

ACTION PLAN FOR INDUSTRIAL CLUSTER: CHANDRAPUR



MAHARASHTRA POLLUTION CONTROL BOARD
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1) INTRODUCTION

1.1. Area details including brief history (Background Information)

Chandrapur, the easternmost district is located in the eastern edge of Maharashtra in Nagpur division and forms the eastern part of 'Vidharbha' region. It is located between 19.30' N to 20.45' N Latitude and 78.46' E longitude. The district is bounded by Nagpur, Bhandara and Wardha on the northern side. Yavatmal on the western side. Gadchiroli on the eastern side and Adilabad district of the Andhra Pradesh on the southern side. Physiographically, the district is situated within the Wainganga and Wardha river basins, respectively, on the eastern and western boundaries of the district which are the tributaries of Godavari River.

Chandrapur district of Maharashtra is abundantly endowed with rich flora and fauna, water resources and mineral wealth. Chandrapur has been famous from ancient times as the capital of Gond dynasty. Anandavan at Warora is famous the world over due to work being done by the social worker Shri. Baba Amte on the rehabilitation of the leprosy patients. Incidentally he is also an environmental crusader. India's largest thermal power plant, many coal mines, cement and paper factories, huge lime stone deposits, bauxite, iron, and chromite mines are the sources of wealth for the district. Tadoba-Andhari Tiger Project is a major tourist attraction. Different tribes are the original inhabitants of this district for Millennia. Chandrapur district occupies 11443 square km. eleven tehsils include 12 towns in this district out of which six are municipal towns. Population of the district is about 2215000. Total number of villages is 1790. Average size of an urban centre is 41,000 to 45,000 persons. Wardha is the main and the largest river. Rivers Erai, Andhari, Wainganga and the .Painganga are its tributaries. Chimur and Mul are the main water sheds between Wardha and Wainganga rivers.

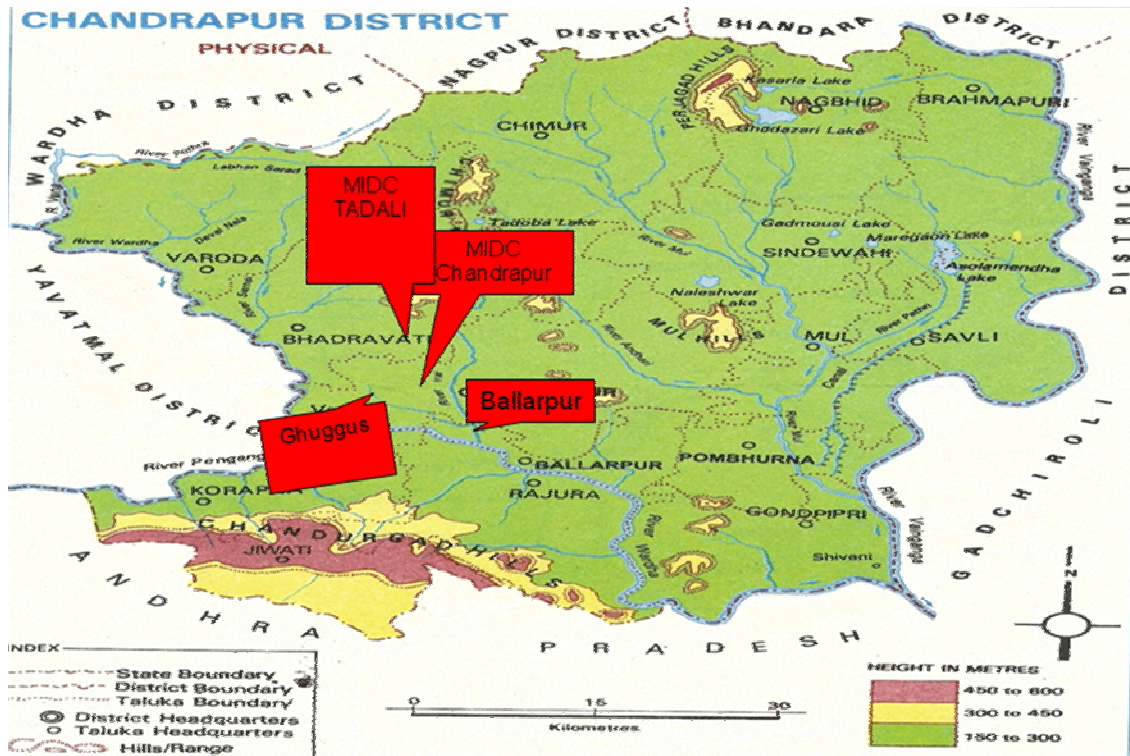


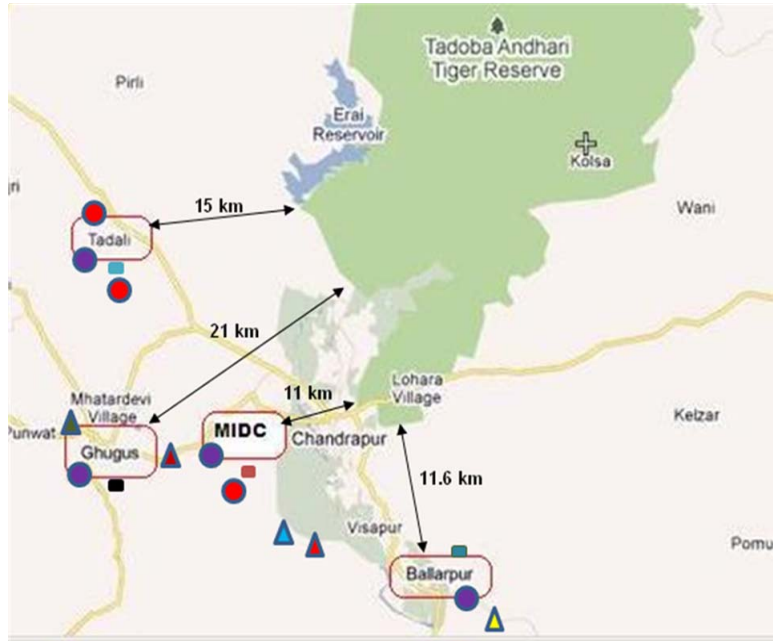
1.2 Location





1.3 Digital Map with demarcation of geographical boundaries and impact zones





IMPACT ZONES WITHIN 2 KM

- Village Yerur
- Village Datala
- Ghuggus Town
- Ballarpur Town

● Existing Ambient Air Monitoring Stations

● Proposed Ambient Air Monitoring Stations

SWMP Stations

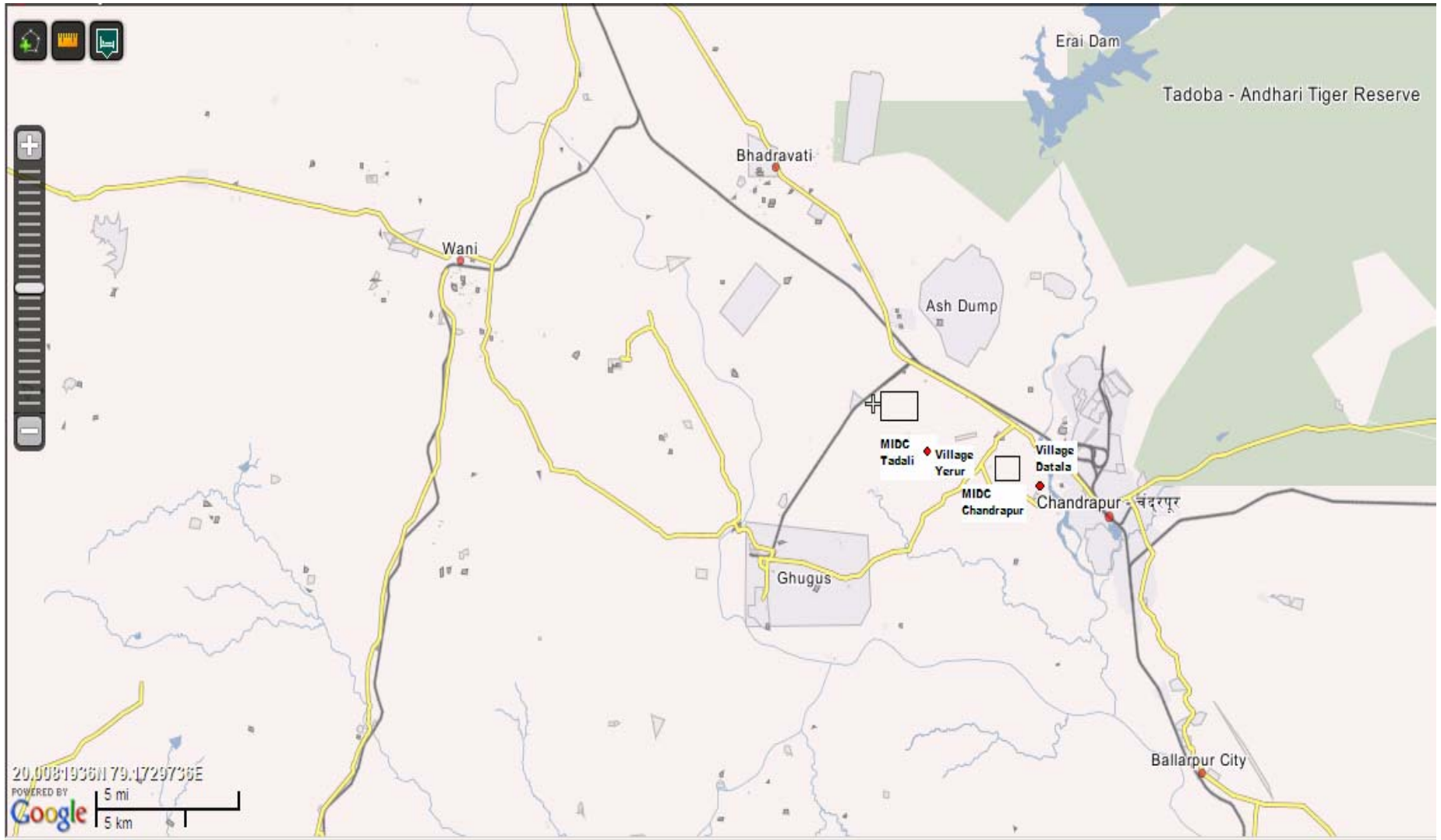
- ▲ Wardha River D/S of Erai River at Village Hadasti
- ▲ Wardha River U/S of Erai River at Village Hadasti
- ▲ Wardha River D/S of Ghuggus opencast (PROPOSED)
- ▲ Erai River D/S of confluence of Nala coming from MIDC Chandrpaur (PROPOSED)

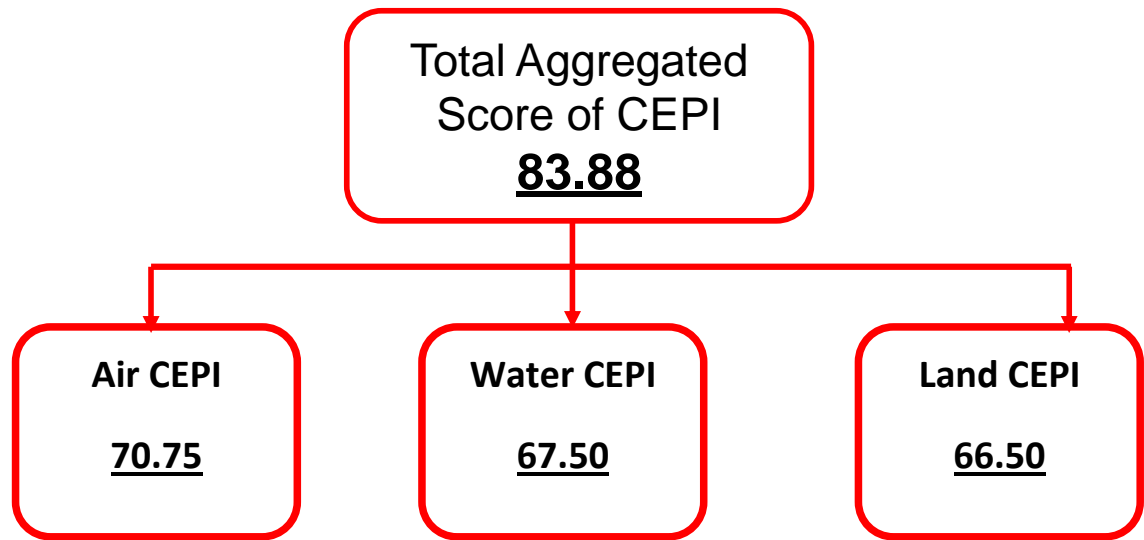
NWMP Stations

- ▲ Wardha River D/S of ACC Dhanora Village
- ▲ Wardha River D/S of BILT Graphics Paper Mill at Rajura



Digitized map showing CEPI area & Impact zone along with scale





1.5 Total population and sensitive receptors (Hospitals, School, Educational Institutes & Courts etc.) residing in the area comprising of geographical area of the cluster and its impact zone minimum 2 km.

Area	Name of village/s within 2 km radius	Population in 2 km radius	Sensitive receptors in 2 km radius (Hospital, School, Edu. Institute & Courts)
MIDC Tadali	1) Yerur 2) Tadali (4 km)	1,500 3,000	Not available
MIDC Chandrapur	1) Chinchala, 2) Datala	5000	Not Available
Ballarpur	Ballarpur city	90,000	Hospital & Education Institute Available
Ghuggus	Ghuggus town	45,000	Hospital & Education Institute Available

1.6 Eco- geological features Impact Zones (the area comprising of geographical area of the cluster and its impact zone (minimum 2 km)

1.6.1 Major Water Bodies – Wardha River, Erai river

Area	Eco-Geological Features within 2 km radius	Population in 2 km radius
MIDC Tadali	Not available	1,500 3,000
MIDC Chandrapur	Not available	5000
Ballarpur	River Wardha is 1.2 KM Away From Ballarpur Town	90,000
Ghuggus	River Wardha is 1.7 KM Away From Ghugus Town	45,000

1.6.2 Ecological Park, Sanctuaries, Flora & Fauna or any other Eco-Sensitive Zone –

The nearest distance of Tadoba Reserve Forest is about 11 km from critical area (Ballarpur)

1.6.3 Building or Monuments of historical / archeological / religious importance –

Mahakali Temple which is religious place of this area and is 7 km away from critical area (Ballarpur). Yearly festivals are held at this temple.

1.7 Industrial Classification

The breakup of industries as per Red Orange & Green category area wise is produced as below. It is observed that except Chandrapur & Ballarpur area there are no industries causing water pollution problem. However all this areas have the industries which can cause air pollution problems.

Name of industrial area	<u>1.7.1</u> Highly polluting Industries 17- Category	<u>1.7.2</u> Red Category Industry 54 Category	<u>1.7.3</u> Orange /Green Category	<u>1.7.4</u> Grossly Polluting Industry
MIDC Chandrapur	02	08	24	02
Ghuggus	01	03	Nil	Nil
MIDC Tadali	Nil	05	Nil	Nil
Ballarpur	01	12	18	01

2.0 Water Environment

2.1 Present status of Water Environment supported with minimum 1 year analytical data

2.1.1 Water bodies / effluent receiving drains in the area important for water quality monitoring

The Rivers namely Irai River, Wardha River flows through Chandrapur District. The Boards has fixed several Water monitoring points of the River Ware Bodies at various Sources under NWMP/SWMP & other environmental monitoring systems.

This Office is monitoring water Quality of major River (Wardha River) subsidiary water body (Erai River) which carries domestic effluent and industrial effluent in to the River Wardha.

The Locations are

Wardha River D/S of M/s ACC Ltd, - NWMP

Wardha River U/S of M/s ACC Ltd, - SWMP

Irai River at Hadasti, Wardha River - SWMP

Rajura Bridge (Down stream of M/s Bilt Graphics Paper Mill). - NWMP

Irai River Nagpur Road - Environmental Monitoring Point.

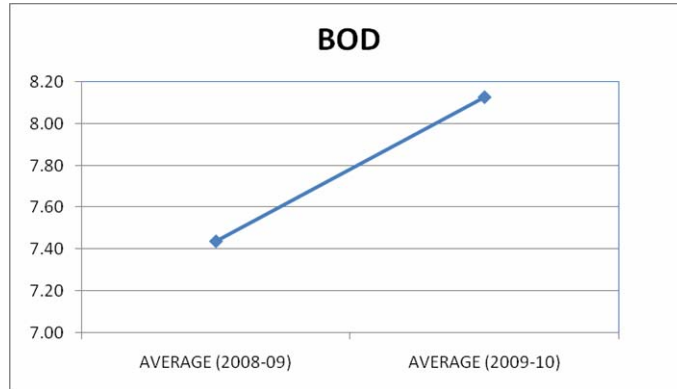


2.1.2 Present Level of Pollutants in water bodies.

Water Quality graphs of Wardha & Erai River water which flows through Chandrapur District for the year 2009-10. Major Pollutants is identified as BOD.

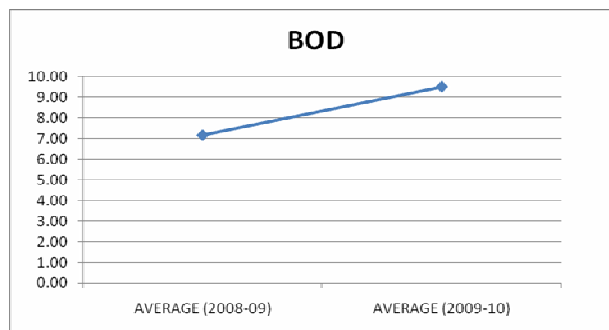
1) Sampling station – Irai River Nagpur Road

1	03/04/2008	8.00
2	05/06/2008	5.20
3	07/08/2008	5.00
4	20/02/2009	10.00
5	24/03/2009	9.00
6	20/05/2009	4.50
7	03/09/2009	7.00
8	26/11/2009	15.00
9	19/03/2010	6.00
Average 2008-09		7.44
Average -2009-10		8.13

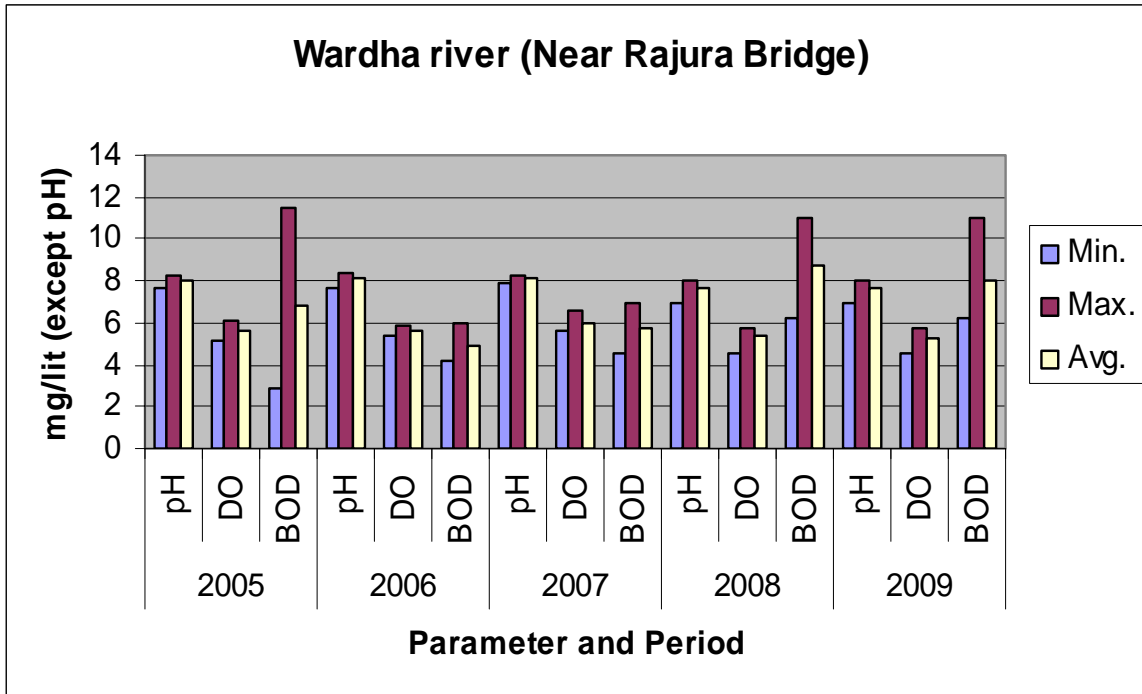


2) Sampling station – NWMP Wardha River Rajura Bridge

Sr. No.	Date	Location	BOD
1	03/04/2008	Rajura bridge	9.00
2	10/07/2008	Rajura bridge	8.50
3	22/01/2009	Rajura bridge	4.00
4	22/10/2009	Rajura bridge	13.00
5	29/01/2010	Rajura bridge	6.00
Average-200-09			7.17
Average-2009-10			9.50



Wardha River (Near Rajura Bridge)



Standards: pH- 6.5-8.5 DO > 5.0 mg/lt, BOD-5.0 mg/lt

Irai River Water Quality

Sr. No	Date	pH	DO	BOD	COD	SS	TDS	Hardness
1	03/04/2008	8.14	4.48	8.0	24.0	16.0	524	156
2	05/06/2008	7.53	6.65	5.2	20.0	16.0	314	140
3	07/08/2008	8.01	6.36	5.0	24.0	72.0	356	164
4	20/02/2009	8.24	4.57	10.0	28.0	16.0	180	138
5	24/03/2009	7.97	4.65	9.0	32.0	18.0	782	294
6	20/05/2009	7.98	5.82	4.5	20.0	19.0	892	360
7	03/09/2009	8.01	7.5	7.0	40.0	34.0	440	---
8	26/11/2009	7.43	5.4	15.0	40.0	29.0	204	94
9	19/03/2010	8.56	7.4	6.0	24.0	16.0	325	106

2.1.3 Predominant sources contributing to various pollutants

Major pollutant is BOD. The Contribution of this pollutant is mainly from the industrial effluent from M/S BILT Graphics Paper and Products and untreated domestic effluent from Chandrapur & Ballarpur town. The Hydraulic load from Bilt Graphics is about 43.0 MLD which is discharged in to Wardha River through the local Nalla .Similarly the hydraulic load of sewage from Chandrapur & Ballarpur town is 30.0 MLD & 8.4 MLD respectively.

2.2 Sources of Water Pollution

Industrial Sources

M/s Ballarpur industries

- Reduced effluent from 92 MLD to 43 MLD using water conservation and clean technology
- Primary and secondary ETP with discharge standards of BOD:25.0 mg/lit. About 43 MLD of effluent after treatment is discharged in to River Wardha.

M/s Multi organics Chandrapur:

- Industry has achieved the Zero discharge for process effluent i. e. mother liquor, by installing MEE followed by sodium sulphate recovery system. Use of Solar evaporation Pond is allowed only in emergency. However accidental discharge of effluent is observed during monsoon season, which meets to Erai River through local nalla after 3.0 KM

WCL mines: There are 2 WCL Coal Mines .One each at Ghugus & Ballarpur. The main concern is about depletion of ground water level due to extraction of coal from the underground strata.

Domestic

Chandrapur, Ballarpur & other urban areas the sources of water pollution. These Municipal Councils do not have STP. Local bodies are the concerned authorities to install STPs. Sewage is discharged into the Wardha River without any treatment. Similarly the sewage of Chandrapur city is discharged into Erai River without any treatment which further meets to Wardha River



The Sources of water pollution CEPI Area Wise & the impacts on surrounding Areas is given in following tables.

2.3

Critical Areas	2.2.1 Industrial	2.2.2 Domestic	2.2.3 Others (Agriculture Run-off, Leachets from MSW Dumps, illegal dump site etc)	2.2.4 Impact on surrounding areas Outside the CEPI Areas and drainage system of the area.
MIDC Tadali	Nil	Nil	Nil	Nil
MIDC Chandrapur	M/s Multi Organics & M/s Abhideep Chemicals	NIL	NIL	Now Zero discharge is achieved.
Ballarpur	M/s Bilt Graphics Paper Product. 43.0MLD discharge to River Wardha	1) 8.4 MLD domestic effluent discharging in to the river Wardha without any treatment. 2) Irai river is carrying domestic effluent of Chandrapur city in the tune of 30.0 MLD, which ultimately meets in to the River Wardha, near Hadasti village.	Nil	Impact on Quality of Irai River water & Wardha River Water. At present open drainage system available for Ballarpur Town. However for chandrapur Town drainage system
Ghuggus	Nil	2.0 MLD effluent discharging in to the river Wardha	Nil	Impact on Quality of Wardha River Water. At present open drainage system available

Details of water polluting industries, disposal methods & recipient water bodies in the area & prominent sources

There are two sectors i. e. industrial and domestic responsible for water pollution of the river. Industries and Municipal Council are the prominent sources.

Mainly Ballarpur Industries Ltd. & Multiorganics Ltd. are the two major industries responsible for water pollution of Wardha River as the Ballarpur Industry Ltd. is regularly discharging treated effluent into Wardha River and accidental discharge of effluent is observed from Multiorganics Ltd & its sister Concern M/s Abhideep Chemicals in Erai river through local nala. M/S Ballarpur Industries Ltd. is partly recycling the treated effluent but substantial quantum is discharge into river. Similarly Multiorganics has the system developed for achieving zero discharge. However, the accidental discharge of effluent is observed.

Though the WCL mines also discharging the water into the river water bodies, the effluent of such mines does not have organic load hence do not pose danger to the river water quality. Municipal Council Ballarpur & Chandrapur are responsible for Deterioration of river water quality.

The details of Water polluting industries its effluent disposal systems along with the names of recipient water bodies is produced below in the table

2.3 & 2.4 Details of Water Polluting Industries in the Areas /Clusters, Effluent disposal methods & Quantification of Waste Water Pollution Load & relative Contribution by different Sources Viz. Industrial/domestic

Areas /Clusters	Name of industries/Municipal Council	Effluent Disposal Methods-Recipient water Bodies etc.	Quantification of Water Pollution Load & relative contribution by different sources Viz. industrial/domestic
MIDC Tadali	Nil	Nil	Nil
MIDC Chandrapur	M/s Multi Organics	Zero discharge but accidental discharge is observed especially in monsoon which mixes with Irai River through local Nalla	Due to previous discharge of industrial effluent, the soil of natural nalla is contaminated over the period & acquires organic smell & colour during the monsoon.
Ballarpur	M/s Bilt Graphics Paper Product. Ballarpur city	discharge in to River Wardha. Untreated domestic effluent Discharge in to Wardha river	43.0MLD 8.4 MLD
Ghuggus	Nil	Domestics Effluent in to the Wardha River	2.0 MLD domestic effluent of Ghugus Town discharging in the River Wardha

2.5 Quantification of Water Pollution Load in Critical areas

Industry/Domestic	Permissible water pollution load from polluting sources
BILT Graphics, Ballarpur	AOX- 1 Kg/Ton of paper
BILT Graphics, Ballarpur	BOD Load-1.1 TPD (Permissible BOD 25 mg/l, volume of industrial effluent 43MLD)
Multiorganics Ltd. MIDC, Chandrapur	2 Kg/Day (BOD)
Municipal Council, Chandrapur, Ghugus, Ballarpur	BOD assumed 30.0 mg/lit (40.4 MLD Total) 1.232T/day

2.6 Action Plan for compliance & Control of Water Pollution

2.6.1 Existing Water Monitoring Network;-

This Office is monitoring water Quality of major River and subsidiary water body which carries industrial & domestic effluent in to the River Wardha. The Locations are Wardha River D/S of M/s ACC Ltd, Wardha River U/S of M/s ACC Ltd, Irai River at Hadasti, Wardha River at Rajura Bridge(Down stream of M/s Bilt Graphics Paper Mill)& Irai River on Nagpur Road.

2.6.2 Pollution Control measures Installed by the industries;-

M/s Bilt Graphics – is major domestic & industrial effluent generator & they have installed ETP wherein sewer is also treated, Respectively/s Bilt Graphics Paper product, Ballarpur is having activated sludge process ETP of capacity 90 MLD. At present effluent generation is 35 -43 MLD.

M/s Multi- organics Pvt. Ltd., MIDC Chandrapur –Industry has installed ETP & Treated effluent is being used for cooling tower. Industry has achieved Zero discharge Norms. Excess effluent is being dumped in Solar Evaporation Tank. Industry has completed provision of separate drain for storm water & Industrial effluent **however** accidental discharge is observed.

M/S WCL Ghugus & Ballarpur has provided sedimentation tank & ETP for effluent generated from mine & Workshop respectively.

2.6.3 Technology Intervention

- 1) M/S BILT Graphics Paper Ltd. has proposed to modernize existing pulp mill by installing one single continuous digester in place of current 11 batch type digester. Besides this the up gradation of ETP will also be undertaken. The project cost is 500 Crore and it is expected to be commissioned by Dec 2011. By commissioning of the proposed modernisation plant AOX will be reduced as the maximum quantum of lignin will be recovered from the raw material during digestion process and the recovered lignin will be utilized in recovery boilers as a fuel. Thus very less quantum of lignin will be allowed to enter into subsequent unit operation of bleaching of the pulp. This is the cleaner technology proposed by the industry.
- 2) Multiorganics Ltd. has installed a plant for the recovery of sodium sulphate from the mother liquor



2.6.4 Infrastructural Renewal & up – Gradation Programme

Existing Water Monitoring Network:

This Office is monitoring water Quality of major River and subsidiary water body which carries industrial & domestic effluent in to the River Wardha. The Locations are Wardha River D/S of M/s ACC Ltd, Wardha River U/S of M/s ACC Ltd, Irai River at Hadasti, Wardha River at Rajura Bridge(Down stream of M/s Bilt Graphics Paper Mill)& Irai River on Nagpur Road.

Proposed Strengthening of Water Monitoring network-

Additional SWMP stations are planned at Wardha River D/S of Ghuggus opencast (PROPOSED)

Erai River D/S of Confluence of Nala coming from MIDC Chandrapur (PROPOSED)



2.6.5 Up gradation of Pollution Control Facilities Installed by industries / Municipal Councils

Sr. No	Descriptions of Infrastructure Renewal	Managerial & Financial aspects				
		Cost estimate	Time estimate	Govt. Budgetary support required	System for effecting implementation	Effect on CEPI
1.	<p>M/s Bilt Graphics Paper product, Existing Infrastructure: M/S Ballarpur is having activated sludge process ETP of capacity 90 MLD. At present effluent generation is 35 -43 MLD. Industry is achieving 25 -30 BOD Norms Installed oxygen delignification process to reduce AOX , BOD & Colour Use of effluent in fire hydrant system</p> <p>Proposed Infrastructure: A) Modernization/replacement of existing batch digesters with continuous digestion system, pulp washing with drum washers will be replaced with presses & adoption of ECF bleaching technology. Replacement of old 2 recovery boilers with single recovery boiler With ESP of 5 electric fields. Up-gradation of ETP & Installation of cooling tower for recycling & MBBR (Moving Bed Bio-film Reactor) technology for improving effluent Quality.</p>	40 crore 15.0 Lakhs	Implemen ted Implemen ted		Separate Environme nt cell is formed	A1
	<p>B) Existing ETP up-gradation with additional thickener & twin wire press</p> <ul style="list-style-type: none"> • Installation of Disc filter for recycling of paper machine effluent in the system • Distribution Network for treated effluent (0.5 MLD) for gardening in colony area. 	2 crore 1.5 crore 30 lakhs	31/12/20 10 31/03/20 11 31/03/20 11			A1, B1, B2, C2 & D
	Ballarpur Municipal Council (8.4 MLD) STP Proposed	---	31/03/20 12	Yes		B1

2	<p>Multi- organics Pvt. Ltd., MIDC Chandrapur Existing Infrastructure: Industry has installed ETP & Treated effluent is being used for Cooling tower. Industry has achieved Zero discharge Norms. Excess effluent is being dumped in Solar Evaporation Tank. Industry has completed provision of separate drain for storm water & Industrial effluent. Up gradation not required. Proposed Infrastructure: Provision of mechanical seals, provision for arresting spillages/seepages, treatment & recycle in process. Formation of Environmental cell by industry Proposed</p>	3 lakhs	31/12/2010		Implementation by Industry	B1, B2, D
	<p>MIDC Chandrapur – Provision of storm water drain</p>		31/03/2012			B1
3	<p>MIDC Tadali - Provision of storm water drain</p>		31/03/2012			B1
4	<p>Ghugus Area: 1) Gupta Coalfields Ltd: Existing Infrastructure: Sludge thickener provided for separation of solid waste. Recycling arrangement for treated effluent is also provided. Proposed Infrastructure: Installation of high frequency screen to reduce the amount of effluent & easy recovery of solid waste</p>	2.5 lakhs	31/03/2011		Implementation by Industry	A1, B1 & D
	<p>2) Bhatiya International Ltd: Existing Infrastructure: Sludge thickener provided for separation of solid waste. Recycling arrangement for treated effluent is also provided. Proposed Infrastructure: Additional concrete tank for storage of industrial effluent</p>	10 lakhs	31/12/2010			

4	<p>Provision of STP for Chandrapur Town.</p> <p>Existing Infrastructure: At present no STP arrangement and sewage collection network. The domestic effluent generation from Chandrapur Town is about 30.0 MLD.</p> <p>Proposed Infrastructure: Municipal Council has proposed to install Two Nos. of STP having capacity 45 MLD & 25 MLD under UIDSSMT scheme, along with laying of sewerage line</p>	Scheme is submitted for approval to the Govt. Cost of sewerage line is about 70.0 crore		Govt. Budgetary support is required		B1
5	<p>Enforcement of Stringent Norms to evolve Clean technology for Water polluting industries Such as Paper Mill & Thermal Power Plants, along with effective monitoring / vigilance (Proposed Activity).</p>		30/09/2011	---	Implementation by industry. Regular vigilance & monitoring by MPCB	D
6	<p>Use of treated industry effluent for spraying for dust emission control in nearby mines and plantation in forest area, to reduce river discharge (Proposed Activity).</p>		31/03/2012		Implementation by Industry, WCL and forest dept, in coordination.	A1, B1, B2

2.6.6 Self Monitoring System in Industries

Following Industries are having Self Monitoring System in their industries to monitor performance of ETP. These industries quarterly/monthly monitor the effluent parameter of the ETP through recognized agencies.

- M/s Bilt Graphics Paper Product, Ballarpur
- M/S Multi Organics Pvt. Ltd., MIDC Chandrapur
- M/s Bhatia International Ltd., Belsani.
- M/s Gupta Coal Washeries, Usgaon.
- M/S WCL Ghugus Open Cast
- M/S WCL Ballarpur Open Cast.

2.6.7 Data Linkage to SPCB/CPCB of Monitoring Devices

Industries have not provided on line monitoring devices and therefore the linkage of data of the pollutant parameter to the SPCB is not provided.

WATER CEPI SCORE

Water	A1	A2	A	B1	B2	B3	B	C1	C2	C3	C	D	CEPI
CPCB CEPI	3.0	5.0	15.0	8.0	1.5	3.0	12.5	5.0	4.0	5.0	25.0	15.0	67.5
MPCB Short Term	2.0	5.0	10.0	4.0	0.5	3.0	7.5	5.0	3.0	4.0	19	5.0	41.5

Water	A1	A2	A	B1	B2	B3	B	C1	C2	C3	C	D	CE PI
CPCB CEPI	3.0	5.0	15.0	8.0	1.5	3.0	12.5	5.0	4.0	5.0	25. 0	15.0	67 .5
MPCB Long Term	2.0	5.0	10.0	2.0	0	3.0	5.0	5.0	2.0	4.0	14	3.0	32 .0

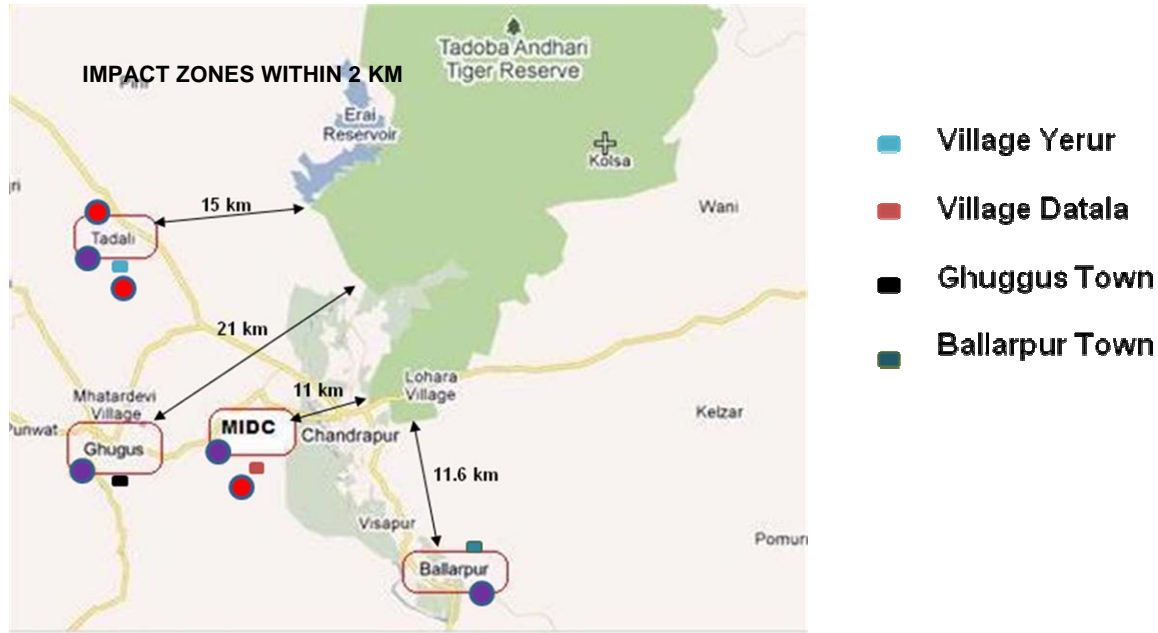


3. AIR ENVIRONMENT

3.1 Present status of Air Environment supported with minimum 1 year analytical data

3.1.1 Critical locations for air quality monitoring

MPCB is monitoring ambient air quality in CEPI area at MIDC, Tadali, Ghuggus, Ballarpur & MIDC, Chandrapur under NAMP & SAMP programme. The air quality is monitored twice a week at these locations as per EP Rules. The locations are shown below along with impact zones.



- Existing Ambient Air Monitoring Stations
- Proposed Strengthening Ambient Air Monitoring Stations

3.1.2 Present levels of pollutants in air

Ambient Air quality for the year 2009-10 is given in following table for the parameters SO₂, NO_x and RSPM in µg/Nm³ in CEPI area & Chandrapur city. The level of RSPM is observed exceeding the permissible level of 100 µg/Nm³ except Chandrapur city. Particulate matter is a critical pollutant in Chandrapur district as far as air pollution is concerned. There are no toxic elements as air pollutants.

Sr no	Name of City/industry	Program Name	SO ₂			NO _x			RSPM		
			Min	Max	Avg.	Min	Max	Avg.	Min	Max	Avg.
1	Civil Line Chandrapur	CAAQMS	18	148	30.82	20.0	155	27.24	28	214	136.33
2	Administrative Building, Chandrapur	NAMP	10	128	41.41	10	75	34.72	11	163	74.42
3	MIDC, Chandrapur	NAMP	12	181	62.91	11	68	30.85	32	376	140.91
4	Ghugus area Grampanchayat Ghuggus	NAMP	13	86	45.95	8	65	31.78	14	371	179.90
5	Rajura	SAMP	12	85	33.97	9	65	37.20	47	213	118.8
6	Ballarpur	SAMP	5	108	32.14	6	74	34.97	35	238	121.66
7	MIDC Tadali	SAMP	13	85	28.80	6	38	19.44	27	374	169.27

3.1.3 Predominant Sources contributing to various air Pollutants

These are industrial, domestic and transportation activities of the coal and other minerals which predominantly contribute to generation of particulate matter, which is prevalent air pollutant in the area. These sources are,

- **Tadali:**

- Steel industry complex with sponge iron plants with CPP and with steel products. Critical pollutant is the particulate matter from the kiln and other unit operations in the sponge iron plants.

- **Ghuggus:**

- Sponge iron, cement and coal mine. Critical pollutant is particulate matter from the rotary kilns and inclined rotary kilns of the cement industries & sponge iron industries.

WCL coal mines is a source of air pollutant particulate matter which results from various activities of coal handling in the mine.

- Major residential areas around the industries which are practicing domestic coal burning leading to generation of air emissions particularly particulate matter & other gaseous pollutants (SO_x, NO_x & CO)

- **MIDC Chandrapur:**

- No major unit with air pollution potential except Multiorganics Ltd. The source of air pollution is from fuel burning i. e. coal in the boiler generating predominantly particulate matter. SO₂ and NO_x are other gaseous pollutants.

- **Ballarpur:**

- Paper mill with CPP, coal mines, some small potteries.

The predominant air pollutant is particulate matter besides gaseous pollutants like SO_x & NO_x from paper mill. Smell nuisance is a concern source from the Ballarpur Industries Ltd. which results from cooking process in the digester in the form of mercaptans.

WCL coal mine at Ballarpur also contributes particulate matter as predominant air pollutant from various coal handling activities. Domestic coal burning is also practiced by the local citizens leading to emission of smoke.

- **Transportation Activities:**

- Major concern is 'dust' generated in coal, cement & other raw material transportation activities by road through trucks. The trucks carrying these entities are not properly covered with tarpaulin and as well as due to bad conditions of roads spillages of coal usually occurs on the road resulting into regeneration of dust.

Vehicular pollution and traffic congestion are also responsible for air pollution in the city.



3.2 Sources of Air Pollution

Industrial sources

Various air pollution potential industries such as coal mines, cement industries, coal washeries, sponge iron units, paper mill are operational in CEPI area. These industries cause source emissions of particulate matter, Sox and NOx from the source as well as fugitive emissions of particulate matter are observed. Paper mill at Ballarpur is also responsible for smell nuisance due to release of mercaptans from cooking process in digester of the bamboo / biomass.

Solid waste generated from the industry like dolo char, iron ore fines, de-dusting dust and fly ash are also the sources of fugitive air emissions due to their improper storage arrangements at the site and due to not having periodical disposal.

Domestic Sources

Domestic coal burning in different parts of region practiced by the local citizens generates smoke.

Transportation activities

Due to lack of railway siding mineral transportation activities are carried out via road as well as fly ash transportation through trucks which causes air pollution in the form of particulate matter emissions.

Coal transportation activities from coal mines, coal washeries and other industries also practices via road through trucks. While coal transportation the coal carrying trucks are not properly covered with adequate tarpaulin leading to spillage of coal on the road ultimately generating dust emissions. The bad condition of the road aggravates the problems.

Coal depots

There are various coal depots at Padoli naka at Nagpur road which are unauthorized handlers of the coal storage and distribution. These coal depots are also the source of particulate matter emissions due to handling of the coal at the site.

Vehicular Pollution

Due to large numbers of automobiles plying on the road in the city vehicular pollution has become source of air pollution.



3.3 Air Polluting Industries in the Area

- **Tadali:**

- Steel industry complex with sponge iron plants with CPP and some with steel products
- Sidhabali Ispat, Gopani steel Industry, Chaman Metallics, Grace Industry

- **Ghuggus**

- Sponge iron, cement and coal mine
- Lloyd Metals, ACC Cement, WCL Ghuggus opencast mine

- **MIDC Chandrapur**

- No major unit with air pollution potential but Multiorganics is the industry in MIDC Chandrapur which uses coal as a fuel in the boiler for steam generation.

- **Ballarpur**

- Paper mill with CPP and coal mines
- BILT Graphics Paper Products uses coal as a fuel in the coal fire boilers of the CPP. Recovery boilers are also the source the air pollution. Digesters of the paper mill are the source of smell nuisance in the form of mercaptans.
- WCL Ballarpur opencast mine at Ballarpur

3.4 Impact of Activities of nearby area on the CEPI area

There is impact of residential areas like Ghuggus & Ballarpur on the CEPI area as domestic coal burning is practiced by the local citizens there.



3.5 Air Pollution load in critically polluted areas due to Industries (Source emission from kiln & fuel burning)

Area	Existing Pollution load in TPD (TPM ¹⁵⁰ mg/NM ³)	Proposed pollution load after measures in TPD (TPM ⁵⁰⁻¹⁰⁰ mg/Nm ³)	% Reduction
Tadali			
1) Sidhabali	0.851	0.571	32.9
2) Gopani	0.75	0.5	33.33
3) Grace	0.432	0.288	33.42
4) Chaman	0.487	0.325	33.26
TOTAL	2.52	1.684	33.17
Ghuggus			
1) ACC	5.76	3.96	31.25
2) Lloyd Metals	2.16	1.23	43.05
TOTAL	7.92	5.19	34.4
Ballarpur			
BILT Graphics	2.8	2	28.0
MIDC Chandrapur			
Multiorganics	0.08	0.05	37.5

3.6. Action plan for compliance & control of pollution

3.6.1 Existing Infrastructure Facilities – AAQM Network

Following AAQM stations are in operation in CEPI area under NAMP/SAMP programme:

- 1) MIDC, Chandrapur - NAMP
- 2) Ghuggus - NAMP
- 3) MIDC Tadali - SAMP
- 4) Ballarpur - SAMP

Following AAQM stations are in operation outside CEPI area.

- 1) Chandrapur city – NAMP approximately 6.3 km from MIDC Chandrapur
- 2) Gadchandur - SAMP approximately 30 km from Ballarpur area



3.6.2 Air Pollution Control Measures Installed by Individual sources

- **Tadali:**

There are four sponge iron units operating in this area.

Sidhbali Ispat: This unit has installed three kilns having capacity of 100 TPD each for sponge iron manufacturing. Industry has also installed 20 MW CPP (FBC & WHRB). ESPs are installed at all the three kilns. De-dusting units such as bag filters are installed at raw material section, cooler discharge, product house and ID bin.

Gopani Iron & Power: This unit has installed four kilns having capacity of 100 TPD each for the manufacturing of sponge iron. Industry has installed 15 MW CPP (FBC & WHRB). ESPs are installed at all the four kilns. De-dusting units such as bag filters are installed at raw material section, cooler discharge, product house and ID bin.

Chaman Metallics: This unit has installed one kiln having capacity of 100 TPD for the manufacturing of sponge iron. ESP is installed at the kiln. De-dusting units such as bag filters are installed at raw material section, cooler discharge, product house and ID bin.

Grace Industries Ltd.: This unit has installed two kilns having capacity of 100 TPD each for the manufacturing of sponge iron. ESPs are installed at all the two kilns. De-dusting units such as bag filters are installed at raw material section, cooler discharge, product house and ID bin.

- **Ghuggus**

Lloyd Metals: Industry is engaged in manufacturing of sponge iron having capacity 900 TPD by installing 5 kilns of capacity 1x500 & 4x100.

Industry has proposed install 25 MW CPP (FBC & WHRB). ESPs are installed at all the five kilns. De-dusting units such as bag filters are installed at raw material section, cooler discharge, product house and ID bin. CAAQM is installed by the industry and data is displayed at the gate.

ACC Cement: Industry is engaged in manufacturing of OPC & PPC cement. Industry has installed CPP of 15 MW & 25 MW (total 40 MW). Industry has provided ESP for kiln no. 1 & 2, bag filters for raw mill section 1 to 3 and coal mill 1 to 3, ESP provided for CPP. CAAQM is installed by the industry and data is displayed at the gate.

WCL Ghuggus: Fixed water sprinkling arrangement as well as mobile water sprinkling arrangement is provided at coal stock yard, CHP area, Railway siding and internal roads.



- **MIDC Chandrapur**

No major unit with air pollution potential however, Multiorganics Ltd. is using coal as a fuel in the boiler for steam generation. There are three boilers installed in the premises having capacity 10 ton/hour, 4 ton/hour & 4.5 ton/hour. Industry has installed bag filters to 10 ton/hour boiler and MCD to the remaining 2 boilers.

- **Ballarpur**

BILT Graphics Paper Products: Industry has provided ESP at Recovery boiler and other coal fire boilers. Use of CO₂ generated from lime kiln operations for preparation of CaCO₃ (greenhouse gas reduction)

WCL Ballarpur opencast mine: Not in operation presently.

WCL Ballarpur underground mine: Fixed water sprinkling as well as mobile water sprinkling is provided at coal stock yard, internal roads and CHP area.

Non-Industrial activities:

The coal carrying trucks are covered with the tarpaulin to avoid spillage of coal on the road. However this arrangement is inadequate for control of air pollution.

Burning of coal for domestic purpose:

This issue can be addressed by providing cleaner fuel for domestic purposes such as LPG instead of coal on subsidized rate for people below poverty line. Local body will have to ensure this transformation.

3.6.3 Technological Intervention

The prominent industries in the area contributing to the pollution problems are mainly sponge iron, coal washeries, cement plants and WCL coal mines. These industries have adopted latest available technologies for their manufacturing activities as well as for pollution control arrangements. However, the cement industry like ACC Ghuggus has proposed to adopt the state-of-art technology which would reduce the air pollution problems at the source. The details are as below.

ACC Cement, Ghuggus: Installation of state of the art technology, entire new plant by scrapping old one: State of the art technology comprises of new kilns, grate cooler & 6 stage, double stream, In Line Calciner, which is an energy efficient process & Reverse Air Bag House & new ESP will be used for air pollution control at kiln, raw mill, boiler & cooler discharge. All storages & material handling systems will be under closed shed. Expected emission levels will be 50 mg /Nm³ for TPM. NOx emission will also be minimized. The project cost is 1450 crore and expected to be commissioned by Nov 2010.

Similarly, the sponge iron units have also adopted the latest available technologies in the form of inclined rotary kilns. These units require the continuous supply of power, in absence of which instability of the kiln is experienced leading to air pollution problems as well as solid waste generation in the form of accretion. Therefore the sponge iron plants have planned for installation of WHRB for utilization of waste heat from the kilns. This would ensure the sustainable operation of the kiln at designed parameters. The industries namely M/S Sidhballi, M/S Gopani and M/S Lloyd have adopted WHRB system.

BILT Graphics Paper Industry has installed lime kilns wherein lime sludge is re-burnt for the recovery of lime. CO₂ generated from the lime kiln is utilized for manufacturing calcium carbonate slurry which is a CDM project. This project has been implemented.

Utilization of dolo char: Dolo char is a waste generated from sponge iron units which contains unburned coal particles. The calorific value of these particles can be utilized by way of combustion in FBC boilers for power generation. However, before utilization it is necessary to remove the iron ingredients from the dolo char by way of installing beneficiation plants. The sponge iron industries have proposed to install beneficiation plants and FBC boilers for power generation. These dolo char beneficiation plant installation will take about six months. At present Gopani has installed power plant consisting of FBC and proposed to install char beneficiation plant. M/S Sidhballi and M/S Lloyd have installed FBC boilers and proposed to operate within two months.

Utilization of iron ore fines: Iron ore fines can be utilized in manufacturing activities of cement industries PPC. Similarly this waste can also be co-processed in sinter plants for making value addition products to be used in blast furnace. M/s Gopani, Sidhballi, Lloyd, Chaman & Grace industries are sending iron ore fines to cement manufacturers in the area. M/s Gopani has proposed to send iron ore fines to M/S Uttam Galva, Wardha in their sinter plant which is about 150 km.

Utilization of fly ash: Fly ash from the CPP of the sponge iron units is disposed in cement industry for PPC manufacturing. Fly ash & Bottom ash is generated from the captive Power Plant. Fly ash causes secondary air pollution due to its finer particle size, if improperly stored, hence its proper disposal is important. Sponge iron units which have provided CPP is sending fly ash to cement manufactures in the area.



3.6.4 & 3.6.6 Need of Infrastructure renovation/up-gradation of existing air pollution control facilities & Impact on CEPI Parameters .

The details of required infrastructure renovation and the up-gradation in the existing air pollution control facilities of the individual industries along with time and cost estimates is given as below. Cost estimate information is available for industry specific actions.

Sr. No	Descriptions of Infrastructure Renewal / up-gradation of existing air pollution control facilities	Managerial & Financial aspects				
		Cost estimate	Time estimate	Govt. Budgetary support required	System for effecting implementation	Effect on CEPI
1.	Implementation of Mechanical Closed type material transportation/coverage of coal carrying truck by full tarpaulin especially for Coal. Introduction of Closed Conveyor belts transportation of Coal from mines.	---	31/03/2012	---	WCL	B2, C2
2	Implementation of Stringent Norms (100 mg/Nm ³ TPM) for Air polluting industries Such as Sponge Iron, Thermal Power Plants, Washeries, Cements Plants etc along with effective monitoring through increased vigilance.	---	30/09/2011	---	Industry	B1, B2, B3, D
3	Installation of waste heat recovery based boilers at sponge iron plants to effectively ensure that all flue gases are discharged through APC.	---	31/03/2012	---	Industry	A1, B1, B2, C2
4	Restriction on Coal /Iron Ore/Cement/Fly ash Transportation by Road during day time	---	31/12/2010		District Administration/RTO	A1, B2, C2
5	Development of alternative bypass road for transportation of the Coal & other transportation issues such as overloading and Mechanical covering of Vehicle.	----	31/03/2012	Govt. Budgetary support required	WCL, Industries, PWD RTO	B2, B3, C1, C2
6	Shifting of Unauthorized Coal Depots & Railway Siding near Main Station (Suspension of Loading & Unloading of Industrial Raw Materials)	-----	30/09/2011	Govt. Budgetary support required	District Administration	A1, B1, B2

7	Utilization of Dolo Char & Iron Ore Fines from sponge Iron Units. This Solid waste causes air pollution due to improper storage .Hence its disposal by way of utilization for manufacturing of value addition is necessary. This solid waste (Dolo Char is proposed to utilized in FBC Boiler & Iron Ore fines will be utilized in cement plan & Sinter Plant. The utilization of iron ore fines is started by some units in cement industries. Other units have proposed the same a) Installation of beneficiation plant and FBC Boiler is necessary for the disposal of Dolo Char. b) Utilization of iron ore fines in sinter plants and cement plants	--	30/09/2011	--	Industries	
8	Construction of roads in MIDC Tadali area		30/09/2011		MIDC	
8	MIDC Chandrapur: Multiorganics Ltd: Installation of Bag Filter at coal fire boilers 4.0 & 4.5 t/hr capacity	3 Lakhs	31/03/2011	---	--- Industry	
9	MIDC Tadali 1) Chaman Metallics: Installation of 3 stage bag house at product house • Installation of new bag filter at cooler discharge • Concretization of roads of 0.8 km covering stores and raw material section • Up-gradation of Recruputor of ESP 1 & 2 like RAV changes, pipe replacement, plate replacement of castable, impeller 2) Grace Industries: Installation of bag filter at coal crusher, coal screening section & iron ore crusher • Pneumatic fly ash handling system of M/S Grace Industries. 3) Sidhabali Ispat Ltd: Installation of WHRBs for power generation. • Replacement of electric fields & revamping of ESPs for all three kilns to achieve 100 mg/Nm3 • Provision of silo for storage of de-dusting dust which will disposed in After Burning chamber of kilns. • Concretization of internal roads • Installation of coal storage shed 4) Gopani Iron & Power Ltd: Installation of 6 bag houses for FBC power plant • Installation of bag filters at raw material feeding hopper and transfer point • Concrete road from stores to SMS & from weigh bridge to truck tippler	33 Lakhs 8.5 lakhs 85 lakhs 30 Lakhs 4 lakhs 2.5 crore 9.5 crore 35 lakhs 25 lakhs 50 lakhs 40 lakhs 60 lakhs 30 lakhs 2.37 crore	31/12/2010 31/12/2010 30/09/2011 31/12/2010 31/12/2010 30/06/2011 31/12/2010 31/03/2011 31/12/2010 30/06/2011 30/09/2011 31/12/2010 31/03/2011 30/09/2011		Industry	

10	<p>Ballarpur</p> <p>1) BILT Graphics Ltd: Installation of new single recovery boiler (capacity 180 TPH) of higher capacity with ESP of 5 electric fields by scrapping out existing old two recovery boilers to achieve 50 mg/Nm³ TPM standards.</p> <ul style="list-style-type: none"> • Adoption of ECF (Elemental chlorine free) bleaching process by replacing existing use of chlorine with chlorine dioxide. • Installation of NCG (Non condensable gases) burning system to reduce odour in the area. 	500 crore (includes total modernisation project)	31/12/2011		Industry	
11	<p>Ghugus Area</p> <p>M/s ACC Cement: Installation of state of the art technology, entire new plant by scrapping old one: State of the art technology comprises of new kilns, grate cooler & 6 stage, double stream, In Line Calciner, which is an energy efficient process & Reverse Air Bag House & new ESP will be used for air pollution control at kiln, raw mill, boiler & cooler discharge. All storages & material handling systems will be under closed shed. Expected emission levels will be 50 mg /Nm³ for TPM. NO_x emission will also be minimized</p> <p>2) Lloyd Metals Ltd:</p> <ul style="list-style-type: none"> • Installation of 20000 cum capacity dust collector at lump iron ore crushing building • 100 x 4 TPD kiln - Replacement of existing 20000 cum dust collector capacity by 55000 dust collector capacity at product house <p>3) Gupta Coalfields Ltd:</p> <ul style="list-style-type: none"> • Installation dust extraction system with wet scrubber at washing section. • Installation of rain guns with pipelines & foggy nozzles around the periphery of fines hopper <p>4) WCL Ghuggus opencast: Installation of additional rain guns at kargil chowk, old railway siding, new railway siding & CHP, Total no. 258</p> <p>5) Bhatiya International Ltd: Concretization of Internal transport road from main gate to weigh bridge up to receiving hopper</p>	1450 Crore	31/03/2011		Industry	
		1 lakh	30/06/2011		Industry	
		25 lakhs	31/03/2011			
		8 lakhs	31/12/2010		Industry	
		50 lakhs	30/06/2011			
		15 Lakhs	30/09/2011		Industry	
		25 lakhs	31/03/2011		Industry	

Abatement measures for control of vehicular pollution

Due to large number of vehicles and traffic congestions vehicular pollution is on the rise. There is necessity to strengthen mass pool vehicles transportation system by the State Government. Similarly there is necessity to provide bypass road for Chandrapur city to avoid traffic congestion problems in the city. Similarly synchronization of traffic lights can ensure smooth traffic and reduction in air pollution density. RTO is the concerned authority to make appropriate planning.



Besides this adulteration of fuel is a big issue which should be addressed by District Administration.

Health Impact Studies:

Health impact due to air pollution specifically due to particulate matter in the Chandrapur city can be considered by MPCB through Health Department. This task can be accomplished within 2 years period (by 31/03/2012).

Health impact studies in mines:

WCL authority would be directed to carry out health impact studies of their staff and workers in the mine in one year period i. e. by 30/09/2011.

Proposed strengthening of AAQM infrastructure as per infrastructure renovation activity

Following AAQM Stations are proposed in impact zone under SAMP programme

- 1) Tadali Village – 4 km from MIDC Tadali
- 2) Virur Village – within 2 km MIDC Tadali
- 3) Datala Village – within 2 km from MIDC Chandrapur

The above activities is already started under environmental monitoring programme by MPCB however, the same programme will be covered under SAMP/NAMP programme within 6 months period.



3.6.5 Impact on CEPI score after installation / commissioning of full pledged air pollution control systems

Air	A1	A2	A	B1	B2	B3	B	C1	C2	C3	C	D	CEPI
CPCB CEPI	5.75	5.0	28.75	6.0	3.0	3.0	12.0	5.0	4.0	0	20.0	10.0	70.75
After MPCB Short Term Plan	4.0	5.0	20.0	5.0	2.0	2.0	9.0	5.0	3.0	0	15	5.0	49.75

Air	A1	A2	A	B1	B2	B3	B	C1	C2	C3	C	D	CEPI
CPCB CEPI	5.75	5.0	28.75	6.0	3.0	3.0	12.0	5.0	4.0	0	20.0	10.0	70.75
After MPCB Long Term Plan	4.0	5.0	20.0	4.0	2.0	1.0	7.0	4.0	2.0	0	08	3.0	38.0

3.6.7 & 3.6.8 Self monitoring system by the industry and data linkage to SPCB/CPCB

Continuous ambient air monitoring system has been provided by M/S Lloyd Metals Ltd. Ghuggus, ACC Cement Ltd, Ghuggus. Data is displayed on the Board at the gate of the respective industry. Linkage of the data needs to be provided to MPCB.

4. Land Environment (Soil & Ground Water)

4.1 Soil Contamination:

4.1.1 Present status of Land Environment

M/S Ballarpur Industries Ltd: The lime sludge of m/s Ballarpur industries is dumped on Visapur Road. The existing dump is about 1.5 Km away from the industry. The quantity is Huge Photographs attached P.H is around 10.0 showing alkaline nature of the sludge. Boards has been undertaking monitoring of ground water at Visapur village to asses impact of Lime sludge dump



Lime Sludge Hillocks of M/s Bilt Graphics Paper Product Ballarpur

4.1.2 Locations for land / soil pollution / groundwater monitoring:

1) Dug Well near Z.P School, Village- Visapur, Tq- Ballarpur, Dist. Chandrapur - This location is already covered by the Board for Ground water monitoring under SWMP Program with frequency Half yearly. This location is fixed to assess the impact on soil / land pollution at Visapur village caused by dumping of lime sludge

4.1.3 Groundwater monitoring reports

Location: Dug Well near Z.P School, Village- Visapur				
	30/11/2009	09/06/2009	15/09/2008	AVERAGE
pH	7.05	8.49	7.90	---
DO	6.50	8.90	6.92	7.44
Conductivity	1092.00	365.00	928.00	795.00
BOD	8.00	7.60	5.20	6.93
Nitrate-N	3.54	0.91	11.65	5.37
Fecal Coliform	2.00	2.00	17.00	7.00
Total Coliform	4.00	4.00	50.00	19.33

Sources of soil contamination: Lime sludge hillocks of M/s BILT Graphics Ltd. Ballarpur at Visapur Road. Distance is 1.5 km from the Industry. Alkaline pH of the lime sludge & inorganic nature, which generate alkaline seepages during monsoon and can cause soil contamination. This is a predominant source which poses danger of pollution of land and soil and groundwater.

Type of existing Pollution: Seepages are of alkaline in nature, may alter the pH of the groundwater & surface water near vicinity. Similarly, soil porosity can be affected due to contamination.

Remedies for Abatement, treatment & Restoration:

- Greening of old lime sludge hillocks with soil & trees is necessary with biological stabilization of the dumps. This activity is partly implemented and proposed to be completed within 2 years.
- Collection of Alkaline seepages from lime sludge dumps & treatment in ETP is proposed by M/S BILT graphics paper industry.
- M/S BILT Industries Ltd. has installed lime kiln in the factory premises to utilize lime sludge generated from the process for the recovery of lime. However, about 50 ton/day of lime sludge still has to be disposed at the old hillocks at Visapur.

4.2 Groundwater contamination

4.2.1 Present status of groundwater quality at Visapur village

Analysis Results				
	30/11/2009	09/06/2009	15/09/2008	AVERAGE
pH	7.05	8.49	7.90	---
DO	6.50	8.90	6.92	7.44
Conductivity	1092.00	365.00	928.00	795.00
BOD	8.00	7.60	5.20	6.93
Nitrate-N	3.54	0.91	11.65	5.37
Fecal Coliform	2.00	2.00	17.00	7.00
Total Coliform	4.00	4.00	50.00	19.33

4.2.2 Source Identification

The lime Sludge dumps at Visapur by M/S Ballarpur Industries Ltd. is the probable source of groundwater pollution in nearby vicinity. The quality of groundwater at this point is produced below which suggest the quality is not affected.

4.2.3 Groundwater quality monitoring programme

Board is already monitoring the groundwater quality at Visapur on half yearly frequency basis.



4.2.4 Action plan for control of groundwater pollution

Though the groundwater quality is not affected at Visapur due to probable source of lime sludge hillocks, the complete biological stabilization of the lime sludge hillocks will further ensure the safeguard of groundwater quality.

4.2.5 Treatment and Management of contaminated groundwater

As the groundwater is not contaminated it is not necessary to undertake any treatment schemes at present.

4.2.6 Impact on CEPI score after abatement of pollution

Action	Implementing Agency	Duration	Effect on CEPI
Stabilization of lime sludge hillocks	BILT Graphics	By 31/03/2012	A1, B2, D

4.3 Solid Waste Generation & Management

4.3.1 Waste Classification & Quantification and the sources

4.3.1.1 Hazardous Waste

The hazardous wastes generated from CEPI area are consist of ETP sludge, asbestos waste and used oil. The source of generation is from **Multiorganics**: ETP Sludge - 40 Ton/Annum, **BILT Graphic Paper Products**: Used oil & asbestos sheet waste - 5 Ton/Annum, **WCL Ghuggus OC Mine**: ETP sludge - 53 Ton/Annum, **ACC Ltd.**: Used oil - 1.76 Ton/Annum

4.3.1.2 Biomedical Waste

The waste generated from the healthcare establishments & other institutions pertains to the ten categories of BMW with predominant waste belonging to waste sharp & solid waste (cat. no. 4,6 & 7)

The total biomedical waste generation is **Ghuggus**: 50 Kg/day **Tadali**: ½ kg /day **Ballarpur**: 175 kg/day **MIDC Chandrapur**: Nil

4.3.1.3 Electronic Waste

Inventorisation of E-waste is not done yet. The waste consists of computers, electrical & electronic appliances.

4.3.1.4 Municipal solid waste / domestic waste/ sludge from ETP / CETP and other industrial sources

MSW generated from Ghuggus town is about 10 Ton/day, MIDC Chandrapur: 50 kg/day, Ballarpur: 30 Ton/day and Tadali: 50 kg/day. The source of ETP sludge is from Ballarpur paper mill i. e. in the tune of 20 ton/day.

MSW Management:

Chandrapur city – 120 ton / day generation. At present water treatment plant of 1.5 ton/day is established, however, not commissioned. Chandrapur Municipal Council waste treatment plant of adequate capacity and landfill arrangement within 2 years period (by 31/03/2012).

Ballarpur City – About 19 ton/day is the generation of solid waste. At present there is no facility for treatment and disposal of solid waste. Ballarpur Municipal council will have to provide waste treatment facility and landfill arrangement within 2 years period (by 31/03/2012).

Other industrial sources (Process waste and APC dust):

(a) Ballarpur: Lime sludge from the process (BILT industry): 120 Ton/day

(b) Ghuggus (Sponge Iron, Cement & Washery & WCL): (1) Dolo char - 4000 ton/M (2) Iron ore fine - 5000 ton/M

(3) ESP/de-dusting dust - 4000 Ton/M (4) STP sludge (ACC Ltd.) - ½ Ton/M (5) WCL Ghuggus OB – 146 MM³

(C) Tadali (Sponge Iron): (1) Dolo char - 6300 Ton/M (2) Iron ore fine - 3200 Ton/M (3) ESP/de-dusting dust - 7470 Ton/M

(d) Common land fill site for disposal of non hazardous solid waste in MIDC Tadali will have to be developed. Required time period may be more than 2 years (by 31/03/2012).

4.3.1.5 Plastic waste

This issue is not relevant.

4.3.2 Identification of waste minimization & waste exchange options

a) Waste exchange options:

(I) ETP sludge of BILT Industry is utilized for board manufacturing. There are 18 numbers of board manufacturing units in operation which are utilizing this sludge as raw material.

(II) Iron ore fines from the sponge iron industries are processed in the cement kiln as a binder to manufacture PPC. This activity has been started by the sponge iron units. The iron ore fines can also be utilized for its iron content value and processed in filter plant for producing value added product. The sponge iron units have proposed this activity.



4.3.3 Reduction, Reuse, Recovery and Recycle options:

- (a) Lime sludge generated from the process in BILT industry is reused in the lime kiln for recovery of lime.
- (b) Dolo char which is a solid waste generated from the sponge iron units is proposed to be utilized in FBC boilers by the sponge iron units after installation of dolo char beneficiation plant.
- (c) ESP / de-dusting dust from the sponge iron plants is proposed to utilize for bricks manufacturing.
- (d) Used oil generated from various industries is being disposed through authorized recyclers.
- (e) Metal recovery from electronic waste can be thought of.

After accomplishments of the above tasks the CEPI score of parameters B1, B2, B3, C1, C2, C3 will be reduced.

4.3.4 Infrastructure facilities

4.3.4.1 Existing TSDF

(a) CHWSTDF comprising of SLF & Incineration facility (plasma pyrolysis) is operational at Butibori, Dist. Nagpur. The hazardous waste of the industries is sent to the CHWSTDF for scientific management. At present the existing CHWSTDF is under utilization. Incineration capacity is 3 ton/hour and SLF capacity is 60000 ton/cell.

(b) CBMWSTDF is operational in Chandrapur city wherein the BMW of CEPI area is also disposed for scientific management. The facility of CBMWSTDF is the integrated facility comprising of waste autoclave, shredder & double chamber incinerator based on control air combustion method. The capacity of incinerator is 50 kg/hour. The common facility is operational and the capacity is adequate.

4.3.4.2 The existing capacity of the TSDF is adequate and is under utilization at present. The performance is satisfactory. However, the centralized facility for e-waste management is necessary.

4.3.4.3 Ballarpur: The existing lime sludge hillocks are partly stabilized by doing tree plantation. The collection of seepages & its treatment in ETP is proposed besides complete biological stabilization / hillocks by BILT graphics.

4.3.4.4 Land CEPI SCORE

Land	A1	A2	A	B1	B2	B3	B	C1	C2	C3	C	D	CEPI
CPCB CEPI	3.0	5.0	15.0	4.0	3.0	4.5	11.5	5.0	4.0	5.0	25.0	15.0	66.5
MPCB Short Term	3.0	5.0	15.0	4.0	3.0	4.5	11.5	5.0	3.0	3.0	18.0	10.0	54.5

Land	A1	A2	A	B1	B2	B3	B	C1	C2	C3	C	D	CEPI
CPCB CEPI	3.0	5.0	15.0	4.0	3.0	4.5	11.5	5.0	4.0	5.0	25.0	15.0	66.5
MPCB Long Term	3.0	5.0	15.0	2.0	0	3.0	5.0	5.0	2.0	4.0	14	10.0	44.0

Additional information on land polluting sources
Focus on specific action plan for Land polluting sources

Sr. No	Area	Nature of Proposed work	Estimated cost	Time period	Impact on CEPI
1	Ballarpur	<p>1) BILT Graphics Ltd:</p> <ul style="list-style-type: none"> ▪ Installation of rotary lime kiln of capacity 180 TPD for recycling and re-burning of lime sludge ▪ Greening of old lime sludge hillocks with soil & trees ▪ Additional tree plantation on sludge hillocks & slopes (Biological Stabilization) 	<p>36 crores</p> <p>27 lakhs</p> <p>15 lakhs</p>	<p>Implemented (2008)</p> <p>Implemented</p> <p>31/01/2011</p>	B1, C2, C3
2	Ghuggus	<p>1) Bhatiya International Ltd: Adequate arrangement for disposal of solid waste for thickener & settling tank</p> <p>2) Lloyd Metals Ltd: Installation of new ash silo for 100 TPD boiler dust Disposal/utilization of char after beneficiation for power generation (work in progress) Installation of fly ash brick plant</p>	<p>2 lakh</p> <p>15 lakhs</p> <p>60 lakhs</p> <p>75 lakhs</p>	<p>31/12/2010</p> <p>31/12/2010</p> <p>31/12/2010</p> <p>30/06/2011</p>	B1, C2

3	Tadali	<p>1) Chaman Metallics Ltd:</p> <ul style="list-style-type: none"> ▪ Coal char – Disposal by dispatching to power plant, low land filters & brick makers ▪ Iron ore fines – Disposal by selling it to cement plant & to the fines exporter ▪ Close shed for product house bag filter dust bag for the storage arrangement <p>2) Grace Industries Ltd: Coal char disposal by AFBC boiler, iron ore fines disposal by sale, DSC sludge disposal by land fill, bag filter dust disposal by pneumatic handling area and use in kiln, ESP dust disposal by ash handing plant</p> <p>3) Gopani Iron & Power Ltd:</p> <ul style="list-style-type: none"> ▪ Char disposal (after installing Beneficiation project) for use in FBC boiler . ▪ Iron fines will be disposed to cement manufacture or sinter plants. ▪ ESP/Bag filter dust will be disposed to Bricks Manufacture. <p>4) Sidhbali Steel Industries;-</p> <ul style="list-style-type: none"> ▪ Char disposal in low lying area/ FBC boiler. ▪ Iron fines will be disposed to cement manufacture or sinter plants. ▪ ESP/Bag filter dust will be disposed to Bricks Manufacture. 	<p>2.5 lakhs</p> <p>1.5 lakhs</p> <p>10 lakhs</p> <p>20 lakhs</p> <p>2.5 crore</p> <p>12.0 Lakhs</p> <p>10.0 Lakhs</p> <p>10.0 Lakhs</p> <p>04.0 Lakhs</p> <p>05.0 Lakhs</p>	<p>30/06/2011</p> <p>30/06/2011</p> <p>31/03/2011</p> <p>31/03/2011</p> <p>30/09/2011</p> <p>30/09/2011</p> <p>30/06/2011</p> <p>31/01/2011</p> <p>31/03/2011</p>	
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Action plan for disposal of solid waste from Sponge Iron Industries

Name of Industry	Type of waste	Accumulated quantity	Rate of waste generation (ton/month)	Disposal options	Cost for disposal	Time period
Lloyd Metals Ltd, Ghuggus	1) Dolo char 2) Iron ore fines 3) ESP/de-dusting dust	1) 1.5 lakh ton 2) 25000 ton 3) 2.5 lakh ton	1) 4000 2) 5000 3) 4000	1) Bricks manufacturers/FBC boiler/land filling 2) By sale to cement industry/sinter plant 3) Land filling for ESP dust & by sale of de-dusting dust	1) 25 lakhs 2) Nil 3) 75 lakh	1) By 31/3/2011 2) By Dec 2010 3) By 31/3/2011
Chaman Metallics Ltd.	1) Dolo char 2) Iron ore fines 3) ESP/de-dusting dust	1) 4000 ton 2) 5000 ton 3) 350 ton	1) 780 2) 900 3) 780	1) Bricks manufacturers/FBC boiler/land filling 2) By sale to cement industry/sinter plant 3) Land filling for ESP dust & by sale of de-dusting dust	1) 2.5 lakhs 2) 1.5 lakhs 3) 75,000	1) By May 2011 2) By March 2011 3) By Dec 2010
Grace Metallics Ltd.	1) Dolo char 2) Iron ore fines 3) ESP/de-dusting dust	1) 250 ton 2) 50 ton 3) 250 ton	1) 1200 2) 750 3) 1000	1) Bricks manufacturers/FBC boiler/land filling 2) By sale to cement industry/sinter plant 3) Land filling for ESP dust & by sale of de-dusting dust	1) 20 lakhs 2) 1 lakh 3) 1 lakh	31/03/2011 31/12/2010 31/03/2011

Sidhbali Ispat Ltd.	1) Dolo char 2) Iron ore fines 3) ESP/de-dusting dust	1) 3500 2) 1500 3) 3000	1) 1800 2) 1100 3) 2000	1) Bricks manufacturers/ FBC boiler/land filling 2) By sale to cement industry/sinter plant 3) Land filling for ESP dust & by sale of de-dusting dust	1) 10 lakhs 2) 4 lakhs 3) 5 lakhs	30/06/2011 31/01/2011 31/03/2011
Gopani Iron & Power Ltd.	1) Dolo char 2) Iron ore fines 3) ESP/de-dusting dust	1) 35000 2) 20000 3) 15000	1) 2520 2) 450 3) 3690 (for CPP)	1) Bricks manufacturers/ FBC boiler/land filling 2) By sale to cement industry/ sinter plant	1) 2.5 crore (including char beneficiation)	30/09/2011 30/09/2011 30/06/2011

5. PPP Model

AIR ENVIRONMENT:

1) **Railway siding** – The existing railway siding of which is located in the middle of Chandrapur city is contributing to air pollution. The private railway siding near Tadali is being developed by M/S Vimla Infrastructure. Similarly there are various industrial units like cement, sponge iron, washeries and power plant for transportation of raw material. Presently this activity is performed by road which causes spillages of material during transportation resulting dust emissions. Hence the development of railway siding in Tadali will help reduce this problem.

2) **Construction of cement road** – At present condition of the roads in CEPI areas is very poor. These roads need to be concretized to avoid dust emissions. The concerned agency for development of roads are PWD & Concerned industries of areas

WATER ENVIRONMENT:

1) **STP for Chandrapur:** Installation of STP for Chandrapur city is approved from State Government. Municipal Council is proposed to install 2 STPs having capacity 45 CMD and 25 CMD. The work of installation of sewer line having capital investment 70 crore is already started.

2) **Utilization of Mine Water for drinking purpose or irrigation:** Stake holder for this proposal is WCL & State Govt.

LAND ENVIRONMENT:

1) **Non- Hazardous waste disposal site at Tadali: The common facility shall be developed for the disposal of Non- Hazardous solid waste.** There are various sponge Iron unit & single Washery in the vicinity. The solid waste generated from these units is not properly managed resulting in accumulation of huge quantity of solid waste at the site causing secondary emissions. The level of secondary emissions severely increases during summer season. Hence it is necessary to develop common infrastructure for disposal of Non- Hazardous solid waste even though partly sale of the solid waste is practiced. The concern stake holders involved are MIDC, Industry & State Govt.

2) **Fly ash Disposal:** Fly ash Cluster is being developed at MIDC Chandrapur for the utilization of fly ash generated from power plant. The fly ash mission is already formed to encourage fly ash based industries such as Fly ash brick & Tiles.



6. Other Infrastructural Renewal Measures

GREEN BELT

1. Green belt development programme has been initiated with the help of Collector Office, Chandrapur, MPCB & Industries. Under this scheme the various industries has been given particular target for green belt development all along the NH/SH i. E. Avenue tree plantation. As of now 1688208 numbers of trees is planted in total and 46000 numbers of trees would be planted in future programmes. Beside this MIDC is being perceived for massive tree plantation in MIDC areas.
2. Individual industries of the CEPI area have also submitted proposal for tree plantation programme in their units during current monsoon season.

7. SPECIFIC SCHEMES

1) Co-processing of waste:

- a) Iron ore fines which is the solid waste generated from sponge iron units is proposed to utilize in sinter plants. The sinter plants are available in Wardha and Bhandara Districts. Iron ore fines are also being utilized in cement industries for manufacturing PPC in Chandrapur district.
- b) Fly ash from the captive power plant is disposed to cement industries for manufacturing of Portland pozolona cement.
- c) Dolo char will be utilized for combustion in FBC boiler for power generation by the individual industries after installing beneficiation plants.
- d) Lime sludge from Ballarpur industries Ltd. is utilized for recovery of lime.



8. Public Awareness & Training Programmes

1. Public awareness programme needs to be conducted for proper segregation of MSW/BMW at the source, recycling of the plastic waste through municipal council by way of conducting seminars/workshops.
2. Public awareness needs to be made for avoiding use of domestic coal as a fuel to avoid smoke generation and deterioration of air quality.
3. Display of air and water quality in public domain for awareness of the public is available on MPCB website on regular basis. Display board for ambient air quality of Chandrapur city is proposed near Bus Stand and expected to commission within 3 months.
4. Public awareness about the environment management system in area specifically with regard to adoption of cleaner technologies through interventions periodically and to plan the visits to such industries.
5. Training to the staff of the individual industries for operation of advanced pollution control arrangements like ESPs, waste water treatment plants etc.

9. Overall Impact on CEPI after installation of pollution control equipments/remedial measures

Parameter	CPCB CEPI	After Short Term Action Plan	Long Term Action Plan
Air	70.75	49.75	38.0
Water	67.5	41.5	32.0
Land	66.5	59.50	44.0
Total	83.88	67.86	50.81

10. Assessment of techno-economical feasibility of pollution control system in cluster of small/medium scale industries:

WHRB is installed by the Sponge Iron Plants M/S Gopani, M/S Lloyd and M/S Sidhabali.

11. Use of Bio- Compost & Bio-Fertilizer

Awareness Program will be under taken jointly with Agriculture department, District administration & MPCB for use of Bio- Compost & Bio-Fertilizer along with Chemical Fertilizer to minimize the use of Chemical fertilizer to avoid the agriculture run-off in to the natural nalla/water Bodies



12. Summary of Proposed Action Points

Short term Action Point (up to 1-year, including continues activity)

Sr. No.	Action Points	Responsible Stake Holders	Time estimate	Cost	Remarks
1	Ballarpur Area BILT Graphics Ltd: <ul style="list-style-type: none"> ▪ M/s Bilt Graphics Paper product, Ballarpur is having activated sludge process ETP of capacity 90 MLD. At present effluent generation is 35 -43 MLD. Industry is achieving 25 – 30 BOD Norms Modernization/replacement of existing batch digesters with continuous digestion system, pulp washing with drum washers will be replaced with presses & adoption of ECF bleaching technology. Replacement of old 2 recovery boilers with single recovery boiler with ESP of 5 electric fields. Up-gradation of ETP & Installation of cooling tower for recycling & MBBR (Moving Bed Bio- film Reactor) technology for improving effluent quality. ▪ Installation of oxygen delignification process to reduce AOX , BOD & Colour ▪ Existing ETP up-gradation with additional thickener & twin wire press ▪ Installation of Disc filter for recycling of paper machine effluent in the system ▪ Distribution Network for treated effluent (0.5 MLD) for gardening in colony area. ▪ Use of effluent in fire hydrant system 	Industry	30/09/2011	Entire modernization project is costing around 500Crore	Modernization project will result in AOX reduction i.e. Pollution concentration
			Implemented	40 crore	
			31/12/2010	2 crore	
			31/03/2011	1.5 crore	
			31/03/2011	30 lakhs	
			Implemented	15 lakhs	
<ul style="list-style-type: none"> ▪ Installation of NCG (Non condensable gases) burning system to reduce odour in the area. ▪ Use of CO₂ generated from lime kiln operations for preparation of CaCO₃ (greenhouse gas reduction) 	Industry	31.03/2011	3 Lakhs		
<ul style="list-style-type: none"> ▪ Installation of rotary lime kiln of capacity 180 TPD for recycling and re-burning of lime sludge ▪ Greening of old lime sludge hillocks with soil & trees ▪ Additional tree plantation on sludge hillocks & slopes (Biological Stabilization) 	Industry	Implemented (2008)	36 crores		
		Implemented 31/03/2012	27 lakhs 15 lakhs		

Sr. No.	Action Points	Responsible Stake Holders	Time estimate	Cost	Remarks
2	<p>M/s Multi- organics Pvt. Ltd., MIDC Chandrapur has installed ETP & Treated effluent is being used for Cooling tower. Industry has achieved Zero discharge Norms. Excess effluent is being dumped in Solar Evaporation Tank. Industry has completed provision of separate drain for storm water & Industrial effluent. Up gradation not required.</p> <p>Provision of mechanical seals, provision for arresting spillages/seepages, treatment & recycle in process</p>	Industry	Implemented	---	During heavy rains mixing of effluent in to storm water drain observed. Existing SEP Will be utilized for effluent in case of heavy monsoon.
	<p>MIDC Chandrapur: Multiorganics Ltd: Installation of Bag Filter at coal fire boilers 4.0 & 4.5 t/hr capacity</p>		31/12/2010	3 lakhs	
3	<p>Ghugus Area: Gupta Coalfields Ltd: Installation of high frequency screen & thickener to reduce the amount of effluent & easy recovery of solid waste</p> <p>Bhatiya International Ltd: Additional concrete tank for storage of industrial effluent</p>	Industry	31/03/2011	2.5 lakhs	Modernization project
	<p>ACC Cement: Installation of state of the art technology, entire new plant by scrapping old one: State of the art technology comprises of new kilns, grate cooler & 6 stage, double stream, In Line Calciner, which is an energy efficient process & Reverse Air Bag House & new ESP will be used for air pollution control at kiln, raw mill, boiler & cooler discharge. All storages & material handling systems will be under closed shed. Expected emission levels will be 50 mg /Nm³ for TPM. NOx emission will also be minimized</p>	Industry	31/12/2010	10 lakhs	
	<p>ACC Cement: Installation of state of the art technology, entire new plant by scrapping old one: State of the art technology comprises of new kilns, grate cooler & 6 stage, double stream, In Line Calciner, which is an energy efficient process & Reverse Air Bag House & new ESP will be used for air pollution control at kiln, raw mill, boiler & cooler discharge. All storages & material handling systems will be under closed shed. Expected emission levels will be 50 mg /Nm³ for TPM. NOx emission will also be minimized</p>	Industry	31/03/2011	1451 Crore	

<p>Lloyd Metals Ltd:</p> <ul style="list-style-type: none"> • Installation of new ESP for 500 TPD kilns by scraping old one • Installation of dust collector at discharge hood at coal slinger belt 3170 • Installation of 20000 cum capacity dust collector at lump iron ore crushing building • 100 x 4 TPD kiln - Replacement of existing 20000 cum dust collector capacity by 55000 dust collector capacity at product house <p>Gupta Coalfields Ltd:</p> <ul style="list-style-type: none"> • Installation dust extraction system with wet scrubber at washing section. • Installation of rain guns with pipelines & foggy nozzles around the periphery of fines hopper <p>WCL Ghuggus opencast: Installation of additional rain guns at kargil chowk, old railway siding, new railway siding & CHP, Total no. 258</p> <p>Bhatiya International Ltd: Concretization of Internal Transport road from main gate to weigh bridge up to receiving hopper</p>	Industry	Installed in June 2010	5 crore		
			30/06/2011	2 lakhs	
	Industry	31/03/2011	1 lakh		
		31/12/2010	25 lakhs		
	Industry	30/06/2011	8 lakhs		
		30/09/2011	50 lakhs		
	Industry	31/03/2011	15 Lakhs		
		31/12/2010	25 lakhs		
	Bhatiya International Ltd: Adequate arrangement for disposal of solid waste for thickener & settling tank	Industry	31/12/2010	2 lakh	
	Lloyd Metals Ltd:				
▪ Installation of new ash silo for 100 TPD boiler dust	Industry	31/12/2010	15 lakhs		
▪ Disposal/utilization of char after beneficiation for power generation (work in progress)	Industry	31/12/2010	60 lakhs		
▪ Installation of fly ash brick plant		30/06/2011	75 lakhs		

<p>MIDC Tadali Area Chaman Metallics:</p> <ul style="list-style-type: none"> • Installation of 3 stage bag house at product house • Installation of new bag filter at cooler discharge • Concretization of roads of 0.8 km covering stores and raw material section • Up-gradation of Recruputor of ESP 1 & 2 like RAV changes, pipe replacement, plate replacement of castable, impeller <p>Grace Industries:</p> <ul style="list-style-type: none"> • Installation of bag filter at coal crusher, coal screening section & iron ore crusher • Pneumatic fly ash handling system of M/S Grace Industries. <p>Sidhabali Ispat Ltd:</p> <ul style="list-style-type: none"> • Installation of WHRBs for power generation. • Replacement of electric fields & revamping of ESPs for all three kilns to achieve 100 mg/Nm³ • Provision of silo for storage of de-dusting dust which will dispose in After Burning chamber of kilns. • Concretization of internal roads • Installation of coal storage shed <p>Gopani Iron & Power Ltd: -</p> <ul style="list-style-type: none"> • Installation of 6 bag houses for FBC power plant • Installation of bag filters at raw material feeding hopper and transfer point • Concrete road from stores to SMS & from weigh bridge to truck tippler 	Industry	31/12/2010	33 Lakhs		
			31/12/2010	8.5 lakhs	
			30/09/2011	85 lakhs	
			31/12/2010	30 Lakhs	
		Industry	31/12/2010	4 lakhs	
			30/06/2011	2.5 crore	
			31/12/2010	9.5 crore	
			31/03/2011	35 lakhs	
		Industry	31/12/2010	25 lakhs	
			30/06/2011	50 lakhs	
			30/09/2011	40 lakhs	
		Industry			
		31/12/2010	60 lakhs		
		31/03/2011	30 lakhs		
		1 year	2.37 crore		

	<p>Tadali Area</p> <p>Chaman Metallics Ltd:</p> <ul style="list-style-type: none"> • Coal char – Disposal by dispatching to power plant, low land filters & brick makers • Iron ore fines – Disposal by selling it to cement plant & to the fines exporter • Close shed for product house bag filter dust bag for the storage arrangement <p>Grace Industries Ltd:</p> <ul style="list-style-type: none"> • Coal char disposal by AFBC boiler, iron ore fines disposal by sale, DSC sludge disposal by land fill, bag filter dust disposal by pneumatic handling area and use in kiln, ESP dust disposal by ash handing plant <p>Gopani Iron & Power Ltd:</p> <ul style="list-style-type: none"> • Char disposal for use in FBC boiler after beneficiation • Iron ore fines to Cement Mfg or Sinter Plant • ESP/de-dusting dust to Bricks Manufacturing <p>Sidhballi Steel Industries;-</p> <ul style="list-style-type: none"> • Char disposal for use in FBC boiler or land filling • Iron ore fines to Cement Mfg or Sinter Plant • ESP/de-dusting dust to Bricks Manufacturing 	Industry	30/06/2011	2.5 lakhs	
			30/06/2011	1.5 lakhs	
			31/03/2011	10 lakhs	
		Industry	31/03/2011	20 lakhs	
		Industry	30/09/2011 30/06/2011 31/01/2011	2.5 crore 10.0 Lakhs 4.0 Lakhs	
		Industry	31/03/2011	5.0 Lakhs	
	<p>Utilization of dolo char: Dolo char is a waste generated from sponge iron units. The calorific value of these particles can be utilized by way of combustion in FBC boilers for power generation. The sponge iron industries have proposed to install beneficiation plants and FBC boilers for power generation. These dolo char beneficiation plant installation will take about six months. At present Gopani has installed power plant consisting of FBC and proposed to install char beneficiation plant. M/S Sidhballi and M/S Lloyd have installed FBC boilers and proposed to operate within two months. Total dolo char generation is 9300 ton/month</p> <p>Utilization of iron ore fines: Iron ore fines can be utilized in manufacturing activities of cement industries PPC. Similarly this waste can also be co-processed in sinter plants for making value addition products to be used in blast furnace. M/s Gopani, Sidhballi, Lloyd, Chaman & Grace industries are sending iron ore fines to cement manufacturers in the area. M/s Gopani has</p>	Industry	30/09/2011	Total about 4.0 crore	Co-processing / utilization of waste will be ensured thereby minimizing storage options at the site resulting in minimization of air pollution
5	Enforcement of Stringent Norms to evolve Clean technology for Water polluting industries Such as Paper Mill & Thermal Power Plants, along with effective monitoring /vigilance	Industry	30/09/2011	---	Regular vigilance & monitoring by MPCB

6	Additional 2 NWMP monitoring stations at D/S of Wardha River at Ghuggus opencast mine & D/S of MIDC nalla meeting to Erai River	MPCB	31/12/2010		
7	Additional 3 numbers of NAMP monitoring stations at Village Tadali, Village Virur and Village Datala	MPCB	31/12/2010		
8	Tree Plantation Programme: Industries, MIDC and Municipal Councils should take massive tree plantation programme as per the norms	Industries / MIDC / Municipal Councils	30/09/2011		
9	Construction of roads in MI Tadali area	MIDC	30/09/2011		
10.	Augmentation & Improvement of ESP's and provision of Ammonia dosing system for Boiler No.5,6&7.	CSTPS	31/03/2011		1) Tender for providing Permanent FGCS by Ammonia dosing for Unit No 5, 6 & 7 is under process.
11.	Coal transportation road should be defined and dedicated and adequate number of fixed water sprinklers should be provided on the road. Period of six month is required for this compliance.	WCL	31/03/2011	---	Work is in progress

Summary of Proposed Action Points

Long term Action Point (More than 1-year)

Sr. No.	Action Points	Responsible Stake Holders	Time estimate	Cost	Remarks
1.	Provision of STP for Chandrapur Town. The domestic effluent generation from Chandrapur Town is about 30.0 MLD. Municipal Council is proposed to install Two Nos. of STP having capacity 45.0 MLD & 25.0 MLD under UIDSSMT scheme, along with laying of sewerage line	Municipal Council	31/03/2012	Scheme is submitted for approval to the Govt. Cost of sewerage line is about 70.0 crore	In first phase STP of 25.0 MLD is proposed & Work of sewer line is started
2.	Use of treated industry effluent for spraying for dust emission control in nearby mines and plantation in forest area, to reduce river discharge	WCL, Forest department & PWD & Industry	31/03/2012		Freshwater conservation as well as control of air pollution will be ensured.
3	Provision of STP for Ballarpur town:	Ballarpur Municipal Council	31/03/2012	---	---
4	Provision of storm water drain in MIDC Tadali and MIDC Chandrapur	MIDC	31/03/2012	---	---
5	Ballarpur 1) BILT Graphics Ltd: • Installation of new single recovery boiler (capacity 180 TPH) of higher capacity with ESP of 5 electric fields by scrapping out existing old two recovery boilers to achieve 50 mg/Nm ³ TPM standards • Adoption of ECF (Elemental chlorine free) bleaching process by replacing existing use of chlorine with chlorine dioxide.	Industry	31/12/2011	500 crore (includes total modernization project)	

Sr No	Action Points	Responsible Stake Holders	Time estimate	Cost	Remarks
	Ballarpur: At present MSW of Ballarpur city (19 Ton/Day) is disposed in an unscientific manner. Municipal Council will have to develop waste treatment facility in a time bound manner for wet waste	Municipal Council	31/03/2012		
6	Implementation of Mechanical Closed type material transportation/coverage of coal carrying truck by full tarpaulin especially for Coal. Introduction of Closed Conveyor belts transportation of Coal from mines.	WCL & MPCB	31/03/2012	---	
7	Ghugus & Tadali Area: Installation of waste heat recovery based boilers at sponge iron plants to effectively ensure that all flue gases are discharged through APC.	Industry	31/03/2012	---	
	Lloyds Metals, Ghugus: <ul style="list-style-type: none"> ▪ Bricks manufacturers/ FBC boiler/land filling ▪ Land filling for ESP dust & by sale of de-dusting dust 	Industry	31/3/2011 31/3/2011	25 lakhs 75 lakh	
	Tadali: a) Chaman Metallics , Tadali <ul style="list-style-type: none"> ▪ Bricks manufacturers/ FBC boiler/land filling ▪ By sale to cement industry/ sinter plant ▪ Land filling for ESP dust & by sale of de-dusting dust b) Development of landfill site in MIDC Tadali: Land fill site for disposal of non hazardous solid waste in MIDC area is required.	Industry	May 2011 March 2011 Dec 2010 31/03/2012	2.5 lakhs 1.5 lakhs 75,000	
8	Chandrapur: Total MSW generation is 120 Ton/Day. At present 1.5 Ton/Day capacity of wet waste treatment facility is installed but not operational. Municipal Council is required to provide adequate capacity of waste treatment facility.	Municipal Council	31/03/2012		
9	Development of alternative bypass road for transportation of the Coal & other raw material transportation	WCL, Industries, PWD, RTO	31/03/2012	Cost not assessed	Govt Budgetary support required
10	Health Impact Studies: a) Health Impact studies due to air pollution problem can be undertaken in Chandrapur city by Health Department. b) Health studies in coal mine area can be undertaken by WCL authorities	Health Department WCL	31/03/2012 31/03/2012		

11	Vehicular Pollution: a) Mass pool transportation system can be strengthened by State Government b) Adulteration of fuel can be prevented by District Administration	Municipal Council / State Transport District Administration	31/03/2012 31/03/2012		
12	Shifting of unauthorized coal depots	District Administration	31/03/2011		

