

Action Plan
For
Abatement of Pollution
in respect of
Faridabad Town



Prepared by
Haryana State Pollution Control Board

I. INTRODUCTION

LIST OF ABBREVIATIONS USED

CPCB	Central Pollution Control Board
HSPCB	Haryana State Pollution Control Board
CEPI	Comprehensive Environmental Pollution Index
HUDA	Haryana Urban Development Authority
RTA	Regional Transport Authority
NHAI	National Highway Authority of India
DMRC	Delhi Metro Rail Corporation
MCF	Municipal Corporation Faridabad
HSIIDC	Haryana State Industrial Infrastructure Development Corporation
PHED	Public Health Engineering Department
HEMS	Haryana Environment Management Society
CHWTSDF	Common Hazardous Waste Treatment Storage and Disposal Facility
MSWTSDF	Municipal Solid Waste Treatment Storage and Disposal Facility
ECBC	Energy Conservation Building Code
ETP	Effluent Treatment Plant
STP	Sewerage Treatment Plant
CETP	Common Effluent Treatment Plant
CNG	Compressed Natural Gas
PNG	Pipe Natural Gas
BOD	Bio Chemical Oxygen Demand
COD	Chemical Oxygen Demand

1. INTRODUCTION

The Central Pollution Control Board carried out Comprehensive Environmental Pollution Index Assessment (CEPI) Study in association with Indian Institute of Technology, Delhi for 88 Industrial Clusters in the country. Based on the study 43 Industrial Clusters have been declared as Critically Polluted having CEPI of more than 70 and the District Faridabad has been listed at the 18th place.

The District Faridabad has been adjudged with high CEPI score of 77.07 and has been declared as one of the Critically Polluted Industrial Cluster by Central Pollution Control Board. The Haryana State Pollution Control Board envisages preparing a Draft Action Plan for Abatement of Pollution in respect of Faridabad Town Comprehensive Environmental Pollution Abatement Action Plan in order to make Faridabad a better place to live and work.

Faridabad, a major industrial city of Haryana state was founded in 1607 by **Shaikh Farid**, treasurer of **Jahangir**, with the object of protecting the highway which passed through the town. Shaikh Farid built a fort, a tank and a mosque, which are in ruins. Later, it becomes the headquarters of a pargana which was held in jagir by the Ballabgarh ruler. Faridabad became 12th district of Haryana State on 15th August 1979.

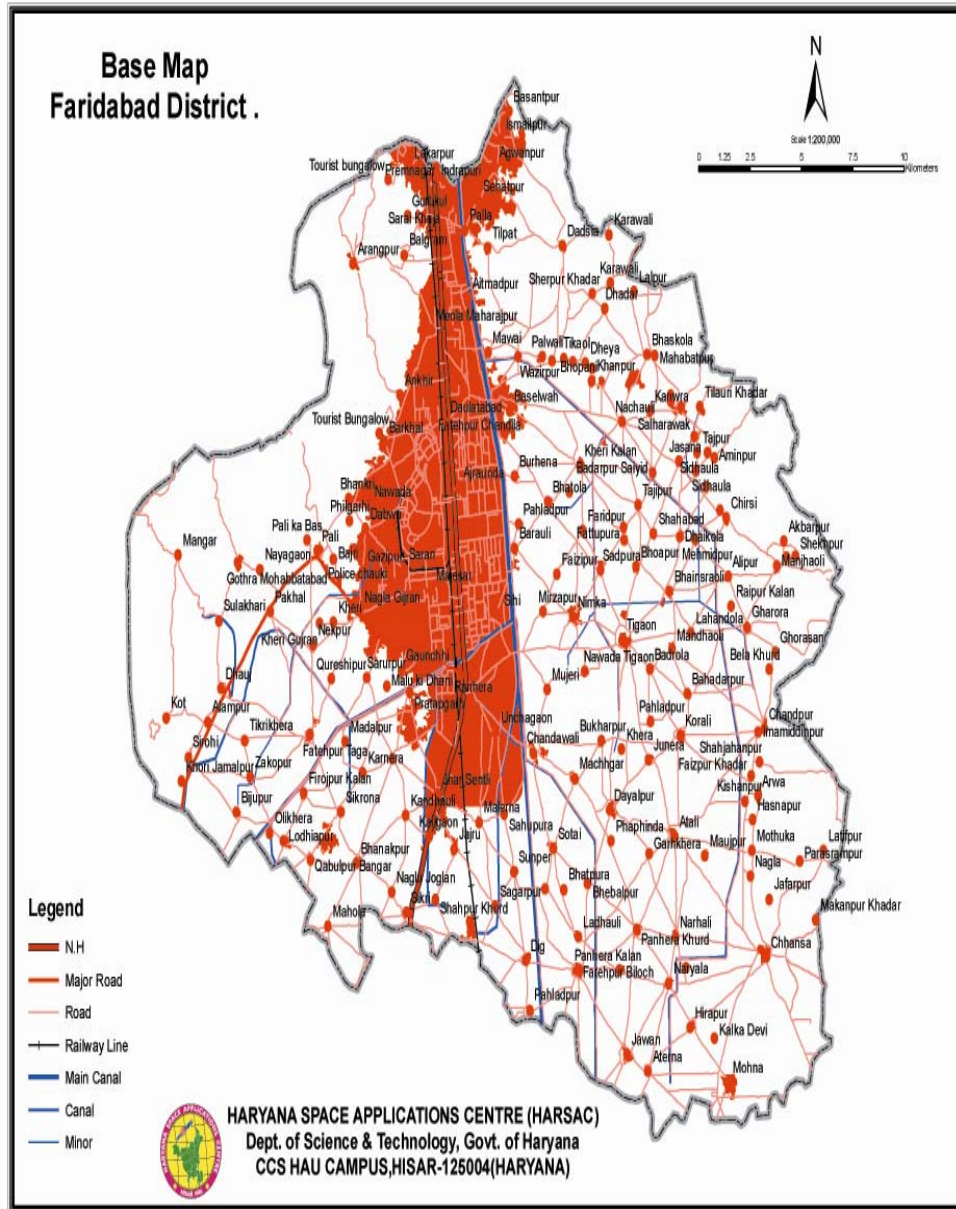
1.1 Area Detail including brief history (background information)

Faridabad District adjoins Delhi on its south-eastern side having total area of 742.90 sq. km. and Municipal Area of 208 sq. km. It is located at 28° 25' 16" North Latitude and 77° 18' 28" East Longitude. It is bounded by the National Capital Territory of Delhi on its North. Delhi-Mathura National Highway No. 2 passes through the centre of the district. Faridabad is famous for Henna Production on agriculture sector while Tractors, Motorcycles, Textile Dyeing & Printing, Switch Gears, Refrigerators, Shoes and Tyres are other famous industrial products of the District. Badkhal Lake tourist complex, Suraj Kund Tourist Complex, Aravalli Golf Club & Raja Nahar Singh Palace are the famous tourist spots. Faridabad is the oldest Industrial City of the State & has further grown enormously during the last few years, particularly because a large number of industries have come up in the town. All these developments are associated with intense pressure on the receiving Environment. The rapid growth of the city also brought immigrants from other parts of the country. People from UP, Rajasthan, Bihar and Bengal increased the population size of Faridabad District.

1.2 Location

Municipal Area	208 Sq.Km
Geographical	28° 25' 16" North Latitude Coordinates 77° 18' 28" East Longitude
Distance from River Yamuna	12 Km
Distance from National Capital Delhi	30 Km

1.3 Digitized Map with Demarcation of Geographical Boundaries and Impact Zones



1.4 CEPI Score (Air, Water, Land and Total)

18th place amongst 43 critically polluted clusters in the Country.

□ CEPI Score

- Air 63.50
- Water 59.00
- Land 62.70
- Overall CEPI Score 77.07

1.5 Total population and sensitive receptors (hospital, educational institutions, courts etc) residing in the area comprising of geographical area of the cluster and its impact zone (minimum 2 km)

Faridabad was initially planned for 3 lac people (300, 000) but the total population in the Municipal area is over 15.25 lacs.

No. of Hospitals existing for than 50 beds	= 16
No. of Educational Institutions	= 19
No. of Courts	= 01

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

Badkhal Lake, Suraj Kund, Aravali Hills

1.6.1 Major Water Bodies (Rivers, Lakes, ponds, etc.)

Badkhal Lake, Suraj Kund, River Yamuna, Agra Canal, Gurgaon Canal

1.6.2 Ecological parks, Sanctuaries, flora and fauna or any eco sensitive zones.

Aravali Hills is situated in the western side of Faridabad District and is a ecologically very sensitive and fragile zone.

1.6.3 Buildings or Monuments of Historical/ archaeological/ religious importance

Raja Nahar Singh Palace, Rani Ka Chatri

1.7 Industry classification and distribution (no. of industries per 10 sq. km area of fraction)

Sr. No.	Type of Units	L & M	SSI	Nos.
1.	Aluminium Alloys	01	05	6
2.	Aluminium Wire	01	00	1
3.	Automobile Components	08	01	9
4.	Brass Casting	00	01	1
5.	Breweries	01	00	1
6.	Chemicals	03	06	9
7.	Colonizers	02	00	2
8.	Educational Society	01	00	1
9.	Electrical Switch	01	00	1
10.	Electroplating	28	301	329
11.	Enameled Wire	00	01	1
12.	Engineering	00	02	2
13.	Extrusion	01	02	3
14.	Expendable Poly Styrene	00	01	1
15.	Finished leather	00	01	1
16.	Food Processors	02	01	3
17.	Foundry	01	99	100
18.	Forgings	06	38	44
19.	Furniture	00	03	3
20.	Heat Treatment	00	05	5
21.	Home Appliance	00	01	1
22.	Hospital	04	00	4
23.	Hotel	03	01	4
24.	Induction/Arc Furnace	01	01	2
25.	Mall	08	00	8
26.	Medical Device	02	00	2
27.	Mineral Water	00	01	1
28.	Oil Recycler	00	01	1
29.	Pesticides	00	04	4
30.	Pharmaceuticals	03	02	5
31.	Phosphating/Pickling	00	12	12
32.	Phosphating	08	00	8
33.	Pickling	00	05	5
34.	Printing Press	02	01	3
35.	PU Foam	00	01	1
36.	R & D Centre	03	00	3
37.	Readymade Garments	04	10	14
38.	Readymix Concrete	01	00	1
39.	Rubberized Coir	00	01	1
40.	Service Station	00	17	17
41.	Steel Tubes	00	01	1
42.	Textile Dyeing	21	78	99
43.	Lubricating/Oil refining	05	02	7
44.	Paint	00	04	4
45.	Milk Processing	01	00	1
46.	Tyre Manufacturing	01	00	1

Sr. No.	Type of Units	L & M	SSI	Nos.
47.	Stone Crusher		163	163
48.	Health Care Facilities under BMW		320	320
49.	Total	123	1093	1216

1.7.1 Highly Polluting industries (17 Categories)

19

1.7.2 Red category industries (54 categories)

1216

1.7.3 Orange and Green category industries

115

1.7.4 Grossly polluting industries

27

II. WATER ENVIRONMENT

2. WATER ENVIRONMENT

2.1 Present status of water environment supported with minimum one year analytical data

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

Regional Office of Haryana State Pollution Control Board is regularly monitoring the water quality of River Yamuna, Canal system passing through the District i.e. Agra Canal, Gurgaon Canal and Drains carrying domestic effluent and industrial effluent which finally reaches the River Yamuna. The data generated is clearly indicating that the water quality of the above mentioned water bodies are not confirming to the standards prescribed under Water Act and Environmental Protection Act. The water quality of Agra Canal and Gurgaon Canal at Badarpur Border is very bad. A long term and short term action plan is urgently required to mitigate these problems and to reduce the pollution load in the River Yamuna. Further the regional office is also regularly monitoring the status of water quality of Gaunchi Drain and Buria Nalaha.

2.1.2. **Present levels of pollutants in water bodies/effluent receiving drains/ground water (routine parameters, special parameters and water toxics relevant to the area in three categories- known carcinogens, probable carcinogens and other toxics)**

**WATER QUALITY STATUS
AGRA CANAL, GURGAON CANAL, RIVER YAMUNA**

Agra Canal

BOD(mg/l)	18 - 30
COD (mg/l)	90 - 144

Gurgaon Canal

BOD(mg/l)	19 - 30
COD (mg/l)	60 - 128

River Yamuna

BOD(mg/l)	22 - 32
COD (mg/l)	80 - 160

Further detail of ground water status and quantification of pollutants in the receiving water bodies are enclosed at Annexure-I

2.1.3 **Predominant sources contributing to various pollutants**

Industries & Domestic effluent from residential area

2.2 Sources of water pollution

2.2.1 Industrial

Total Numbers of Industries	-	733
Large & Medium Category	-	123
SSI Category	-	610
Water Polluting Industries	-	367
Air Polluting Industries	-	491

Total industrial discharge is 26 MLD

2.2.2 Domestic

200 MLD out of which 115 MLD is being treated in the STP

2.2.3 Others (Agricultural runoff, leachate from MSW dump, illegal dump site etc.)

The is no substantial data available in this regard

2.2.4 Impact on surrounding area (Outside the CEPI Area) on the water courses/ drainage system of the area under consideration

There is no significant contribution of pollutants from the surrounding area outside the CEPI area on the water courses/ drainage system of District Faridabad.

2.3 Details of Water Polluting Industries in the area/cluster

Details of 367 water polluting industries existing in Distt. Faridabad with category are given below:

Sr. No.	Type of Units	Size	
		L&M	SSI
1.	Automobile Components	1	0
2.	Breweries	1	0
3.	Chemicals	7	6
4.	Educational Society	1	0
5.	Electroplating	6	46
6.	Engineering	0	1
7.	Extrusion	0	2
8.	Finished leather	0	1
9.	Food Processors	0	1
10.	Foundry	1	0
11.	Heat Treatment	6	10
12.	Home Appliance	0	1
13.	Hospital	4	1
14.	Hotel	3	1
15.	Mall	8	0
16.	Oil Recycler	2	0
17.	Pharmaceuticals	1	3
18.	Phosphating/Pickling	15	63
19.	Phosphating	6	13
20.	Pickling	0	4
21.	Printing Press	2	1
22.	R & D Centre	3	0
23.	Readymade Garments	1	13
24.	Service Station	3	17
25.	Steel Tubes	0	1
26.	Textile Dyeing	15	86
27.	Milk Processing	3	3
28.	Tyre Manufacturing	1	0
29.	Power Station	2	0
30.	CETP	1	0

ABSTRACT

Large and Medium units	93
SSI units	274
Total operating units	367

2.4 Effluent Disposal Methods- Recipient water bodies etc.

Effluent from industrial as well as domestic source are being disposed off partly through secondary treatment facility i.e. 03 number of STP installed by the civil authority which finally finds it way to River Yamuna through Buria Nalaha and Gaunchi Drain

2.5 Quantification of wastewater pollution load and relative contribution by different source viz industrial/ domestic

Industrial BOD Load	Total Heavy Metal Load
177.80 Kg/day	6.74 Kg/day

Domestic (Industrial+Domestic) BOD Load
67800 Kg/day

2.6 Action Plan for compliance and control of pollution

2.6.1 Existing infrastructure facilities-Water quality monitoring network, ETPs, CETPs, Sewerage Treatment Plant of industry (STPs), surface drainage system, effluent conveyance channels/outfalls etc.

a.) Domestic Discharge

The present population of District Faridabad is generating 200 MLD of Sewage per day and the combined capacity existing Sewage Treatment Plant owned by Municipal Corporation, Faridabad and P.W.D. (Water Supply & Sanitation Department) is 115 MLD. The rest of 85 MLD of domestic sewage is being discharge to River Yamuna without any treatment through Buria Nalaha and Gaunchi Drain

b.) Industrial Discharge

There are 12468 Registered industries in District Faridabad and number of water polluting industrial units are 367. All these units have installed Effluent Treatment Plant in their premises to treat the trade effluent generated. The treated trade effluent are being discharged into Sewer which finally finds its way to the River Yamuna. Before reaching to River Yamuna the industrial effluent passes through 3 number of Sewage Treatment Plant as terminal treatment facility, installed by the Public Health Department/Municipal Corporation, Faridabad. A part of the treated industrial trade effluent is being discharged into the Gaunchi Drain and Buria Nalaha which is not being treated by the STP and finally reaching River Yamuna

The abstract of pollution control devices installed by the industries / civic authorities are given below

No. of ETP installed by the unit	367
No. of STP	03
No. of CETP	01

The name of surface drainage system, effluent conveyance channels/ outfalls / drains are given below

1. Gaunchi Drain
2. Buria Nalaha
3. Movai Drain

2.6.2 Pollution control measures installed by Industries

367 no of water polluting industries have installed ETP to treat their trade effluent.

2.6.3 Technological Intervention

2.6.3.1 Inventorization of prominent industries with technological gaps

Presently all the prominent industries are complying the provisions of Water Act and need no further upgradation in the existing APCD.

2.6.3.2 Identification of low cost and advanced cleaner technology for pollution control

Waste minimization by using concept of recycle and reuse
 Low brine ratio in textile dyeing unit
 Recycling of scouring waste
 Use of trivalent chrome and easily degradable passivation chemicals in electroplating and phosphating process
 Reduction in the use of hexavalent chromium in electroplating process
 Reduction of heavy metal load in electroplating process
 Reduction of organic load from breweries and distilleries, food processing unit by opting of zero discharge concept

2.6.4 **Infrastructure Renewal**

2.6.4.1 **Details of existing infrastructure facilities**

ETP Installed	367
STP	03
CETP	01

2.6.4.2 **Need of up gradation of existing facilities**

STP	03
CETP	01

Additional Infrastructure such as 02 STP required to be installed for treating balance 85 MLD domestic effluent and 7 no of CETP in different industrial zones are also required to be installed additional

2.6.4.3 **De-silting of water tanks, drains, rivulets, etc.**

There is an urgent need to de-silt the following drains in Distt. Faridabad to facilitate the easy flow of surface run off and effluents

1. Buria Nalaha
2. Gaunchi Drain
3. Movai Drain

2.6.4.4 **Construction of lined drains/connections**

None of these following drains carrying domestic effluent, industrial effluent and surface run off has been lined and needs an urgent action in this regard.

1. Buria Nalaha
2. Gaunchi Drain
3. Movai Drain

2.6.4.5 **Treatment and management of contaminated surface water bodies**

Infrastructure for treating the contaminated surface run off during rainy season is not existing therefore the contaminated water is directly reaching to River Yamuna.

2.6.4.6 **Rejuvenation/Management Plan for important ecogeological features**

Badkhal Lake, Suraj Kund Lake are the most important ecogeological features in the Aravali Hills. Due to mining activity in the Aravali Hills these two lakes are presently dried out. The perennial source of water supply to these lakes was catchments area in the Aravali Hills and due to mining activity these sources have since been dried out. There is an urgent need to provide alternate source of water to these lakes. The mining activities in the region has already been stopped by Hon'ble Supreme Court of India. The mining department and

the Irrigation department Govt. of Haryana to take urgent action in this regard.

2.6.4.7 Carrying of effluent from industrial units located in non-industrial locations to CETP facilities by lined drains/pipelines only and prevention of their disposal into city sewerage/surface drains.

Lined drains/pipe lines are not existing in the District Faridabad to carry effluent from industrial unit to CETP located in non-industrial locations. 07 numbers CETP are required to be installed in 07 numbers approved industrial cluster, however, re-location of industries operating in non-confirming area/non-industrial area is required. The CETP can only be installed after such re-location of homogenous industries.

Sr. No.	Name of the Cluster	Number of Water Polluting industries	Present Appx. Discharge	Desired capacity of Secondary Common Effluent Treatment Plant
1.	Cluster-I	91	7700 KLD	12.5 MLD
2.	Cluster-II	56	2000 KLD	3 MLD
3.	Cluster-III	52	650.74 KLD	1 MLD
4.	Cluster-IV	25	125.37 KLD	0.3 MLD
5.	Cluster-V	32	1825 KLD	2.5 MLD
6.	Cluster-VI	24	1680.89 KLD	2.5 MLD
7.	Cluster-VII	16	1750.74 KLD	2.5 MLD

2.6.4.8 Installation of Gen sets at CETPs

01 DG Set of 125 KVA capacities already exists in the CETP installed by The Faridabad Small Scale Pollution Control Co-Operative Society at Sec - 58.

2.6.5 Managerial and Financial aspects

2.6.5.1 Cost and time estimates

To be obtained from respective departments

2.6.5.2 Identified Private/Public sector potential investors & their contribution/obligation

To be obtained from respective departments

2.6.5.3 Government Budgetary support requirement

To be obtained by the Finance department

2.6.5.4 Hierarchical and structured managerial system for efficient implementation

Decision to be taken by the Govt. of Haryana

2.6.6 Self-monitoring system in industries (ETPs etc.)

Haryana State Pollution Control Board will ensure that the Large & Medium industry operating in the District Faridabad will have a self monitoring system for assessing the efficacy of the existing effluent treatment plant.

2.6.7 Data linkages to SPCB/CPCB (of monitoring devices)

Haryana State Pollution Control Board will provide the necessary infrastructure for Data linkages to CPCB and other agencies, with active participation by the respective industries/industrial association.

III. AIR ENVIRONMENT

3. AIR ENVIRONMENT

3.1 Present status of Air environment supported with minimum one year analytical data

3.1.1 Critical locations for air quality monitoring

The Ambient Air Quality of Faridabad city is being monitored at 02 Stations since 1998 and monthly average of SPM, SO₂, and Nox level is regularly being analyzed. Now a Continuous Ambient Air Quality Stations is started functioning since 22.9.2010 and the data generated are being sent to CPCB.

Station Located at Regional Office, Faridabad

January – May 2010	Range in $\mu\text{m}/\text{m}^3$
RSPM	150-172
SO ₂	14-17
NO _x	21-22

Status Located at Escorts Research Centre, Faridabad

January – May 2010	Range in $\mu\text{m}/\text{m}^3$
RSPM	163-183
SO ₂	15-19
NO _x	23-24

3.1.2 Present levels of pollutants in air (routine parameters, special parameters and air toxics relevant to the area in three categories-known carcinogens, probable carcinogens and other toxic)

Detailed report is appended at Annexure-IV and data represented indicating range of pollution level at 3.1.1

3.1.3 Predominant sources contributing to various pollutants

1. Industrial emission
2. Vehicular emission
3. Non point sources such as coal and biomass burning in JJ cluster and construction activities in and around Distt. Faridabad Town

3.2 Sources of air Pollution viz industrial, domestic (Coal & Biomass burning), natural and Transport & Heavy Earth Movers

There are 491 number of Air Polluting industries including Stone Crushers operating in the District Faridabad. All these units have provided desired Air Pollution Control Device. The major source of industrial emission is from burning of agriculture waste, fossil fuel and pet coke either in the boilers, thermic fluid heaters or industrial furnaces. Further a part of the industrial emission is being generated from the Stone Crushing activity by 163 Stone Crushers operating in the District Faridabad and from the other infrastructure developing industries. The other major source of air emission is from automobiles plying in the District Faridabad.

Industrial Sources

No. of Registered Industries	12468
No. of Polluting Industries	1216
Large & Medium Units	123
SSI Units	1093
No. of Air Polluting Industries	491
No. of APCM installed	491

Vehicular Sources

No. of Registered Vehicles in Faridabad	5,76,800
No. of Private Vehicles (Car, SUV, MUV and 2 Wheelers)	4,46,800
No. of Commercial Vehicles (Trucks, Buses)	1,13,584
No. of Auto Rickshaws Diesel Driven	15,544
No. of Auto Rickshaws CNG Driven	872

3.3 Air Polluting Industries in the area/cluster

Details of cluster wise Air Polluting Industries existing in Distt. Faridabad are given below

1. Cluster -1 (Sector-31, 32,35,DLF-I and DLF-II)	-	98 nos
2. Cluster-2 (Sector-27A, B, C, D)	-	74 nos
3. Cluster-3 (Sector-24)	-	110 nos
4. Cluster-4 (NIT)	-	31 nos
5. Cluster-5 (Sector -4 & 6)	-	64 nos
6. Cluster-6 (Sector-25)	-	74 nos
7. Cluster -7 (Sector-58)	-	213 nos

3.4 Impact of activities of nearby area on the CEPI Area

There is no significant industrial and other activities around the boundaries of District Faridabad and the impact of air pollutants on the CEPI area of District Faridabad is not significant.

3.5 Quantification of the air pollution load and relative contribution by different sources

Total Particulate Load from industrial sources in terms of SPM – 695.06 (KG/day)

Vehicular Pollution	70%
Industrial Pollution including Dust emission from non-point sources	30%

3.6 Action Plan for compliance and control of pollution

Action Plan for improvement of Ambient Air Quality of Faridabad town is in place in compliance to the orders of Hon'ble Supreme Court vide order dated 05-04-2002, 05-05-2002 & 14-08-2003 in C.W.P. No. 13029. The worthy Chief Secretary of Haryana is monitoring the follow up action in this regard. The summarized action plan and action taken in this regard is as follow: -

- a) Quantification of pollution load in the Ambient Air of Faridabad by installing continuous Ambient Air Quality Monitoring station at Faridabad. The continuous Ambient Air Quality Monitoring station has already been installed and the data generated are being sent to CPCB, through E-mail and is in the public domain through NIC Faridabad.
- b) Construction of Badarpur Flyover to ease the traffic congestion and consequent reduction of pollutants emitted from vehicular. The construction work of Badarpur Flyover is at final stage of completion and expected to be operational by the end of September.
- c) Construction work of service road along with the National Highway No. 2 is another step to decongest the National Highway, which will significantly reduce the vehicular pollution load.
- d) Construction of By pass road parallel to Gurgoan Canal is also a part of action plan to reduce the vehicular traffic on the National Highway No. 2 (Delhi-Mathura Road) and to facilitate the widening (six laning) of the Mathura Road. Construction work of By-pass road is already in progress and is likely to be completed shortly.
- e) Decommissioning of the Faridabad Thermal Power Station was recommended and the Faridabad Thermal Power Station has already been decommissioned on 31-03-2010. However proper dismantling work of the old Thermal Power Station and proper disposal/containment of Fly ash in the ash dyke has to be taken up by the concerned authority in an eco-friendly manner.
- f) Establishment of CNG stations so that the existing vehicular population could changeover to environment friendly fuel. 5 CNG stations are already in operation out of the proposed 12 CNG stations in different locations of Faridabad.

3.6.1 Existing infrastructure facilities-Ambient air quality monitoring network

There are 02 number of ambient air quality monitoring station are functional. One represents the AAQ data of industrial area and other represents the AAQ data of mixed area (industrial and vehicular). The continuous Ambient Air Quality Monitoring station has started generating data which are being sent to CPCB,

3.6.2 Pollution control measures installed by the individual sources of pollution

There are 491 number of Air Polluting industries including Stone Crushers are operating in the District Faridabad. All these units have provided desired Air Pollution Control Device. The major source of industrial emission is from burning of agriculture waste, fossil fuel and pet coke either in the boilers, thermic fluid heaters or industrial furnaces. Further a part of the air emission is being generated from the Stone Crushing activity by 163 Stone Crushers operating in the District Faridabad and from the other infrastructure developing industries. The other major source of air emission is from automobiles plying in the District Faridabad.

3.6.3 **Technological Intervention**

3.6.3.1 **Inventorization of prominent industries with technological gaps**

Presently all the prominent industries is complying the provisions of Air Act and need no further upgradation in the existing APCD.

3.6.3.2 **Identification of low cost and advanced cleaner technology for air pollution control**

Mandatory installation of Fluidized Bed Burning System in all industries using solid fossil fuel and Agricultural Waste as fuel.

3.6.3.3 **Introduction and switch over to cleaner fuel**

M/s Adani Gas Limited has been authorized to provide infrastructure for supplying CNG to the industries. At present two nos. of industries are already using CNG as fuel. Further M/s Adani Gas Limited has already started dispensing CNG to the Automobiles in 5 nos. stations. 7 nos. CNG stations are proposed to be installed by the end of 2010.

M/s Adani Gas Limited has proposed to lay 81Km. long steel pipe line network in the industrial area for supplying piped natural gas (PNG) to the industries

3.6.4 **Need of infrastructure Renovation**

Haryana State Pollution Control Board will impose conditions while granting consent to established (NOC) to Air polluting unit that all the new boilers/thermic fluid heaters/furnaces installed by the unit should either use cleaner fuel viz. CNG/LNG/LPG/HSD or fluidized bed burning system for solid fuel such as coal/ pet cock/ biomass.

3.6.4.1 **Development of roads**

- a. Government of Haryana and NHAI is constructing Flyover at Badarpur Border and is at final stage of completion, which will facilitate the smooth flow of traffic and consequent reduction in vehicular emission.
- b. NHAI has started the work for six laning the existing Mathura Road (NH-2) and Service lane along the Mathura Road, which will decongest the Mathura Road and consequent reduction in vehicular emission.
- c. NHAI and B & R Department will construct by pass road, synchronize traffic signals on Main Mathura Road and arterial road inside the town to de-congest the traffic flow.
- d. DMRC is proposed to extend the Metro Rail from Badarpur to YMCA Chowk, which further reduce the vehicular population on main Mathura Road (NH-2).

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

The CEPI score w.r.t Ambient Air Quality of District Faridabad will considerably reduce after decommissioning of Faridabad Thermal Power Station, use of cleaner fuel such as CNG by the industry, vehicles and commissioning of Badarpur Flyover and Metro Rail Network in Faridabad.

3.6.6 Managerial and Financial aspects –Cost and time estimates

3.6.6.1 Cost and time estimates

To be obtained from respective departments

3.6.6.2 Identified Private/Public sector potential investors & their contribution/obligation

To be obtained from respective departments

3.6.6.3 Government budgetary support requirement

To be obtained by the Finance department

3.6.6.4 Hierarchical and structured managerial system for efficient implementation

Decision to be taken by the Govt. of Haryana

3.6.7 Self monitoring system in industries (Stacks, APCDs)

Haryana State Pollution Control Board will ensure that the Large & Medium industry operating in the District Faridabad will have a self-monitoring system for assessing the efficacy of the existing air pollution control devices.

3.6.8 Data linkages to SPCB/CPCB (of monitoring devices)

State Pollution Control Board will provide the necessary infrastructure for Data linkages to CPCB and other agencies, with active participation by the respective industries/industrial association.

IV. LAND ENVIRONMENT (Soil and Ground Water)

4. LAND ENVIRONMENT (Soil and Ground Water)

4.1 Soil contamination

4.1.1 Present status of land environment supported with minimum one year analytical data

Data not available.

4.1.2 Critical locations for land/soil pollution assessment and ground water monitoring

Status of ground water quality at 25 stations obtained from Ground Water Board is enclosed at Annexure-IV.

4.1.3 Present levels of pollutants in land/soil and ground water (routine parameters, special parameters and water toxics relevant to the area in three categories- known carcinogens, probable carcinogens and other toxics)

As annexed at Annexure- IV.

4.1.4 Predominant sources contributing to or posing danger of pollution of land and ground water such as hazardous/toxic wastes or chemicals dumps/storage etc.

- a. Discharge of untreated domestic and industrial waste generated from residential areas and industrial areas respectively through the open drain namely Buria Nala and Gouchi drain is the main source of contamination of soil/ ground water.
- b. Unscientific disposal of Municipal Solid Waste in the low lying areas is another source of soil / ground water contamination.

4.1.5 Sources of Soil Contamination

1. Unscientific disposal of Municipal Solid Waste
2. Unscientific disposal of Bio Medical Waste
3. Unscientific disposal of Hazardous Waste

4.1.6 Types of existing pollution

- a. Municipal Solid Waste
- b. Unscientific use of fertilizer and pesticides.

4.1.7 Remedies for abatement, treatment and restoration of normal soil quality

Agricultural Department of Government of Haryana to take initiative for abatement, treatment and restoration of normal soil quality.

4.2 Ground water contamination

4.2.1 Present status/quality of ground water

Status of ground water quality at 25 stations obtained from Ground Water Board is enclosed at Annexure-IV.

4.2.2 **Source Identification (Existing sources of Ground water Pollution)**

- a. Municipal Solid Waste.
- b. Unscientific use of fertilizer and pesticides.

4.2.3 **Ground water quality monitoring program**

Presently Central Ground Water Board at 25 locations is carrying out the monitoring of ground water status such as depth of water table and qualitative analysis of ground water. The data w.r.t. ground water status has already been appended. Haryana State Pollution Control Board is incorporating some other protocols to analyzed toxic metals in the ground water of District Faridabad in association with Central Ground Water Board Faridabad in all the 25 locations.

4.2.4 **Action Plan for control of Pollution including cost/time aspects**

- a. Municipal Corporation Faridabad to expedite the completion of construction of an integrated Municipal Solid Waste Treatment and Disposal Facilities (1000 Tones per day) in 31 Acres (Appx.) land at village – Bandhwari, Gurgaon.
- b. Rehabilitation of existing MSW dumping sites by covering it with soil.
- c. HEMS and Gujrat Enviro Protection and Infrastructure Pvt. Ltd will expedite the completion of secure landfill site i.e. CELL-IA for disposal of Hazardous Waste.
- d. The installation work of incinerator for disposal of incinerable Hazardous Waste has just started and will be completed by October 2010.
- e. HSPCB to monitor the strict compliance of BMW, Rules by Health Care Facilities.

4.2.5 **Treatment and management of contaminated ground water bodies, etc.**

Presently there is no technology available to Haryana State Pollution Control Board for treating the contaminated ground water bodies.

Impact on CEPI score after abatement of pollution

4.2.6

The CEPI score w.r.t. land is definitely going to reduce after the above mentioned steps taken by the concerned department and industries.

4.3 Solid waste Generation and management

4.3.1 Waste classification and Quantification

4.3.1.1 Hazardous waste

The total quantity of hazardous waste generated by 298 numbers of units is 8884.48 tones per year in the Distt. Faridabad. Haryana Environmental Management Society constituted by the industries of Haryana in collaboration with M/s Gujrat Enviro Protection and Infrastructure (Haryana) Pvt. Ltd. is installing a Common Hazardous Waste Treatment, Storage & Disposal Facility (CHWTSDF) at Village-Pali. The TSDF has started collecting and storing Hazardous Waste from the industries in their premises. The secured landfill site Cell-1A is at final stage of completion. The incinerator for disposing incinerable hazardous waste is under installation and shall be completed by September/October 2010. The incinerable hazardous waste with moderate to high calorific value will be used as fuel and co processed in cement kiln.



4.3.1.2 Bio-medical waste

There are 269 number of Health Care Facilities existing in District Faridabad and are disposing off their Bio-Medical Waste through the Service Provider M/s Vulcan Waste Management Co., Gurgaon. The Common Bio-Medical Waste Treatment and Disposal facilities existing in District-Gurgaon which caters the requirement of Health Care Facilities operating in District Faridabad.

4.3.1.3 Electronic waste

Inventorization of electronic waste generated in Distt Faridabad is being carried out by the HSPCB and should be completed by March 2011

Other industrial sources

Municipal Corporation, Faridabad and Municipal Corporation, Gurgaon is installing an integrated Municipal Solid Waste Treatment and Disposal facilities (1000 Tones per day) in 31 Acres (Appx.) land at Village- Bandhwari in Distt Gurgaon. Faridabad town is generating Municipal Solid Waste to the tune of 560 MT/Day. The MSWTSDF is expected to be operational by end of December 2010.



4.3.1.5 Plastic waste

The quantity of plastic waste generated along with Municipal Solid Waste in District Faridabad is to the tune of 0.8 to 1% of the total Municipal Solid Waste. The NBCC reported that the quantum of plastic waste could be around 3 to 5 ton/day. The segregated plastic waste will be used as fuel in adjoining cement industries.

4.3.1.6 **Quantification of wastes and relative contribution form different sources**

Municipal Solid Waste

Quantity of MSW Generated 560 MT/Day
MSW disposal site Under Development
(capacity 1000 MT/Day)

Bio Medical Waste

No. of health care facilities 269
Quantity of BMW Generated

Waste Category	Kg/per month
Human Anatomical Waste	3164.85
Animal Waste	82.5
Microbiology & Biotechnology Waste	2074.15
Waste Sharps	3336
Discarded Medicines and Cytotoxic drugs	1065.7
Solid Waste	3092.9
Solid Waste	3666
Incineration Ash	57.25
Chemical Waste	408.75

BMW disposal Service Provider

Hazardous Waste

No. of hazardous waste generating units 298
Quantity of hazardous waste Total 8884.49 MT/Y
Land fill 8790.89 MT/Y
Recyclable 61.95 MT/Y
Incinerable 31.65 MT/Y
TSDF for hazardous waste Under Development

4.3.2 **Identification of waste minimization and waste exchange options**

The necessary guideline has already been circulated by CPCB. Required inventerization need to be carried out by the HSPCB before suggesting any waste exchange option to the industry concerned.

4.3.3 **Reduction/Reuse /Recovery/Recycle options in the co-processing of wastes.**

The above mentioned inventerization of waste, which can be co-processed will facilitate to identify the available options for co-processing of wastes

4.3.4 **Infrastructure facilities**

4.3.4.1 **Existing TSDF/ Incineration facilities including capacities**

Haryana Environmental Management Society constituted by the industries of Haryana in collaboration with M/s Gujrat Enviro Protection and Infrastructure (Haryana) Pvt. Ltd. is installing a Common Hazardous Waste Treatment, Storage &

Disposal Facility (CHWTSDf) at Village-Pali. The capacity of the TSDf site is appx. 12,00,000 Cu. meter, and it can cater the hazardous waste for 30 years. The incinerator having capacity of 500 kg/hr is under installation.

4.3.4.2 **Present status/performance and need of up gradation of existing facilities including enhancement of capacities**

Presently performance upgradation/capacity enhancement is not required.

4.3.4.3 **Treatment and management of contaminated waste disposal sites, etc.**

The Hazardous Waste will be disposed as per the provisions of Hazardous Waste (Management & Transboundary) Rule 2008.

4.3.4.4 **Impact on CEPI score after proper management of Solid Wastes**

The present CEPI score will reduce after the effective operation of TSDf, MSWTSDf and additional BMWTSDf.

5 PPP Model

5.1 Identification of project proposals (for both the options i.e. technology intervention and infrastructure renewal) for implementation under the PPP mode under the Action Plan

Necessary steps will be taken by the Govt. of Haryana.

5.2 Identification of stakeholder/agencies to be involved and to evolve financial and managerial mechanisms for implementation of PPP projects

Necessary steps will be taken by the Govt. of Haryana

6 Other infrastructure Renewal measures:

6.1 Green Belts

Forest Department will develop green belt on vacant land. Large and medium industries will carry out plantation in their premises.

6.2 Development of Industrial Estate(s)

District Administration and HUDA/HSIDC will acquire the land and provide infrastructure for developing new industrial area to re-locate the displaced industries, which are existing in non-confirming/residential area.

6.3 Development/shifting of industries located in the non- industrial area to the existing/new industrial estates.

Municipal Corporation Faridabad/HUDA/HSIDC to conduct fresh survey with District Industries Center and make inventorization of industries operating illegally in non confirming/residential area so that the new industrial estate could be carved out and the displaced industries could be accommodated in the new industrial area.

7 Specific Schemes:

7.1 GIS-GPS system for pollution sources monitoring

Necessary infrastructure and funding in this regard will be made operational by the concerned department only after obtaining clearance from Govt. of Haryana.

7.2 Hydro-geological fracturing for water bodies rejuvenation

The Topography of District Faridabad is suitable for providing check dams and small barrages in the Aravali Hills to rejuvenate the existing water bodies. Further the existing unused Silica Sand Mine pits can also be utilized to hold rain water and to recharge the ground water level.

7.3 In-situ remediation of sewage

The In-situ remediation of sewage in District Faridabad can be taken up by the PWD (Water Supply and Sanitation) department.

7.4 Utilization of MSW inert by gas based brick kilns

At present the MSWTSDF is under construction. The MSW inert can only be used in Brick Kilns.

7.5 Co-processing of wastes in cement industries

At present the HWTSDF and MSWTSDF are under construction. Thereafter the incinerable waste from HWTSDF and MSWTSDF can be co processed in Cement Industry.

8 Public awareness and training Programmes

- a. Sensitization of eco clubs regarding the imminent impacts of environmental degradation on the receiving environment.
- b. Awareness programme to ban the use of recycle plastics.
- c. Awareness programme to desist the farmers from burning wheat and paddy stubble and other agricultural waste in the field and propagating the concept of alternative eco friendly use of such agricultural waste.
- d. Awareness programme amongst the industries for scientific disposal of hazardous waste so that the imminent danger of contaminating the sub soil water could be avoided.
- e. Awareness programme amongst the public at large for segregation and proper disposal of Municipal Solid Waste.

9 Overall Impact of installation/commissioning of pollution control equipments/measures on the CEPI score

The overall present CEPI score will reduce after the effective implementation of above mentioned Action Plans w.r.t Water, Air and Land.

10 Assessment of Techno-economical feasibility of pollution control systems in clusters of small/medium scale industries.

The existing pollution control devices installed by the industries are capable of achieving the standards. However the necessary performance upgradation/capacity enhancement can be undertaken wherever it is necessary to do so.

11 Efforts shall be made to encourage use of Bio-Fertilizer alongwith the chemical fertilizer in the state to minimize the unutilized chemical fertilizer run-off into the natural water resources from agriculture fields (through Govt. policy)

The Agriculture Department, Govt. of Haryana to take necessary steps in this regard.

V. PROPOSED ACTION POINTS

ACTION PLAN – WATER

12 **Summary of proposed action points Faridabad**
12.1 Short Term Action Points (upto 1 year, including On going Activities)

Sr. No.	Action Points (including source & mitigation measures)	Responsible Stake Holders/ Agencies involved	Time limit	Cost	Remarks
1.	Compliance of pollution norms for effluents	HSPCB, Industry	March 2011	--	HSPCB will ensure the compliance of norms by industries.
2.	Optimization of operational capacity of existing STPs and CETPs and gap analysis.	HSPCB	March 2011	--	HSPCB will conduct detail analysis to quantify the efficacy of the existing system and to identify the problem area for effective operation.
		Public Health Engineering Department	31.8.2011	4.5 Cr.	Public Health Engineering Department will optimize operation and repair the 45 MLD at Vill. Mujheri and 50 MLD STP at Vill. Partapgarh
		Municipal Corporation, Faridabad	30.11.2010	29.00Cr	Municipal Corporation will optimize and repair the existing 20 MLD STP at village Badshahpur. The MCF will also optimize the operation of additional 45 MLD STP being constructed under under JNNURM & will be commissioned by end of December 2010.
		Small Scale Pollution Control Co-Operative Society, at Sector-58 for CETP	December 2010		Faridabad Small Scale Pollution Control Co-Operative Society, will optimize the operation of existing CETP.

Sr. No.	Action Points (including source & mitigation measures)	Responsible Stake Holders/ Agencies involved	Time limit	Cost	Remarks
3.	Performance evaluation and up gradation of ETPs of major polluting unit.	HSPCB, Industry Institution	March 2011	---	Performance evaluation of existing ETPs will be carried out by HSPCB and up gradation wherever required will be carried out by concerned industry and institution
4.	Performance monitoring of a) STPs b)CETP	HSPCB PHED MCF Small Scale Pollution Control Co-Operative Society, at Sector-58 for CETP	On going activities On going activities On going activities On going activities	HSPCB will use its own infrastructure. -- 9.00 Lacs --	The HSPCB will ensure regular Monitoring for operational process parameters viz. MLSS, MLVSS, DO and quantity of effluent at Inlet and outlet of STP by Public Health Engineering Department and Municipal Corporation Faridabad. The HSPCB will regularly monitor the performance of the CETP installed and operated by Small Scale Pollution Control Co-Operative Society
5.	Cleaning/De-silting of sewers and removal of cess pools	PHED HUDA, MCF,	August 2011 August 2011 August 2011	Project Cost not submitted by the Line Deptt. Project Cost not submitted by the Line Deptt. Rs. 3.00 Cr	PHED/HUDA/MCF will regularly clean the sewer and dredged material from both the drains will be disposed as landfill in the common MSWTSDF at village Bandhwari.
6.	Setting up of continuous water quality monitoring station at Palla (Sonipat) and Badarpur (Faridabad) on River Yamuna.	CPCB	August 2011	Project Cost yet to be finalized.	CPCB is in the process of purchasing Continuous Water Quality Monitoring station be installed at Palla (Sonipat) and Badarpur (Faridabad) on River Yamuna

Sr. No.	Action Points (including source & mitigation measures)	Responsible Stake Holders/ Agencies involved	Time limit	Cost	Remarks
7.	Installation of Magnetic Flow Meter by the industrial units and institutions.	Industries Institutions. HSPCB	March 2011	Cost of the Magnetic Flow meter will be borne by the industry and institution	HSPCB will ensure that magnetic flow meter is installed on all sources of water supply.
8.	Installation of online pH meter by the industrial units.	Water polluting Industries. HSPCB	March 2011	Cost of the pH meter will be borne by the industry and institution	HSPCB will ensure that online pH meters are installed on the ETP/STP.
9.	Awareness programmes on environmental issues particularly with reference to Water Conservation, Control of Water Pollution by involving NGOs, Industrial Associations and Student Community	Environment Department Education Dept. HSPCB, Distt Administration MCF NGO Industrial association	On going Activity On going Activity On going Activity	5.0 lacs 5.00 lacs 20.00Lacs	HSPCB will organize Awareness programs amongst the industries, Civic Authority, Students and members of Eco-Club particularly with reference to recycle and reuse of effluent, Waste minimization, Water Conservation with the help of NGOs and Industrial Association.
10.	Action Plan for 17 category (L&M) Industry for zero discharge and its implementation	Industry HSPCB	September 2011	---	17 category large and medium units operating in the Faridabad district are complying the provisions of CREP norms. Further, HSPCB will ensure that all 17 category (L&M) industries must implement the zero discharge concept. List of 17 category L&M industries operating in the critically polluted area its enclosed at Annexure (A)

Sr. No.	Action Points (including source & mitigation measures)	Responsible Stake Holders/ Agencies involved	Time limit	Cost	Remarks
11.	Relocation of polluting units from non-confirming areas to designated areas.	Municipal Corporation Faridabad HUDA HSIIDC Industry Deptt. Health Deptt.	Survey to be completed by March 2011. -	Project Cost not submitted by the Line Deptt. -	Municipal Corporation Faridabad has submitted that it will conduct a joint inspection/survey with District Industry Centre to make inventories of industries operating in non-confirming area. District Administration and HUDA/HSIIDC will prepare scheme for Rehabilitation/re-location in the confirming area. Baseline health surveys should be conducted prior to shifting polluting industries to a newly designated area, subject to the availability of funds from MOEF and CPCB

ACTION PLAN – AIR

12.1 Short Term Action Points (upto 1 year, including on going Activities)

Sr. No.	Action Points (including source & mitigation measures)	Responsible Stake Holders/ Agencies involved	Time limit	Cost	Remarks
1.	Compliance of air emission norms.	HSPCB Industries	March 2011	HSPCB will use its own infrastructure	HSPCB will ensure the compliance of norms by industries
2.	Performance monitoring of APCDs of major polluting industry	HSPCB.	December 2010	HSPCB will use its own infrastructure	Regular Monitoring of APCDs installed by industrial unit will be carried out by HSPCB.
3.	Networking of data generated from Ambient Air Quality monitoring been carried out by 17 categories large and medium industries with state and national database system.	Industry HSPCB	December 2011	Rs. 5.00 Lacs	The HSPCB will ensure that all the ambient air quality data generated by 17 type of Large & Medium Industries is linked to the National Data Base. List of 17 category L&M industries operating in the critically polluted area is enclosed at Annexure-(A)
4.	Compliance of Action Plan for improvement of Ambient Air Quality of Faridabad Town. a.) Quantification of pollution load in the Ambient Air of Faridabad by installing continuous online air quality monitoring station at Faridabad. b.) Construction of Badarpur Flyover	HSPCB. NHAI and PWD (B&R) Govt. of Haryana	December 2010 March, 2011	90.0 lacs Rs. 340.00 Cr.(already spent)	The continuous Ambient Air Quality Monitoring station has already been installed at Office building of HSPCB, Sector -16A Faridabad and is under calibration. The data generated will be displayed shortly in Faridabad Town. The construction work of Badarpur Flyover is at final stage of completion and expected to be operational by the end of March, 2011.

Sr. No.	Action Points (including source & mitigation measures)	Responsible Stake Holders/ Agencies involved	Time limit	Cost	Remarks
	c.) Construction of Bye pass road parallel to Gurgoan Canal.	PWD (B&R)	March, 2011	Project Cost not submitted by the Line Deptt.	Construction work of Bye pass road is already in progress and is likely to be completed shortly
	d.)Decommissioning of Faridabad Thermal Power Station.	HPGCL	--	----	Thermal Power Station is already decommissioned on 31-03-2010.
	e.)Establishment of CNG stations	M/s Adani Gas Ltd. Faridabad	June, 2011	Project Cost not submitted by the Line Deptt.	5 No of CNG stations are already in operation out of the proposed 14 CNG stations in different locations of Faridabad.
5.	a.) Action plan for control of vehicular pollution.	NHAI/MCF PWD (B&R) Department Secretary RTA	On going activity	Rs. 45.00 Cr.	Municipal Corporation Faridabad has submitted a proposal to construct slip roads at the various merger crossings/T-Junctions and existing roads are to be widened from two lane to four lane.
	b.) Audit of PUC Centers.	Secretary RTA	August 2011	---	The Secretary, RTA, Faridabad will only registered vehicles with cleaner fuel and Bharat-IV complying Public vehicle and Bharat Stage-III Commercial Vehicle. The Secretary RTA will ensure regular audit to issue performance certificate to all vehicular emission checking facilities existing in the Faridabad District. However no Action Plan has been received from the Transport Deptt.
	c.)Vehicle parking policy.	Municipal Corporation Faridabad	March 2011	Rs. 5.00 Cr.	The Municipal Corporation Faridabad has approved the parking policy in their jurisdiction and parking places have been identified.
6.	Awareness campaign to curb burning of wheat stubble/paddy straw in open	HSPCB. Local Admn. Eco Clubs NGOs	March 2011	5.0 lacs	Awareness campaign to curb burning of wheat stubble/paddy straw in open fields will be launched for farmers in association with Agriculture

Sr. No.	Action Points (including source & mitigation measures)	Responsible Stake Holders/ Agencies involved	Time limit	Cost	Remarks
	fields and for other Environmental issues and involvement of NGOs. Industrial Association and Student community.				Department and District Administration and for other Environmental issues through Eco Clubs and HSPCB in association with department of Non-conventional Energy Resources will identify technologies for recovery of energy from wheat stubble and paddy straw. Further, it is suggested that the wheat stubble/paddy straw can be removed from the field by rippers and can be utilized as manure through composting.
7.	Action Plan for upgradation of facilities at Stone Crusher Zones.	<p>Owners of the Stone Crushers</p> <p>Mining Deptt.</p> <p>Env. Deptt.</p> <p>HSPCB</p> <p>MCF</p> <p>MCF</p>	<p>March 2011</p> <p>March 2011</p> <p>On going Activity</p> <p>August 2011</p>	<p>---</p> <p>---</p> <p>---</p> <p>Project Cost not submitted by the Line Deptt.</p>	<p>Stone Crusher Association will arrange proper Sprinkling system to suppress dust emitted due to vehicular movements and plant more trees during monsoon season inside the stone crushing zone. Individual stone crusher unit will ensure the effective operation of pollution control measures by interlocking the pollution control device with the starter of jaw crusher</p> <p>HSPCB will ensure that the individual stone crusher will effectively operate the Pollution Control Devices to comply with the provisions of Air Act.</p> <p>The Municipal Corporation Faridabad has committed to supply adequate amount of water to the stone-crushing zone so that the same could be utilized for dust suppression.</p> <p>The Municipal Corporation Faridabad will ensure the construction of concrete roads inside the stone-crushing zone with proper drainage facility.</p>

12.2 Long Term Action points (more than 1 year)

ACTION PLAN - WATER

Sr. No.	Action Points (including source & mitigation measures)	Responsible Stake Holders/ Agencies involved	Time limit	Cost	Remarks
1.	Recycling and Reusing treated effluents.	Industry HSPCB Industries Department	September 2012	---	The HSPCB will pursue Large and Medium industries to adopt latest technology for recycling and reusing of treated effluent.
2.	Adoption of Clean Technologies	Industry Industries Department HSPCB	September 2013	---	<p>The HSPCB will pursue Large and Medium industries to adopt clean technology for recycling and reusing of treated effluent so that the existing pollution load can be reduced substantially. Textile dyeing unit, electroplating unit and pickling and phosphating units are the main water polluting industries operating in the Distt. Faridabad. Following are the eco-friendly technology to be adopted by these units.</p> <p>1. Textile dyeing unit (a) these units should adopt low brine and high dye ratio to reduce the water consumption b) Reusing the less polluting water stream in felt washing and other purpose. List of 21 L&M Textile dyeing units which requires to adopt the above mentioned cleaner technology is enclosed at Annexure-(B)</p> <p>2. Electroplating unit. These unit should adopt cyanide free alkaline zinc plating in place of cyanide bath zinc plating, hexavalent chrome should be replaced with trivalent chrome as passivation chemical, zinc phosphate should be replaced with manganese phosphate in phosphating process. List</p>

Sr. No.	Action Points (including source & mitigation measures)	Responsible Stake Holders/ Agencies involved	Time limit	Cost	Remarks
					of 36 L&M Electroplating and Phosphating units which requires to adopt the above mentioned cleaner technology is enclosed at Annexure-(C).
3.	Renovation of Existing STPs	Municipal Corporation Faridabad	June, 2011	70.00 Lacs	Municipal Corporation Faridabad will renovate the exiting STP of 20 MLD capacity at village Badshapur.
4.	Up gradation of existing CETP installed in the Electroplating Zone at Sector-58, Faridabad.	The Faridabad Small Scale Pollution Control Co-Operative Society at Sec - 58.	August 2011 HUDA Faridabad	5.23 Cr. April, 2011	The Society will submit plan for upgradation of existing CETP and will upgrade the CETP to ensure proper compliance of provisions of Water Act, 1974 and Hazardous Waste (Management and Transboundary Movement), Rule 2009. HUDA Faridabad will complete the construction of sewer line connecting the CETP with trunk sewer within 06 months so that the treated effluent from the CETP should reach the terminal sewage treatment facility at Village Partapgarh.
5.	Capacity addition by setting up of new STPs as per gap analysis.	Municipal Corporation Faridabad.	December. 2010 Proposal for capacity addition of New STP of 40 MLD to be submitted by March 2011 and to be completed by December 2015 subject to availability of funds to the implementing agency	29.00 Cr. Project Cost yet to be submitted by the Deptt.	Municipal corporation, Faridabad is constructing an additional STP of 45 MLD Capacity at Vill. Badshapur. Municipal Corporation, Faridabad will set up STP of 40 MLD as per the gap analysis which will make the total capacity of STPs upto 200 MLD for the Faridabad town by 2015, in the forth coming JNNURM scheme Phase-II in association with HUDA, Faridabad.

Sr. No.	Action Points (including source & mitigation measures)	Responsible Stake Holders/ Agencies involved	Time limit	Cost	Remarks
	Setting up of new CETPs/ individual ETPs	HUDA MCF Concerned industries	December 2014		The HUDA and MCF are required to install new CETP in the cluster of industries i.e. Cluster -1 (Sector-31, 32,35,DLF-I and DLF-II), Cluster-2 (Sector-27A, B, C, D), Cluster-3 (Sector-24), Cluster-4 (NIT), Cluster-5 (Sector -4 & 6), Cluster-6 (Sector-25), Cluster -7 (Sector-58) alongwith respective Industrial Association of Industrial Cluster. However, individuals units have been directed to install separate ETPs for the treatment of Trade Effluents and the compliance shall be monitored by the Board.
6.	Connecting the uncovered Sewered area with the sewer system and laying of separate storm water drains.	Municipal Corporation Faridabad HUDA	December 2012	Rs. 500.00 Cr.	Municipal Corporation Faridabad has submitted proposal to lay proper sewer for connecting the uncovered sewer area with the sewer System and also lay separate storm water drain subject to the availability of the funds.
7.	De-silting of Buria Nallah and Gaunchi drain for easy flow of storm water.	Irrigation Department, Municipal Corporation Faridabad	December 2013 On going activity	Project Cost not submitted by the Line Deptt. Rs. 20.00 Lacs per year	Irrigation Deptt. has not submitted the time schedule and cost for de-silting of Buria Nallah and Gaunchi drain beyond the municipal limit. Municipal Corporation Faridabad has submitted a proposal to de-silt the Buria Nallah and Gaunchi drain in their jurisdiction.
8.	Sewer connection to all household	Municipal Corporation Faridabad HUDA Faridabad.	December 2012	Project Cost not submitted by the Line Deptt.	The Municipal Corporation Faridabad has submitted a proposal to give sewer connection to all the household in their jurisdiction subject to availability of the funds.
9.	Rejuvenation of Badkhal Lake and Suraj Kund Lake.	Irrigation Department Govt. of Haryana.	December 2012	Project Cost not submitted by the Line Deptt.	Irrigation Department has not submitted any proposal for rejuvenation of the Badkhal Lake and Suraj Kund Lake.

ACTION PLAN – AIR

12.2 Long Term (more than one year)

Sr. No.	Action Points (including source & mitigation measures)	Responsible Stake Holders/ Agencies involved	Time limit	Cost	Remarks
1.	Adoption of Clean Technologies, including use of low sulphur fuel and clean fuel by the industry.	Industry Industries Deptt.	September 2012	---	<p>HSPCB will ensure that all the new boiler/thermic fluid heater/ furnaces installed by the unit should use cleaner fuel viz. CNG/LNG/LPG/HSD.</p> <p>M/s Adani Energy Ltd, the authorized CNG supplier will provide suitable infrastructure to supply CNG to industry.</p>
2.	Implementation of Action Plan to curb vehicular pollution.	District Administration State Transport Authority, NHAI, B&R Department	December 2012	Proposal alongwith Projected Cost not received from Line Deptt.	<p>The District Administration and the State Transport Authority will ban the old commercial vehicles.</p> <p>M/s Adani Energy Ltd will complete the commissioning of rest 09 numbers of CNG Stations to provide clean fuel to Commercial & Private vehicles.</p> <p>NHAI and B & R Department will construct by pass road, synchronize traffic signals on Main Mathura Road and arterial road inside the town to de-congest the traffic flow.</p>
3.	Dismantling of old Thermal Power Station and rehabilitation of the existing Ash ponds.	Haryana Power Generation Corporation Ltd.	December 2012	Proposal along with Projected Cost not received from Line Deptt.	<p>Haryana Power Generation Corporation will ensure that while dismantling the existing old thermal power station necessary precautions must be taken to minimize the emission.</p> <p>Haryana Power Generation Corporation Ltd will cover the fly ash dyke with soil to prevent the fly ash from being air borne.</p> <p>Haryana Power</p>

Sr. No.	Action Points (including source & mitigation measures)	Responsible Stake Holders/ Agencies involved	Time limit	Cost	Remarks
					Generation Corporation Ltd will plant trees on the ash pond dyke. If necessary the fly ash could be disposed off for land filling and construction of road in closed containers.
4.	Installation of online continuous stack monitoring by 17 category (L&M) air polluting units and networking of the same with State and National Database.	Industry HSPCB	September 2012	Cost not indicated by the industry.	HSPCB to monitor installation of online continuous stack monitoring by 17 category (L&M) polluting units and networking the same with State and National Database.
5.	Construction work of six laning of National Highway No. 2 alongwith service lane	NHAI	April 2013	1950 crore	Construction work of six laning of National Highway No. 2 (Mathura Road) will start from January, 2011 and the construction work of service lane will start after completion of six laning.
6.	Identification of low cost and advanced cleaner technology for air pollution control	Industries HSPCB	March 2012	Variable	Mandatory installation of Fluidized Bed Burning System in all industries using solid fossil fuel and Agricultural Waste as fuel.

ACTION PLAN – LAND

Sr. No.	Action Points (including source & mitigation measures)	Responsible Stake Holders/ Agencies involved	Time limit	Cost	Remarks
1.	Development of MSW integrated disposal facility.	Municipal Corporation Faridabad. Urban Local Bodies Deptt.	December 2010	25.75 Cr. (near completion)	Municipal Corporation Faridabad to expedite the completion of construction of an integrated Municipal Solid Waste Treatment and Disposal Facilities (1000 Tones per day) in 31 Acres (Approx.) land at village Bandhwari, Gurgaon.
2.	Rehabilitation of existing MSW dumping sites.	Municipal Corporation Faridabad	May 2010	Rs. 3.00 Cr.	Bio-remediation / Rehabilitation of existing MSW dumping sites is being done by the Municipal Corporation, Faridabad, subject to the availability of funds to the implementing agency.
3.	Completion of HWTSDf.	Haryana Environment Management Society Gujarat Enviro Protection and Infrastructure Pvt. Ltd. HSPCB	December 2010	92.97 Cr. in two phases (1st phase near completion)	HEMS and Gujarat Enviro Protection and Infrastructure Pvt. Ltd. will expedite the completion of the installation of incinerator for disposal of incinerable Hazardous Waste by December 2010.
4.	Compliance of BMW Rules by health care facility	Health Care Facilities.	On going Activity	--	HSPCB to monitor the strict compliance of BMW, Rules by Health Care Facilities.
5.	Development of green belt and tree plantation.	Forest Department Industries, MCF, HUDA.	Identification of area for plantation by December 2010 and afforestation to be completed by 31 July 2011	---	Forest Department, MCF, HUDA Faridabad has neither identified any specific area nor submitted any structured action plan for developing green belt on vacant land.
6.	Development of open spaces/parks by MCF/HUDA.	Municipal Corporation Faridabad HUDA.	On going Activity	Project Cost not submitted by the Line Deptt.	Municipal Corporation Faridabad and HUDA will develop open spaces and parks.
7.	Rehabilitation plan for 38 number of abandoned mining pits.	Mining Department	December 2012	Project Cost not submitted by the Line Deptt.	Mining Department has not submitted any rehabilitation plan for abandoned mining pits. Mining Department will be asked to submit detailed rehabilitation plan in this regard.
8.	Installation of rain water harvesting	HUDA Private Developers NHAI.	On going Activity	---	At present HUDA is ensuring installation of roof top rain water harvesting system in buildings

Sr. No.	Action Points (including source & mitigation measures)	Responsible Stake Holders/ Agencies involved	Time limit	Cost	Remarks
	system in the buildings/ institutions/ flyovers.				more than 100 Sq. meters size. HUDA/Private Developers/NHAI will ensure installation of rainwater harvesting system in the building/institutions/flyovers. Guidance from India Road Research Organization will be obtained in this regard. State Government has constituted State Level Committee under the Chairmanship of Principal Secretary, Water Resources to formulate policy guideline w.r.t. water conservation and rain water harvesting.
9.	Future major buildings to adopt ECBC norms.	HUDA Private Developer	On going Activity	---	HUDA/Developer will ensure that all the major buildings must adopt ECBC norms in future i.e. after March, 2010.
10.	Identification of waste minimization and waste exchange options	HSPCB	March 2012		The necessary guideline has already been circulated by CPCB. Required Inventorization need to be carried out by the HSPCB before suggesting any waste exchange option to the industry concerned.
11.	Reduction/Re-use/Recovery/R recycle options in the co-processing of wastes.	CPCB HSPCB	March 2012		The above mentioned Inventorization of waste, which can be co-processed, will facilitate to identify the available options for co-processing of wastes, subject to availability of funds from CPCB and MOEF.

List of 17 Category Large & Medium units operating in the critically polluted area of District Faridabad.

Sr. No.	Name of Unit	Process
1.	Jagsonpal Pharmaceuticals, 20, KM, Mathura Road, Faridabad	Pharmaceuticals
2.	Superior Industries Ltd., 13/1, Mathura Road, Faridabad	Breweries
3.	Exquisite Enterprises, Plot No. 5B, Sector-15A, Faridabad	Leather Dyeing
4.	National Thermal Power Station, Village Mujeri, Faridabad.	Electricity
5.	Hyderabad Industries, Sector-25, Faridabad.	Asbestos
6.	Alchem International, Vill Kali, Ballabgarh	Bulk Drug

List of Large & Medium Textile dyeing units operating in the critically polluted area of District Faridabad

Sr. No.	Name of Unit	Process
1.	Shahi Exports Pvt. Ltd., Plot No. 1, Sector-28, Faridabad	Textile Dyeing
2.	Dhruv Global Ltd., 14th, MS, Mathura Road, Faridabad	Textile Dyeing
3.	Color Fabs Pvt.Ltd., 168, DLF, Industrial Area, Faridabad	Textile Dyeing
4.	Creative Dyeing & Printing Mills, 14/3, Mathura Road, Faridabad	Textile Dyeing
5.	Jay Pee Knit Fab, Plot No. 95 DLF Industrial Area, Phase-I, Faridabad.	Textile Dyeing
6.	S & P Threads Ltd., 16/2, Mathura Road, Faridabad	Textile Dyeing
7.	Karma Processors Pvt.Ltd., 14/6, Mathura Road, Faridabad	Textile Dyeing
8.	M.H. Textiles Pvt.Ltd., 14/7, Mathura Road, Faridabad.	Textile Dyeing
9.	Kishmish Crafts, Village- Kaboolpur Khadar, Manjhawali Road, Neharpar, Faridabad.	Textile Dyeing
10.	Pratibha Syntex Pvt. Ltd., Plot No. 16, DLF, Industrial Area, Phase-II, Faridabad.	Textile Dyeing
11.	Pee Empro Exports Pvt.Ltd. (Unit-2), Plot No.78, Sector-27A, Mathura Road, Faridabad.	Textile Dyeing
12.	Gunno Knits Pvt. Ltd., 90G, 91 & 91A, DLF, Industrial Area, Faridabad.	Textile Dyeing
13.	Richa Knits Ltd., Village-Kanwara, Jasana Road, Faridabad.	Textile Dyeing
14.	Fashionage Corporation Pvt. Ltd., 14/1, Mathura Road, Faridabad.	Textile Dyeing
15.	Haryana Tex Prints, 3, Sector-25, Faridabad.	Textile Dyeing
16.	Kunj Behari Processors Pvt Ltd, Plot No. 95, Sector-25, Faridabad.	Textile Dyeing
17.	Manglum Ventures/Sonia Textiles Ltd, Plot No. 32, Sector-6, Faridabad.	Textile Dyeing
18.	Shivalik Prints Ltd, Plot No. 48, Sector-06, Faridabad.	Textile Dyeing
19.	STL Global Ltd, Plot No.-207, Sector-58, Faridabad.	Textile Dyeing
20.	Vinayak Fabrics, Plot No. 110, Sector 25, Faridabad.	Textile Dyeing
21.	SPL Industries, Plot No. 21, 22 & 39, Sector-58, Faridabad.	Textile Dyeing

List of Large & Medium Electroplating, Phosphating units operating in the critically polluted area of District Faridabad

Sr. No.	Name of Unit	Process
1.	Sterling Tools Pvt.Ltd., 5A , DLF, Industrial Area, Faridabad	Electroplating
2.	Clutch Auto Ltd., 12/4, Mathura Road, Faridabad	Electroplating
3.	Escorts Ltd., Plant-I, AMG, 18/4, Mathura Road, Faridabad	Electroplating
4.	Aar Kay Forege, Plot No. 49, Sector-6, Faridabad	Electroplating
5.	Kanin India Ltd, Plot No. 79, Sector-25, Faridabad.	Electroplating
6.	Nikko Auto Ltd, Plot No. 9G, Sector-6, Faridabad	Electroplating
7.	Sidwal Refrigeration India Pvt Ltd, 23, Sector-6, Faridabad.	Electroplating
8.	JBM Auto Components Ltd, Plot No. 269, Sector-24, Faridabad	Electroplating
9.	Havell's India Ltd., 14/3, Mathura Road, Faridabad	Phosphating
10.	Claas India Ltd., 15/3, Mathura Road, Faridabad	Phosphating
11.	Escorts Ltd.,(TD), Plant-II, Plot No. 3, Sector-13, Faridabad	Phosphating
12.	Escorts Ltd (FD) Plant-III, Plot No. 2, Sector-13, Faridabad	Phosphating
13.	Knorr Bremese Pvt.Ltd., 14/6, Mathura Road, Faridabad	Phosphating
14.	Consolidated Coins, 13/2, Mathura Road, Faridabad	Phosphating/ Pickling
15.	Juneja Bright Steel Pvt Ltd, Plot No. 239, Sector-24, Faridabad	Pickling
16.	Juneja Bright Steel Pvt Ltd, Plot No. 244, Sector-24, Faridabad	Pickling
17.	Omega Bright Steel Pvt Ltd, Plot No. 109, Sector-24, Faridabad	Pickling
18.	Sterling Tools Ltd, 81/25, Faridabad	Pickling
19.	Metal Coating India Ltd, 112/113, Sector 59, Faridabad.	Bright Bar, Pickling
20.	Aarkay Industries, 315, Sector-24, Faridabad	Phosphating
21.	Belmaks Ltd, Plot No. 125, Sector-24, Faridabad	Phosphating
22.	Escorts Ltd (RED), Plot No. 115, Sector 24, Faridabad	Phosphating
23.	Jaico Steel Fasteners Ltd, 269/24, Faridabad	Phosphating
24.	Oswal Global, Plot No. 21-22, Sector-25, Faridabad	Phosphating
25.	Parnav Vikash India Pvt. Ltd, 45-46, NIT, Faridabad	Phosphating
26.	Rajat Wire Pvt Ltd, Plot No. 262-J, Sector-24, Faridabad	Phosphating
27.	Sage Metal Ltd, 123, Sector-24, Faridabad	Phosphating
28.	Saket Hardware, Plot No. 14, HUDA, Sector-59, Faridabad	Phosphating
29.	Seitz Technologies (I) Pvt Ltd, Plot No. 38, Sector-6, Faridabad	Phosphating
30.	Venus Industrial Corporation Pvt Ltd, Plot No. 262G-H, Sector-24, Faridabad	Phosphating
31.	Whirlpool of India Pvt Ltd, 28, NIT, Faridabad	Phosphating
32.	Super Auto Pvt Ltd, 28, NIT, Faridabad	Phosphating
33.	Oreint Fans, 11 Industrial Area, Sector-6, Faridabad	Phosphating
34.	India Forge & Drop Stamping Ltd, 28, Sector-6, Faridabad.	Phosphating
35.	Aurangabad Motors, Plot No.175, Sector-25, Faridabad	Phosphating
36.	Super Auto India Ltd, 84/6, Faridabad.	Phosphating

WATER QUALITY STATUS OF GURGAON CANAL AT BADARPUR BORDER (FARIDABAD)

Month	PARAMETERS									
	Color	Odour	pH Value	Conductivity umho/cm	Suspended Solids mg/l	BOD 3 days at 27' C mg/l	COD mg/l	Oil & Grease mg/l	Hexavalent Chromium as Cr+ ⁶ mg/l	Iron as Fe mg/l
Januaury 2009	Blackish	Mild	7.52	1060	112	26	128	ND	ND	ND
February 2009	Blackish	Mild	7.54	1260	88	24	128	ND	ND	ND
March 2009	Blackish	Mild	7.83	1210	152	20	72	ND	ND	ND
May 2009	Blackish	Mild	7.48	1180	154	29	88	ND	ND	ND
June 2009	Blackish	Mild	7.54	1196	152	28	90	ND	ND	ND
July 2009	Blackish	Mild	7.48	1174	148	27	88	ND	ND	ND
August 2009	Blackish	Mild	7.65	1190	112	24	72	ND	ND	ND
September 2009	Blackish	Mild	7.40	980	134	19	60	ND	ND	ND
October 2009	Blackish	Mild	7.56	964	116	21	72	ND	ND	ND
November 2009	Blackish	Mild	7.11	1450	100	28	80	ND	ND	ND
December 2009	Blackish	Mild	7.9	1480	96	29	90	ND	ND	ND
January 2010	Blackish	Mild	7.2	1380	108	29	90	ND	ND	ND
Feb 2010	Blackish	Mild	7.5	1310	80	28	110	ND	ND	ND
March 2010	Blackish	Mild	7.6	1260	112	30	96	ND	ND	ND
April 2010	Blackish	Mild	7.8	1240	92	28	110	ND	ND	ND
May 2010	Blackish	Mild	8.0	1640	88	29	120	ND	ND	ND

WATER QUALITY STATUS OF AGRA CANAL AT BADARPUR BORDER (FARIDABAD)

Month	PARAMETERS									
	Color	Odour	pH Value	Conductivity umho/cm	Suspended Solids mg/l	BOD 3 days at 27' C mg/l	COD mg/l	Oil & Grease mg/l	Hexavalent Chromium as Cr+ ⁶ mg/l	Iron as Fe mg/l
January 2009	Blackish	Mild	7.55	1090	126	28	144	ND	ND	ND
February 2009	Blackish	Mild	7.71	1270	82	26	128	ND	ND	ND
March 2009	Blackish	Mild	7.72	1190	148	22	96	ND	ND	ND
May 2009	Blackish	Mild	7.56	1210	168	30	90	ND	ND	ND
June 2009	Blackish	Mild	7.62	1270	164	30	100	ND	ND	ND
July 2009	Blackish	Mild	7.68	1210	156	28	90	ND	ND	ND
August 2009	Blackish	Mild	7.42	1140	104	23	70	ND	ND	ND
September 2009	Blackish	Mild	7.32	940	122	18	56	ND	ND	ND
October 2009	Blackish	Mild	7.45	920	112	20	64	ND	ND	ND
November 2009	Blackish	Mild	7.1	1470	92	29	84	ND	ND	ND
December 2009	Blackish	Mild	7.6	1426	84	30	96	ND	ND	ND
January 2010	Blackish	Mild	7.4	1530	88	28	80	ND	ND	ND
Feb 2010	Blackish	Mild	7.7	1320	87	29	120	ND	ND	ND
March	Blackish	Mild	7.5	1370	104	29	92	ND	ND	ND
April 2010	Blackish	Mild	7.9	1320	110	29	120	ND	ND	ND
May 2010	Blackish	Mild	8.2	1820	108	30	130	ND	ND	ND

WATER QUALITY STATUS OF RIVER YAMUNA IN THE JURISDICTION OF FARIDABAD REGION

Month		Color	Odour	pH Value	Conductivity umho/cm	Suspended Solids mg/l	BOD 3 days at 27° C mg/l	COD mg/l	Oil & Grease mg/l	Hexavalent Chromium as Cr ⁶⁺ mg/l	Iron as Fe mg/l
April 2009	River Yamuna Upstream Buria Nalaha	Blackish	Mild	7.97	1570	44	26	100	ND	ND	ND
	Buria Nalaha before meeting River Yamuna	Blackish	Mild	7.67	2410	37	36	152	ND	ND	ND
	River Yamuna Downstream buria Nalaha	Blackish	Mild	7.97	1620	51	28	110	ND	ND	ND
October 2009	River Yamuna Upstream Buria Nalaha	Blackish	Mild	7.88	1020	74	23	88	ND	ND	ND
	Buria Nalaha before meeting River Yamuna	Blackish	Mild	7.59	2310	69	34	140	ND	ND	ND
	River Yamuna Downstream buria Nalaha	Blackish	Mild	7.88	1090	72	24	92	ND	ND	ND
November 2009	River Yamuna Upstream Buria Nalaha	Blackish	Mild	7.7	1590	96	26	72	ND	ND	ND
	Buria Nalaha before meeting River Yamuna	Blackish	Mild	8.7	4180	40	48	160	ND	ND	ND
	River Yamuna Downstream buria Nalaha	Blackish	Mild	7.9	2520	112	28	80	ND	ND	ND
December 2009	River Yamuna Upstream Buria Nalaha	Blackish	Mild	7.8	1510	92	29	80	ND	ND	ND
	Buria Nalaha before meeting River Yamuna	Blackish	Mild	8.1	4020	42	54	180	ND	ND	ND

Month		Color	Odour	pH Value	Conductivity umho/cm	Suspended Solids mg/l	BOD 3 days at 27° C mg/l	COD mg/l	Oil & Grease mg/l	Hexavalent Chromium as Cr ⁶⁺ mg/l	Iron as Fe mg/l
	River Yamuna Downstream buria Nalaha	Blackish	Mild	8.0	2640	124	30	90	ND	ND	ND
January 2010	River Yamuna Upstream Buria Nalaha	Blackish	Mild	7.2	1710	90	25	70	ND	ND	ND
	Buria Nalaha before meeting River Yamuna	Blackish	Mild	8.5	4220	68	42	150	ND	ND	ND
	River Yamuna Downstream buria Nalaha	Blackish	Mild	7.4	1890	86	27	88	ND	ND	ND
February 2010	River Yamuna Upstream Buria Nalaha	Blackish	Mild	7.9	1110	79	22	80	ND	ND	ND
	Buria Nalaha before meeting River Yamuna	Blackish	Mild	7.63	3040	76	39	130	ND	ND	ND
	River Yamuna Downstream buria Nalaha	Blackish	Mild	7.94	1150	78	24	88	ND	ND	ND
March 2010	River Yamuna Upstream Buria Nalaha	Blackish	Mild	8.0	1210	74	24	80	ND	ND	ND
	Buria Nalaha before meeting River Yamuna	Blackish	Mild	7.7	3120	72	40	120	ND	ND	ND
	River Yamuna Downstream buria Nalaha	Blackish	Mild	8.1	1320	82	26	90	ND	ND	ND
April 2010	River Yamuna Upstream Buria Nalaha	Blackish	Mild	7.9	1340	84	26	88	ND	ND	ND
	Buria Nalaha before meeting River Yamuna	Blackish	Mild	7.5	3340	78	42	130	ND	ND	ND
	River Yamuna Downstream buria Nalaha	Blackish	Mild	8.2	1320	86	28	100	ND	ND	ND

Month		Color	Odour	pH Value	Conductivity umho/cm	Suspended Solids mg/l	BOD 3 days at 27' C mg/l	COD mg/l	Oil & Grease mg/l	Hexavalent Chromium as Cr ⁶⁺ mg/l	Iron as Fe mg/l
May 2010	River Yamuna Upstream Buria Nalaha	Blackish	Mild	8.3	1720	85	28	100	ND	ND	ND
	Buria Nalaha before meeting River Yamuna	Blackish	Mild	7.9	3510	84	45	140	ND	ND	ND
	River Yamuna Downstream buria Nalaha	Blackish	Mild	8.5	1610	91	32	110	ND	ND	ND

WATER QUALITY STATUS OF STPs BADSHAHPUR, MUJHERI, PARTAPGARH & PALWAL

Month		Color	Odour	pH Value	Conductivity umho/cm	Suspended Solids mg/l	BOD 3 days at 27° C mg/l	COD mg/l	Oil & Grease mg/l	Hexavalent Chromium as Cr ⁶⁺ mg/l	Iron as Fe mg/l
April 2009	Badshahpur	Blackish	Mild	7.77	4280	61	45	160	ND	ND	ND
	Mujheri	Blackish	Mild	8.48	3010	148	40	152	ND	ND	ND
	Partapgarh	Blackish	Mild	7.5	5940	162	52	260	ND	ND	ND
	Palwal	Blackish	Mild	8.54	2890	136	32	144	ND	ND	ND
October 2009	Badshahpur	Blackish	Mild	7.69	4220	65	42	150	ND	ND	ND
	Mujheri	Blackish	Mild	8.21	3480	152	62	250	ND	ND	ND
	Partapgarh	Blackish	Mild	8.61	3610	64	65	272	ND	ND	ND
	Palwal	Blackish	Mild	8.1	2800	148	46	210	ND	ND	ND
November 2009	Badshahpur	Blackish	Mild	7.9	3550	108	42	120	ND	ND	ND
	Mujheri	Blackish	Mild	7.2	8880	92	85	300	ND	ND	ND
	Partapgarh	Blackish	Mild	7.3	8160	172	80	260	ND	ND	ND
	Palwal	Sample Not Collected									
December 2009	Badshahpur	Blackish	Mild	7.8	3530	105	45	170	ND	ND	ND
	Mujheri	Blackish	Mild	7.4	7640	186	86	304	ND	ND	ND
	Partapgarh	Blackish	Mild	7.2	8360	192	85	300	ND	ND	ND
	Palwal	Blackish	Mild	8.1	7680	156	65	256	ND	ND	ND
January 2010	Badshahpur	Blackish	Mild	8.4	3620	114	45	130	ND	ND	ND
	Mujheri	Blackish	Mild	7.9	6870	180	84	280	ND	ND	ND
	Partapgarh	Blackish	Mild	7.7	8430	192	88	310	ND	ND	ND
	Palwal	Blackish	Mild	8.4	7820	158	66	260	ND	ND	ND
February 2010	Badshahpur	Blackish	Mild	7.72	4160	69	52	168	ND	ND	ND
	Mujheri	Blackish	Mild	8.3	8910	198	62	256	ND	ND	ND
	Partapgarh	Blackish	Mild	8.7	6890	172	65	280	ND	ND	ND
	Palwal	Blackish	Mild	8.2	8210	156	46	220	ND	ND	ND
March 2010	Badshahpur	Blackish	Mild	7.8	4340	72	60	170	ND	ND	ND
	Mujheri	Blackish	Mild	8.5	8970	188	64	260	ND	ND	ND
	Partapgarh	Blackish	Mild	8.9	6940	170	80	290	ND	ND	ND
	Palwal	Sample Not Collected									
April 2010	Badshahpur	Blackish	Mild	8.3	4460	82	70	180	ND	ND	ND
	Mujheri	Blackish	Mild	8.5	9430	228	70	280	ND	ND	ND

Month		Color	Odour	pH Value	Conductivity umho/cm	Suspended Solids mg/l	BOD 3 days at 27' C mg/l	COD mg/l	Oil & Grease mg/l	Hexavalent Chromium as Cr ⁶⁺ mg/l	Iron as Fe mg/l
	Partapgarh	Blackish	Mild	8.9	7250	188	76	304	ND	ND	ND
	Palwal	Blackish	Mild	8.3	8650	166	48	230	ND	ND	ND
May 2010	Badshahpur	Blackish	Mild	8.7	4690	94	75	190	ND	ND	ND
	Mujheri	Blackish	Mild	8.3	9180	234	65	256	ND	ND	ND
	Partapgarh	Blackish	Mild	8.7	6880	194	70	280	ND	ND	ND
	Palwal	Blackish	Mild	8.2	8290	175	40	240	ND	ND	ND

WATER QUALITY STATUS OF RIVER YAMUNA IN THE JURISDICTION OF BALLABGARH REGION

Month		Color	Odour	pH Value	Conductivity umho/cm	Suspended Solids mg/l	BOD 3 days at 27° C mg/l	COD mg/l	Oil & Grease mg/l	Hexavalent Chromium as Cr ⁶⁺ mg/l	Iron as Fe mg/l
April 2009	River Yamuna Upstream Gonchi Drain	Blackish	Mild	7.8	-	59	24	64	ND	ND	ND
	Gonchi Drain before meeting River Yamuna	Blackish	Mild	8.19	-	172	32	160	ND	ND	ND
	River Yamuna Downstream Gonchi Drain	Blackish	Mild	7.52	-	68	26	80	ND	ND	ND
October 2009	River Yamuna Upstream Gonchi Drain	Blackish	Mild	7.45	1000	74	22	72	ND	ND	ND
	Gonchi Drain before meeting River Yamuna	Blackish	Mild	8.26	2460	178	24	90	ND	ND	ND
	River Yamuna Downstream Gonchi Drain	Blackish	Mild	7.54	1120	81	23	80	ND	ND	ND
January 2010	River Yamuna Upstream Gonchi Drain	Blackish	Mild	7.3	1570	88	19	56	ND	ND	ND
	Gonchi Drain before meeting River Yamuna	Blackish	Mild	7.9	2380	162	60	150	ND	ND	ND
	River Yamuna Downstream Gonchi Drain	Blackish	Mild	7.8	1630	68	20	64	ND	ND	ND
February 2010	River Yamuna Upstream Gonchi Drain	Blackish	Mild	7.49	1130	79	19	72	ND	ND	ND
	Gonchi Drain before meeting River Yamuna	Blackish	Mild	8.3	2590	182	30	180	ND	ND	ND
	River Yamuna Downstream Gonchi Drain	Blackish	Mild	7.61	1340	88	20	80	ND	ND	ND
March 2010	River Yamuna Upstream Gonchi Drain	Blackish	Mild	7.6	1220	82	20	80	ND	ND	ND
	Gonchi Drain before meeting River Yamuna	Blackish	Mild	8.5	2680	96	35	190	ND	ND	ND
	River Yamuna Downstream Gonchi Drain	Blackish	Mild	7.8	1450	84	22	90	ND	ND	ND

Month		Color	Odour	pH Value	Conductivity umho/cm	Suspended Solids mg/l	BOD 3 days at 27° C mg/l	COD mg/l	Oil & Grease mg/l	Hexavalent Chromium as Cr ⁶⁺ mg/l	Iron as Fe mg/l
April 2010	River Yamuna Upstream Gonchi Drain	Blackish	Mild	7.7	1260	84	18	72	ND	ND	ND
	Gonchi Drain before meeting River Yamuna	Blackish	Mild	8.5	2710	202	29	100	ND	ND	ND
	River Yamuna Downstream Gonchi Drain	Blackish	Mild	7.9	1410	96	19	80	ND	ND	ND
May 2010	River Yamuna Upstream Gonchi Drain	Blackish	Mild	7.5	1190	79	18	64	ND	ND	ND
	Gonchi Drain before meeting River Yamuna	Blackish	Mild	8.7	2780	212	28	110	ND	ND	ND
	River Yamuna Downstream Gonchi Drain	Blackish	Mild	7.7	1360	90	19	70	ND	ND	ND

WATER QUALITY STATUS OF AGRA CANAL AT KARMAN BORDER IN THE JURISDICTION OF BALLABGARH REGION

Sr. No.	Parameters	March 2009	April 2009	May 2009	June 2009	July 2009	August 2009	September 2009	October 2009	November 2009	December 2009	Jan 2010	Feb 2010	March 2010	April 2010	May 2010
1.	Colour	----	----	----	Not Collocated	----	----	----	----	----	----	----	----	----	----	----
2.	Odour	----	----	----	DO	----	----	---	--	----	----	----	----	---	----	-----
3.	pH Value	7.37	7.69	7.39	DO	60.48	7.52	7.49	7.55	6.9	7.0	7.2	7.59	7.7	7.8	8.0
4.	Conductivity umho/cm	1010	930	1020	DO	1040	1030	1020	1010	1320	1050	1120	1010	1210	1010	1140
5.	Suspended Solids mg/l	82	38	80	DO	80	86	102	109	74	76	80	112	82	84	89
6.	BOD 3 days at 27' C mg/l	18	20	19	DO	17	16	17	18	18	19	18	18	19	18	20
7.	COD mg/l	72	80	76	DO	72	56	60	64	48	50	60	60	70	70	80
8.	O & G mg/l	ND	ND	ND	DO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9.	Hexavalent Chromium as Cr ⁺⁶ mg/l	ND	ND	ND	DO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
10.	Iron as Fe mg/l	ND	ND	ND	DO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

WATER QUALITY STATUS OF GURGAON CANAL AT VILL BIJJUPUR IN THE JURISDICTION OF BALLABGARH REGION

Sr. No.	Parameters	March 2009	April 2009	May 2009	June 2009	July 2009	August 2009	September 2009	October 2009	November 2009	December 2009	Jan 2010	Feb 2010	March 2010	April 2010	May 2010
1.	Colour	----	----	----	Not Collocated	----	----	----	----	----	----	----	----	----	-----	-----
2.	Odour	----	----	----	DO	----	----	---	--	----	----	----	----	----	-----	----
3.	pH Value	7.31	7.33	7.35	DO	10.60	7.29	7.24	7.32	6.9	7.4	7.8	7.7	7.8	7.5	7.7
4.	Conductivity umho/cm	1050	1040	1030	DO	1120	1050	1010	1020	1360	1340	1460	1460	1310	1310	1370
5.	Suspended Solids mg/l	52	56	58	DO	54	62	86	90	114	96	98	112	132	144	155
6.	BOD 3 days at 27' C mg/l	20	22	20	DO	21	18	17	19	32	26	22	20	26	24	26
7.	COD mg/l	88	96	88	DO	90	56	60	70	96	80	70	80	110	120	130
8.	O & G mg/l	ND	ND	ND	DO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9.	Hexavalent Chromium as Cr ⁶⁺ mg/l	ND	ND	ND	DO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
10.	Iron as Fe mg/l	ND	ND	ND	DO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Details of water polluting industries with category are given below:

Sr. No.	Type of Units	Size	
		L&M	SSI
31.	Automobile Components	1	0
32.	Breweries	1	0
33.	Chemicals	7	6
34.	Educational Society	1	0
35.	Electroplating	6	46
36.	Engineering	0	1
37.	Extrusion	0	2
38.	Finished leather	0	1
39.	Food Processors	0	1
40.	Foundry	1	0
41.	Heat Treatment	6	10
42.	Home Appliance	0	1
43.	Hospital	4	1
44.	Hotel	3	1
45.	Mall	8	0
46.	Oil Recycler	2	0
47.	Pharmaceuticals	1	3
48.	Phosphating/Pickling	15	63
49.	Phosphating	6	13
50.	Pickling	0	4
51.	Printing Press	2	1
52.	R & D Centre	3	0
53.	Readymade Garments	1	13
54.	Service Station	3	17
55.	Steel Tubes	0	1
56.	Textile Dyeing	15	86
57.	Milk Processing	3	3
58.	Tyre Manufacturing	1	0
59.	Power Station	2	0
60.	CETP	1	0

ABSTRACT

Large and Medium units	93
SSI units	274
Total operating units	367

**AMBIENT AIR QUALITY-AVERAGES UNDER NAMP
CITY--- FARIDABAD, STATION- HSPCB OFFICE, BALLABGARH, FARIDABAD/SEC-11/16A**

YEAR	PARAMETERS	MONTHLY AVERAGE microgram/cubic meter												YEARLY AVERAGE
		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	
1998	SPM	NM	NM	NM	NM	NM	NM	NM	NM	NM	461	441	448	450
	SO2	NM	NM	NM	NM	NM	NM	NM	NM	NM	39	34	40	37.7
	NO2	NM	NM	NM	NM	NM	NM	NM	NM	NM	13	13	14	13.3
1999	SPM	300	516	543	469	504	380	NM	NM	242	429	347	361	409
	SO2	40	38	40	40	34	32	NM	NM	32	32	34	32	35.4
	NO2	12	12	11	12	11	12	NM	NM	13	12	13	13	12.1
2000	SPM	NM	NM	NM	NM	NM	NM	NM	NM	NM	527	536	514	526
	SO2	NM	NM	NM	NM	NM	NM	NM	NM	NM	38	40	32	36.6
	NO2	NM	NM	NM	NM	NM	NM	NM	NM	NM	9	12	13	11.3
2001	SPM	410	261	228	368	217	256	273	289	305	383	536	486	334
	SO2	31	28	25	28.3	27	27	28	22	22	16	16	14	23.7
	NO2	12	9	9	11.7	10	12	16	20	22	22	22	21	15.6
2002	SPM	487	424	589	598	595	445	554	266	285	430	542	499	476
	SO2	14	13	13	14	10	10	18	10	10	12	17	17	12
	NO2	22	22	24	23	27	29	29	27	20	27	36	36	28
2003	SPM	333	357	446	479	548	553	302	278	273	472	446	428	410
	SO2	8	9	9	8	7	5	7	10	10	13	13	11	9
	NO2	21	23	27	24	23	20	23	28	30	43	45	38	29
2004	SPM	410	329	332	346	523	358	322	251	268	283	299	311	336
	RSPM	179	152	154	159	213	156	158	104	131	131	136	143	151
	SO2	9	7	8	9	7	8.5	7	6	8	8	8	7	7
	NO2	32	25	24	20	20	21	18	19	21	19	20	19	22
2005	SPM	309	305	285	297	297	306	317	348	349	374	296	310	316
	RSPM	142	140	133	137	138	142	145	158	170	178	137	142	158
	SO2	7	8	8	9	8	9	8	8	8	8	8	7	8
	NO2	19	20	19	21	20	20	20	21	22	23	19	19	20
2006	SPM	401	403	403	310	316	304	293	348	363	378	364	357	353
	RSPM	174	166	171	142	141	140	134	150	159	160	157	153	153
	SO2	9	10	9	7	9	8	8	10	12	12	13	11	10

	NO2	21	22	21	19	20	20	20	22	25	24	24	24	22
2007	SPM	357	358	367	354	352	307	286	276	263	268	275	274	311
	RSPM	155	157	158	156	157	138	122	141	138	139	142	146	146
	SO2	12	15	15	15	17	8	8	10	11	9	10	10	12
	NO2	26	29	30	29	30	19	19	21	21	23	23	24	25
		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	
2008	SPM	287.15	287	350	358.2	359	293	283.8	298.75	312	313	314	313	314
	RSPM	149.23	148.8	157	156.4	156.75	125	119.6	114.75	125	128	125	127	136
	SO2	12.46	12.9	16	15.4	15	13.5	8.8	10.75	11	11	11	12	12
	NO2	26.38	26.5	28	28.2	25.62	22.9	19.4	20.5	21	20	21	21	23
2009	SPM	307	316	351	353	362	356	358	341	338	347	342	347	343
	RSPM	129	134	157	155	167	159	160	157	143	146	142	146	150
	SO2	12	12	18	18	17	19	18	16	12	12	12	13	15
	NO2	22	21	17	29	30	29	28	26	19	20	20	20	22
2010	SPM	349	350	356	361	369								
	RSPM	150	159	161	166	172								
	SO2	14	16	17	17	16								
	NO2	21	21	21	22	22								

**AMBIENT AIR QUALITY-AVERAGES UNDER NAMP
CITY--- FARIDABAD, STATION-M/S SHIVALIK GLOBAL MATHURA ROAD, FARIDABAD PRESENTLY OPERATING AT M/s ESCORTS
RESEARCH CENTRE, MATHURA ROAD, FARIDABAD**

YEAR	Parameters	Monthly Average microgram/cubic meter												YEARLY AVERAGE
		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	
1998	SPM	NM	NM	377	364	434	280	238	249	282	NM	NM	NM	318
	SO2	NM	NM	40	36	37	32	20	32	28	NM	NM	NM	32
	NO2	NM	NM	16	16	15	12	8	12	10	NM	NM	NM	12.7
1999	SPM	NM	NM	NM	NM	NM	NM	NM	NM	NM	394	402	437	411
	SO2	NM	NM	NM	NM	NM	NM	NM	NM	NM	34	36	34	35
	NO2	NM	NM	NM	NM	NM	NM	NM	NM	NM	15	15	14	15
2000	SPM	NM	NM	NM	NM	NM	NM	NM	NM	NM	708	651	440	599.7
	SO2	NM	NM	NM	NM	NM	NM	NM	NM	NM	40	41	31	37.3
	NO2	NM	NM	NM	NM	NM	NM	NM	NM	NM	12	11	12	11.7
2001	SPM	396	235	234	362	233	284	262	261	266	384	536	480	328
	SO2	31	28	27	29	27	27	22	23	19	16	16	15	24.6
	NO2	11	10	10	11	9	11	17	19	23	23	19	21	16.25
2002	SPM	476	441	578	561	589	453	549	257	253	388	515	454	460
	SO2	13	12	12	13	11	10	18.5	10	10.9	12	16	15	12
	NO2	20	21	22	23	23	29	29	26	21	30	40	34	26.5
2003	SPM	344	348	447	451	532	516	280	266	290	400	457	405	394.7
	SO2	8	9	7	8	6	9	7	9	11	14	13	10	9.25
	NO2	23	24	25	26	21	29	26	29	30	41	44	36	29.5
2004	SPM	383	413	422	453	519	392	378	295	371	366	406	414	401
	RSPM	165	181	171	181	224	180	181	134	176	155	166	177	174
	SO2	10	9	10	9	10	10	9	5	10	10	10	11	10
	NO2	29	32	27	28	25	21	25	26	23	23	21	21	23
2005	SPM	415	418	432	381	393	418	418	369	374	409	408	415	404
	RSPM	176	169	183	158	174	183	179	155	166	187	166	202	175
	SO2	11	11	12	10	11	12	11	10	9	10	10	11	11
	NO2	22	23	23	23	24	23	21	21	22	23	21	21	22
2006	SPM	423	427	432	415	420	304	366	370	415	417	406	389	399
	RSPM	180	185	183	177	182	140	155	177	177	178	169	163	172
	SO2	12	12	12	11	12	11	9	11	13	14	13	12	12

	NO2	23	24	23	21	26	24	20	21	24	26	24	26	24
2007	SPM	390	392	390	395	395	398	336	361	364	365	364	365	376.0
	RSPM	166	168	167	170	169	166	143	174	179	181	183	184	171
	SO2	13	15	14	16	15	10	10	10	10	11	11	12	12
	NO2	24	26	25	28	28	23	20	20	22	13	23	23	23
		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	
2008	SPM	368	370	373	373	307 .12	302.2	323.5	315.6	318	313	319	326	334
	RSPM	188.8	220.8	180	180.8	152 .75	123.2	133.7 5	126.5	129	131	133	139	153
	SO2	13.3	14	15	15	13. 1	14.5	10.12 5	12.0	12	12	11	12	13
	NO2	25.6	25.3	26	25.7	19. 75	19.8	20.87 5	22.5	22	22	22	22	23
2009	SPM	325	326	372	373	386	363	364	353	344	348	372	377	359
	RSPM	118	119	178	178	182	177	176	166	145	146	152	159	158
	SO2	12	12	16	16	18	20	22	17	14	13	13	14	15
	NO2	22	21	26	26	29	27	27	22	20	20	21	22	24
2010	SPM	376	369	377	390	393								
	RSPM	163	164	169	183	181								
	SO2	15	16	19	19	17								
	NO2	83	23	23	24	23								

Annexure-IV

Ground Water Status of Faridabad

Regional Office has collected the ground water status report from Central Ground Water Board, Faridabad. The data of Water Quality and Water Table of Faridabad reveals that the under ground water table is constantly receding due to over exploitation and the quality of under ground water is also deteriorating due to contamination through leaching. The detailed report is as under:

Table-I
Water Level Data Report of District Faridabad from January 2007, January 2008, January 2009 & January 2010 (Source Central Ground Water Board)

Water Level meter below ground level (mbgl)				
	2007	2008	2009	2010
Ballabgarh	21.15	-	25.15	-
Kaboolpur	13.30	13.70	14.25	14.92
Sikri	4.48	3.88	3.82	4.52
Bhopani	13.85	15.22	15.46	16.80
Nhiv-1	40.48	-	-	44.89
Pali	11.35	-	13.35	13.74
Sector-3, Ballabgarh	20.30	25.30	20.30	-
Kot	7.84	10.64	8.68	-
Lakhanaka	7.65	7.40	6.48	7.60
Achheja	7.85	7.46	6.61	-
Bamnikhera	7.09	8.67	-	7.12
Baroli	-	8.70	-	8.52
Dighaut	10.28	9.70	9.47	10.93
Hodel	11.05	12.42	9.39	-
Khambi	4.04	3.30	-	-
Tumsara	8.36	-	8.37	8.98
Badraun	-	-	5.07	6.86
Baghaura	5.69	5.40	4.55	4.75
Lalwa	5.88	4.46	2.98	6.06
Palwal	4.82	4.57	3.57	4.44
Palwal-1	7.04	7.02	6.65	7.74
Rasulpur	5.72	5.74	4.58	6.07

Table-II Ground Water Quality at different location of District Faridabad (Source Central Ground Water Board)

District Faridabad														
Sr No	Location	Well No.	pH	EC	CO3	HCO3	CI	SO4	NO3	F	T.H	SAR	RSC	
				in μ seimens/cm						as CaCO3			in	
				as 25 *C <--- mg/L ----->)										meq/L
1	JINDAPUR	53H-4A6	7.64	4010	0	533	733	396	241	0.92	671	11.38	-4.7	
2	PALWAL	53H-4BI	8.2	1767	0	812	132	92	27	3.85	200	11.02	9.31	
3	TUMSARA	53H-4B2	7.56	6140	0	728	1226	840	84	0.3	814	17.75	-4.42	
4	BAGHULA	53H-4B3	8.13	1361	0	533	118	102	9	1.92	205	7.6	4.64	
5	BAMNIKHERA	53H-4B7	7.45	1687	0	669	125	144	16	1.05	374	5.43	3.51	
6	RASULPUR	53H-4B9	7.71	3209	0	1280	347	210	10	2.14	309	15.4	14.78	
7	LALWA	53H-4B10	7.92	873	0	351	69	54	13	0.54	335	1.52	-0.93	
8	ACHEJA	53H-B12	7.56	1409	0	682	73	122	11	9.26	209	8.82	6.97	
9	KOT	54E-1A7	7.76	1307	0	539	132	64	1.7	4.86	213	7.16	4.58	
10	HASSANPUR	54E-1B2	7.91	3010	0	858	320	412	9.8	3.1	330	14.45	7.47	
11	PALI	53H-3AP2	7.52	1467	0	442	257	48	69	0.34	540	2.81	-3.5	
12	BALLABGARH	53H-3BP1	7.21	4050	0	566	952	248	60	0.024	692	10.4	-4.57	
13	BHOPANI	53H-3BP5	7.9	1139	0	416	122	80	36	1.02	448	1.75	-2.14	
14	SIKRI	53H-3BP6	7.07	5450	0	176	1799	158	3.7	0.04	3251	1.62	-44.2	
15	HODAL	54E-1BP1	7.62	2780	0	618	538	148	45	1.48	614	7.11	-2.15	
16	KHAMBI	54E-1BP2	8.39	1023	19	267	149	56	9.7	0.97	279	3.29	0.54	
17	KABULPUR	54E-3BP9	7.71	2656	0	279	556	202	245	0.18	801	4.08	-11.5	
18	SOTAI	53H-3BP11	8.01	1593	0	624	143	94	45	2.7	179	9.89	6.61	
19	DIGHAUT	53H-4BP3	7.72	2560	0	754	278	312	14	1.48	322	11.81	5.89	
20	BARAULI	53H-4BP2	7.09	936	0	299	104	61	26	0.51	313	2.03	-1.4	
21	LAKHNAKA	53H-BPA4	7.25	4930	0	494	1084	720	24	1.1	1114	9.61	-14.1	
22	BADRAM	53H-4BP4	8.25	1327	0	474	129	94	16	0.99	305	4.42	1.7	
23	BALLABGARH PZ	53H-BP13	7.81	1155	0	34	167	27	15	0.81	348	2.42	-1.32	
24	MANDOKLA		7.5	3498	0	403	789	279	91	0.64	923	5.89	-11.9	
25	HATHIN		7.41	6710	0	377	1956	504	2.4	0.4	2068	6.62	-35.2	