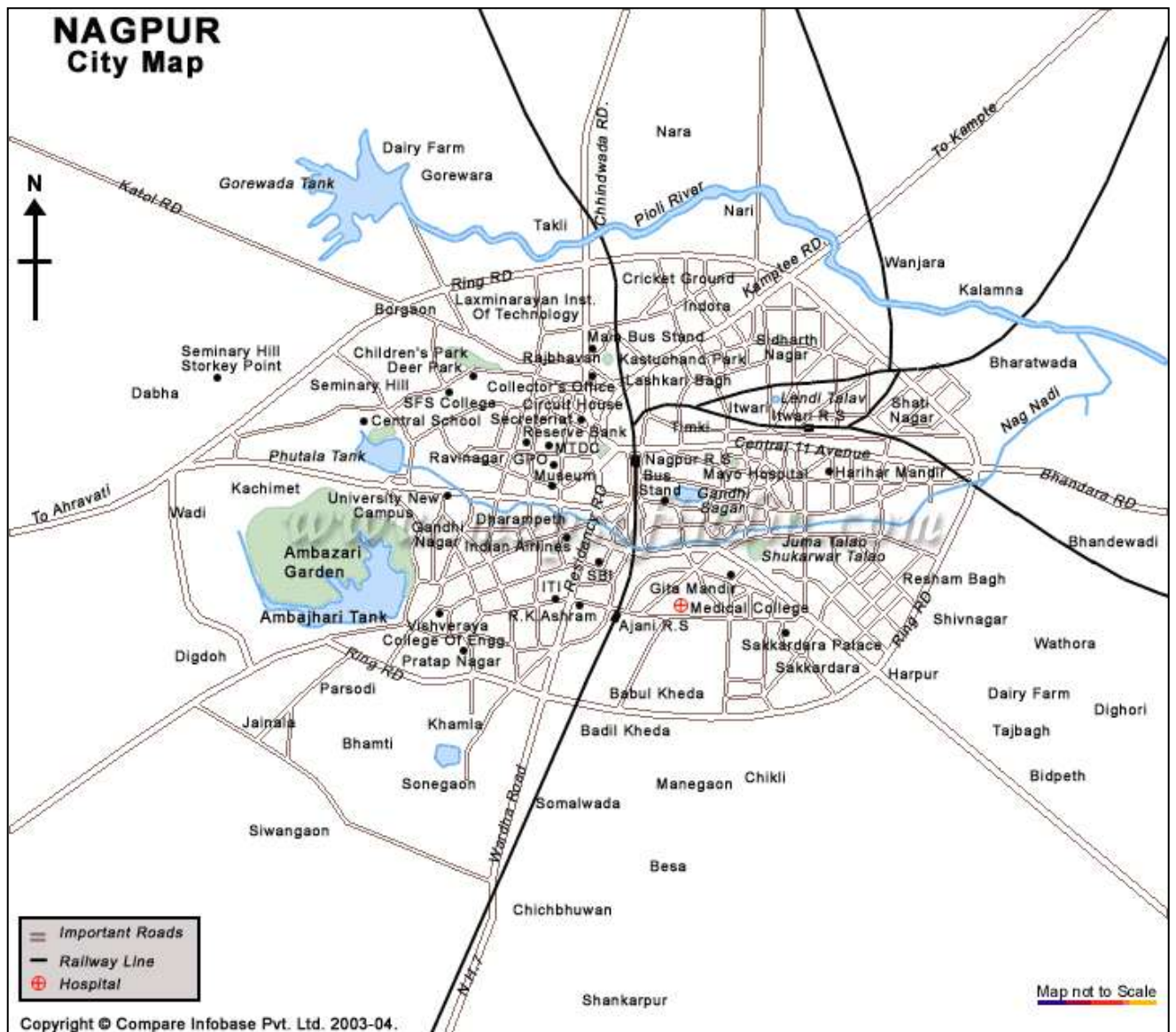


Figure no. 1.1 Nagpur City Map



Figure no. 1.2 Overflow weir of Ambazari Lake

CHAPTER-2

Necessity of Action Plan.

- 2.1 Nag & Pili Rivers can be divided into three river stretches from their origins. The stretches are from Ambazari Lake to Pardi Village, second from various localities of Nagpur town namely Shivaji Nagar, Ramdaspath, Dharampath, Civil Lines, Dhantoli, Indira Nagar, T.B. Ward, Chandan Nagar, Siraspath, Reshimbagh, Bagadganj, Bhandewadi in the city up to the Pardi village. Pardi to the confluence with Kanhan Nag River starts from Ambazari Lake's over flow weir at Western end of the City and run through the Middle of the City to the Eastern Part of the City. Nag River acts as the storm water drainage for west (part), south, central & east Nagpur. Total length of Nag River is 17.00 Km up to the city limit. Its width ranges from 12 to 40 m and depth varies from 2 to 4.5 m. Total length of Nag River up to the confluence with Kanhan River at Agargaon is about 68 Km.
- 2.2 Growing concern for maintenance of water quality in Gosikhurd storage and for the eco system along Nag & Pili river and also for general environmental status of Nagpur city has been discussed at various levels including the legislative assembly of Govt. of Maharashtra. Also the Hon'ble High Court of Mumbai, Nagpur Bench has taken cognizance of this issue of pollution of Gosikhurd dam water due to discharge of untreated sewage through Nag & Pili river in particular and other sources is general from within Nagpur city.
- 2.3 Therefore, it is the need of the day is to try to restore the status of water in these rivers along with its wholesomeness as per the best designated use.
- 2.4 Present appearances of these rivers and Gosikhurd Dam water reservoir is depicted in Plates no 2. Such unaesthetic appearances have to be changed by proper river water management along with efforts to improve environment quality.



Figure no. 2.1(a):- Present appearances of Nag & Pilli Rivers



Figure no. 2.1(b):- Present appearances of Nag & Pilli Rivers



Figure no. 2.1(c):- Gosikhurd Dam (Reservoir) on Wainganga River

CHAPTER-3

Present status of rivers.

3.1 Maharashtra Pollution Control Board has been monitoring water quality in various water bodies within Nagpur city including Nag River & Pili River water quality during their flows through the city. At present water monitoring station on Nag & Pili River are monitored under Environmental Monitoring Program with a frequency of monthly sample collection. These stations are recommended to cover under NWMP program. Details of monitoring stations is as below;

Table No. 3.1 :- Monitoring Stations

Sr. No.	Location details (Name/Village/Taluka/Dist)	Type (Nallah, Rivers, Creek, Sea)	Exist/ Proposed	Class (SW-I/SW-II/A-1/A-II/A-III/A-IV)	Sources of pollution to the water body	Recommendation to include under NWMP/SWMP with justification	Recommendation for monitoring frequency (Monthly/Quarterly/Yearly)
1	1. Nag River Near, Ambazari Lake , Nagpur.	River	Proposed	A-IV	NMC Sewage	NWMP (proposed). Due to discharge of sewage of Nagpur city into the Nag River.	Monthly
2	2. Nag River Near, Bhandewadi Bridge, Nagpur	River	Proposed	A-IV	NMC Sewage	NWMP (proposed). Due to discharge of sewage of Nagpur city into the Nag River.	Monthly
3	3. Nag River Near Asoli Bridge, Bhandara Road , Nagpur	River	Proposed	A-IV	NMC Sewage	NWMP (proposed). Due to discharge of sewage of Nagpur city into the Nag River.	Monthly
4	4. Pili River Near Wanjra Layout, Kamptee Road, Nagpur.	River	Proposed	A-IV	NMC Sewage	NWMP (proposed). Due to discharge of sewage of Nagpur city into the Pili River.	Monthly
5	5. Pili River Near, Mankapur on Koradi Road, Nagpur.	River	Proposed	A-IV	NMC Sewage	NWMP (proposed). Due to discharge of sewage of Nagpur city into the Pili River.	Monthly

Table- 3.2 - Water quality for the year 2009-2010 and 2010-2011 is given as below;
River water quality data (2009-2010) – Summer to Monsoon.

Location	Class of Water	pH		BOD			COD		
		Min	Max	Min	Max	Avg.	Min	Max	Avg.
Ambazari Lake Water	A-II	7.39	8.60	4.10	13.0	9.18	18.0	64.0	37.20
Gorewada Water Tank	A-II	7.32	8.6	4.0	9.0	6.04	14.0	24.0	18.57
Nag river near Ambazari lake.	A-IV	7.14	8.68	9.00	134.00	47.50	18.00	254.00	100.50
Nag River Bhandewadi Road Bridge.	A-IV	7.45	8.80	8.00	124.00	57.29	48.00	268.00	150.00
Pili River Mankapur Bridge on Koradi Road.	A-IV	6.47	8.80	8.30	160.00	51.81	24.00	290.00	103.11
Pili River Wanjara Layout.	A-IV	6.96	8.61	12.00	145.00	52.11	10.00	272.00	96.89
Nag River water at Asoli Bridge	A-IV	6.72	8.80	10.0	115.0	48.14	40.0	247.0	120.5

All parameters except pH are in mg/liter.

Table- 3.3
River water quality data (2009-2010) –Monsoon.

Location	Class of Water	pH		BOD			COD		
		Min	Max	Min	Max	Avg.	Min	Max	Avg.
Ambazari Lake Water (7/4/2010)	A-II	-	8.01	-	6.5	-	-	30.0	-
Gorewada Water Tank	A-II	7.9	8.42	4.0	5.2	4.6	16.0	20.0	19.0
Nag river near Ambazari lake.	A-IV	8.04	8.65	6.20	29.00	13.05	22.00	80.00	44.00
Nag River Bhandewadi Road Bridge.	A-IV	7.71	7.92	14.00	24.00	19.00	51.00	86.00	65.67
Nag River asoli bridge Road.	A-IV	7.76	7.98	17.00	28.00	21.00	48.00	82.00	70.00
Pili River Mankapur Bridge on Koradi Road.	A-IV	7.64	8.06	6.00	12.00	9.50	30.00	48.00	38.75
Pili River Wanjara Layout.	A-IV	7.62	8.08	9.00	35.00	18.00	36.00	90.00	59.00

The following can be concluded from the above table.

- Bio-chemical oxygen demand increases from 9 to 57 mg/lit. during its flow through Nagpur city. BOD is indicative of organic load present in the water, which undergoes decomposition, thereby reducing DO contents in the water. Minimum DO requirement for healthy water body is 5.0 mg/lit. and above. COD also shows the same trend.
- pH of river water also is between 6.52 to 7.5.
- Study of water quality in the rivers confirm that, they are getting progressively contaminated.
- Contributors of pollutants are residential areas and also a few industries contribute to organic load.
- Dilution of pollution load during monsoon is seen from table no. 3.2
- BOD of samples from Nag and Pili River exceeds permissible level 30 mg/l in A-IV stretch of the River for the period April-2009 to March-2010.
- River water quality of the Nag River and Pili River exceeds the standard 5 mg/l. in A-II stretch for the period April-2009 to March-2010 and April-2010 to July-2010.
- The analysis results of the Nag River water reveals that the River water is polluted in A-II & A-IV stretch throughout the length of the River.
- This river is also polluted throughout its length within Nagpur city.



Upper Stage (View of Ambazari Weir)



Middle Stage (Nag River and Pili River)



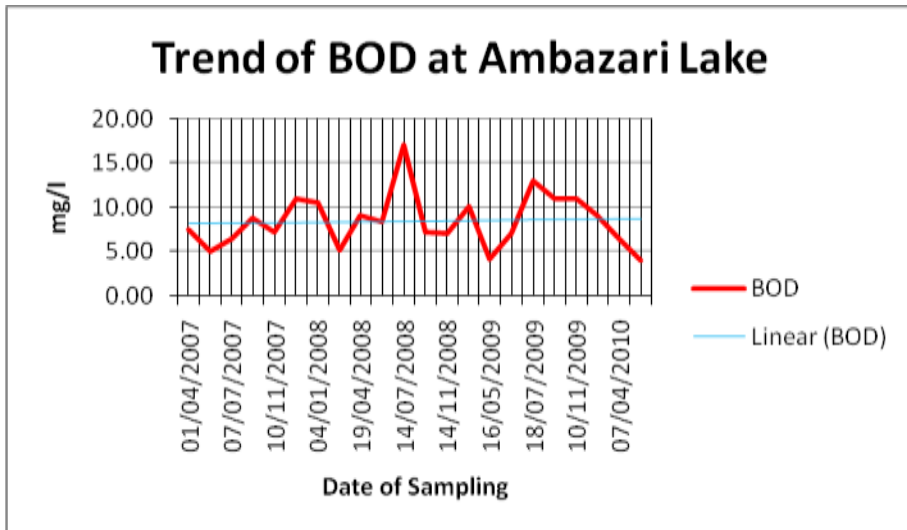
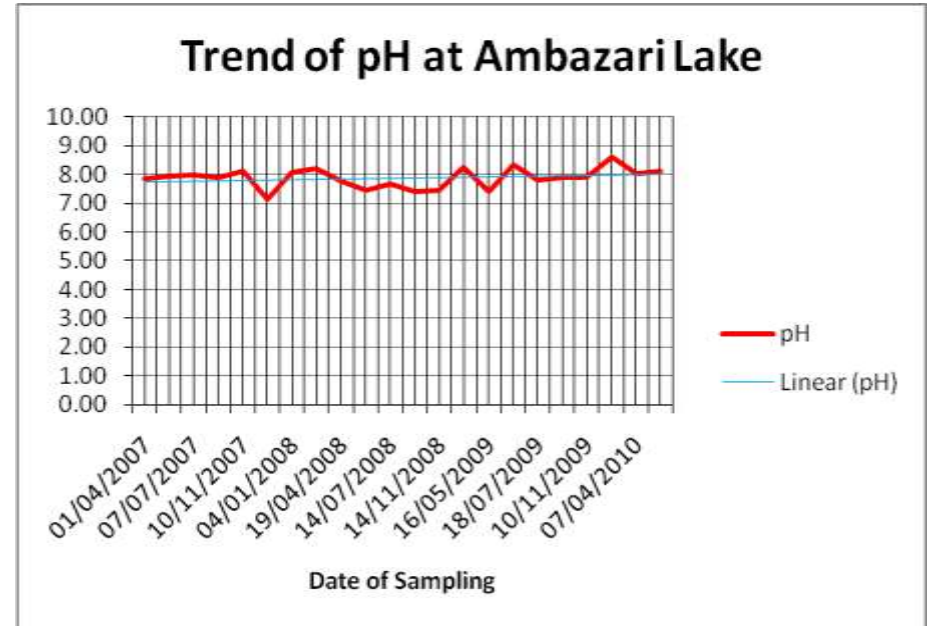
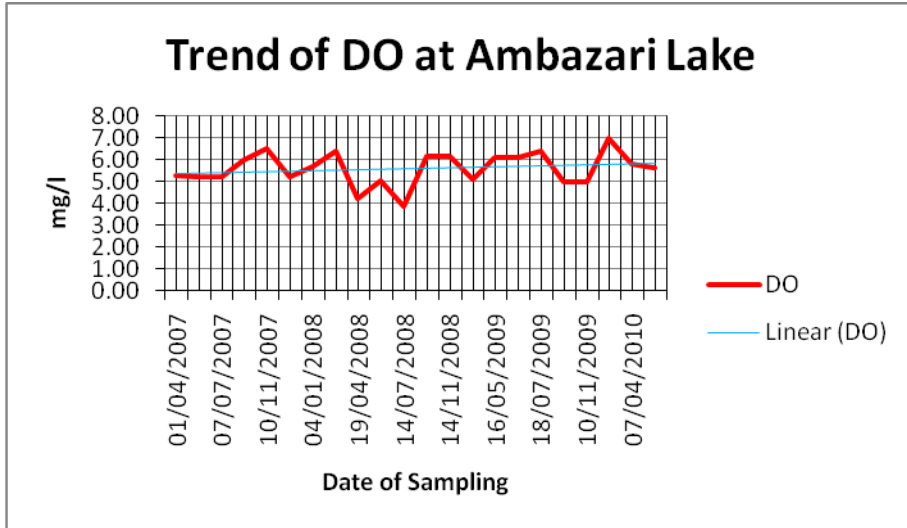
Lower Stage (View of Nag River)

3.2 It has been mentioned earlier that overflow of Ambazari Lake constitutes the river. MPCB has maintained a record of water quality of lake and of river through its flow in Nagpur. Graphical representation of water quality of lake is given in **Graph 3.1**. Water quality is satisfactory in the lake

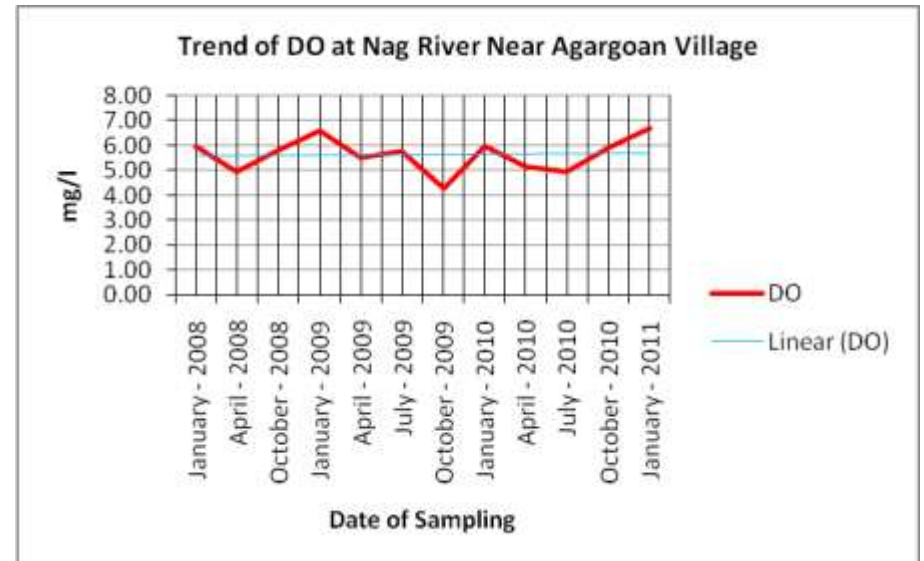
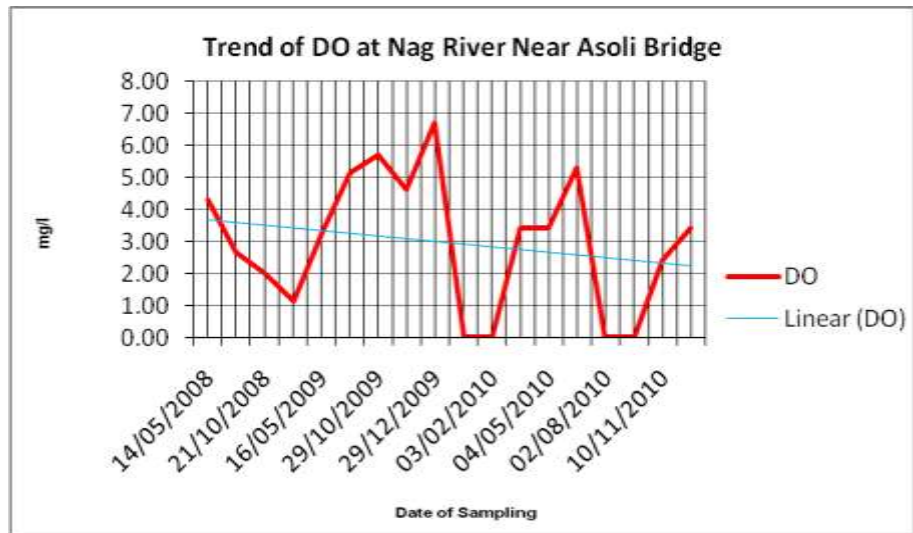
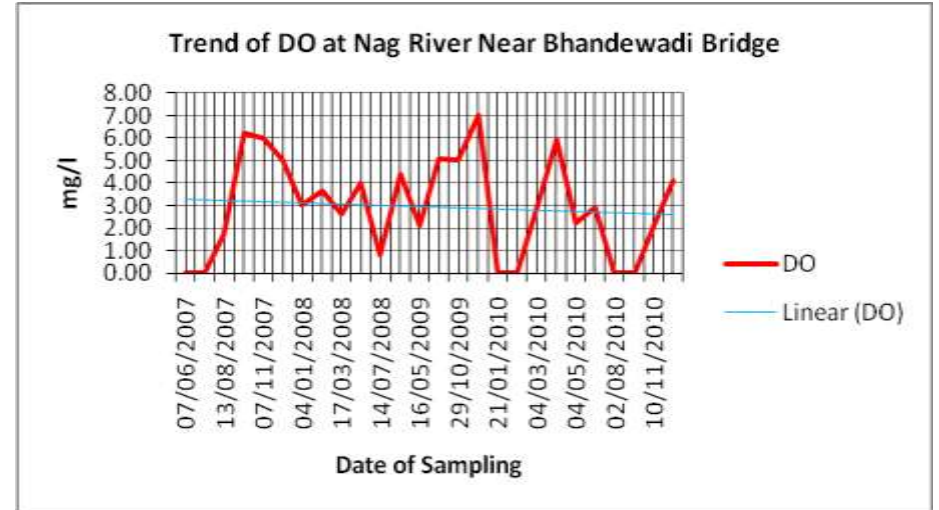
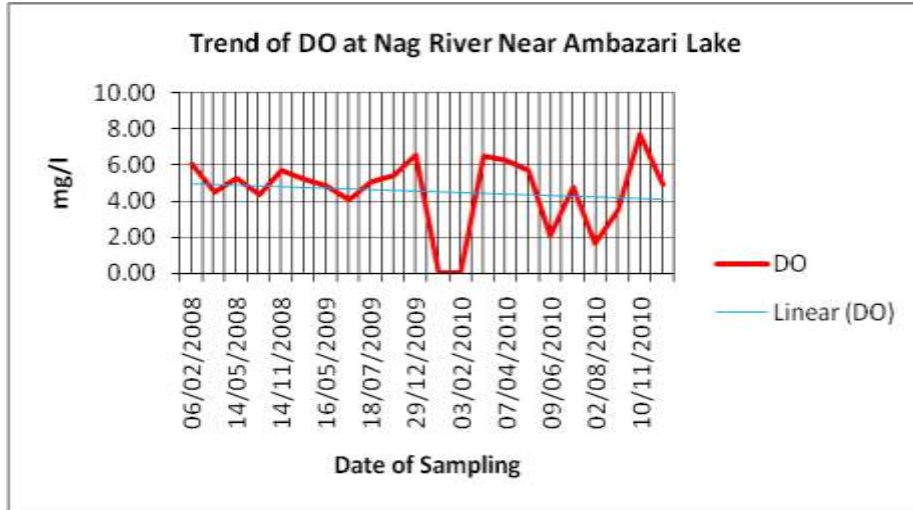
Changes in D.O. values are given in **Graph 3.2**, those in BOD are given in **Graph 3.3** and pH changes of the river are given in **Graph 3.4**. Out of these parameters DO has significance since it indicates status of water quality. For DO in the river has always been below the saturation level confirming its continued pollution. River tries to recover at Agargaon Village where the DO has been between 4.2 and 6.8 mg/lit. Other graphs for BOD indicate the trend, indicate that the river maintains relatively constant pH.

Similar graphs for the river pili are shown in **Graphs 3.5 & 3.6**. These also indicate same status of river water quality as in case of the Nag River.

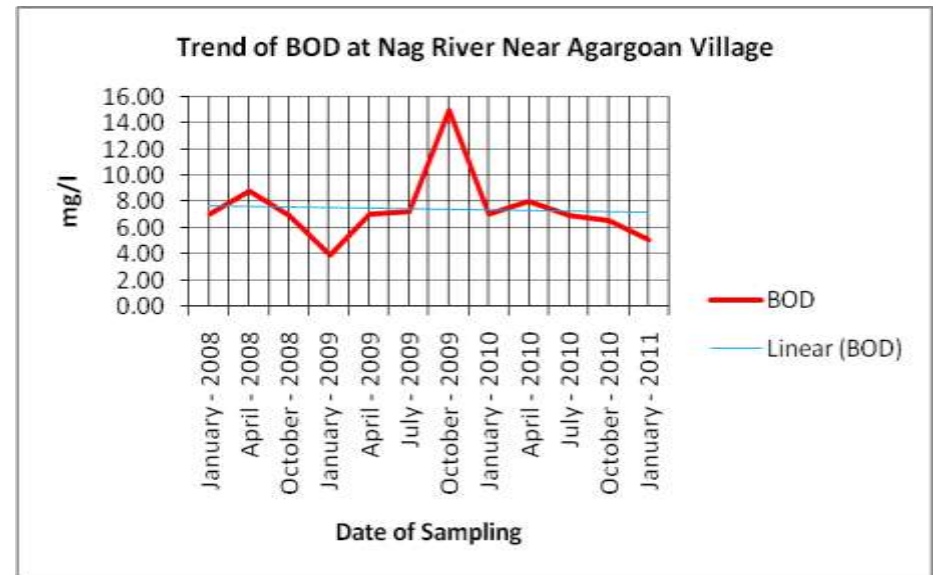
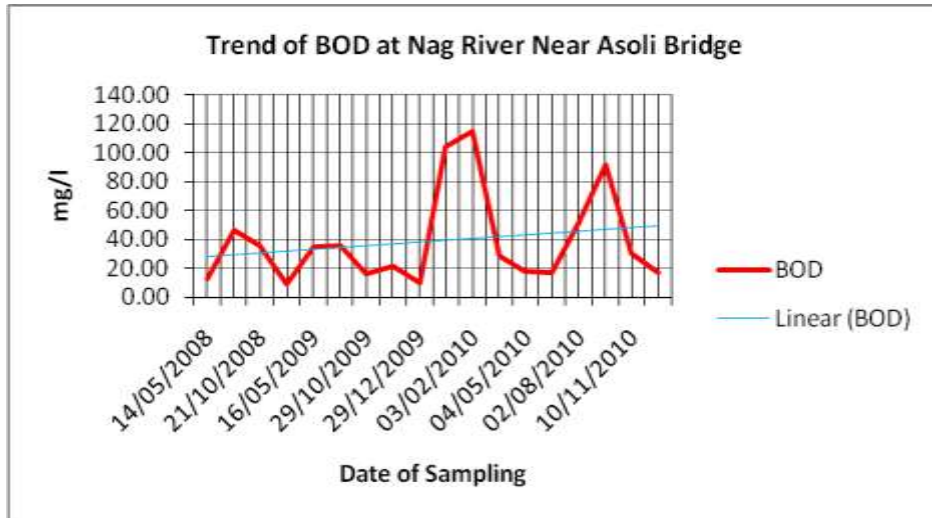
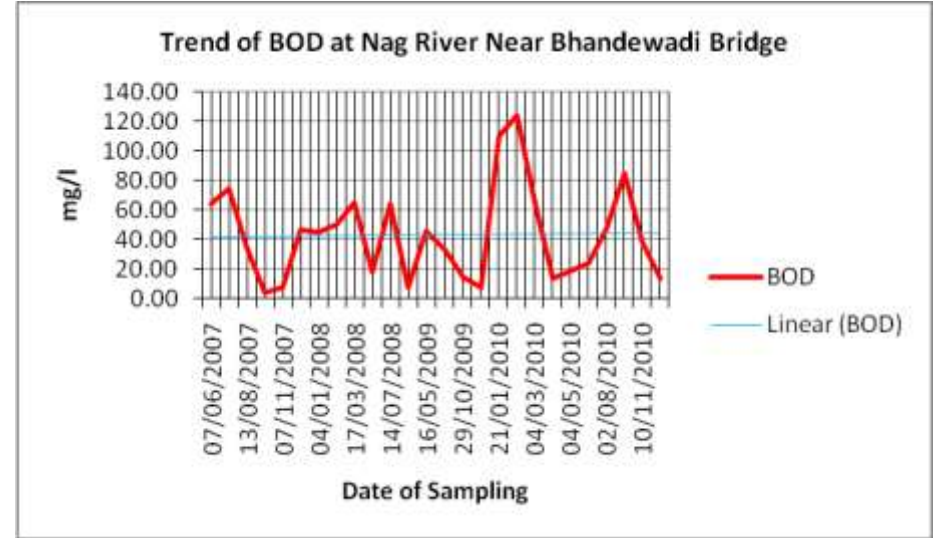
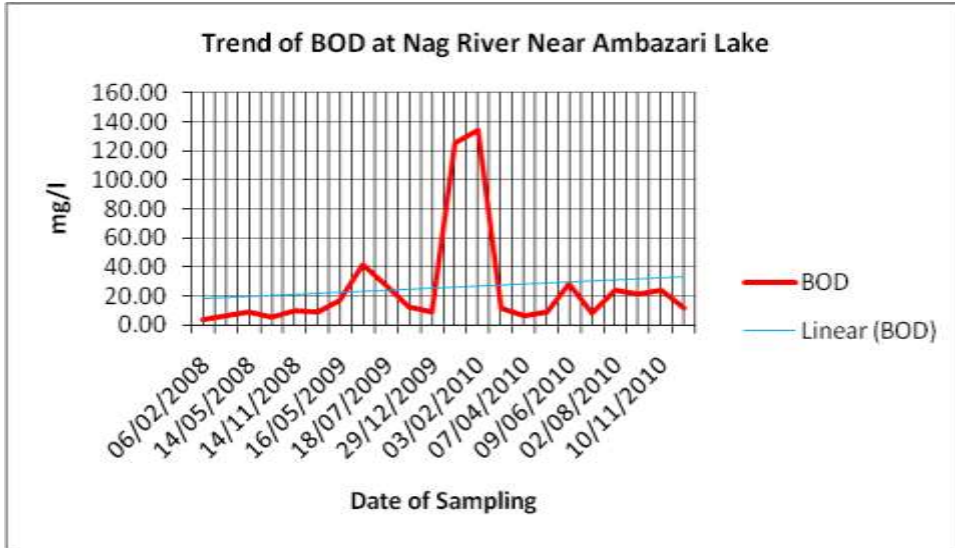
Graph no. 3.1 Trend of DO, BOD & pH of Ambazari Lake



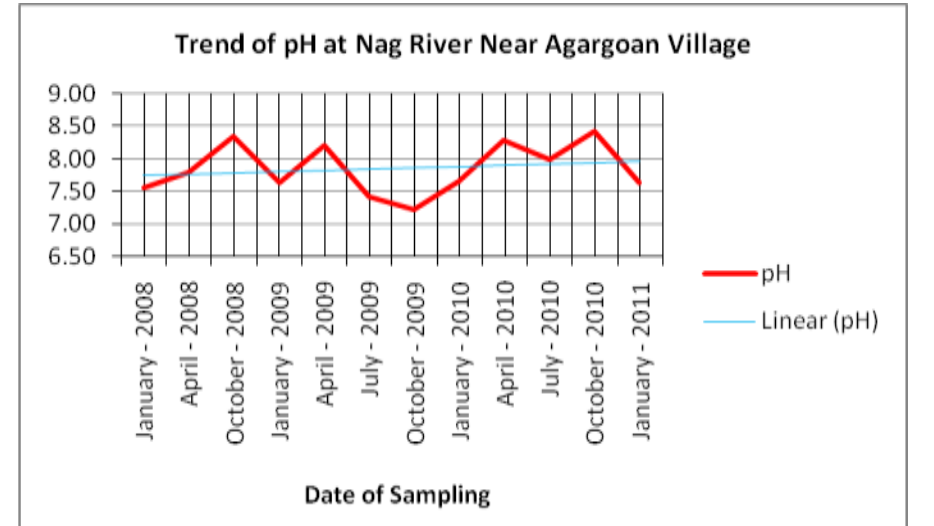
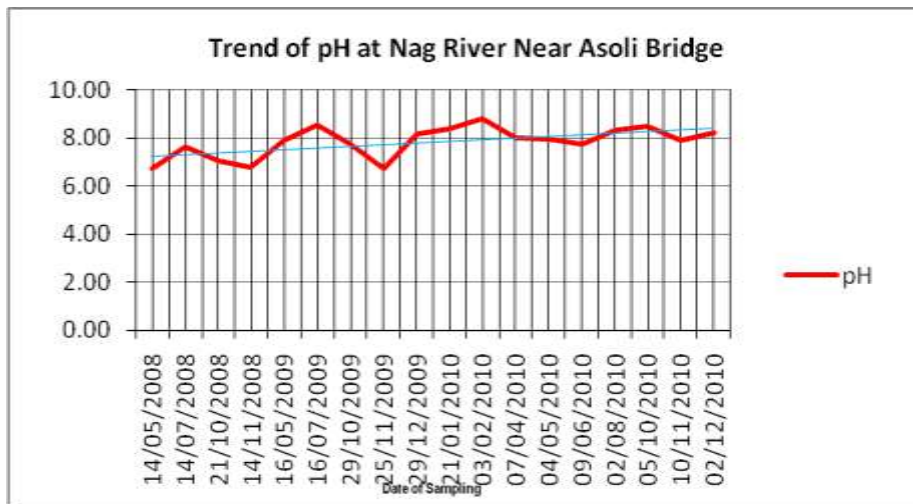
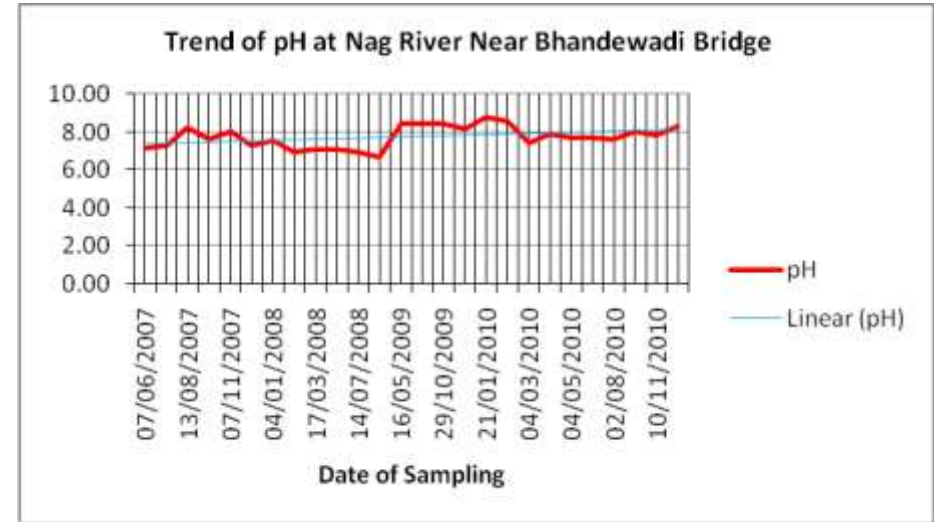
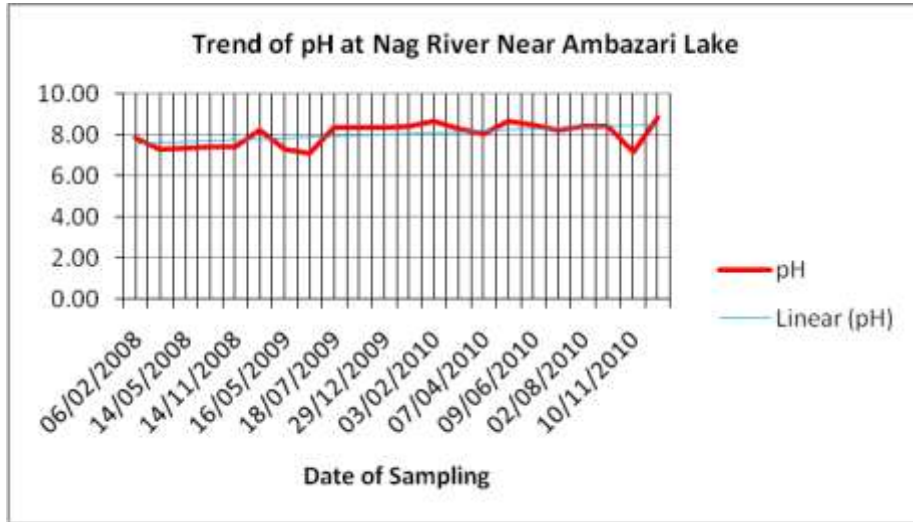
Graph no. 3.2 Trend of DO at different locations of Nag River



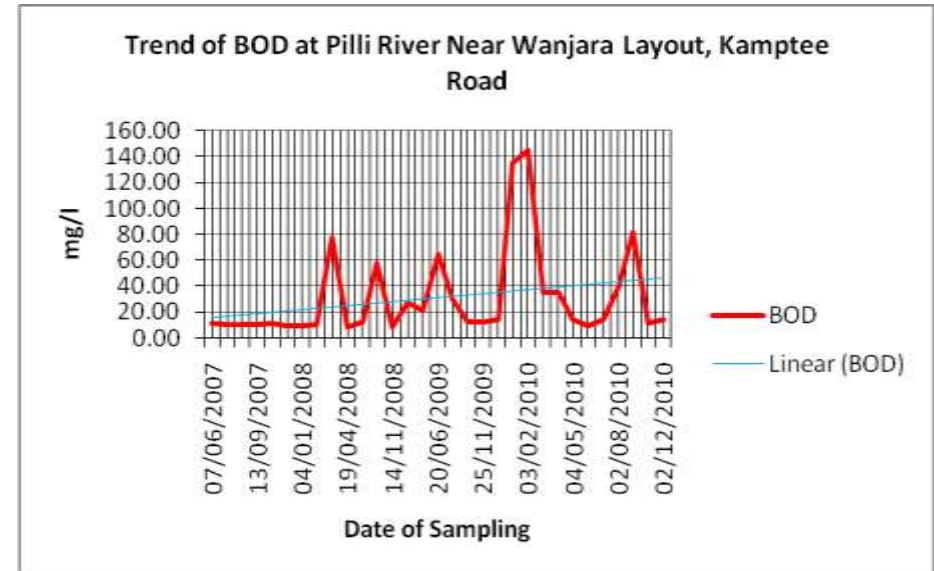
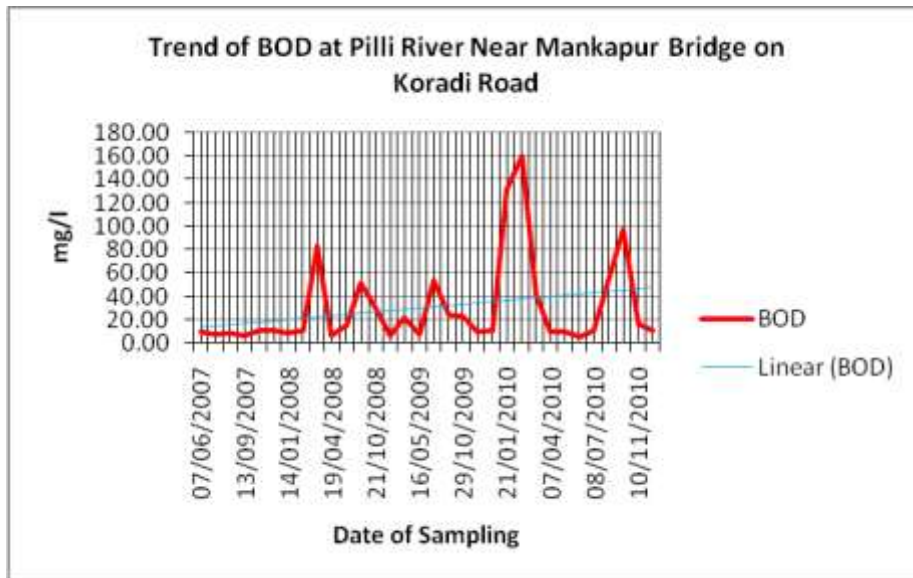
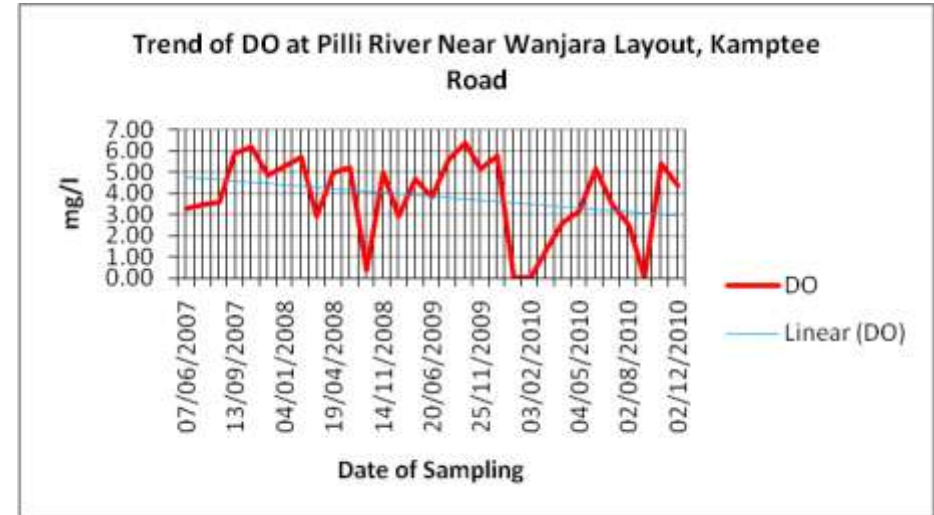
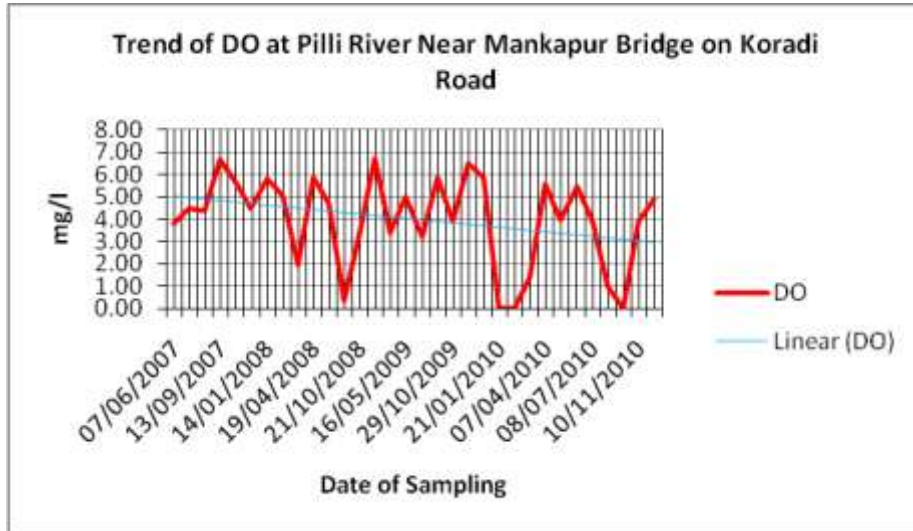
Graph no. 3.3 Trend of BOD at different locations of Nag River



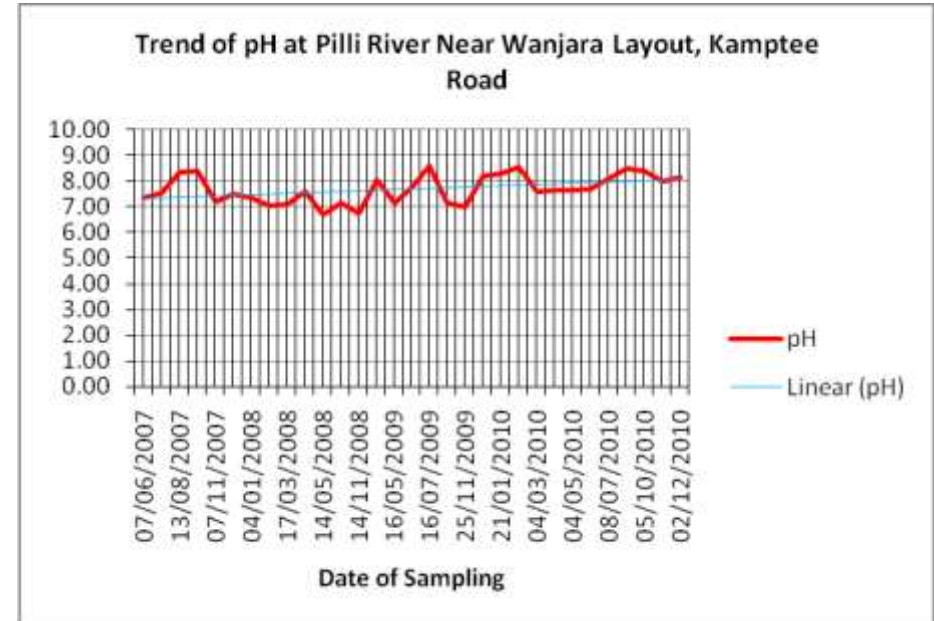
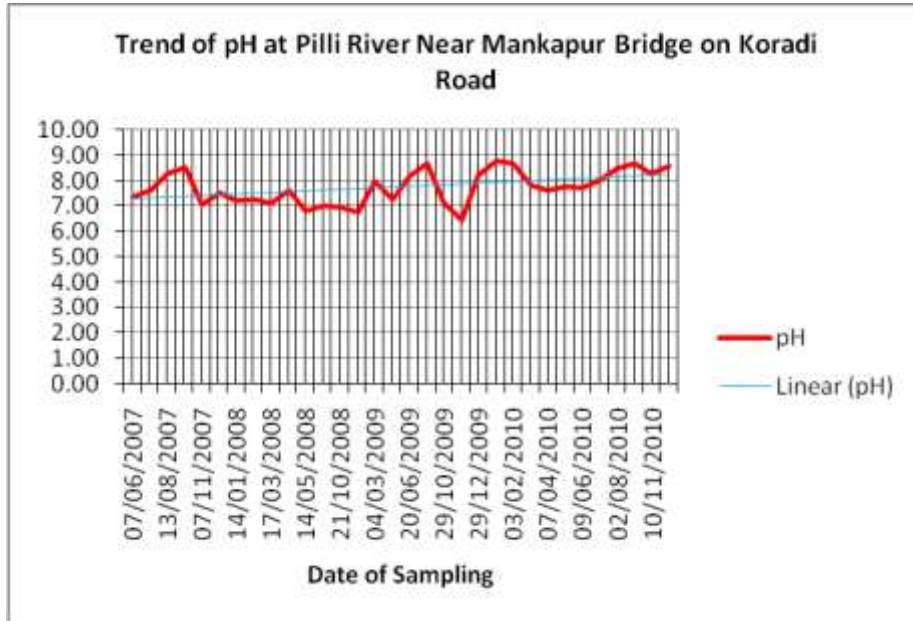
Graph no. 3.4 Trend of pH at different locations of Nag River



Graph no. 3.5 Trend of DO & BOD at different locations of Pilli River



Graph no. 3.6 Trend of pH at different locations of Pilli River



CHAPTER - 4

Pollution Sources.

4.1 Maharashtra Pollution Control Board has conducted an elaborate survey in order to i) identify pollution sources, ii) quantify pollution load from each source, iii) verify existence or otherwise of pollution control methods/steps and iv) assess effectiveness of the control systems.

4.2 Major sources of wastewater.

- Domestic as well as industrial activities are important sources for pollution during the flow of these rivers. Domestic sources as compared to industrial sources exceed substantially in terms of organic load addition into the River. Predominant source is untreated sewage discharged by Nagpur Municipal Corporation into Nag & Pili Rivers.
- Nagpur Municipal Corporation generates about 345 MLD of sewage. Corporation has only one STP installed at Bhandewadi having capacity of 100 MLD, which operates on 80% capacity. Treated sewage is being discharged into Nag River at downstream of Bhandewadi. Remaining 265 MLD of untreated sewage is being discharged into the Nag River & Pili rivers through various nallas. Discharged points are described in following tables.

Sewage discharge into Nag River.

1	Nalla sample carrying sewage of West Nagpur near Dande Hospital, Ravi Nagar Chowk, Nagpur.
2	Bore Nalla sample carrying sewage of Central Nagpur behind Naivadyam sangamchal before mixing to Nag River.
3	Nalla sample carrying sewage of Central Nagpur near Untkhana Bridge before mixing to Nag River.
4	Nalla sample carrying sewage of East Nagpur (Nandanvan Area) near Jagnade Chowk before mixing with Nag River.
5	Nalla sample carrying East Nagpur near Super Store, Jagnade Chowk, Nagpur before mixing with Nag River.
6	Nalla sample carrying sewage of East Nagpur near St.Xaviour School, Vyankatesh Nagar, Nagpur before mixing with Nag River.
7	Nalla sample carrying sewage of East Nagpur (Hasanbagh) near Vyankatesh Nagar, Nagpur before mixing with Nag River.
8	Hudkeshwar Nalla sample carrying sewage of South Nagpur near bridge lawns before mixing with Nag River.
9	Nalla carrying sewage from Shivaji Nagar, Gandhi Nagar B/h LAD College.

Sewage discharge into Pili River.

1	Chambhar Nalla sample carrying sewage of North Nagpur (Indora Area) near road bridge Sharda Ispat to Kalamna before mixing with Pili River.
2	Nalla sample carrying sewage of North Nagpur near railway crossing Nagpur-Koradi before mixing with Pili River.
3	Nalla sample carrying sewage of North Nagpur near St.Vinsent Pallati School (Zingabai Takli area) before mixing with Pili River.

- Nagpur Municipal Corporation has laid down sewer in central zone of the Nagpur City. Other zones of the city i.e. North zone and South zone do not have the facility of sewage collection. Therefore, the sewage from this zone is discharged into the local nalla. Obstruction to the flow of sewage occurs at many locations leading to inadequate oxygenation of the stream.
- There are two co-operative industrial estates namely Uppalwadi and Wanjara Co-operative Industrial Estate in the catchment of Nag River basin. The waste water along with the sewage generated from these Co-operative Industrial Estate is discharged into the Pili river which is a tributary of Nag River.
- Slaughter houses of Municipal Corporation located at Gaddigodam, Mominpura & Bhandewadi discharges waste water into the Nag river through nallas. These slaughters houses do not have treatment arrangement for the treatment of industrial effluent. The untreated industrial effluent is discharged into Nag River through local nalla.
- Various major individual industrial units located in the catchment of Nag River & Pili River within the city and outside the city limits also discharges wastewater into these river water bodies. There are about 5 industrial units namely Govt. Milk Scheme, Civil Lines, Nagpur, Dinshaw's Dairy, Gittikhadan, Nagpur, Shree Baidyanath Ayurved Bhavan, Great Nag Road, Nagpur, Haldiram Food International, Bhandara Road, Nagpur, Murli Industries Ltd., Wadoda, Dist.Nagpur in the catchment of the Nag River & Pili River basin. All these industries have provided own ETP for the treatment of industrial effluent. The industries namely Murli Industries Ltd. And Dinshaw's Dairy are practicing about 80% & 70% recycle of the treated effluent, however the remaining effluent is discharged into Nag River & Pili River respectively through local nallas.

-
- Nag river after Pardi forms the lower stretch course of Nag River and enters in rural Nagpur. Ultimately it meets Kanhan River at village Agargaon.
 - In between the Pardi town and village Agargaon there are 31 villages on the bank and in the catchment of the Nag River. Sullage from these villages also is discharged untreated into the Nag River.
 - Growing nursing home culture and establishment of a number of multi bedded hospitals also in an around municipal limits is responsible for discharge of liquid wastes. This constitutes a major concern as discharge of untreated liquid waste is also responsible for pathogenic river pollution.
 - Non point sources:- Area is dominated by agricultural, horticultural activities in rural Nagpur area. Use of pesticides, insecticides, herbicides etc. results in accumulation of residual of these toxic materials over the land. Run offs from agricultural land contribute major recalcitrant material to water.
 - Open defecation:- Lack of adequate sanitation infrastructure for human settlements in the slum and the urban fringe areas results in organic and polluted run offs and cause river pollution.

Polluting sources of the Nag River & Pili River are represented on the tree diagram of Nag and Pili River.

CHAPTER - 5

Computation of pollution loads.

5.0 Maharashtra Pollution Control Board has quantified pollution load in terms of BOD of each stream/ source cited above, has gathered wastewater quantities from local bodies and industrial units, which contribute wastewater to the river. These are presented in subsequent paragraphs.

5.1 Un-Treated / Treated sewage:- Pollution load estimation of various sources gives an information about entering of organic load into the river water bodies. This information is essential to develop appropriate action plan for restoration of the river water bodies as per their designated use.

Nagpur Municipal Corporation :- Nagpur Municipal Corporation generates 345 MLD of sewage from the city area. Out of which 80 MLD sewage is treated and 265 MLD untreated sewage discharged into Nag River. Pollution load of 80 MLD sewage has been calculated considering a value of BOD limit of 50 mg/l. as per consent conditions. The load will be around 4 T/day of sewage discharged into the river. Pollution load of 340 MLD of untreated sewage is calculated considering value of BOD limit of 250 mg/l, which comes around 66.25 T/day. Hence, total BOD load is 70.25 T/day.

In other words 70.25 T oxygen will have to be made available per day if, river water quality is to be unaltered by sewage.

5.2 Pollution load from co-operative industrial estates:- Two co-operative industrial estates namely Uppalwadi co-operative industrial estate & Wanjara co-operative industrial estate discharge wastewater and sewage. This wastewater from these industrial estates enters the Pili River. This is a predominant tributary of Nag River. Its pollution load has been calculated as under.

- Uppalwadi Co-operative Industrial Estate:- Water supply to the industrial estate is from Nagpur Municipal Corporation is about 0.0212 MLD. This water is used for domestic water consumption. In addition to this the industrial estate has their own

water supply of 0.15 MLD for industrial purpose. There are about 25 nos. of small scale industries units operational in this co-operative industrial estate, out of which only 5 nos. of industries generate industrial effluents. Volume of industrial effluent generation is 14.15 CMD only and BOD load when computed will be only 1.415 kg/day. Domestic BOD load is not considered as this has been covered under total water supply of Nagpur Municipal Corporation. Industrial pollution load is calculated as below **Table no. 5.1**;

Table no. 5.1:- Industrial Pollution Load in Uppalwadi Co-operative Industrial Estate

No. of water polluting Industries	Industrial effluent in CMD	BOD limit as per consent for industrial effluent	Industrial load BOD kg/day
05	14.15	100 mg/lit.	1.415

Details of the industries is enclosed as **Annexure 1**.

- Wanjara Co-operative Industrial Estate:- There are 44 nos. of industries of small scale nature in this co-operative industrial estate. Out of which 30 nos. of industries do not generate industrial effluent. The source of water supply is from Nagpur Municipal Corporation, which is about 0.0379 MLD to this industrial estate. As the source of water is from Nagpur Municipal Corporation domestic pollution load is not considered separately for this co-operative industrial estate as it is already covered under the domestic pollution load from Nagpur City. However, the industrial pollution load in terms of BOD is calculated as below **Table no. 5.2**;

Table no. 5.2:- Industrial Pollution Load in Wanjara Co-operative Industrial Estate

No. of water polluting Industries	Industrial effluent in CMD	BOD limit as per consent for industrial effluent	Industrial load BOD kg/day
14	22.95	20 to 100 mg/lit.	1.084

Details of the 44 nos. of industries are enclosed in **Annexure 2**.

- Slaughter houses:- There are three slaughter houses in the Nagpur City operated by Nagpur Municipal Corporation. Pollution load estimation for trade effluent is given in following **Table no. 5.3**;

Table no. 5.3:- Pollution Load for Slaughter Houses

Sr. No.	Name of Slaughter House	Total Water consumption in CMD	Industrial Effluent in CMD	Treatment & Disposal	BOD Limit as per consent	Industrial BOD Load Kg/day	% of Recycle
1	Slaughter House at Gaddigodam, Nagpur	1.0	0.5	Treated in sewage treatment Plant and disposal into Nag River through nalla	30	0.015	0
2	Slaughter House at Momimpura, Nagpur	0.5	0.5	Treated in sewage treatment Plant and disposal into Nag River through nalla	30	0.015	0
3	Slaughter House at Bhandewadi	127.0	143.0	Treated in sewage treatment Plant and disposal into Nag River through nalla	30	4.29	0
Total						4.32	

- Pollution load from individual major industries:- There are major individual industrial units in the City area and outside the city area, which are directly and indirectly letting out effluent into Nag & Pili River. The details of such industries alongwith pollution load calculation is given in following **Table no. 5.4;**

Table no. 5.4:- Pollution Load for Individual Major Industries

Sr. No.	Name of industry	Total Water consumption in CMD	Domestic Effluent in CMD	Industrial Effluent in CMD	0% Recycle of Industrial effluent.	Treatment & Disposal	BOD Limit as per consent mg/lit	Domestic BOD load	Industrial BOD Load Kg/day
1	M/s Govt. Milk Scheme S.No.-5A/2 Civil Lines, Nagpur	227.0	Covered undue domestic effluent from the city	150.0	0	Primary & Secondary treatment arrangement . Disposal into Nag River through local nalla.	100		15
2	M/s Dinshaw's Dairy Food Ltd. Gittikhadan, Gorewada Road, Nagpur	298.0	Covered undue domestic effluent from the city	248.0	60.0	Primary & Secondary treatment arrangement . Disposal into Nag River through local nalla.	100		Considering 40% discharged- 9.92

3	M/s Shri Baidyanath Ayurved Bhavan Pvt. Ltd, Great Nag Road, Nagpur	52.0	Covered undue domestic effluent from the city	6.25	0	Primary & Secondary treatment arrangement . Disposal into Nag River through local nalla.	100		0.625
4	M/s Haldiram Food International Ltd. 880 Small factory Area Nagpur	28.5	Covered undue domestic effluent from the city	2.0	0	E.T.P. Provided treatment of trade effluent.	100		0.2
5	M/s. Murli Industries Ltd., Vill.Wadoda, Tq.Kamptee, Dist.Nagpur	9692.0	10.7	6420.0	80.0	E.T.P. Provided for treatment of trade effluent.	100	1.07	Considering 20% discharged – 128.4

- Pollution load from Village on the bank of Nag River in Rural Nagpur :- The Nag River after Pardi town travels through the rural part of the Nagpur District. The villages on the bank of Nag River are discharging untreated sewage into the Nag River. The list of such 31 villages along with the details of water supply is obtained from Zilla Parishad, Nagpur. Based on this domestic pollution load is calculated considering BOD as 250 mg/l. 60 lpcd is considered as water consumption **Table no. 5.5**;

Table no. 5.5:- Pollution Load from villages on the Bank of River in Rural Nagpur

No. of the Village	Total Population	Water supply m ³ /d	Domestic effluent in Mm ³ /d	BOD concentration	Domestic load BOD Kg/day
31	43197	2591.82	2073.45	250 mg/liter assumed	518.36

Details of villages enclosed as **Annexure 3**.

CHAPTER - 6

Existing infrastructure for Environment management in urban area.

- 6.0 Maharashtra Pollution Control Board has taken extensive efforts in order to provide logistic infrastructure for environment management within Nagpur city. These efforts can be divided into four major sectors namely Industrial, Bio-Medical and Domestic wastewater treatment and towards continuous improvement in solid waste management. Environment management is a continuous activity and review of present facilities will help in optimization of the action plan.
- 6.1 Sewage treatment / domestic waste water treatment plant:- Nagpur Municipal Corporation has commissioned and been operating a 100 MLD sewage treatment plant. It is located at Bhandewadi. It is based on activated sludge process. MPCB has observed during random sampling that the plant is being operated as per the standards. There is a digester for sludge. Treated effluent reaches the river ultimately. **Figure no. 6.1**



Figure 6.1 View of sewage treatment plant-Bhandewadi (100 MLD Capacity)

- 6.2 Bio-medical waste :- Authorized certified agencies are collecting bio-medical waste from established hospitals. An incinerator of 200 kg/hr. capacity has been installed.

It has two chambers and meets CPCB standards. It has been provided with a ventury- scrubber and performance has been satisfactory. Besides this, waste autoclave and shredder are also provided for bio-medical waste management. Wastewater generated from this unit is being treated in a committed effluent treatment plant **Figure no 6.2**



Figure no. 6.2 Biomedical Waste Plant (Shredder & Incinerator) CBMWTSDF

- 6.3 Municipal solid waste :- At the instance of MPCB Nagpur Municipal Corporation has initiated segregation of dry and wet solid waste. It has installed municipal wet waste processing plant to manufacture bio-fuel. Capacity of the plant is 400 T/day. This has resulted in reducing pollution load due to indiscriminate discharge of putrefying solid waste into river. **Figure no. 6.3**



Figure no. 6.3 Municipal Solid Waste Processing Plant (Product-RDF)

- 6.4 Maharashtra Pollution Control Board has insisted on installation of appropriate wastewater treatment plants at a number of polluting industries. These include milk processing, food processing, Ayurvedic pharmaceutical units, paper mills etc. **Figures no. 6.4-6.7 respectively.**



**Figure no. 6.4 :- Wastewater Treatment Plant Installed at
M/s. Dinshaw's Dairy Food Products Ltd., Gittikhadan**



**Figure no. 6.5 :- Wastewater Treatment Plant Installed at
M/s. Haldiram Food Products Ltd., Gumthala, Tq. Kamptee**



**Figure no. 6.6 :- Wastewater Treatment Plant Installed at
M/s. Shree Baidyanath Ayurved Bhavan Pvt. Ltd., Nagpur**



**Figure no. 6.7 :- Wastewater Treatment Plant Installed at
M/s. Murali Industries Ltd., Vadada, Tq. Kamptee**

CHAPTER – 7

Summary:-

- Analysis results of both Nag & Pili River suggest that, river water quality is organically polluted through out its stretch. This has also affected Wainganga River water quality at Gosikhurd Dam water, the issue which has been discussed at various Government levels including legislative assembly Govt. of Maharashtra.
- Pollution load of domestic wastewater released from Nagpur Municipal Corporation area into the river water body is predominantly responsible for deterioration of river water quality. In this context much emphasis needs to be given on appropriate and adequate treatment of sewage generated from Nagpur Municipal Council Area.
- Pollution of the rivers is also due to dumping of domestic solid wastes, in to these rivers. There is siltation of river bed.
- Existing infrastructure available with the Nagpur Municipal Corporation is inadequate with regards to domestic wastewater treatment, for scientific treatment and disposal of municipal solid waste, for liquid and solid waste management generated from slaughter houses.
- Illegal slaughtering of animals is also a major issue as improper liquid waste and solid waste management is leading to pollution problems.
- Open defecation is also an issue needs to be addressed in unorganized urban sector.
- There are various pollutional issues to be addressed by related organizations / stake holders such as local body, industry / hotel sector, hospital sector and Govt. organizations. Appropriate proposals from these sector/organizations are necessary to prepare action plan with estimated cost and time bound implementation program of the proposals.

.CHAPTER-8

Consultation with stake holder:

Various organizations have to play an important role for abatement of pollution and to restore river water quality as per best designated use. In order to ensure appropriate proposals from various organizations it was felt necessary to consultant all the stake holders. Accordingly a meeting of all stake holders was held on 7/03/2011 at Nagpur under the chairmanship of Additional Commissioner, Nagpur Division, Nagpur. All the organizations were apprised about their role and responsibility to prepare and implement action plan for restoration of river water quality.

Stake holders included various Government & Non Government organization mentioned as below related with subject of urban pollution, industrial pollution and pollution due to Bio-Medical waste having impact on Nag & Pili River water quality.

- 1 Nagpur Municipal Corporation, Nagpur
- 2 Nagpur Improvement Trust, Nagpur
- 3 Agriculture Department, Govt. of Maharashtra.
- 4 Irrigation Department, Govt. of Maharashtra.
- 5 Zilla Parishad, Nagpur
- 6 Industrial Co. Op. Society, Nagpur
- 7 M/s. Govt. Milk Scheme, Civil Lines, Nagpur
- 8 M/s. Dinshaw Dairy, Gitti Khadan, Nagpur
- 9 M/s. Shri Baidyanath Ayurved Bhavan, Great Nag Road, Nagpur
- 10 M/s. Haldiram Food International. Bhandara Road, Nagpur
- 11 M/s. Murli Industries Ltd., Wadoda, Nagpur
- 12 Tuli International, Sadar, Nagpur
- 13 Centre Point, Ramdas Peth, Nagpur
- 14 Tuli Imperial, Ramdaspath, Nagpur
- 15 Pride Hotel, Nagpur
- 16 Airport Centre Point, Nagpur
- 17 Govt. Medical College & Hospital, Nagpur
- 18 Super Specialty, Nagpur
- 19 Indira Gandhi Medical College, Nagpur
- 20 Daga Hospital, Gadhi Bagh, Nagpur
- 21 Lata Mangeshkar Hospital, Sitabuldi, Nagpur
- 22 Mure Memorial, Nagpur
- 23 Orange City Hospital, Nagpur
- 24 Wockhart Hospital, Nagpur
- 25 Central Railway Hospital, Nagpur
- 26 ESIS Hospital, Somwari Quarter, Nagpur
- 27 Care Hospital, Panchsheel Sq. Nagpur

CHAPTER-9

Action Plan:-

9.1 A special action plan is justified in case of Nag and Pili rivers because water quality in these sources has completely deteriorated. As such environment along these rivers also has undergone degradation. This is obvious from the unwanted aquatic weeds. Such weeds support growth of vectors, which in term affect and cause adverse impact on public health in general. Therefore there is an urgent need to implement a strategic action plan for restoration of river bodies. Objective of such a plan should be to i) improve aesthetics of the area along river, ii) purify the incoming wastewater to these rivers & iii) prevent continuous addition of polluted water into Gosikhurd storage.

9.2 Management options have been considered in order to address a few issues of pollution control at the sources and also during the passage of water through the river. A few issues which warrant immediate actions have been considered and are detailed below;

9.2.1 Actions by Nagpur Municipal Corporation:-

- North & south zones of Nagpur still do not have the sewerage. This results in discharge of untreated the sewage into unspecified nallas ultimately draining into the Nag & Pili rivers.

Hence, a well designed sewerage system with appropriate management and maintenance is the prime need. Projected population and future development of the city has to be considered.

Nagpur Municipal Corporation have to take immediate action. They may considered de-centralized sewage treatment plants at various sources in order to treat entire sewage of the City. Various aerobic process like activated sludge process, extended aeration system or modular treatment plants can be considered. Nagpur Municipal Corporation should take help from Irrigation Department in order to collect data for

stream gauging. This will give data on flow pattern in various streams including Nag & Pili rivers. Self purification capacity of the river has to be decided based on the flow and DO content within different stretches of the river.

- Treated sewage of the city will have to be utilized for irrigation / gardening purpose. There are a no. of gardens in the city area where the treated sewage after disinfection will be used.
- Treated sewage has to be sold by NMC to MAHAGENCO or any other industry, which needs water particularly for cooling.
- Siltation of the river beds has to be immediately avoided by prohibiting dumping of solid waste along the river / nalla banks. This will help increasing carrying capacity of the river as subsequently affect the flow and the self replenishment capacity of the river water bodies.
- Dredging of river / nalla beds should be a regular activity by Nagpur Municipal Corporation.
- Nagpur Municipal Corporation can undertake the river front beautification activities and rainwater harvesting project along the stretch of the river. Rainwater harvesting can help in attaining the minimum flow in the river water for scouring the sediments and dilution water availability.
- Scavenging of river beds will have to be undertaken before onset of monsoon.
- Sulabh Shauchalay type sanitation facilities should be created in the slums and urban fringe areas to avoid open defecation.

9.2.2 Actions by industries, slaughter house authorities :-

- Major industrial units will be directed treat their respective wastewaters to the extent that, treated wastewater will be recycled. Excess treated wastes will utilize the remaining effluent on land for irrigation only.

-
- The liquid waste from the slaughter house will have to be adequately treated by providing appropriate ETP.
 - Solid waste from all the industries should be treated as per CPCB guidelines.

9.2.3 Action by Zilla parishad , irrigation and agriculture Departments :-

Action proposed in this section has to be jointly executed by Zilla Parishad, Irrigation & Agriculture Departments. The latter has to undertake public awareness program to convey that agriculture / horticulture by untreated river water is unhygienic. Instead bulk sewage / sullage flowing in the rivers, nallas will have to be treated by artificial wet land systems. Such systems rely on natural purification by photosynthesis and subsequent aeration by “emergent macrophytes”. Pathogens are destroyed during the process. Textbook on wastewater treatment by Metcalf and Eddy can be referred for designing. Such systems will be suitable for small villages also. Effluent of artificial wet land system can be safely used for agriculture because it will be free from pathogens. Zilla Parishad should pass a resolution that it will spare appropriate land for artificial wet land system.

9.2.4 Action by Co-operative industrial estates- Wanjara & Uppalwadi :-

The wastewater coming from the Wanjara and Uppalwadi Co-operative industrial estate should be intercepted to avoid mixing into the river water bodies. The Co-operative industrial estate has to provide their common STP's, which can treat domestic as well as industrial wastewater discharge together. The treated water can be utilized for irrigation purpose or gardening purpose. This can be achieved as the volume of wastewater is not substantial.

9.2.5 Action by Grampanchayat / Zilla Parishad :-

A resolution has to be passed by each Grampanchayat of banks of river that, they will not allow sewage / sullage from their respective villages to enter the river. Further they should also provide sulabh sauchalay in villages to avoid open defecation.

Narrow-bore sewerage has been recommended in CPHEEO manual for wastewater treatment. Water supply and sanitation department of Govt. of Maharashtra should provide proto type designs for narrow-bore sewerage followed by a stabilization pond.

9.2.6 Delineation of assignments :-

Maharashtra Pollution Control Board has decided to delineate assignment to various stake holders who should confirm their commitment towards maintenance of environment quality along these rivers, which are the only water bodies within the city.

GOVERNMENT SECTOR

Sr. No.	Name of Organization / Stake Holder	Responsibility	Details of Proposal	Time period	Estimated cost
1	Nagpur Municipal Corporation, Nagpur	<p>a. Provision of De-centralized Sewage treatment plant of adequate capacity in a time bound manner.</p> <p>b. Laying of underground sewer in the city area.</p> <p>c. De-silting & cleaning of Nag River Bed.</p>	<p>To reduce pollution load immediately (2011-12) in the rivers in Nagpur city four Dewats (Centralized Waste Water Treatment Plant) are being suggested. Out of which three plants shall be of 5 MLD capacity each & one plant shall be of 3 MLD capacity.</p> <p>At present NMC is generating 345 MLD of sewerage out of which 75 MLD of sewage (Avg.) is being treated to the secondary level at Bhandewadi. NMC has prepared master plan/per prospective for taking care of sewage generated within the NMC limit till the year 2041. Subsequently NMC has also prepared DPRs for different sewage zones to be implemented in two phases (a) 2011-2016 (b) 2016-2041. Nagpur city is divided into three sewerage zone looking to the terrain conditions namely north sewerage zone, central sewerage zone & south sewerage zone.</p> <p>NMC execute the program of de-silting & cleaning of the Nag River before the monsoon every year.</p>	<p>1) 2011-2012</p> <p>2) For Phase-I 2011-2026 For Phase-II 2026-2041</p> <p>-</p>	<p>1) Rs.25.23 Crore.</p> <p>2) Phase-I 3 STP's & Phase-II 4 STP's & also laying & strengthening of sewer line in all three sewerage zones. Total estimate 1222.143 Cr.</p> <p>-</p>

	d. Embankment development & beautification with tree plantation of Nag & Pili River.	-	-	Rs.1.00 Crs
	e. Develop sanitation infrastructure for Un-organized sector and slum area.	Proposed to construct 150 toilets.	-	Rs. 22.0 Crs,
	f. Installation of barrier / guard along the stretch of Nag & Pili River to avoid the entry of MSW.	Proposed to construct Nallah walls along the river in the master plan/ perspective plan of storm water drain & also improvement of flow in the river.	-	Rs.356.64 Crs.
	g. Provision of separate storm Water drain to carry rain water.	NMC has prepared Master plan/prospective plan for storm water drain in Nagpur city. The DPR are also ready. As per the DPR the storm drain to carry rain water is prepared separately which includes construction of road side drains.	-	North zone Rs.1256 Cr. Central Zone Rs.754 Cr South Zone Rs.1067 Cr.
	h. Rain Water harvesting project along the stretch of river to maintain minimum flow.	At present, such kind of project is not taken up by NMC. Rain water harvesting is taken into care by individual household level.	-	Rs.1.0 Cr
	i. Provision of Effluent Treatment Plant for the effluent generating from the slaughter houses.	Proposal as per CPCB Guidelines through NEERI is under progress	-	Rs.25.0 Lacs
	j. Treatment of solid waste from Slaughter Houses as per CPCB guidelines.		-	Rs.25.0 Lacs
	k. Ban on unorganized slaughtering of animals.	NMC has submitted proposal to Govt. to construct modern slaughter house at Bhandewadi.	-	Rs.30.0 Cr.
	l. Prohibition on Immersion of idols into the river.	Provision of Immersion bins around lakes proposed	-	Rs.50.0 Lacs
	m. Collection, Segregation, Storage, Treatment & Disposal of Municipal Solid Waste from entire city limit.	MSW from city is collected & transported to Bhandewadi dumping yard. Entire Wet waste i.e. 450 T/D is processed by M/s. Hanger Biotech (Energies) Pvt. Ltd. New Landfill in dumping area for inert waste is in progress.	MSW wet waste processing plant is operational. Landfill - June 2011	Cost already incurred – Rs. 30.0 Crors for processing of wet waste. Landfill – Rs. 10.0 Crors.

2	Nagpur Improvement Trust, Nagpur	a. Provision of De-centralized Sewage treatment plant for townships of adequate capacity in a time bound manner.	The NIT have made mandatory for the layout holders to provide the underground sewer line & connecting the same to the STP of adequate capacity for the layout and township in Nagpur metropolitan area.	-	-
		b. Laying of underground sewer in the jurisdictional area.	The NIT have laid the internal sewer for the layouts covered under the jurisdiction of sanctioned scheme of NIT area. a. EIASS. b. For the layouts sanctioned under green belt controlled scheme & for the regularized under Gunthewari in the Nagpur City & connected the same to the main interceptor sewer by providing & laying carrier sewer lines.	-	-
		c. Provision of storm water drains in Industrial Estates of Nagpur City.	The NIT have laid the internal storm drain line for the layouts covered under the jurisdiction of sanctioned scheme of NIT area. EIASS, Itwara Station road scheme & the sanctioned layout under green belt controlled scheme & for the regularized under Gunthewari in the Nagpur City & connected the same to the nearby natural water streams.	-	-
		d. Tree Plantation in Industrial Estates.	The NIT shall take the plantation in Eastern indl. area covered under the jurisdiction of 7 schemes in the Nagpur city. The NIT have started the tree plantation around the periphery of open spaces & road sides in the area covered under the Gunthewari schemes in the Nagpur city. The NIT shall made compulsory for layout holders / plot holders for plantation of trees while sanctioning the building plants in the Nagpur metropolitan area.	-	-
		e. Provision of Central ETP for Wanjara, Chikhali, Small Factory Area etc.	The 25 no. of Dewats to be constructed for estimated cost of Rs.18.0 Cr. for central sewage zone & 40 nos. of estimated cost Rs. 35.0 Cr. for south sewage zone for Gunthewari area proposed in the DPR for funding under JnNURM scheme.	-	Rs.53.0 Cr.

3	Agriculture Department, Govt. of Maharashtra.	a. Awareness program regarding use of Bio-fertilizers in the agriculture farms located on the banks of River Side.	Proposal yet to be received.	-	-
		b. Limited use on consumption of chemical pesticides/fertilizers on the bank of Rivers to prevent surface runoffs into the River.	Proposal yet to be received.	-	-
4	Irrigation Department, Govt. of Maharashtra.	a. To maintain the minimum flow into the River Bed.	Proposal yet to be received.	-	-
		b. Consumption of Water for farms for Agricultural use on the entire stretch of Nag & Pili River.	Proposal yet to be received.	-	-
5	Zilla Parishad, Nagpur	a. Installation of barrier / guard along the stretch of Nag River near the villages in rural area to avoid the entry of MSW.	----	-	-
		b. Provision of sewage treatment plant for group of villages in rural area.	There is no provision of funds for initial survey.	-	-
6	Uppalwadi Industrial Co. Op. Society, Nagpur	a. Provision of ETP to treat Domestic as well as Industrial effluent.	Proposal is yet to be received.	-	-

INDUSTRIAL SECTOR

Sr. No.	Name of Industry / Stake Holder	Responsibility	Proposals	Time Period	Estimated cost
1	M/s. Govt. Milk Scheme, Civil Lines, Nagpur	To recycle the effluent upto the maximum extent and remaining utilized on land for irrigation/to send entire treated effluent to CETP Butibori.	Proposal is yet to be received.	-	-
2	M/s. Dinshaw Dairy, Gitti Khadan, Nagpur	To recycle the effluent upto the maximum extent and remaining to be send to CETP Butibori.	They have existing ETP and upgraded the same. Achieved zero discharge of effluent at the site as treated effluent is sent to CETP Butibori.	Already systems is in existence	Rs. 34.92 Lakhs
3	M/s. Shri Baidyanath Ayurved Bhavan, Great Nag Road, Nagpur	To recycle the effluent upto the maximum extent and remaining utilized on land for irrigation/to send entire treated effluent to CETP Butibori.	The ETP is provided with secondary & tertiary treatment facility. The treated waste water after tertiary treatment is recycled or reused in industry in various activities like floor washing, cooling the hot ash of boiler, cleaning at boiler house, in air coolers, in toilets for flushing, for car washing & for gardening. There is no discharge of treated effluent into nearby Nag nalla.	Already system is in existence	Rs.4.63 Lakhs.
4	M/s. Haldiram Food International. Bhandara Road, Nagpur	To recycle the effluent upto the maximum extent and remaining utilized on land for irrigation/to send entire treated effluent to CETP Butibori.	<p>Details of various steps taken to implement action plan.</p> <p>1. One DAF unit (Diffused & filtration of capacity 800 CMD installed & is in operation from 25/3/2011 effectively.</p> <p>2. One additional UASB installation work is in progress civil work of foundation work is already completed & MS structure work is in progress, it is also on verge of completion other than hood.</p>	June-2011	Rs.98.0 Lacs

			<p>3. Further one RO plant of 20 CMD is also ordered to M/s.Thermax Delivery of which is due.</p> <p>With RO unit operational will have complete treatment of water, which will be utilized for steam boilers / cooling towers / flushing purpose etc. Balance quantity of water will be used for gardening & irrigation purpose.</p>		
5	M/s. Murlu Industries Ltd., Wadoda, Nagpur	To recycle the effluent upto the maximum extent and remaining utilized on land for irrigation/to send entire treated effluent to CETP Butibori.	<p>They have already installed & operating the ETP's to there Duplex Paper Unit, Newsprint Unit, Writing & Printing Unit, S.B. Board Unit, Power Plant</p> <p>Future investment on Distribution network to use 15% treated water in agricultural area in the premises</p>	<p>Already exists</p> <p>30th June 2011</p>	<p>Rs. 8.855 Cr.</p> <p>Rs. 18.91 lacks</p>
6	Tuli International, Sadar, Nagpur	Provide ETP for treatment of effluent.	Proposal is yet to be received.	Assumed one year	-
7	Centre Point, Ramdas Peth, Nagpur	Provide ETP for treatment of effluent.	Proposed to provide ETP	December 2011	Rs. 10.0 Lacks
8	Tuli Imperial, Ramdaspath, Nagpur	Provide ETP for treatment of effluent.	Proposal is yet to be received.	Assumed one year	-
9	Pride Hotel, Nagpur	Provide ETP for treatment of effluent.	Proposed to provide 200 KLD capacity ETP	Assumed one year	Rs. 25.6 Lacks
10	Airport Centre Point, Nagpur	Provide ETP for treatment of effluent.	Proposed to provide ETP	December 2011	Rs. 5.0 Lacks

BIOMEDICAL WASTE MANAGEMENT SECTOR

Sr. No.	Name of Hospital / Stake Holder	Responsibility	Proposals	Time Period	Estimated cost
1	Govt. Medical College & Hospital, Nagpur	Provide ETP for liquid waste treatment.	Proposal for 3 ETP's 1. ETP for hospital & laundry having capacity 10 CMD. 2. ETP for college having capacity 5 CMD. 3. ETP for T.B. ward having capacity 5 CMD.	Assumed one year	Rs.29.0 Lacs.
2	Super Specialty, Nagpur	Provide ETP for liquid waste treatment.	Proposal is yet not received.	Assumed one year	-
3	Indira Gandhi Medical College, Nagpur	Provide ETP for liquid waste treatment.	Proposal is yet not received.	Assumed one year	-
4	Daga Hospital, Gadhi Bagh, Nagpur	Provide ETP for liquid waste treatment.	Proposal is yet not received.	Assumed one year	-
5	Lata Mangeshkar Hospital, Sitabuldi, Nagpur	Provide ETP for liquid waste treatment.	Proposal is yet not received.	Assumed one year	-
6	Mure Memorial, Nagpur	Provide ETP for liquid waste treatment.	Proposal is yet not received.	Assumed one year	-
7	Orange City Hospital, Nagpur	Provide ETP for liquid waste treatment.	Proposal is yet not received.	Assumed one year	-
8	Wockhart Hospital, Nagpur	Provide ETP for liquid waste treatment.	Proposal is yet not received.	Assumed one year	-
9	Central Railway Hospital, Nagpur	Provide ETP for liquid waste treatment.	Proposal is yet not received.	Assumed one year	-
10	ESIS Hospital, Somwari Quarter, Nagpur	Provide ETP for liquid waste treatment.	Proposal is yet not received.	Assumed one year	-
11	Care Hospital, Panchsheel Sq. Nagpur	Provide ETP for liquid waste treatment.	Proposal is yet not received.	Assumed one year	-

CHAPTER-10

Mechanism for implementation of Action Plan:-

Implementation of action plan in a time bound manner needs co-operation from all the stake holders. It is therefore necessary to hold consultation with these stake holders periodically. Since various private organization, Govt. organization and local bodies are involved in implementation of action plan, it is necessary to bring them at common platform for consultation and review the progress of action plan. It is therefore proposed to entrust this responsibility to the Divisional Commissioner, Nagpur as a Chairman and Maharashtra Pollution Control Board at Nagpur will work as a co-ordinator.

Annexure 1

Details of industries located in Uppalwadi Co-op. Indl. Estate.

Sr. No.	Name of Industry	Water Supply in CMD	Domestic Effluent In CMD	Industrial Effluent In CMD	Treatment & Disposal	BOD Limit as per consent for Industrial effluent	Industrial load BOD Kg/day
1	Spick-N-Span Steewools Pvt. Ltd. Road, Uppalwadi, Nagpur	0.3	0.2		Septic tank & Soak pit		
2	Nagpur Ferrous (Cast Iron Foundry), B-11, Uppalwadi Industrial Estate, Kamptee Road, Dist- Nagpur	0.7	0.56		Septic tank & Soak pit		
3	Nagpur Gray Iron Casting, NS-12, B-12, Uppalwadi Industrial Area, Kamptee Road, Nagpur	1.6	1.2		Septic tank & Soak pit		
4	Unistar Forging Pvt. Ltd., P. No. 13/C & 14/C, Uppalwadi, Kamptee Road, Nagpur	5.7	1.7		Septic tank & Soak pit		
5	Handy wires Pvt. Ltd., 19/209, Industrial Estate, Kamptee Road, Nagpur	1.01	0.4		Septic tank & Soak pit		
6	Unique Exports, Plot No. 24, Uppalwadi Industrial Estate, Nagpur.	0.1	0.05		Septic tank & Soak pit		
7	Yawalkar Pesticides Pvt. Ltd., Nagpur Industrial Area, Kamptee Road, Nagpur	2.75	1.4	0.2	Septic tank & Soak pit	100	0.02
8	Shantilal Oil Pvt. Ltd., Pot. No. 34, Uppalwadi Industrial Estate, Kamptee Road, Nagpur	0.3	0.25		Septic tank & soak pit		
9	Asian Streck Metals, 35-36, industrial Estate, Uppalwadi, Kamptee Road, Nagpur	0.4	0.32		Septic tank & soak pit		
10	Hindustan Metal Chemicals, C-39, N.I.E.C.S. Ltd., Uppalwadi, Nagpur	0.2	0.15		Septic tank & Soak pit		

11	Suyog Chemicals, Pvt. Ltd, Plot. No. 45/46, Nagpur Industrial Estate, Uppalwadi, Kamptee Road, Nagpur	11.45	2	3.15	collection tank - neutralization tank - sand filter - SDB - treated effluent sump	100	0.315
12	A.K. Industries, NC-1, Uppalwadi Industrial Area, Kamptee Road, Nagpur	0.5	0.4		Septic tank & Soak pit		
13	Mehta Metal Powder, Plot. No. N-S-1, Uppalwadi Industrial Estate, Kamptee Road, Nagpur	1.3	0.25		Septic tank & Soak pit		
14	Shree Gajanan Enterprises, Plot. No. 60B to 63B, Nagpur Industrial Estate, Uppalwadi, Nagpur	0.5	0.4	0	Septic tank & Soak pit		
15	Innova Laboratories, NS-13, 14 Industrial Estate, Co-Op. Society, Uppalwadi, Nagpur	1.2	0.3	0.7	collection tank - aeration with compressed air - solar evaporation pond	100	0.07
16	N.B. Enterprises, Uppalwadi, Kamptee Road, Nagpur	21	1	9.7	Equalizatin tank-dosing tank-settling tank - primary aeration - car bone filter - treated sump	100	0.97
17	Shamlax Meta-Chem Pvt. Ltd., NS-19/22, N.I.E.C.S. Ltd., Uppalwadi, Kamptee Road, Nagpur	0.56	0.4		Septic tank & Soak pit		
18	Shree Giriraj Industries, Plot No. N-S 18, Uppalwadi Industrial Estate, Kamptee Road, Nagpur.	1.25	0.2		Septic tank & Soak pit		
19	Unique Wire Products, Plot No. NS-5, Uppalwadi Industrial Estate, Nagpur.	0.2	0.15		Septic tank & Soak pit		
20	Larsen & Toubro Ltd., ECC Division, L&T Concrete, RMC Plant, Uppalwadi, Near Nagpur Industrial Estate, Kamptee Road, Nagpur	20	2		Septic tank & Soak pit		

21	Stewols & Co. 5, Industrial Estate, Kamptee Road, Nagpur	0.8	0.56		Septic tank & Soak pit		
22	Libra Industries, Plot. N. C-38, Nagpur industrial Estate, Uppalwadi, Kamptee Road, Nagpur	1	0.24	0.4	collection cum neutralization tank, flash mixer, effluent transfer pump, lime solution tank, settling tank, sludge drying beds, treated effluent collection tank & treated effluent transfer sump	100	0.04
23	Raja Polymer, Plot. No. CN-5, Uppalwadi Industrial Estate, Kamptee Road, Nagpur	0.65	0.3		Septic tank & Soak pit		
24	Raja Polyfab, 33-C, Nagpur Industrial Co.- Op. Society, uppalwadi, Kamptee Road, Nagpur	1.45	0.3		Septic tank & Soak pit		
25	Raja Polymer, Plot. No. CN-5, Uppalwadi Industrial Estate, Kamptee Road, Nagpur	7.15	0.75		ETP consisting collection tank - alum dosing tank - settling tank - sand bed filter - treated sump		
Total		82.07	15.48	14.15		--	1.415

Annexure 2**Details of industries in Wanjra Co-operative industrial Estate.**

Sr. No.	Name of Industry & address	Industrial Effluent In CMD	Treatment & Disposal	BOD Limit as per consent for Industrial effluent	Industrial Load BOD Kg/day
1	Rainbow Distilleries, Pvt. Ltd. 10, Wanjara Layout, Kamptee Road, Angpur.	4.8	Collection Tank, Septic tank & soak pit	30	0.144
2	Survedaya Chemical Works, Plot No. 59, Wanjara Layout, Pili Nadi, Kamptee Road, Nagpur	0.25	Septic tank & Soak pit	20	0.005
3	Shilpa Rerollers, Pvt. Ltd., Plot. No. 124, Wanjara Layout, Kamptee Road, Nagpur		Septic tank & Soak pit	30	0
4	Ashish Printers & paper Products, 36, NIT Industrial Area, Wanjara, Kamptee Road, Nagpur	0.1	Septic tank & Soak pit	20	0.002
5	Kothari Pottery Works, 26/2, Wanjara Layout, Kamptee Road, Nagpur	0.4	Septic tank & Soak pit	100	0.04
6	Damani Industries, 80, Wanjara Layout, Kamptee Road, Nagpur		Septic tank & Soak pit	100	0
7	Modpack Industries, 16, N.I.T Industrial Area, Kamptee Road, Nagpur Wanjara Layout, Nagpur		Septic tank & Soak pit	30	0
8	Shiva Industries, Plot. No. 87, Wanjara Layout, Kamptee Road, Nagpur		Septic tank & Soak pit	30	0
9	Nitika Chemical, Plot. No. 85, Kh. No. 47,49,56 & 57, Pili Nadi Wanjara Layout, Kamptee Road, Nagpur	3.5	Screen Chamber - Equalization Tank - Extended Aeration Tank - Settling Tank - Treated Water Tank and SDB	100	0.35
10	Power Max Industries, 39 Wanjara, N.I.T. Layout, Pili nadi, Nagpur	0.5	Septic tank & Soak pit	100	0.05
11	Siddharta Sales & Services, Plot. No. 60, Wanjara Layout, Kamptee Road, Nagpur		Septic tank & Soak pit	100	0

12	Ambica Lube Industries Pvt. Ltd., Plot. No. 67, Wanjara Layout, Pili Nadi, Kamptee Road, Nagpur	0.3	Septic tank & Soak pit	100	0.03
13	Konkan Agro Marine Industries Pvt. Ltd., Plot. No. 116 to 119, Wanjara Layout, Kamptee Road, Nagpur	10	Ind. Eff:- two collection tank for washing effluent. Dom eff:- Septic tank & Soak pit	30	0.3
14	Supreme Motors, Plot. No. 82, Wanjara Layout, Industrial Area, Kamptee Road, Nagpur	0.4	Septic tank & Soak pit	100	0.04
15	Siddharth Construction Co., Plot. No. 68, W.No. 43, Wanjara, Kamptee Road, Nagpur		Septic tank & Soak pit	100	0
16	Kishanchand Thawardas Hot Mix Plant, P. No. 35, Wanjara Industrial Area, Kamptee Road, Nagpur		Septic tank & Soak pit	30	0
17	Gurubaxani Brothers Hot Mix Plant, 33, Wanjara Industrial Layout, Kamptee Road, Nagpur		Septic tank & Soak pit	100	0
18	Paras Enterprises, 90, Wanjara Layout, Kamptee Road, Nagpur		Septic tank & Soak pit	30	0
19	A.K. Glass Industries, Kh. No. 3,5 and 26, P. No. 17, Mouza-Wanjara, Kamptee Road, Nagpur	0.4	Septic tank & Soak pit	100	0.04
20	Jai Cement Art Products, 100, Wanjara Layout, Kamptee Road, Pili Nadi, Nagpur	0.1	Septic tank & Soak pit	100	0.01
21	Bajaria Sales Corporations, Plot. No. 7B/7C, WanjaraLayout, Pili Nadi, Kamptee Road, Nagpur		Septic tank & Soak pit	100	0
22	J.K. Construction Co., Kh. No. 69/3, P.H. No. 17, Wanjare Layout, Tq- Kamptee, Dist- Nagpur		Septic tank & Soak pit	30	0
23	Taj Teak Pvt. Ltd., 96, Wanjara Layout, Kamptee Road, Nagpur		Septic tank & Soak pit	100	0
24	V.K. Industries, 28, Wanjara Industrial Area, Pili Nadi, Kamptee Road, Nagpur		Septic tank & Soak pit	30	0
25	Amar Alcoholi Ltd., 84, Wanjara Layout, Pili Nadi, Kamptee Road, Nagpur	1.8	collection tank- Settling tank and Septic tank & Soak pit	30	0.054

26	Vasan Industries, Plot. No. 26, Wanjara Layout, Kamptee Road, Nagpur		Septic tank & Soak pit	100	0
27	Rudraksha Chemical & Mineral, Plot. No. 62, Wanjara Layout, Pili Nadi, Kamptee Road, Nagpur		Septic tank & Soak pit	100	0
28	Aakruti Furnitures Pvt. Ltd., 27, Wanjara Layout, Pili Nadi, Ramtek Road, Nagpur		Septic tank & Soak pit	100	0
29	Damanjeet Tubes, 61, Wanjara Layout, Pili Nadi, Kamptee Road, Nagpur		Colling process recirculation	30	0
30	Makhija Industries, Plot. No. 94, Mouza- Wanjara, Dist- Nagpur		Septic tank & Soak pit	30	0
31	M.N. Brothers, 1753 Wanjara Layout, Nagpur		Septic tank & Soak pit	100	0
32	Ganesh Food Products, Plot. No. 110, Wanjara Layout, Pili Nadi, Kamptee Road, Nagpur		Septic tank & Soak pit	30	0
33	Bonafide Industries, 90, Wanjara Industrial Area, Kamptee Road, Nagpur		Septic tank & Soak pit	100	0
34	D.S.P. Foods, Plot. No. 106/107, Wanjara Industrial Area, Nagpur		Septic tank & Soak pit	100	0
35	Bharat Solar Cable, Plot. No. 95, Wanjara Layout, Kamptee Road, Nagpur		Septic tank & Soak pit	30	0
36	Vijay Pipes Industries, 58, Wanjara Layout, Pili Nadi, Industrial Area, Kamptee Road, Nagpur		Septic tank & Soak pit	30	0
37	Manish Plasto, Plot. No. 97, Wanjara Layout, Kamptee Road, Nagpur		Septic tank & Soak pit	30	0
38	Shanti Timber Products, 4, Wanjara Layout, Kamptee Road, Nagpur		Septic tank & Soak pit	100	0
39	Apsara Steel Industries, 55 Wanjara Industrial Area, Pili badi, Nagpur		Septic tank & Soak pit	100	0
40	Indor Namkin Product, 92, Wanjara Layout, Pili Nadi, Nagpur	0.3	Septic tank & Soak pit	30	0.009
41	Puniya Coal Road Lines, 65/11, P.H. No. 17, Wanjara, Nagpur		Septic tank & Soak pit	30	0

42	B. Amlani & Company, 83, Wanjara Industrial Area, Kamptee Road, Nagpur		Septic tank & Soak pit	100	0
43	Bhatia Medicare Service, 96, Wanjara Layout, Kamptee Road, Nagpur	0.1	Septic tank & Soak pit	100	0.01
44	Fabricraft implex Pvt. Ltd., 110 Wanjara Layout, Pili Nadi, Kamptee Road, Nagpur		Septic tank & Soak pit	30	0
Total		22.95	---	---	1.084

Annexure 3

Details of Villages in Rural Nagpur discharging sewage into Nag River.

Sr. No.	Name of Village	Population	Water Consumption inLtr/day	Water Consumption in CMD	Domestic effluent generation in CMD	BOD Load Kg/day
1	Kapshi Khurd	1396	83760	83.76	67.008	16.752
2	Kapshi Bud	2127	127620	127.62	102.096	25.524
3	Mahalgoan	2309	138540	138.54	110.832	27.708
4	Asoli	993	59580	59.58	47.664	11.916
5	Sawali	724	43440	43.44	34.752	8.688
6	Karla	480	28800	28.8	23.04	5.76
7	Palsad	1212	72720	72.72	58.176	14.544
8	Nimba	255	15300	15.3	12.24	3.06
9	Shivani	953	57180	57.18	45.744	11.436
10	Zarap	392	23520	23.52	18.816	4.704
11	Varambha	992	59520	59.52	47.616	11.904
12	Bhamewada	941	56460	56.46	45.168	11.292
13	Sawali	653	39180	39.18	31.344	7.836
14	Khopadi	677	40620	40.62	32.496	8.124
15	Ambadi	1330	79800	79.8	63.84	15.96
16	Bhowardeve	297	17820	17.82	14.256	3.564
17	Mohagaon	493	29580	29.58	23.664	5.916
18	Navegoan	629	37740	37.74	30.192	7.548
19	Kharbi	755	45300	45.3	36.24	9.06
20	Chaphegadi	2045	122700	122.7	98.16	24.54
21	Saongi	278	16680	16.68	13.344	3.336
22	Chnoda	432	25920	25.92	20.736	5.184
23	Khabana	449	26940	26.94	21.552	5.388
24	Chichghat	396	23760	23.76	19.008	4.752
25	Narsala	5127	307620	307.62	246.096	61.524
26	Hudkeshwar	11444	686640	686.64	549.312	137.328
27	Pipala	888	53280	53.28	42.624	10.656
28	Besa	367	22020	22.02	17.616	4.404
29	Vihirgoan	1198	71880	71.88	57.504	14.376
30	Bhamana (Linga)	2716	162960	162.96	130.368	32.592
31	Kiranapur	249	14940	14.94	11.952	2.988
Total		43197	2591820	2591.82	2073.456	518.364

Annexure 4

Proposals received from Stake holders (NMC & NIT)



NAGPUR MUNICIPAL CORPORATION

PENCH PROJECT CELL

Gr. Floor, North Wing, Mahanagarpalika Marg, Civil Lines, Nagpur – 440 001
Tel. No. 0712-2567025, EPBX : 0712-2567032 to 038, Extn. 137 & 163, Fax : 0712-2561584.

No. :- NMC/PPC/EE(PPC)/ 10 /2011

Date : 20/04/2011

To
✓ **Shri. A.T. Fulmali**
Regional Officer
M.P.C. B., Nagpur

Subject : Minutes of stake holders meeting held on 7th March 2011 regarding preparation of Nag River basin & Wainganga River basin & action there off.

Reference : 1) Meeting held on 7th March 2011 under the chairmanship of Additional Commissioner Nagpur Division, Nagpur.
2) Letter No. MPC/NRO/1004/2011, Dt. 28.03.2011.

Sir,

With reference to the above letter, please find enclosed herewith the proposals along with estimated cost.

The total estimated cost for the proposals work out to be **Rs. 4736.01 Crs.** (Provisional) Out of which the estimated cost related with storm water drainage system is **Rs. 3077.00 Crs.** It will not be possible to execute the proposed work through NMC budget. NMC expects total grant in-aid in this regard.

D.A. : As above

Yours truly

Executive Engineer
Pench Project Cell
NMC, Nagpur

Copy submitted for information to :

1. Hon'ble Municipal Commissioner, NMC, Nagpur

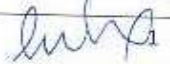
Subject : Minutes of stake holders meeting held on 7th March 2011 regarding preparation of Nag River basin & Wainganga River basin & action there off.

Reference : Meeting held on 7th March 2011 under the chairmanship of Additional Commissioner Nagpur Division, Nagpur.

Compliance by Nagpur Municipal Corporation

Responsibility	Remarks
<p>a. Provision of De-centralized Sewage treatment plant of adequate capacity in a time bound manner.</p>	<p>a. Long term planning for Sewerage collection & its treatment is explained under point (b). However to reduce pollution load immediately (2011-12) in the rivers in Nagpur city four Dewats (Centralized Waste Water Treatment Plant) are being suggested. Out of which three plants shall be of five Mld capacity each & one plant shall be of three Mld capacity. The estimated cost of these plants is Rs. 25.23 Crs. (Approx). This proposal is under process.</p>
<p>b. Laying of underground sewer in the city area.</p>	<p>b. At present Nagpur Municipal Corporation is generating 345 Mld of Sewerage out of which 75 Mld of Sewage (Avg.) is being treated to the secondary level at Bhandewadi which is 10 Kms from zero mile & late into the Nag River. Nagpur Municipal Corporation has prepared Master plan/ per prospective for taking care of Sewage generated within the Nagpur Municipal Corporation limit till the year 2041. Subsequently NMC has also prepared DPRs for different Sewerage zones to be implemented in two phases (a) 2011-2016 (b) 2016-2041. Nagpur City is divided into three Sewerage Zone looking to the terrain conditions.</p>

C/11, April 11.



The condom of the sewerage generated in the projected years namely 2011, 2026, & 2041 is as below :-

Projected Year	North Sewerage Zone (MLD)	Central Sewerage Zone (MLD)	South Sewerage Zone (MLD)	Total Sewage Generation in Nagpur City (MLD)
1	2	3	4	5
2011	117.44	142.55	85.40	345.39
2026	185.39	189.50	135.63	510.52
2041	281.63	260.45	209.95	752.03

As per the prospective plan STP are to be constructed in different zones and in different phases which is as follows :-

Sewerage Zones	North	Central	South
Phase I (2011 to 2026)	1	1	1
Phase II (2026 to 2041)	2	1	1
Total (7)	3	2	2

As per the DPRs the zone wise & phase wise expenditure shall be as belows :

hlp 2

Sr. No.	Sewerage zone	Project cost	Phase wise expenditure	
			2011-2026	2026- 2041
1	North Sewerage Zone	552.413	Phase-I (A) 270.20 Phase-I (B) 186.77	95.123
2	Central Sewerage Zone	333.37	237.99	95.38
3	South Sewerage Zone	336.36	236.05	100.31
	Total	1222.143	931.33	290.813

c. De-silting & cleaning of Nag River Bed.

d. Embankment development & beautification with tree plantation of Nag & Pili River.

e. Develop sanitation infrastructure for Un-organized sector and slum area.

c. NMC executive the programme of de-silting & cleaning of the Nag River before the monsoon every year.

d. This would require **Rs. 1.00 Crs.**

e. It is proposed to construct 150 toilets. Estimated cost is **Rs. 22.00 Crs.**

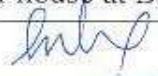
f. It is proposed to construct Nallah walls along the river in the Master plan /

C/11 April 11


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<p>f. Installation of barrier / guard along the stretch of Nag & Pili River to avoid the entry of MSW.</p> <p>g. Provision of separate storm Water drain to carry rain water.</p> <p>h. Rain Water harvesting project along the stretch of river to maintain minimum flow.</p> <p>i. Provision of Effluent Treatment Plant for the effluent generating from the slaughter houses.</p> <p>j. Treatment of solid waste from Slaughter Houses as per CPCB guidelines (Guidelines enclosed).</p>	<p>perspective plan of storm water drain & also improvement of flow in the river. The cost of this component is Rs.356.64 Crs.</p> <p>g. NMC has prepared Master plan/prospective plan for storm water drain of Nagpur city. The DPR are also ready. As per the DPR the storm drain to carry rain water is prepared separately which includes construction of road side drains. Expenditure for North Zone Rs. 1256.00 Crs. For Central Zone Rs. 754.00 Crs. For South Zone Rs. 1067.00 Crs.</p> <p>h. At present, such kind of project is not taken up by NMC. Rain water harvesting is taken into care by individual household level. However, provision of Rs. 1.00 Crs. is expected.</p> <p>i. Rs. 25.00 lakhs.</p> <p>j. Rs. 25.00 lakhs.</p> <p>k. NMC has submitted proposed to construct modern slaughter house at Bhandewadi.</p>
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C/11 April 11

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<p>k. Ban on unorganized slaughtering of animals.</p>	<p>The estimate cost is Rs. 30.00 Crs. (approx).</p>
<p>l. Prohibition on Immersion of idols into the river.</p>	<p>l. Provision of immersion bins around lakes Rs. 50.00 lakhs.</p>
<p>m. Collection, Segregation, Storage, Treatment & Disposal of Municipal Solid Waste from entire city limit.</p>	<p>m. The entire MSW from city is collected & transported to Bhandewadi dumping yard where segregation storage, treatment and disposal is done as per the guide lines of MPCB by M/s Hanger Biotech (Energies) Pvt. Ltd.</p>

[Handwritten signature]



NAGPUR IMPROVEMENT TRUST

Station Road, Kingsway, Sadar,
Nagpur-440001

Phone No. 0712-2531431, 2527563, 2533202 & 2547885

No./AE(T)/ 28

Nagpur dated : 21/4/2011

To,

The Regional Officer
Maharashtra Pollution Control Board,
Regional Office, 5th floor Udyog Bhavan,
Civil Lines,
Nagpur.

Subject: Minutes of stake holders meeting held on 7th March 2011 regarding preparation of Nag River basin & Wainganga River basin & action there off.

Reference: 1. Meeting held on 7th March 2011 under the Chairmanship of Additional Commissioner Nagpur Division, Nagpur.
2. Your Office letter No. MPC/NRO/1004/2011, dt. 28.3.11.

With reference to the subject above it is hereby submitted that the Nagpur Municipal Corporation is a planning authority for the Nagpur City as per Government G.R. of Urban Development Department, Mumbai, dt. 27.2.2002 except the seven schemes of NIT enlisted below :-

Sr. No.	Name of the Schemes	Total area notified under the schemes (approx.) in Hectares
1	Eastern Industrial Area Street Scheme (EIASS)	320.60
2	Itwara Station Road Street Scheme.	4.77
3	Sitabuldi (West) Improvement Scheme.	6.15
4	Abhyankar Road and Buti Mahal Street Scheme.	3.24
5	Watloda Extension Housing Accommodation Scheme (New Scheme)	170.00
6	Shivangaon Jaitala Township (New Scheme)	257.00
7	Green Belt Control Scheme.	6447.00
	Total :	7208.76

2. As per the Gunthewari Act dt. 6.12.2002 the Government of Maharashtra declared the NIT as a authority for the regularization and development of unauthorized layouts covered under the Gunthewari area in the Nagpur City. The NIT is regularizing the plots covered under the Gunthewari in Nagpur City which are as per the provision of the Gunthewari Act dt. 6.12.2002 & recovering the regularization charges @ of Rs. 16/- sq. ft.

25/4/11
J. C. Chavhan
2011

3. The NIT is developing the civic amenities in the area & layouts covered under the sanctioned control schemes of the NIT and for the regularized layouts covered under Gunthewari area of Nagpur City such as laying of internal sewer lines and connecting the same to the existing intercepting sewers, providing and laying the storm water drain line, construction of roads, laying of internal water pipe line network and connecting the same to the NMC main water pipe line.
4. The developed layouts & area covered under the sanctioned schemes of the NIT & under the Gunthewari in the Nagpur City is to be handed over to the Nagpur Municipal Corporation alongwith the developed civic amenities for the maintenance purpose.
5. Out of total 4084 layouts covered under the Gunthewari the NIT have regularized 1603 layouts out of which 176 developed layouts are handed over to NMC for maintenance purpose. 233 regularized develop layouts under Gunthewari area, 61 EWS layouts and 218 Private develop sanctioned layouts are under the process of handing over.
6. It is impossible for the NIT to develop all the civic amenities for the regularized layouts under the Gunthewari @ Rs. 16/- per sq. ft. regularization charges as the actual estimated cost for the development works is about Rs. 50-60 per sq. ft.
7. The NIT have prepared a Detail Project Report (DPR) for the North Sewage Zone for Gunthewari layouts in the Nagpur City & submitted to the Government of India through Planning authority of the Nagpur City i.e. NMC under the project of the Central Government Jawaharlal Nehru National Urban Renewal Mission (JnNURM) for financing the project from State Government and Central Government. As per the suggestion of the Nagpur Municipal Corporation, the Nagpur Improvement Trust have prepared the Detailed Project Report for the Central Sewage Zone and South sewage zone fore layouts covered under Gunthewari area in Nagpur City and is to be submitted to NMC for approval and further shall be submitted to the Central Government for the sanction & funding through the State Government under JnNURM Scheme. The details of the DPR's are as below :-

Name of Zone	Total Area of CLS (in Sqkm)	Total Plotable Area CLS (in SqKm)	Number of cluster cover	Number of layouts	Population of (2011)	Total Project cost. (In Crs.)	Cost of STP / Dewats	Remarks
North Zone	22	14	27	972	300590	100	Proposed 1 STP at Wanjari of 100 mid capacity of Cost. 76 Crors only	STP in NMC Part
Central Zone	7.7	5	4	326	89580	48.4056	Dewat to be constructed 25 nos. of cost Rs. 18 Crors.	STP at chikhali is proposed but it also in NMC Part
South Zone	10.3	7	15	437	118006	64.5408	Dewat to be constructed 40 nos. of cost Rs. 35 Crors.	
Total	40	26	46	1735	508176	212.9464		

Note :- Dewats is proposed in NIT layouts because all main trunk mains are in NMC scope as per master plan & tertiary network is in NIT scope, until the complete System developed as per master plan its not possible to connect the system as it is in patches, so dewats are suggested at various places, where feasible to construct and maintained.

8. The NIT is appointed as a Special Planning authority for the Nagpur Metropolitan area as per the notification of the Government of Maharashtra Urban development department dt. 31st August 2010. The NIT have made compulsory to provide Sewage treatment plants (STP) in the layouts & townships to the proponents while sanctioning the layout plans and executing the agreement for the development of the layouts with the layout holder / builder.
9. The NIT have invited the offers for the appointment of the Global Consultant for preparation of vision document, development plan and town planning schemes for Nagpur Metropolitan area. The NIT vide B.R. dt. 28.3.11 have accepted the lowest offer of M/s. Halcrow Consulting India Pvt. Ltd. The NIT shall prepare the detailed development plan & Town planning schemes for the Metropolitan area with the help of consultant and shall submit the same to the Govt. of Maharashtra for approval.
10. The details sought regarding the responsibility of the NIT as a stake holder is enlisted in the remark column is as below :-

Sr. No.	Name of Organization / Stake holder	Responsibility	Remarks
1.	Nagpur Improvement Trust	a. Provision of De-centralized Sewage treatment plant for townships of adequate capacity in a time bound manner.	The NIT have made mandatory for the layout holders to provide the underground sewer lines & connecting the same to the sewage treatment plants of adequate capacity for the layout & Township while sanctioning the layout plan & executing the development agreement with layouts holder in Nagpur Metropolitan area.
		b. Laying of underground sewer in the jurisdictional area.	The NIT have laid the internal sewage for the layouts covered under the jurisdiction of sanctioned schemes of NIT area a) EIASS and b) For the layouts sanctioned under Green Belt control scheme & for the regularized layouts covered under Gunthewari in the Nagpur City &

			connected the same to the main interceptor sewer by providing and laying carrier sewer lines.
		c. Provision of Storm water drains in Industrial estates of Nagpur City.	The NIT have laid the internal storm drain line for the layouts covered under the jurisdiction of sanctioned schemes EIASS, Itwara Station road Scheme and the sanctioned layout covered under the Green Belt Control Scheme of NIT area & for the regularized layouts under Gunthewari in the Nagpur City & connected the same to the nearby natural water streams.
		d. Tree Plantation in Industrial Estates.	<p>a. The NIT shall take the plantation in the Eastern industrial area covered under the jurisdiction of seven schemes in the Nagpur City.</p> <p>b. The NIT have started the tree plantation around the periphery of the open spaces and roadsides in the area covered under the Gunthewari schemes in the Nagpur City.</p> <p>c. The NIT shall made compulsory for the layout holders / plots holders for plantation of trees while sanctioning the building plans in the Nagpur Metropolitan area.</p>
		e. Provision of Central STP for Wanjra, Chikhali, Small Factory area etc.	The twenty five no. of Dewats to be constructed for estimated cost of Rs. 18.00 crores and for Central sewage zone forty no. of estimated cost of Rs. 35.00 crores for South

			<p>sewage zone for Gunthewari area are proposed in the DPR for funding under InNURM scheme. After receipts of approval to the DPR from Central Government same shall be constructed. The Dewats are proposed under NIT layouts because all main trunk sewer mains are in NMC scope as per master plan & tertiary network is in NIT scope. Until the complete scheme is developed as per master plan it is not possible to connect the system as it is in patches, so Dewat are suggested at various places where feasible and to maintain by the project consultant of the NIT. The construction of sewage treatment plant is covered under the DPR of Nagpur Municipal corporation in the Nagpur City.</p>
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 Superintending Engineer,
 Nagpur Improvement Trust.

Copy Submitted to :-

1. Additional Divisional Commissioner Nagpur Division,
 - Nagpur for information please.

Thank You !



