

1.0 GEOGRAPHICAL FEATURES

1.01 Location

Geographically, Mandi Gobindgarh falls in Distt. Fatehgarh Sahib, which is situated in Malwa region of Punjab. It lies between **north latitude** 30°-37'-30" and 30°-42'-30" and **east longitude** 76°-15' and 76°20'. It shares common boundaries with Distt. Mohali, Patiala, Sangrur, Ludhiana and Rupnagar.

Mandi Gobindgarh is known as 'Steel Town of India' as various categories of steel manufacturing units are operating in this town. This town is located on National Highway-I. The town is spread over an area of 10.64 Sq. Kms. and accommodates a population of 55,416 as per 2001 census.

1.02 Topography

The topography of the District Fatehgarh Sahib is typical representative of an Alluvial plain, it owes its origin to the aggravation work of the Sutlej River. The alluvium deposited by the river has been worked over by the wind which gave rise to a number of small dunes and sand mounds. Most of these dunes have been levelled by the brave hard working agriculturists of the district. The District can be divided into the flood plains of the Sutlej and the Up land plains.

1.03 Climate

The climate of the District Fatehgarh Sahib is characterized by dryness except a brief spell of monsoon season in a very hot summer and a bracing winter. The winter season is from middle of November to the early part of March. The succeeding period up-to the end of June is the hot season. July, August and half of September constitute the south west of monsoon, the period of mid

September to about the middle of November may be termed as post monsoon or transitional period. June is generally the hottest month. Hot and scorching dust laden winds blow during summer season. December & January are the coldest months. The mean daily temperature varies in the range of 5.8 °C to 41.2 °C.

1.04 Rainfall

The rainfall in the district increases from south west towards the north east. About 70% of the rainfall is received during the period July to September. The rainfall during December to March accounts for 16% of the rainfall and the remaining 14% rainfall is received in other months of the year. The average annual rainfall is 681 mm.

1.05 Ground Water Scenario

The dependence on ground water is quite considerable in the area. As per Central Ground Water Authority data, the depth of water level in Distt. Fatehgarh Sahib ranges between 10 to 20 mts below ground level. As per the data available with the Central Ground Water Authority for District Fatehgarh Sahib, the net ground water availability is 10078 ham, whereas the net ground water draft is 20814 ham. Therefore, there is an over-exploitation of ground water in this district.

1.1 MAJOR WATER BODIES AROUND MANDI GOBINDGARH

1.1.1 Bhakhra Canal:

The only surface water body flowing near Mandi Gobindgarh is Bhakhra Main Line Canal, which runs throughout the year.

1.1.2 Sirhind Choe:

One non-perennial choe (storm water drain) named as Sirhind Choe also passes near Mandi Gobindgarh. It originates from Sirhind and terminates into River Ghaggar.

1.2 FLORA & FAUNA

District Fatehgarh Sahib is rich in animals and birds including some of the rare species mentioned as under :-

Mammals (Mammalia): Sambhar, Nilgai, Wild Boar, Jungle cat, Jackal, Mongoose, Palm squirrel, Hares, Rats, Mice, Rhesus Macaque, Bat, Porcupine, goat, sheep, pigs and cat are also present in the area.

Birds (Aves): Gray Babbler, Golden Oriole, Common Paraquet, Rose-ring paraquet, Pariah kite, Koel, Magpie Robin, Wren-warbler, Blue Jay, Wagtail, black partridge, peacock, Baya, Coot, Riverterm, Grayhornbill, Munia, Crow, Woodpecker, Flycatcher, Coppersmith, Brahmini duck, Cormorant (large and small), swift Swallows, Vulture, Water hen.

Reptilea (Lizards, Snakes, Turtles, etc.): Tortoise, Wall lizard, Calotes, Varanus, Cobra, Rat Snake, Krait, Python.

Pises (Fishes): Labeo rohia (Rohu), Cirrhinus mrigala (Mugal), Catla (Katla), Hypophthalmichthys molitrix (Silver carp), Aorichthys seenghala (Singhara), Puntius saran (Puthi), Puntius stigma (Chidhu), Channa marulius (Sol), Mastacembelus armatus (Bam).

1.3 SENSITIVE RECEPTORS

As per report of Central Pollution Control Board on the Comprehensive

Environmental Assessment of Industrial Clusters, the frame work of the CEPI is based on three factors i.e. pollutant, pathway and receptor. The high density of population in and around Mandi Gobindgarh city has been identified, as one of the major sensitive receptors. The population of the Mandi Gobindgarh as per 2001 census city is 60,677 and the expected population upto 2009 is 76,677. The people residing in the city are not only being influenced by the industrial air pollution. There is no eco-park / protected monuments / wild life sanctuary within the MC limits. Wild life sanctuary, Bir Bhadson is situated at a distance of about 22 Kms from Mandi Gobindgarh.

1.4 DEMARCATION OF GEOGRAPHICAL BOUNDARIES OF THE INDUSTRIAL CLUSTERS

Mandi Gobindgarh city is one of the highly industrialized towns in Northern India. The predominant industries operating in the city are induction furnace units, re-rolling mills and cupola furnaces having high air pollution potential. The Punjab Pollution Control Board has identified following 8 industrial clusters within the jurisdiction of critically polluted area of Mandi Gobindgarh and Khanna area. The identified clusters of Mandi Gobindgarh and Khanna area are as under:

CLUSTER NO.	NAME OF THE INDUSTRIAL CLUSTER
I	Area near RIMT starting from M/s Cold Drip Pvt. Ltd. to M/s JTG Alloys Ltd.
II	Area between RIMT road (upto M/s Pushpanjali Steel) to Talwara Road (upto M/s M.R. Alloys) on one side of G.T. Road and upto Rajwaha on the other side of the G.T. Road
III	Area on G.T. Road (right side - Rajpura to Ludhiana) covered between M/s IMT, M/s Gian Steel Rolling Mills, M/s Baba Balak Nath Steel Rolling Mills, M/s Bansal Iron and Steel Rolling Mills (on left side) and area starting from M/s Patiala Casting to M/s Bansal Iron upto Rajwaha.

IV	Area bound between M/s Gopal Mills, M/s Kailash Steel Rolling Mills, M/s Northern India Pvt. Ltd. and M/s Aarti Strips in Guru Ki Nagri
V	Area on both sides of Amloh Road covered between M/s Doaba Steel Rolling Mills, M/s Janta Steel & Agro Industries, M.C. disposal point, M/s Vishnu Steels and M/s R.K. Steel and Allied Industry
VI	Area on both sides of G.T. Road on Khanna side starting from M/s Ganesh Steel Industry to M/s Karam Steel to M/s Shri Ganesh Steel Rolling Mills to M/s Dhiman Steel Industry to M/s M.T.C. Steel Industry to M/s Kumar Hammer and Model Town.
VII (Khanna area)	Area covered between old octroi post, Bhadla Road to Railway Line (including right side of Bhadla Road upto limits of Khanna), along railway line upto Focal Point closing at G.T. Road near M/s Watson Engg. Works.
VIII (Khanna area)	Right side of G.T. Road (opposite Bhadla Road) covered between M/s Modern Alloys to M/s Natraj Indl. Corp. to M/s Sat Pal Manku and closing at G.T. Road near M/s Aggarwal Iron & Steel.

Draft Action Plan of Mandi Gobindgarh

GRADED RESPONSE ACTION PLAN

The ambient air quality data for the last one & half year shows that the AQI for SO₂ & NO_x parameters, out of which value of PM₁₀ changes very oftenly, the reasons of which are mainly like air polluting industries like Steel Electric Arc Furnaces, Steel Induction Furnaces, Steel Re-rolling Mills and Refractory units located in a radius of 5 Km of Mandi Gobindgarh area. The NH-1 is passing through the city, which carries heavy density traffic throughout the year and thus causing lot of vehicular emissions as well as lot of dust emissions due to the movement of vehicular traffic on the roads either damaged or kaccha and air pollution caused during wheat/paddy stubble burning etc. Therefore, the ambient air quality of Mandi Gobindgarh area falls in between moderate and very poor. The Punjab Pollution Control Board is carrying out mull over the various possibilities to reduce the air pollution for the improvement of ambient air quality with respect to AQI is concerned. However, the annual average value of PM₁₀, SO₂, NO_x in the ambient air quality of Mandi Gobindgarh city falls in the range of 99 -205 µg/m³, 6-9 µg/m³, 26-45 µg/m³ for most of the months, as such, the graded response action plan to eradicate the problem is given as under: -

1. Name of the city **Mandi Gobindgarh**
2. Air Pollution concern: **PM₁₀, PM_{2.5}, SO₂ & NO_x**
3. Air pollution levels: Range of 24-hourly average concentration values of PM₁₀, SO₂ & NO_x for the period 2016-17 with AQI enclosed as Annexure.
4. Months with high air pollution levels: During wheat harvesting season i.e. April & May and during paddy harvesting season i.e. October & November.
5. Action plan:

Source group **	Action	Implementation period (short/ mid/ long-term)	Time target for implementation *	Responsible agency(ies)	Any information other
Vehicles	1. Launch extensive drive against	Short Term	Within a week & continue as	State Transport	However, pollution check centers are

	polluting vehicles for ensuring strict compliance.		regular activity	Authority(STA)	being inspected from time to time by the Punjab Pollution Control Board and action is being recommended to State Transport Authority, if any pollution check center is found not proper conducting emission sampling of vehicles.
	2.Launch Public awareness campaign for air pollution control, vehicle maintenance, minimizing use of personal vehicle, lane discipline, etc.	Short Term	Within a week & continue as regular activity	STA & Traffic Police	---
	3. Prevent parking of vehicles in the non-designed areas.	Short Term	Within a week & continue as regular activity	Municipal Corporation & Traffic Police.	---
	4. Initiate steps for retrofitting of particulate filters in diesel vehicles, when BS-V fuels are available.	Mid Term	120 Days	STA	---
	5. Prepare action plan to check fuel adulteration and random monitoring of fuel quality data.	Short Term	30 Days	Deptt. of Food & Civil Supplies.	---
	6. Prepare plan for widening of road and improvement of Infrastructure for decongestion of road.	Short Term	90 Days	Public works Dept.,(PWD, Mandi Board & Municipal Council	---
	7. Prepare plan for construction of expressways/bypass to avoid congestion due to non-destined vehicles.	Short Term	90 Days	NHAI & PWD (B & R) NH Wing	The construction of flyovers and underpasses on NH-1 has already been completed in Mandi Gobindgarh. PPCB is also pursuing the matter with NHAI to carry out regular maintenance/cleaning of roads/flyovers as

					dust over berms get air borne due to traffic movement.
	8. Install weigh in motion bridges at the borders of cities/towns and states to prevent overloading of vehicles.	Mid Term	180 Days	Municipal Council & STA	---
	9. Synchronize traffic movements /introduce intelligent traffic systems for lane-driving.	Mid Term	180 Days	Traffic Police	---
	10. Steps for promoting battery operated vehicles.	Mid Term	120 Days	State Transport Authority(STA)	---
	11. Installation of remote censor based PUC system	Mid Term	---	State Transport Authority(STA)	---
Road Dust	1. Preparation plan for green buffers along the traffic corridors.	Mid Term	90 Days	NHAI, PWD, & Municipal Council	---
	2.Maintain potholes free roads for free roads for free flow of traffic	Mid Term	90 Days	NHAI, PWD, & Municipal Council	---
	3.Greening of open areas, gardens, community places, schools and housing societies	Mid Term	90 Days	Municipal Council	---
	4. Blacktopping metaled road including pavement of road shoulders.	Mid Term	180 Days	NHAI, PWD, & Municipal Council	---
	5. Road design improvement	Short term	90 Days	NHAI, PWD, & Municipal Council	---
	6. Introduce water fountain at major traffic intersection wherever feasible	Mid Term	180 Days	Municipal Council	---
Biomass and garbage	1.Launch extensive drive against open burning of bio-mass, crop residue,	Short Term	90 Days	Distt. Administration , Agri Deptt., PPCB and	---

burning	garbage, leaves, etc.			Municipal Council	
	2. Regular check and control of burning of municipal solid waste.	Short Term	90 Days	Punjab Pollution Control Board & Municipal Council	---
	3. Proper collection of horticulture waste (bio-mass) and its disposal following composting-cum-gardening.	Short Term	90 Days	Municipal Council	---
	4. Construction of advanced waste management Site.	Mid Term	---	Municipal Council	---
Industries	1. Identification of brick kilns and their regular monitoring including use of designated fuel and closure of unauthorized units.	Mid Term	60 Days	Punjab Pollution Control Board	The Punjab Pollution Control Board are carrying regular visits to the brick kilns to check the compliance of consent conditions and to pursue them to shift to induced draught technology.
	2. Conversion of natural draft brick kilns to induced draft.	--	--	Punjab Pollution Control Board	There is no brick kiln falling in Mandi Gobindgarh area.
	3. Action against non-complying industrial units	Short Term	Within one month and continue as regular activity	Punjab Pollution Control Board	The industrial units are being visited from time to time to check the compliance of various pollution control laws.
	4. Promoting cleaner production in industries.	Mid Term	120 Days	Punjab Pollution Control Board	Induction Furnaces Taking the matter of deteriorated air quality of Mandi Gobindgarh seriously, PPCB developed pollution control device for induction furnaces industries of Gobindgarh area. PPCB developed the new device for induction furnaces in

				<p>collaboration with Punjab State Council for Science and Technology (PSCST), Chandigarh. This will help to achieve a better air quality in the area. New system replaces the canopy hood on the crucible of the furnace to side hood along with augmented ID fan capacities, so as to collect the the air emissions for treatment. PPCB has got installed upgraded systems, as a model, in two industries namely M/s R.P Multimetals and M/s Dasmesh Castings. This technology will be replicated in all the induction furnaces in Mandi Gobindgarh area. Further, a waste recycling plant namely M/s Madhav Alloys Pvt Ltd., Amloh has been established for the recycling of APCD dust from the Induction Furnaces having bag filter houses as APCDs for the recovery of Zinc and other metals. This reduces the load on CTSDF.</p> <p>Re-rolling Mills All the re-rolling mills of Mandi Gobindgarh area have installed energy saving devices like recuperator, air seal, damper plate and VFD for energy</p>
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					<p>conservation viz-a-viz air pollution control.</p> <p>Usage of PNG The grueling efforts are being made by PPCB for the supply of PNG to rolling mills and forging units through the gas pipeline being laid by M/s IRM Energy Pvt Ltd., C.G Road, Navrangpura, Ahmedabad, Gujrat. The city gas station has already been installed at industrial focal point, Mandi Gobindgarh from where tapping has been made by M/s IRM Energy Pvt Ltd. as the gas pipeline had already been laid by GAIL authorities. This city gas station is in process of supplying of gas to M/s Chankya Bakery Products unit, installed in focal point.</p>
	5. Fugitive emission control	Short Term	Within one month and continue as regular activity	Punjab Pollution Control Board	<p>The induction furnace units are being asked to provide proper hoods for suction of emissions so as to rule out escaping of emissions from the collection hood into the atmosphere.</p> <p>Presently, the induction furnaces have installed conventional canopy hoods with ID fans for the suction of emissions. These</p>

					<p>canopy hoods have to be removed from the induction function crucible during charging of raw material to magnet. The Board with the help of Punjab State Council for Science and Technology (PSCST), Chandigarh has developed a side hood with improved suction capacity as APCD over induction furnaces to maximize the emissions collection from the operation of induction furnaces.</p> <p>The Board has got installed proper APCDs in the rice shellers to control the process emissions.</p>
	6. Installation/ upgradation of air pollution control system	Short Term	90 Days	Punjab Pollution Control Board and Punjab State Council for Science & Technology	<p>The industrial units falling under Mandi Gobindgarh have installed air pollution control devices. However, if any unit is found not meeting with the emission standards, the same is being pursued to upgrade the APCD or to switch over cleaner technology. Presently, the induction furnaces have installed conventional canopy hoods with ID fans for the suction of emissions. These canopy hoods have to be removed from the induction function crucible during charging of</p>

					raw material to magnet. The Board with the help of Punjab State Council for Science and Technology (PSCST), Chandigarh has developed a side hood with improved suction capacity as APCD over induction furnaces to maximize the emissions collection from the operation of induction furnaces.
Mining	1. Efforts for good mining practices	-	-	-	There is no major mining activity in Mandi Gobindgarh city area except mining of brick earth/clay, which is a rare case.
	2. Green Belt for activity zone and the buffer zone for each mining area	-	-	-	There is no major mining activity in Mandi Gobindgarh city area except mining of brick earth/clay, which is a rare case.
Construction and Demolition activities	1. Enforcement of Construction and Demolition Waste Rules	Short Term	Within one month and continue as regular activity	Punjab Pollution Control Board, Municipal Council	Since, no major construction activity is being carried out in Mandi Gobindgarh. The minor activities being carried out by individual household are being checked by the Municipal Corporation to ensure the compliance of these rules.
	2. Control measures for fugitive emissions from material handling-conveying and screening operations through water sprinkling, curtains, barriers	Short Term	Within one month and continue as regular activity	Punjab Pollution Control Board, Municipal Council	Since, no major construction activity is being carried out in Mandi Gobindgarh. The minor activities being carried out by individual household are being checked by the Municipal Corporation to

	and dust suppression units.				ensure the compliance of these rules.
	3. Ensure Carriage of construction material in closed / covered vessels.	Short Term	Within one month and continue as regular activity	Punjab Pollution Control Board, Municipal Council	Since, no major construction activity is being carried out in Mandi Gobindgarh. The minor activities being carried out by individual household are being checked by the Municipal Corporation to ensure the compliance of these rules.
Other Steps	1. Air Quality Index to be calculated and disseminated to the people through website and other media.	Mid Term	Within one month and continue as regular activity	Punjab Pollution Control Board	As per air quality being monitored by the PPCB at three RDS stations and one CAAQMS, the air quality index remains between moderate and very poor in most of the times every year. PM ₁₀ changes very often, the reasons of which are mainly like air polluting industries located in a radius of 5 Km of Mandi Gobindgarh area, a lot of dust emissions due to the movement of vehicular traffic on the roads either damaged or kaccha and air pollution caused during wheat/paddy stubble burning etc. Therefore, the ambient air quality of Mandi Gobindgarh area falls in between moderate and very poor. The Punjab Pollution Control Board is carrying out

					<p>pull over the various possibilities to reduce the air pollution for the improvement of ambient air quality with respect to AQI is concerned.</p>
	<p>2. Engage with concerned authorities on continual basis for maximizing coverage of LPG /PNG for domestic and commercial cooking with target of 100% coverage.</p>	<p>Mid Term</p>	<p>180 Days</p>	<p>State Govt.</p>	<p>---</p>
	<p>3. Monitoring of DG sets and action against violations.</p>	<p>Short Term</p>	<p>Within one month and continue as regular activity</p>	<p>Punjab Pollution Control Board & Municipal Council</p>	<p>---</p>
<p>* Time target for implementation taken from action plan submitted by another non-attainment city, for your reference. Kindly modify according to your city in consultation with respective stakeholders. ** Source group is based on local understanding, in future this may be strengthened with emission inventory/source apportionment</p>					