

## Chapter 14: ENVIRONMENT

### 14.1 Background

The quality of environment is important in order to achieve sustainable development. It is imperative that development should take place with environmental considerations and therefore it is crucial to identify those environmental endowments whose depletion or damage may cause irreparable loss to the regional water resources, forest cover, sanctuaries, ecologically sensitive areas, good quality agricultural land and heritage areas etc. It is also crucial to (i) comply with various environmental laws, norms and standards (ii) protect the environment through conservation of the environmental resources, (iii) prevent and control pollution (iv) achieve sustainable development and (v) address the emerging environmental concerns.

The NCR Regional Plan-2021 calls for a balanced approach, incorporating environmental consideration in to planning process for sustainable development of the Sub-Region. This chapter shall focus on:

1. Forest
2. Air
3. Water
4. Environmentally sensitive zones in the Sub-Region.

### 14.2 Forest in Haryana

Forests are an important natural resource and confer manifold ecological benefits to the society. The ever increasing demand for food, fuel, fodder and the growing demand of land for urbanization have put tremendous pressure on the scarce forest resources of the Sub-Region. The National Forest Policy, 1988, aims to have a minimum of 1/3rd of the total land area of the country under forest and tree cover. The forest cover has great bearing on ground water occurrence, soil erosion, reduction of floods occurrence and persevering environment.

At an all India level, forest cover forms 21% of the total Geographical Area. In the National Capital Region, forests are spread over an area of 2131.2 sq. km., which is 6.2% of the total land area of NCR (India State of Forest Report, 2011). The Haryana Sub-Region of NCR has 3.94% area (529.41 Sq. Kms.) under forest which is higher than the Haryana state average (3.5%). The Rajasthan Sub-Region (14.4%) has the highest area under forest, followed by NCT Delhi (11.9%) and by UP Sub-Region (2.6%). District wise distribution of reserve forest, protected Forest and other forest have been shown in the table 14.1 and figure no 14.1.

#### 14.2.1 Present Status of Forest Cover in Haryana Sub-Region

Haryana is primarily an agriculture state with almost 80% of its land under cultivation. The geographical area of the state is 44212 sq. km which is 1.3% of India's geographical area. It is not bestowed with bounty of natural forests and only 3.53% of its geographical area is under notified forests. As per India State of Forest Report, FSI, 2011, the Forest Cover in the state is 1608 sq.km which is 3.64% of the state's geographical area and the Tree Cover in the state is 1395 sq. km which is 3.16% of the geographical area. Thus the forest and Tree Cover of the state is 6.80% of its geographical area.

Forestry activities in the state are dispersed over rugged Shiwalik Hills in north, Aravalli hills in south, sand dunes in west and wastelands, saline-alkaline lands and waterlogged sites in the central part of the state. The forests in Haryana are classified under Reserved, Protected, Unclassified and areas closed under section 38 of Indian Forest Act (IFA) and under section 4 & 5 of the Punjab Land Preservation Act (PLPA, 1900).

Forests are governed by specific set of laws like Indian Forests Act, 1927, Forest Conservation Act, 1980 and Wildlife Protection Act, 1972. However, for identification, classification and mapping and delineation of forests, the Hon'ble Supreme Court vide its orders dated 12.12.1996 and 06.07.2011 in Writ Petition (Civil) No. 202 of 1995 titled as T.N. Godavarman Thirumulpad Vs. Union of India & Ors. and IA Nos. 1868, 2091, 2225-2227, 2380, 2568 and 2937 filed by Lafarge Umiam Mining Pvt. Ltd. in this case has issued certain directions.

Vide orders dated 12.12.1996, the Hon'ble Supreme Court had ordered as follows:-

*"Each State Government should constitute within one month an Expert Committee to:*

- (i) Identify areas which are "forests", irrespective of whether they are so notified, recognised or classified under any law, and irrespective of the ownership of the land of such forest;*
- (ii) identify areas which were earlier forests but stand degraded, denuded or cleared; and*
- (iii) identify areas covered by plantation trees belonging to the Government and those belonging to private persons."*

In compliance with the above orders, an Expert Committee was constituted by the Forests Department, Government of Haryana vide orders dated 28.01.1997 headed by the then Principal Chief Conservator of Forests, Haryana, which mapped and delineated the forests in compliance with these directions. The compliance report alongwith the report of the Expert Committee was submitted before the Hon'ble Supreme Court by means of an affidavit dated 25.02.1997 filed by the then Secretary to Government Haryana, Forests Department.

Subsequently, vide order dated 06.07.2011, Hon'ble Supreme Court has ordered as under:

*"... the exercise undertaken by each State/UT Govt. in compliance of this Court's order dated 12.12.1996 wherein inter-alia each State/UT Government was directed to constitute an Expert Committee to identify the areas which are "forests" irrespective of whether they are so notified, recognized or classified under any law, and irrespective of the land of such "forest" and the areas which were earlier "forests" but stand degraded, denuded and cleared, culminating in preparation of Geo-referenced district forest-maps containing the details of the location and boundary of each plot of land that may be defined as "forest" for the purpose of the Forest (Conservation) Act, 1980..."*

In compliance with the above orders, the geo-referenced district maps of the districts falling in NCR region have been prepared by the Forests Department, Govt. of Haryana and conveyed by to the Member Secretary, NCR Planning Board vide letter dated 06.03.2013. Same were also reiterated recently by the Forests Department, Haryana vide letter 15.04.2014 to NCRPB and copies of these geo-referenced maps have also been sent to MoEF by the Forests Department vide letter No. 47 dated 11.04.2014. These geo-referenced maps were to be prepared by the concerned States and were not required to be approved or submitted to any Authority. These were sent to MoEF on 11.04.2014 only for confirming the fact that these geo-referenced maps have already been prepared by the State of Haryana. No communication intimating the discrepancies in the geo-referenced district maps prepared by the State of Haryana had been received from MoEF till date of meeting of NCRPB held on 25.04.2014, yet it has been decided by the State of Haryana that discrepancies as and when communicated by the MoEF will be dealt with and promptly addressed by the Forests Department. All the areas which have already been mapped and delineated as forests by the Forests Department will be strictly governed as per the provisions of Indian Forest Act, 1927, Forest Conservation Act, 1980, Wildlife Protection Act, 1972 as well as Environment Protection Act,

1986. No land delineated as forest shall be allowed to be diverted for non forestry purposes except in accordance with the provisions of these mandatory Statutes.

As far as use of land notified under PLPA is concerned, though same is being treated as 'forest' in terms of order dated 18.03.2004 of the Hon'ble Supreme Court in Writ Petition (C) No. 4677 of 1985 titled as M.C. Mehta Vs. Union of India but the Hon'ble Supreme Court is yet to decide the legal effect of the issue of notifications under Section 4 and/or 5 of the PLPA (para 82 of the order *ibid*). The State of Haryana has already filed an IA in this behalf wherein the State has requested the Hon'ble Supreme Court to define the legal effects of Section 4 and/or 5 of PLPA. It may be mentioned here that the Hon'ble Supreme Court vide its orders dated 09.09.2005 in IA No. 976 in IA No. 727 in TN Godavarman's case allowed exclusion of a huge area of 69,366.90 hectares from the list of forest area of the State of Punjab as it was earlier notified under PLPA on the ground that these areas were under cultivation/ habitation. In State of Haryana also, huge area under cultivation/habitation has been notified under Section 4 and/or 5 of PLPA. These areas were included in the Annual Administrative Reports of the Forest Department only because these areas were regulated by the Forest Department during the currency of the Notifications and subsequently being shown as 'Forest' in terms of orders dated 18.03.2004 *ibid*. Incidentally, the Hon'ble Supreme Court has considered this issue in Civil Appeal No. 4682-4683 of 2005 titled as B.S. Sandhu Vs Government of India and others and decided the same vide its orders dated 21.05.2014. Para 14 of the order *ibid* reads as under:

*"14. Hence, the first question that we have to decide is whether the conclusion of the High Court that the land which is notified under Section 3 of the PLP Act, 1900 and is regulated by the prohibitory directions notified under Sections 4 and 5 of the aforesaid Act is 'forest land' is correct in law..."*

The said issue has been decided by the Hon'ble Supreme Court holding that any land cannot be held as 'forest' merely because it has been notified under the PLPA and hence so recorded in the Annual Administrative Reports of the Forest Department. As a matter of fact, the Hon'ble Court has defined the legal effects of Section 3, 4 and 5 of the PLPA vide this order even with reference to the Hon'ble supreme Court Order dated 12.12.1996 (paras 15 and 16 of the order *ibid* may be referred in this behalf).

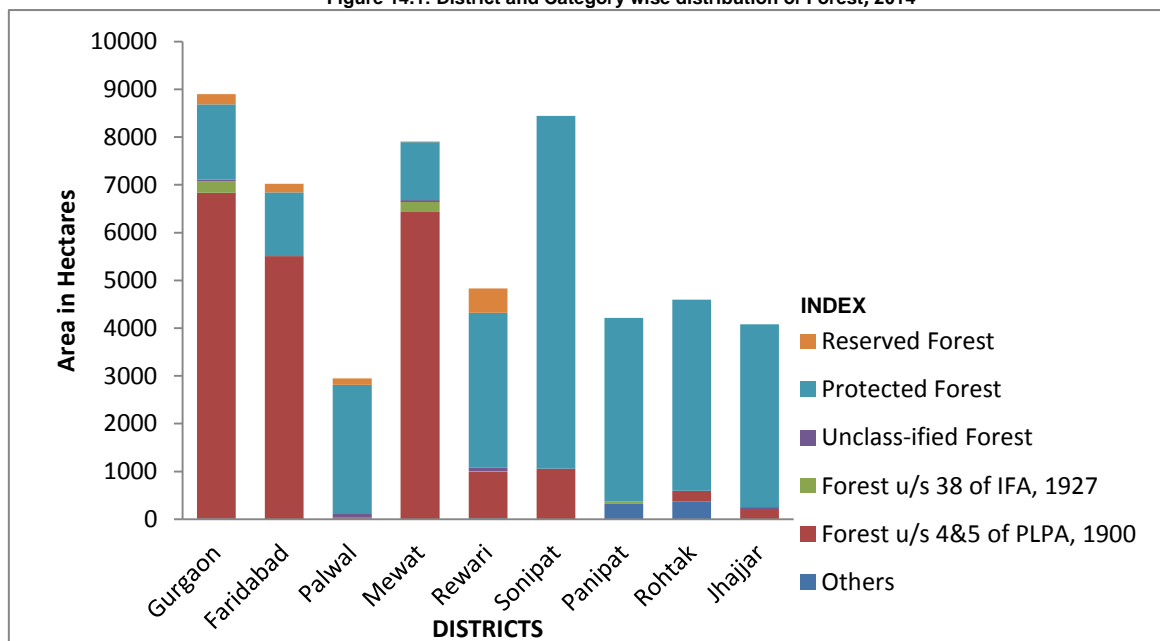
However, till the time IA filed by State of Haryana is decided, all the areas notified under Section 4 & 5 of PLPA, 1900 will be treated as Forests as is being done at present.

**Table 14.1: District-wise Forest Area (in Ha), 2014**

District	Reserved Forest	Protected Forest (PF)						Unclassified Forest	Forest u/s 38 of IFA, 1927	Forest u/s 4&5 of PLPA, 1900	Others	Grand total
		Compact	Road	Rail	Canal	Bund	Total					
Gurgaon	214.89	144.68	997.60	142	200.83	90.5	1,575.61	31.11	238.15	6,824.85	12.66	8,897.27
Faridabad	175.63	0	670.72	0	598.95	64.05	1,333.72	0	0	5,509.73	0	7,019.08
Palwal	138.61	37.78	1,462.04	0	1,165.71	17.64	2,683.17	92.26	0	25.2	9.4	2,948.64
Mewat	16.19	14.64	748.52	0	288.48	161.78	1,213.42	39.66	206.8	6,432.33	0	7,908.40
Rewari	514.04	0	1,528.20	269.64	1,322.65	117.51	3,238.00	80.04	10.97	970.57	20.24	4,833.86
Sonipat	0	0	2,128.88	331.44	4,608	317.74	7,386.06	0	0	1,057.45	0	8,443.51
Panipat	0	15.81	962.71	294.97	2,479.54	89.49	3,842.53	0	50.18	0	321.08	4,213.78
Rohtak	0	41.2	1,324.46	505.5	1,928.79	198	3,997.95	0	0	221	375.4	4,594.35
Jhajjar	0	491	1,294.16	146.57	1,852.19	42.42	3,826.34	45.04	0	210.4	0	4,081.78
<b>Sub-Region</b>	<b>1059.36</b>	<b>745.11</b>	<b>11,117.29</b>	<b>1690.12</b>	<b>14,445.14</b>	<b>1099.13</b>	<b>29,096.8</b>	<b>288.11</b>	<b>506.1</b>	<b>21,251.53</b>	<b>738.78</b>	<b>52,940.67</b>

Source: Forest Department Haryana, 2013

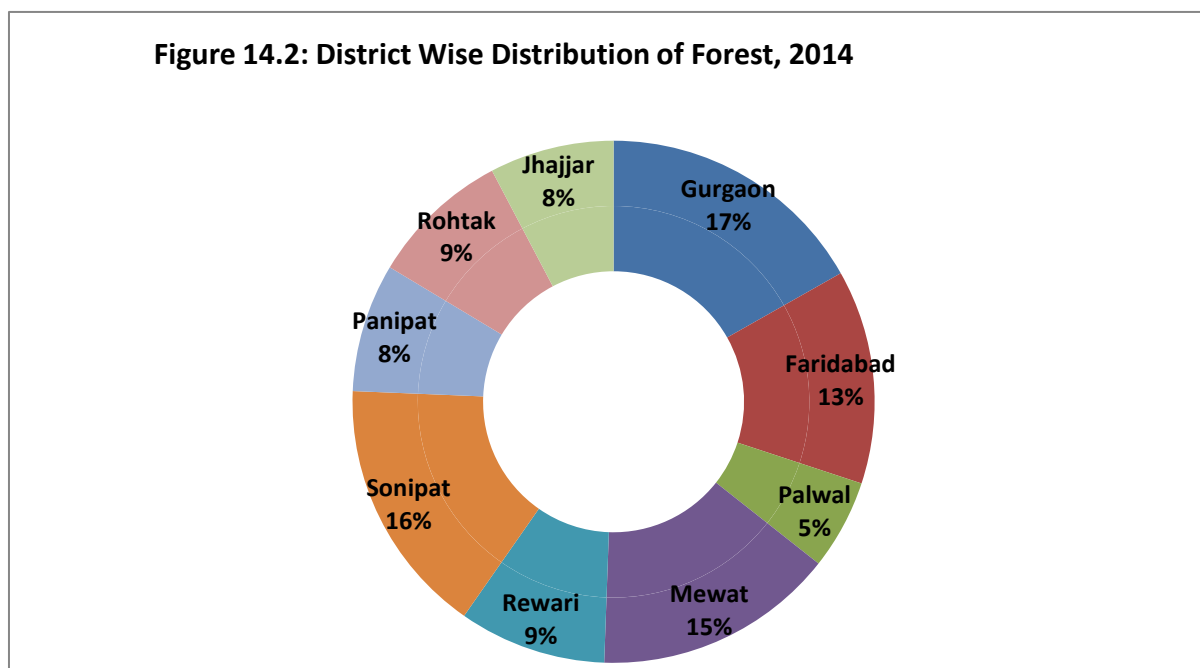
Figure 14.1: District and Category wise distribution of Forest, 2014



Source: Analysis

The total area under the Reserve forest is 10.59 sq Kms in Haryana Sub-Region and protected forest consists of 290.96 Sq Kms followed by other forest which covers 227.85 Sq Kms geographical area of the region. The forest cover is unevenly distributed in the Sub-Region. The southern districts of Rewari, Gurgaon and Faridabad have larger areas under Reserve Forest with respective areas of 5.14 Sq Km, 2.15 Sq Km and 1.76 Sq Km. Thorny Forests are found only in the Aravalli hills in the Southern parts of the State. District wise share of forest is shown in figure 14.2 where 17 percent of total forest cover is located in District Gurgaon, 16 percent in Sonipat, 15 percent in Mewat and 13 percent in Faridabad. Rohtak, Rewari has 9 percent and panipat and Jhajjar consist 8 percent of forest cover of the Haryana Sub-Region. The Palwal district has only 5 percent of forest cover of Sub-Region.

Figure 14.2: District Wise Distribution of Forest, 2014



To promote sustainable development of Forest resources in the State, the Government has framed its Forest Policy in 2006. The policy has fixed the goal of achieving 20% Forest and Tree Cover in the State in a phased manner. This goal can be achieved by adopting Agro-forestry practices. Forest Department is also using genetically superior seedlings under Agro-Forestry on farm lands to increase productivity. In fact, Agro forestry should become a national mandate and a people's movement, as it is most economical, sustainable and stable alternative for ensuring ecological security of the country. In the year 2012-2013 the Forest Department had distributed about 25 million seedlings to the farmers free of cost. Agro forestry plantations raised by the Forest Department are rated as one of the best in the country. It has been adopted by farmers as an Income Generation Activity and used as a model of rural development. The policy of not putting unnecessary restrictions on felling of trees from private land and their subsequent transit has enabled an environment which has led a large number of farmers to grow trees. The endeavour has been to create an environment that Agro-forestry and Wood-Based Industries flourish and grow simultaneously.

### 14.2.2 Temporal Change in the Forest Cover in Haryana Sub-Region (2001-11)

As per table 14.2, it is quite clear that Forest cover in the Haryana Sub-Region has been continuously increasing since 2001. During the year 2011, total forest cover of the sub-region increased to 456 sq. Kms as compared from 454 sq. km in 2009 and 440 Sq Kms. in 2005 and 354 Sq. kms in 2001. Considering the distribution of types of forest during 2011, Gurgaon district has highest forest cover (231 sq. km.) followed by Faridabad (93 sq. km.) and Rohtak (53 sq. km.).

**Table 14.2 : Forest Cover (sq.km.) for the Year 2001-11 as reflected in DRRP 2021**

Districts	Geographical Area	2001				2005				2009				2011			
		Dense	Open	Total	%	Dense	Open	Total	%	Dense	Open	Total	%	Dense	Open	Total	%
Panipat	1,268	15	4	19	1.5	6	17	23	1.8	4	14	18	1.4	4	13	17	1.3
Sonipat	2,122	3	2	5	0.2	5	12	17	0.8	4	16	20	0.9	4	17	21	1.0
Rewari	1,582	19	10	29	1.8	3	18	21	1.3	3	20	23	1.5	3	18	21	1.3
Jhajjar	1,834	11	5	16	0.9	8	15	23	1.3	5	15	20	1.1	5	15	20	1.1
Rohtak	1,745	11	15	26	1.5	6	40	46	2.6	8	43	51	2.9	8	45	53	3.0
Gurgaon	2,766	21	173	194	7.0	48	170	218	7.9	52	177	229	8.3	50	181	231	8.4
Mewat*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Faridabad	2,151	19	46	65	3.0	30	62	92	4.3	29	64	93	4.3	28	65	93	4.3
Palwal*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Sub-Region</b>	<b>13,428</b>	<b>99</b>	<b>255</b>	<b>354</b>	<b>2.6</b>	<b>106</b>	<b>334</b>	<b>440</b>	<b>3.3</b>	<b>105</b>	<b>349</b>	<b>454</b>	<b>3.4</b>	<b>102</b>	<b>354</b>	<b>456</b>	<b>3.4</b>
<b>Haryana State</b>	<b>44,212</b>	<b>1,139</b>	<b>615</b>	<b>1,754</b>	<b>4.0</b>	<b>526</b>	<b>1,061</b>	<b>1,587</b>	<b>3.6</b>	<b>490</b>	<b>1,104</b>	<b>1,594</b>	<b>3.6</b>	<b>484</b>	<b>1,124</b>	<b>1,608</b>	<b>3.6</b>

\*Forest cover is included in Districts of Gurgaon and Faridabad which they were part of earlier.

Source: India State of Forest Report, Forest Survey of India (2001, 2005, 2009 & 2011)

The Table 14.2 shows that the district of Gurgaon has the highest forest cover in terms of percentage as well in the Haryana subregion, which has successively grown from 7% in 2001 to 8.4 % in 2011.

### 14.2.3 National Parks and wildlife Sanctuaries in the Sub-Region

In the State, there are 9 wildlife sanctuaries and 2 national parks out of which 3 wildlife sanctuaries and 1 national park exist in the Sub-Region. These consist of rare species of birds, black bucks, chital, barking dears, red jungle fowls and leopards. The location, spatial extent and names of wild animals in these are given in table 14.3

**Table 14-3: National parks and wild life sanctuaries in the sub-region**

National Parks / Wildlife Sanctuary	Tehsil / District	Important Wild Animals Found	Area (Ha)
Sultanpur National Park	Gurgaon	Water birds	142.52
Bhindawas Wildlife Sanctuary	Jhajjar	Water birds, Black buck, Blue bull	411.55
Nahar Wildlife Sanctuary	Kosli/Rewari	Black buck, Blue bull, Black and brown partridges	211.35
Khapparwas Wildlife Sanctuary	Jhajjar	Water birds	82.70

Source: Ministry of Environment & Forests (MoEF)

A Zonal Master Plan for the Eco-sensitive Zones has to be prepared by the State and submitted for approval to the Central Government in the Ministry of Environment and Forests. The Zonal Master Plan shall be prepared with due involvement of all concerned State Departments, such as Environment, Forest, Urban Local Bodies, Tourism, Municipal and Revenue Department and the Haryana State Pollution Control Board for integrating environmental and ecological considerations. This will include restoration of denuded areas, conservation of existing water bodies, management of catchment areas, watershed management, groundwater management, soil and moisture conservation, needs of local community and such other aspects of the ecology and environment that need attention.

#### 14.2.4 Statutory Mechanism for protection of Aravali range:

In order to protect the areas falling under Aravali Range and restrict activities which are likely to cause environmental degradation in the Aravali Region the Ministry of Environment and Forests, Government of India has issued a notification dated 7th May, 1992 (operative part of the said notification excluding the annexure is enclosed at Annexure 14.1). The said notification prohibits the carrying out of any of the following operations except with the prior approval of Ministry of Environment and Forests, Government of India and after preparation of an Environment Impact Assessment and approval of Environmental Management Plan apart from other formalities as may be considered necessary by the Government:

- (i) All new mining operations including expansion modernisation;
- (ii) (a) All new mining operations including renewals of mining leases.  
(b) Existing mining leases in sanctuaries/national park and areas covered under Project Tiger and/or  
(c) Mining is being done without permission of the competent authority.
- (iii) Cutting of trees;
- (iv) Construction of any clusters of the dwelling units, farmhouses, sheds, community centres, information centres and any other activity connected with such construction (including roads as a part of any infrastructure relating thereto);
- (v) Electrification (laying of new transmission lines).

### 14.3 Air Quality

Air pollution has long been recognized as potentially lethal. Entry of pollutants into the atmosphere occurs in the form of gases or particles. Continuous mixing, transformation and trans-boundary transportation of air pollutants make air quality of a locality unpredictable. The growth of population, industry and number of vehicles has increased emission levels. The single most important factor responsible for deterioration of air quality in the cities is the exponential increase in the number of vehicles. Vehicular pollution contributes to more than 70% of the total air pollution in the towns of the sub-region.

**14.3.1 Air Quality in Towns:** There are at present 3 online air monitoring stations at Gurgaon, Faridabad and Rohtak and 9 other manual air monitoring stations within the Sub-Region. The Ambient air quality status in the Sub Region as per National Ambient Air Quality Standard (NAAQS) of India notified by the CPCB provides for permissible limits of 12 air pollutants, out of these 4 pollutants are regularly being monitored which are as under:

1. **PM<sub>10</sub> (Particulate Matter of 10 Micron or less):** PM<sub>10</sub> is directly emitted or is formed in the atmosphere as a result of mixing of various gaseous pollutants. Major human health concerns from

PM<sub>10</sub> exposure include effects on respiratory systems, damage to lung tissue, cancer and even premature death.

2. **PM<sub>2.5</sub> (Particulate matter of 2.5 Micron or less):** PM<sub>2.5</sub> has far greater potential to adversely affect human health and also has impacts on climate and precipitation.
3. **SO<sub>2</sub> (Sulphur dioxide):** Sulphur dioxide (SO<sub>2</sub>) is a major air pollutant from vehicular and industrial emissions; its concentration in the atmosphere has significant impacts upon human health and habitat.
4. **NO<sub>2</sub> (Nitrogen dioxide):** Nitrogen dioxide (NO<sub>2</sub>) is a toxic gas formed during combustion processes.

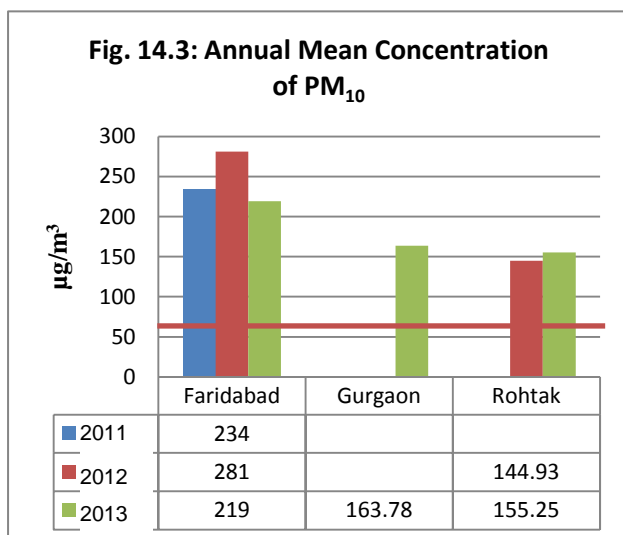
The annual standards as notified by the CPCB are as under:

**Table 14.4: CPCB Standards of air quality**

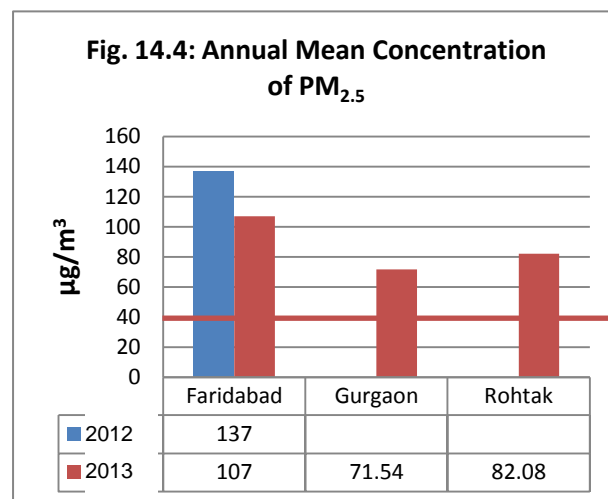
Sr. No.	Major Pollutants	Annual Standards (µg/m <sup>3</sup> )
1	PM <sub>10</sub>	60
2	PM <sub>2.5</sub>	40
3	SO <sub>2</sub>	50
4	NO <sub>2</sub>	40

Source: CPCB notification dated 18.11.2009

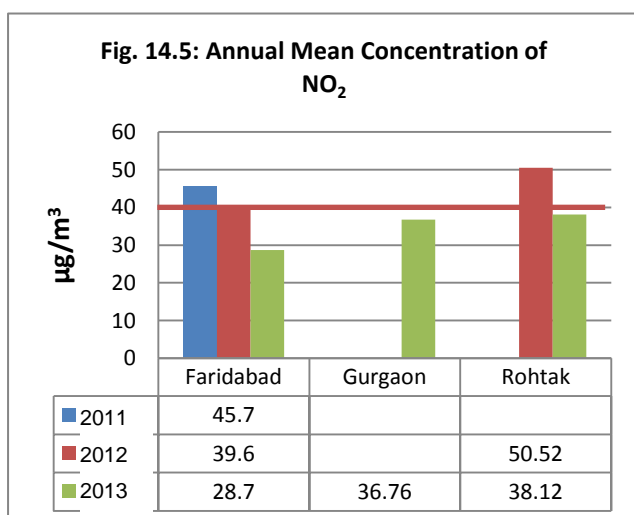
The Air Quality data for above referred stations is available after the year 2011, which is given in the figure 14.3 to 14.6 below:



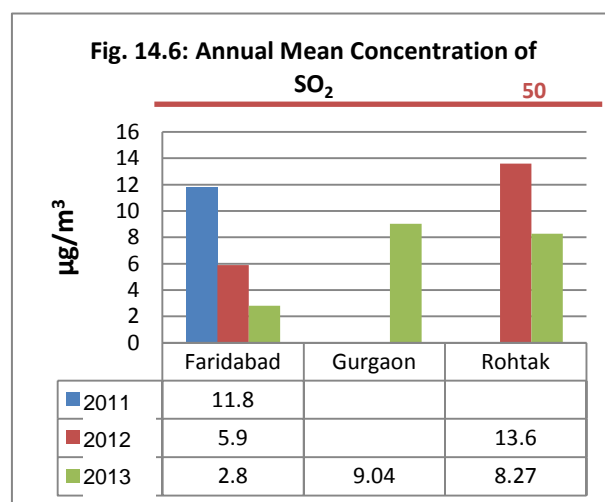
Source: HSPCB



Source: HSPCB



Source: HSPCB



Source: HSPCB

As apparent from above, the concentration of PM<sub>10</sub> and PM<sub>2.5</sub> had been high in the sub-region from 2011 to 2013. As a matter of fact, both the PM levels have been higher in the entire NCR primarily because of higher construction activity and vehicular density. However, the SO<sub>2</sub> had been recorded within limits in all the three monitoring stations during this period. As far as the NO<sub>2</sub> is concerned, same was recorded higher in Faridabad in 2011 and in Rohtak in 2012, which has been found within limits in the year 2013 in these monitoring stations.

**14.3.2 Air Quality along Transport Corridors:** The study on 'Integrated transportation plan for National Capital Region' has indicated that the air quality of few points along transportation corridor of the Sub-Region (Table 14.5). Levels of air pollution along major transport corridors were found to be close to or higher than permitted levels (except NO<sub>x</sub>).

**Table 14.5: Air quality along transportation corridors of Sub-Region, 2007**

Station Location	SPM	CO	NO <sub>x</sub>	RSPM
	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )
CPCB Standard	200	2,000	80	100
Hodal-Nuh	176.02	479.89	15.18	81.15
Bahadurgarh Thana	177.96	473.91	15.68	82.04
Palwal-Hasanpur	180.23	491.4	15.74	83.09
Nuh-Palwal	185.81	513.97	16.04	85.66
Nuh-Firozpur Jhirka	194.82	545.09	17.01	89.81
Kharkhoda	266.38	778.66	22.97	122.8
Bahadurgarh-Delhi	335.69	1044.03	24.18	154.75
NH-44 SEC 37, Faridabad	560.6	1906.51	30.94	258.43

Source: *Integrated Transportation Study of NCR*

It has been observed that emission of SO<sub>2</sub> and NO<sub>2</sub> has considerably been reduced after the adoption of LSD and catalytic converters in the vehicles. SPM and RSPM are the major air pollutants in most of the cities of Haryana Sub-Region, which pose health risks either alone, or in combination with other pollutants.

Air quality in respect of Carbon Monoxide and Nitrogen oxides is within limits on all locations in the Sub-Region as per the above Table. Only at three locations i.e. Kharkhoda, Bahadurgarh and Faridabad, RSPM/SPM are exceeding the permissible limits mainly due to vehicular traffic and Construction activities. However, RSPM/SPM in above mentioned towns is less than Delhi.

#### 14.4 Surface Water Quality

The State is a part of two major river basins namely, the Ganga and the Indus. The Ganga river basin occupies the eastern part covering an area of about 30,000 square kilometers whereas the western part of the State lies in the Indus river basin. Yamuna, which originates in Tehri district of Uttarakhand, is the only perennial river in the Sub-Region. It forms the boundary between Haryana and Uttar Pradesh. The Yamuna sub-basin covers parts of Panipat, Sonapat, Rohtak, Gurgaon and Faridabad districts.

The river basin area is between Yamuna and Ghaggar drainage basin. The inland drainage basin covers the districts of Rewari, Rohtak and parts of Gurgaon. The Aravali's bring a number of small rainy streams from Rajasthan side into Gurgaon, Jhajjar and Rewari. In the Sub-Region a number of small ponds or jhil (lake) exist, the details of which are given under table 14.6:



**Table 14.6: Major water bodies in Sub-Region**

Sr. No	Name of District	No. of Water Bodies	Location of water body	Area (Hectares)
1	Gurgaon	2	Sultanpur Lake	67.18
			Damdama lake	20.23
2	Rewari	1	Khandora	14.56
3	Jhajjar	3	Bhindawas	400.00
			Khaprawas	49.50
			Bakrah	13.50
5	Rohtak	1	Peer Bodi	15.37
7	Palwal	1	Moja Dighot (hodol)	13.96
8	Faridabad	1	Badkhal	-
			Surajkund	-

Canals are the most popular and important source of irrigation in the Sub-Region due to easy supply and regular flow of water to the agriculture fields. In the inland drainage basin, the drains excavated are made to outflow in canals through lift pumps. The canal network is dense in most of the districts except in the districts of Rewari and Gurgaon. There are four irrigation systems in the State namely Western Yamuna Canal, Bhakra Canal, Agra Canal and Ghaggar Canal. In district Rewari, Jawahar Lal Nehru Canal is the main source of water.

#### 14.4.1 Water Quality Standards & Monitoring

Water (Prevention and Control of Pollution) Act, 1974 was enacted with a basic objective to maintain and restore surface aquatic resources. Since the natural water bodies are used for various purposes, the focus has been at restoring and/or maintaining the water bodies to such a quality as needed for their best use and CPCB developed a concept of “designated best use” (DBU). According to this, out of the several uses a water body is put to, the use that demands highest quality of water is termed as “designated best use”.

CPCB’s Use based Classification of Surface Waters in India notifies primary water quality criteria for the following five uses.

- (i) A - Drinking Water Source without conventional treatment but after disinfection
- (ii) B - Outdoor bathing (Organized)
- (iii) C - Drinking water source after conventional treatment and disinfection
- (iv) D - Propagation of Wild life and Fisheries
- (v) E - Irrigation, Industrial Cooling, Controlled Waste disposal

Tolerance limit for inland surface water for other parameters is given in IS 2296-1982. Water quality criteria for bathing in rivers are notified by Ministry of Environment & Forests (MOEF).

**National Water Quality Monitoring Program (NWMP):** National Water Quality Monitoring Program is similar to NAMP, with CPCB being the chief regulatory agency for water quality monitoring and it Collaborates with State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs) to implement the various water related policies & regulations governing water quality management and monitors the water quality of various water bodies.

**Surface Water Quality Monitoring in NCR:** In Haryana Sub-Region of NCR, HSPCB regulates control of pollution and implements NWMP. CPCB has provided information of water quality for the period of 2007-2011. 8 stations have been established in Haryana Sub-Region and the water samples are analyzed for various parameters (core, general, trace metals, pesticides and bio monitoring) under the NWMP.

#### 14.4.2. Water Quality of Rivers

The maximum and minimum values of core parameters in the River Yamuna river have been observed from the year 2007 onwards at two monitoring stations at Palla and near Badarpur. The Biochemical Oxygen Demand (BOD) and pathogenic bacteria (Total coliform and Fecal coliform) values indicate that there has been degradation in water quality. While Nitrates and Nitrites are in the range of 0 to 13.9 mg/l, pH is

within limit for all uses in the River Yamuna. The data for last 5 years i.e. 2009 to 2014 (till date, i.e. May, 2014) is provided in the table 14.7 and 14.8, which reflects that the water quality is within permissible limits in river Yamuna while entering Delhi. Contrary to it, while leaving Delhi the BOD levels are 9 to 10 times more than the permissible limits.

#### a) Yamuna River

River Yamuna, the largest tributary of River Ganga and one of the important rivers of Northern India, makes the central spine of the NCR flowing through the Haryana, Delhi and U.P. sub-regions. Urban agglomeration of NCT Delhi is the major contributor of pollution load in Yamuna followed by Agra and Mathura. The stretch between Wazirabad Barrage and Chambal River confluence is critically polluted and there is significant fluctuation in dissolved oxygen level from nil to critically low levels. This reflects presence of organic pollution load and persistence of eutrophic conditions in the river. As per CPCB, the contribution of pollution load from NCR & non-NCR states are in the proportion of 80:20, i.e. over 3/4<sup>th</sup> of the pollution load in River Yamuna is contributed by the NCR (Source: Assessment and Development of River Basin Series, 1999-2005, CPCB). The water of Yamuna River is not suitable for class A, B and C use in almost its entire length in NCR due to high total coliform, high BOD and low DO levels.

The table 14.7 shows the BOD levels of Yamuna while entering Delhi, while the status at the time of exit from Delhi to Haryana has been given in table 14.8.

**Table 14.7: Monitoring sample analysis Reports of River Yamuna at Palla (Haryana Delhi Border)**

Year	Month of Sampling for Bio-Chemical Oxygen Demand (BOD) (mg/l) [Permissible Limit of 3 mg/l]			
	January	April	July	October
2009	1.46	2.3	1.85	2.7
2010	1.64	1.95	1.5	2.44
2011	1.86	1.4	2.6	1.54
2012	2.75	2.74	2.85 (August)	1.8
2013	1.4	2.3	2.2 (August)	2.1
2014	2.7	2.8 (May)	-	-

Source: HSPCB

**Table 14.8: Monitoring sample analysis Reports of River Yamuna at Badarpur (Near Delhi Haryana Border)**

Year	Month of Sampling for Bio-Chemical Oxygen Demand (BOD) (mg/l) [Permissible Limit of 3 mg/l]			
	January	April	July	October
2009	28	30 (May)	28	20
2010	28	29	13	24 (November)
2011	32	38	17	30
2012	36	37 (March)	33 (August)	Not Available
2013	37	36 (March)	14	35
2014	40	39	-	-

Source: HSPCB

#### b) Water Quality of Canals in Sub-Region

The major canals in the sub-region are Yamuna Canal, Gurgaon Canal and Agra canal. Gurgaon Canal, GC-1 (Near Badarpur Border), Haryana has average level of BOD varying from 20 mg/l to 23.7 mg/l, indicating high pollution level and unsuitable for use as class A, B & C. Similar situation is at Agra Canal (Madanpur Khadar), Delhi where average level of BOD varies from 14.7 mg/l to 19.3 mg/l indicating high pollution level and unsuitable for use as class A, B & C. The total coliform content at both these locations is high, making water unsuitable for use as Class C. As per the report of CPCB, the water quality of canals at different stations in the sub-region is as under:

**Table 14.9: Water Quality of Canals in the Sub-Region**

Sr. No.	Name of Station	April, 2011	July, 2011	October, 2011	January, 2012
1	C-3: WJC, Delhi Branch. R.D. 245250	1.55	1.45	-	-
2	C-4: WJC before entering Delhi Territory, Delhi Branch. 282628	1.15	1.35	2.50	2.60
3	C-7: Delhi Parallel Branch at Khubru Fall, R.C. 145250	1.80	1.80	-	-
4	WC-4: Delhi Parallel Branch at Panipat Distillery Discharge	2.65	2.45	-	-
5	Gurgaon Canal, GC-1, Starting Point near Badarpur border	38.00	18.00	26.00	-

Source: HSPCB

Above statistics shows that the water quality in the canals of the sub-region is good except in the Gurgaon Canal, when it enters the sub-region, where it have very high BOD level than the permissible limits.

### 14.5 Environment Sensitive Conservation Zone

Some of the natural features in the sub-region have been identified as environmentally sensitive areas. These are the extension of Aravali ridge, ground water recharging areas such as water bodies, ox bow lakes and paleo channels. The extension of Aravali ridge, sanctuaries and other ecologically sensitive areas are to be conserved with utmost care and afforested with suitable species. The development in this area should be in compliance with the Environment Act, 1986. A Biodiversity Board has also been established by the State Government vide notification dated 14.11.2006 consisting of Ex-officio members/Non-official members with the objective of conservation of biological diversity, sustainable use of its components and fair and equitable sharing of the benefits arising out of utilization of genetic resources. A Bio-diversity park is proposed to be established on the Gurgaon-Mehrauli road near Delhi-Haryana boundary.

An area measuring approximately 340 hectares has been reserved as "Water Recharge Zone" to check the run-off that will replenish the depleting underground water table around the town of Sohna in district Gurgaon. Further a complete sector namely 72A has been carved out in Gurgaon for developing artificial water body. Similar provisions are being made in the other Development Plans also.. No permission for any type of construction will be granted in this area. The City Forest in an area of 33 acres has been set up in Sector 52-A, Gurgaon. A Biodiversity park is also proposed to be established on the Gurgaon-Mehrauli Road near Delhi-Haryana boundary.

The Aravalli ranges have been designated as Natural Conservation Zone in the Plan in accordance with Regional Plan-2021. For protection of Aravallis, the notification of the MoEF, Government of India dated 07.05.1992, shall be applicable. Similarly, for execution of any project, the project proponent will have to obtain environmental clearance in terms of notification dated 14.09.2006, which is mandatory in nature. Similarly, the restrictions applicable to the Eco-Sensitive Zone notified by MoEF or for protection of environment shall also be followed and implemented.

Environment Impact Assessment of the projects is being carried out by an expert agency. Notification issued by MOEF, Government of India from time to time shall be applicable and binding.

In the State, there are 9 wildlife sanctuaries and 2 national parks out of which 3 wildlife sanctuaries and 1 national park exist in the Sub-Region. These consist of rare species of birds, black bucks, chital, barking dears, red jungle fowls and leopards. The location, spatial extent and names of wild animals in these are given in Table No. 14-3.

A Zonal Master Plan for the Eco-sensitive Zones has to be prepared by the State and submitted for approval to the Central Government in the Ministry of Environment and Forests. The Zonal Master Plan shall be prepared with due involvement of all concerned State Departments, such as Environment, Forest, Urban Local Bodies, Tourism, Municipal and Revenue Department and the Haryana State Pollution Control Board for integrating environmental and ecological considerations. This will include restoration of denuded areas, conservation of existing water bodies, management of catchment areas, watershed management, groundwater management, soil and moisture conservation, needs of local community and such other aspects of the ecology and environment that need attention.

In order to protect the areas falling under Aravali Range and restrict activities which are likely to cause environmental degradation in the Aravali Region the Ministry of Environment and Forests, Government of India has issued a notification dated 7th May, 1992 (operative part of the said notification excluding the annexure is enclosed at Annexure 14.1). The said notification prohibits the carrying out of any of the following operations except with the prior approval of Ministry of Environment and Forests, Government of India and after preparation of an Environment Impact Assessment and approval of Environmental Management Plan apart from other formalities as may be considered necessary by the Government:

- (i) All new mining operations including expansion modernisation;
- (ii) (a) All new mining operations including renewals of mining leases.  
(b) Existing mining leases in sanctuaries/national park and areas covered under Project Tiger and/or  
(c) Mining is being done without permission of the competent authority.
- (iii) Cutting of trees;
- (iv) Construction of any clusters of the dwelling units, farmhouses, sheds, community centres, information centres and any other activity connected with such construction (including roads as a part of any infrastructure relating thereto);
- (v) Electrification (laying of new transmission lines).

## 14.6 Issues and Challenges

### 14.6.1. Forests

The present forest cover in Haryana Sub-Region is 3.52 percent but total Forest and Tree cover of the State as per State of Forests Report, 2011, published by Forest Survey of India is 6.80 percent as against the national average of 21 percent. More importantly degradation of forests in Aravali, an environmentally sensitive area is a matter of concern. To promote sustainable development of Forest resources in the State, Haryana Government has framed its own Forest Policy in 2006. The policy has fixed the goal of achieving 20% Forest and Tree Cover in the State in a phased manner.

### 14.6.2 Air Quality

Air pollution has emerged as a major challenge in the NCR due to multiple and diverse sources of Pollution. Efforts will be made to operationalise all 14 air quality stations. HSPCB has set up two continuous online stations at Gurgaon and Rohtak in December, 2012, in addition to the one already operational at Faridabad since 2009. The air quality data from these station is being sent to CPCB regularly.

The number of ambient air quality monitoring stations are inadequate in Haryana Sub-Region. As per the IS 5182- Part 14-2000 (i.e. population based criteria on number of monitoring stations) Haryana Sub-Region requires well over 50 monitoring stations. Although CPCB indicates that the “criteria is for reference only, actual criteria followed at site must be based on compromise between available resources and site specific parameters”, the current 12 stations in the Sub-Region are inadequate and 14 monitoring stations need to be set up immediately which has been approved under NAMP project in the NCR to meet the shortfall;

### 14.6.3 Water Quality

The detailed issues and challenges pertaining to water quality have been deliberated in detail under Chapter 8.

### 14.6.4 Environment Sensitive Conservation Zone

The extension of Aravali ridge, sanctuaries and other ecologically sensitive areas are to be conserved with utmost care and afforested with suitable species. The development in this area should be in compliance with the Environment Act, 1986.

## 14.7 Policies & Proposals

### 14.7.1. Forests

- (i) The policy has fixed the goal of achieving 20% Forest and Tree Cover in the State in a phased manner. This goal can be achieved by adopting Agro forestry practices. Forest Department should

use genetically superior seedlings under Agro-Forestry on farm lands to increase productivity and Agro forestry should become a mandate and a people's movement, as it is most economical, sustainable and stable alternative for ensuring ecological security of the Sub-Region. Efforts shall be made to increase the Forest/green cover of the Sub-region to 10% by developing City Forests in and around the Towns in the Sub-region.

- (ii) The Govt. of India, Ministry of Environment & Forests has issued Notification S.O.191(E) dated 27.01.2010 regarding declaration of the area upto 5 KM from the boundary of the protected area of Sultanpur National Park in Gurgaon District as an Eco-Sensitive Zone & provisions relating to this have been duly incorporated in the Final Development Plan-2031 AD of Gurgaon Manesar Urban Complex.
- (iii) The requirements of prior environmental clearance for the projects mentioned in EIA notification, 2006 are being enforced by the State.
- (iv) To increase green cover in the Sub-Region, it is necessary to encourage the planting of trees alongside roads, railway lines, canals, rivers, rivulets and streams, and other unutilised lands under Central Government and corporate, institutional or private ownership. Green belts should be raised in urban/ industrial areas as well as in arid tracts. Such a programme will help to check erosion and desertification as well as improve Industrial and Urban environment.
- (v) Since the Sub-Region is highly urbanized and densely populated, village panchayat and community lands should be taken up for the development of tree crops and fodder resources on sustainable basis. The Government should provide technical assistance, initial funding and other inputs necessary for plantations on such lands. Plantation on these lands should be done through people's participation with total involvement of village community through village institutions. Such institutions should be strengthened to take up programme of tree and fodder development on common lands on sustainable basis. A Management Plan of all the afforested panchayat land should be prepared in consultation with panchayat. Once the afforested area is handed over to panchayat, it would be managed, felled and utilized by panchayat in accordance with the Management Plan. The revenue generated through such programmes should belong to the village Institutions to be utilized for various developmental works in the village including sustainable management of plantations.

#### 14.7.2 Air

- i) Three air quality stations are already operating and efforts would be made to set up such stations at all the district HQs of NCR. In addition, BAMP stations are also operating regularly.
- ii) Ambient air quality data is being displayed at prominent places.
- iii) CNG stations are being set up at Faridabad & Gurgaon. Industries at Faridabad and Sonapat have switched over to PNG/LNG which will further reduce air pollution.
- iv) Environmental Clearance has to be obtained by the applicant for projects in accordance with the MOEF notification dated 14.09.2006.
- v) Strengthening and expansion of the existing monitoring network - both in number of stations and monitoring of all parameters, based on a need-based assessment; identification of hot spots in the region in terms of air quality and ensuring that stations should be located in the hot spots. Cover all district headquarters with air quality monitoring network by 2015 and Cover all towns of population more than 1 lakh (2011 census) and towns with industrial activities (irrespective of population size) by 2021. A strict protocol for monitoring has to be enforced.
- vi) There is need to operationalize the proposed monitoring stations in Haryana under NAMP on priority.
- vii) Regulatory Control over emissions, increasing awareness about civic liability, using state-of-art technology and global best practices so as to achieve the National Ambient Air Quality Standards at least by the end of XII Plan.
- viii) Develop GHG emission inventory for NCR, and plan for reduction and management of GHG emissions.

- ix) Continue efforts to reduce air pollution from transport activities such as availability of clean fuel (CNG, PNG, etc.) in whole of NCR for public and private vehicles and industry in time bound manner which could later be extended to domestic use.
- x) Land use planning and zoning to minimize the pollution from transport sector Encourage modal shift from private and intermediate public transport to public transport and discourage private vehicle growth and movement through taxation.
- xi) Create public awareness to minimize the emissions and increasing fuel efficiency.
- xii) Control dust from construction activities - there are large scale construction activities in the NCR, cumulative dust generation is a matter of great concern due to the fact it is mostly uncontrolled and unregulated; a strategy should be developed to control the construction dust, fixing the responsibilities on project proponents spots for continuous monitoring of air quality.

### 14.7.3 Water Quality

The significant measure to be undertaken for abatement of pollution in river Yamuna and other rivers in Sub-region are as below:

- a) Industries should treat their effluents so as to confirm the specified requirements.
- b) Disposal of garbage, solid, semi-solid, waste into river, its tributaries and drains should be restricted. Municipal Solid Waste collection, transportation and disposal system should be developed in all cities of NCR. Similarly, it should also be developed for Hazardous /Medical waste fulfilling the guidelines of Ministry of Environment & Forests.
- c) Community participation in various Yamuna water quality restoration program should be encouraged.
- d) The 'Polluter Pays' principle need to be enforced stringently.
- e) Existing water bodies / lakes/ ponds in NCR should be revived by filling with water by connecting them to existing Tail-clusters (canal, branch canals, distributaries and minors, etc.) during non- use period of canal water for irrigation purposes by diverting flood waters to these lakes/ponds through the canals and their subsidiaries. Buffer zones may also be created around these lakes/ponds/ other water bodies to protect them from future encroachment. Drainage channels should be protected from encroachment and silting so that existing water bodies could be filled in every rainy season.
- f) The Environment Master Plan, for Aravalis in Haryana Sub-Region and conservation measures for Aravalis in Gurgaon , Faridabad , Mewat and Rewari district need to be formulated and implemented .
- g) The Biological Diversity Act, 2003 lays down establishment of State Biodiversity Boards (SBBs) for each state for effective implementation of the Act at state level. The same already stands constituted at the state level. Further, Biodiversity Management Committees (BMCs) will be set up at district level.
- h) Rain water harvesting structure may be constructed along with drains under the MENERGA program.

### 14.7.4 Environment Sensitive Conservation Zone

A Biodiversity Board has been established by the State Government vide notification dated 27.11.2013 consisting of Ex-officio members/Non-official members. The Aravalli ranges have been designated as Natural Conservation Zone in the Plan in accordance with Regional Plan-2021 except those areas which are coming in the urbanisable area.

**Annexure 14-1: Extract from the Notification of MOEF, New Delhi, dated the 7th May 1992**

(Under Section 3(1) and 3(2) (v) of the Environment Protection Act, 1986 and rule 5 (3) (d) of the Environment (Protection) Rules, 1986 restricting certain activities in specified area of Aravali Range, which are causing Environmental Degradation in the Region.

S.O. 319 (E) - Whereas a Notification under section 3 (1) and section 3 (2) (v) of the Environment (Protection) Act, 1986 (29 of 1986) inviting objections against restricting certain activities in specified area of Aravali Range which are causing Environmental Degradation in the Region was published in the Gazette of India, Part II-Section 3 Sub-section (ii) vide S. O. 25 (E) dated 9<sup>th</sup> January, 1992;

And whereas all objections received have been duly considered by the Central Government;

Now, therefore, in exercise of the powers conferred by sub-section (1) and clause (v) of sub-section (2), of section 3 of the Environment (Protection) Act, 1986 (29 of 1986), read with rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby prohibits the carrying on of the following process and operations, except with its prior permission, in the areas specified in the Table appended to this Notification:

- (i) Location of any new industry including expansion modernisation;
  - (ii) a) All new mining operations including renewals of mining leases.  
b) Existing mining leases in sanctuaries/national Park and areas covered under Project Tiger and/or  
c) Mining is being done without permission of the competent authority.
  - (iii) Cutting of trees;
  - (iv) Construction of any clusters of dwelling units, farms houses, sheds, community centres, information centres and any other activity connected with such construction (including roads a part of any infrastructure relating thereto);
  - (v) Electrification (laying of new transmission lines).**
2. Any person who desires to undertake any of the above mentioned processes or operations in the said areas, shall submit an application to the Secretary, Ministry of Environment and Forests, New Delhi, in the attached application form (Annexure) specifying, inter alia, details of the area and the proposed process or operation. He shall also furnish an Environment Impact Statement and an Environmental Management Plan along with the application and such other information as may be required by the Central Government for considering the application.
  3. The Central Government in the Ministry of Environment and Forests shall, having regard to the guidelines issued by it from time to time for giving effect to the provisions of the said Act, grant permission within a period of three months from the date of receipt of the application or where further information has been asked for from the applicant, within a period of three months from the date of the receipt of such information, or refuse permission within the said time on the basis of the impact of the proposed process or operation on the environment in the said area.
  4. For seeking permission under this notification, an application in the prescribed form (see Annexure) duly filled in, may be submitted to the Secretary, Ministry of Environment and Forests, Paryanaran Bhavan, CGO Complex, Lodhi Road, New Delhi.

[No. .17/1/91-PL[IA]

R. Rajamani, Secy.

## TABLE

Areas where carrying on of processes and operations without permission is prohibited

- (i) all reserved forests, protected forests or any other area shown as "forest in the land records maintained by the State Government as on the date of this notification in relation to Gurgaon District of the State of Haryana and the Alwar District of the State of Rajasthan.
- (ii) All areas shown as: -
  - (a) Gair Mumkin Pahar, or
  - (b) Gair Mumkin Rada, or
  - (c) Gair Mumkin Behed, or
  - (d) Banjad Beed, or
  - (e) Rundh.
 in the land records maintained by the State Government as on the date of this notification in relation to Gurgaon district of the State of Haryana and the Alwar district of the State of Rajasthan.
- (iii) all areas covered by notifications issued under section 4 and 5 of the Punjab Land Preservation Act, 1900, as applicable to the State of Haryana in the district of Gurgaon up to the date of this Notification.
- (iv) all areas of Sariska National Park and Sariska Sanctuary notified under the Wildlife (Protection) Act, 1972 (53 of 1972).

ANNEXURE  
APPLICATION FORM

1. (a) Name & address of the project proposed:  
(b) Location of the project:  
Name of the Place:  
District, Tehsil:

Location Map:

- (c) Alternate sites examined and the reasons for the site proposed:
2. Objectives of the project:
  3. (a) Land Requirement:
    - Agriculture land:
    - Other (specify):
  - (b) (i) Topography of the area indicating gradient, aspect & altitude.  
(ii) Erodability classification of the proposed land.
  - (c) Pollution sources existing within 10 km. Radius.
  - (d) Distance of the nearest National Park/Sanctuary/Biosphere Reserve/Monuments/heritage site/Reserve Forest:
  - (e) Rehabilitation plan for Quarries/borrow areas :
  - (f) Green belt plan.
  - (g) Compensatory afforestation plan.
  4. Climate & Air Quality\*:
    - (a) Wind rose at site:
    - (b) Max. /Min./Mean annual temperature.
    - (c) Ambient air quality data:
    - (d) Nature & concentration of emission of SPM, Gases (CO, CO<sub>2</sub>, SO<sub>2</sub>, NO<sub>x</sub> etc.) from the project:
  5. (a) Water balance at site surface and ground water availability and demand:
    - (b) Lean season water availability:
    - (c) Water source to be tapped with details of competing users (Rivers, lake, Ground, Public supply):
    - (d) Water Quality:
    - (e) Changes observed in quantity and quality of water in the last 15 years and present charging and extraction details:
    - (f) (i) Quantum of waste water to be released with treatment details:  
(ii) Quantum & Quality of water in the receiving water body:  
(iii) Quantum of waste water to be released on land and the type of land:
  6. Solid Wastes:
    - (a) Nature & quantity of solid wastes generated:
    - (b) Solid waste disposal method:
  7. Noise & vibrations:
    - (a) Sources of noise & vibrations:
    - (b) Ambient noise level:
    - (c) Noise & vibration control measures proposed:
    - (d) Subsidence problem, if any, with control measures:
  8. Power requirement indicating source of supply; complete environmental details to be furnished separately, if captive power unit proposed:
  9. Total labour force to be deployed with details of:
    - Endemic health problems in the area.
    - Health care system proposed:
  10. (a) Number of families and population to be displaced :  
(b) Rehabilitation Master Plan:
  11. Risk assessment report:
  12. (a) Environmental Impact Assessment Report :  
(b) Environmental Management Plan: Prepared as per Guidelines of MEF issued from time to time.  
(c) Detailed Feasibility Report:  
(d) Proposal for diversion of Forestland under Forest (Conservation) Act, 1980 including Benefit Cost analysis.
  13. Recommendations of the State Pollution Control Board and/or the State Department of Environment & Forests.

Signature of the Applicant  
Along with name, date and  
full Postal address.

\*Data may be obtained from India Meteorological Department and State Pollution Control Board.

\*\*Ground water Board and the Irrigation Deptt. May be contacted for data.

N.B.

- A. Item Nos. 3(c), 4, 5, 6, 7, 8, 9, 10, 12 (b) and 12 (c) are not applicable to cutting of trees.
- B. Item Nos. 3(c), 4, 7, 11 are not applicable to construction of cluster of dwelling units, farm sheds, community centre and any other activity connected with such construction including roads.
- C. Item Nos. 3(b), 3(c) (3e), 3(f), 4, 5, 6, 7, 9, 12(a) & 12(b) are not applicable to electrification.
- D. All items to be furnished in case of mining, industry, thermal power, transport projects.
- E. Notwithstanding the above, any item(s) considered not applicable may be so indicated along with reasons.