

PRESENT ENVIRONMENTAL STATUS OF KHANNA CITY GEOGRAPHICAL FEATURES

Location

Geographically, Khanna falls in Distt. Ludhiana, which is situated in Malwa region of Punjab. It lies between **north latitude** 30.70° and **east longitude** 76.22°. It shares common boundary with Distt. Fatehgarh Sahib.

Mandi Gobindgarh, Distt Fatehgarh Sahib is known as 'Steel Town of India' as various categories of steel manufacturing units are operating in this town which is a sister town to Khanna. Khanna is located on National Highway-I. The town is spread over an area of 128 Kms. and accommodates a population of 128137 as per 2011 census.

Topography

The likes of an alluvial plain is strong characteristics of the city of Khanna and its surroundings. The city does have a Central location in the plan region. The geographical co-ordinate of Khanna are 300-40' to 300-46' latitude and 760-7' to 760-18' longitude.

The city has an average altitude of 833 feet or 254 meters from the average sea level. The erstwhile land of Khanna was very much feasible for peanut cultivation with sand dunes. However a lot of irrigation and environmental changes have made the land more viable for wheat cultivation.

Climate

The climatic conditions bear a strong resemblance with the other cities in the northern part of India. The summers are usually very hot and the winters are very cold. The summers are prevalent during the months of April to September with June, July, August till mid September being the hottest months. The winter is prevalent from the

month of November till the month of March. There is onset of Monsoon in September and from mid of September till November one experiences the transitional weather.

Temperature in Khanna

The hottest month is the month of June and this month registers a temperature of around 45 degree Celsius and more and the mean daily temperature is around 27 to 29 degree Celsius. The month of January is the coldest month and the temperature ranges anywhere between 19 degrees Celsius to sub 7 degrees Celsius.

Rainfall

Most of the rainfall occurs during the months of July to September and around 70% of the rainfalls are witnessed during the season of Monsoons between the month of July till September 16% of the rainfalls are witnessed during the months of December till March. The average annual rainfall in the city of Khanna is about 859.4 mm

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.

MAJOR WATER BODIES AROUND MANDI GOBINDGARH

Bhakhra Canal:

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

FLORA & FAUNA

District Ludhiana 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 Parakeet, Rose-ring parakeet, Pariah kite, Koel, Magpie Robin, Wren-warbler, Blue Jay, Wagtail, black partridge, peacock, Baya, Coot, River tern, Grayhornbill, Munia, Crow, Woodpecker, Flycatcher, Coppersmith, Brahmini duck, Cormorant (large and small), swift Swallows, Vulture, Water hen.

Reptile (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 sarana (Puthi), Puntius stigma (Chidhu), Channa marulius (Sol), Mastacembelus armatus (Bam).

SENSITIVE RECEPTORS

As per report of Central Pollution Control Board on the Comprehensive Environmental Assessment of Industrial Clusters, the framework of the CEPI is based on three factors i.e. pollutant, pathway and receptor. The high density of population in and around Khanna city has been identified, as one of

the major sensitive receptors. The population of the Khanna as per 2011 census city is 128137. 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 Khanna.

DEMARCATION OF GEOGRAPHICAL BOUNDARIES OF THE INDUSTRIAL CLUSTERS

Khanna 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
(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.
(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.
Mandi Gobindgarh area	Area near RIMT starting from M/s Cold Drip Pvt. Ltd. to M/s JTG Alloys Ltd.
Mandi Gobindgarh area	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
Mandi Gobindgarh area	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.
Mandi Gobindgarh area	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
Mandi Gobindgarh area	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
Mandi Gobindgarh area	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.

GRADED RESPONSE ACTION PLAN

The ambient air quality data for the last one 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 air polluting industries like steel induction furnaces, steel re-rolling mills etc., located in a radius of 5 Km of Khanna 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 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 Khanna area falls in between moderate and poor. The Punjab Pollution Control Board is ponder 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 Khanna city falls in the range of 113 -239 µg/m³, 8-12 µg/m³, 18-35 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 **Khanna**
2. Air Pollution concern: **PM₁₀, SO₂ & NO_x**
3. Air pollution levels: Range of monthly average concentration values of PM₁₀, SO₂ & NO_x for the period 2016-17 enclosed as Annexure-1.
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	Implementati on period(short/ mid/ long-term)	Time target for implementati on *	Responsibl e agency(ies)	Any other information
Vehicles	1. Launch extensive drive against polluting vehicles for ensuring strict compliance.	Short Term	Within a week & continue as regular activity	State Transport Authority(ST A)	However, pollution check centers are 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	Short Term	Within a week & continue as	Municipal Council	

	vehicles in the non-designed areas.		regular activity	&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 Khanna. 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	Mid Term	90 Days	Municipal	

	open areas, gardens, community places, schools and housing societies			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 burning	1. Launch extensive drive against open burning of bio-mass, crop residue, garbage, leaves, etc.	Short Term	90 Days	Distt. Administration, Agriculture Deptt, Municipal Council and PPCB	
	2. Regular check and control of burning of municipal solid waste.	Short Term	90 Days	Punjab Pollution Control Board & Municipal Council	Regular inspections are being carried out by the PPCB from time to time to check & control of open burning of municipal solid waste in different areas of the city. In the past where the MSW was found under fire, fine has been imposed by Punjab Pollution Control Board on the M.C./Responsible person in light of NGT order dated 10.12.2015.
	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	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

	unauthorized units.				and to pursue them to shift to induced draught technology.
	2. Conversion of natural draft brick kilns to induced draft.	Long Term	450 Days	Punjab Pollution Control Board	There is no brick kiln falling in Municipal limits of Khanna. However, 22 brick kiln fall in Sub Division Khanna out of which 1 no. has already installed induced draft technology & rest are being pursued to adopt the same by next season.
	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 Khanna seriously, PPCB developed pollution control device for induction furnaces industries of Khanna area. PPCB developed the new design of emissions collecting hood for induction furnaces in 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 with 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

					<p>M/s Dasmesh Castings. This technology will also be replicated in all the induction furnaces in Khanna 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 Khanna area are being perused to install energy saving devices like recuperator, air seal, damper plate and VFD for energy 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 which is an adjoining town of Khanna 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</p>
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					Bakery Products unit, installed in focal point Mandi Gobindgarh. After the successful operation of the initial projects the rolling mills of Khanna area will also be connected with PNG Network.
	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 side hoods for suction of emissions so as to rule out escaping of emissions from the canopy type hoods which have already been installed by the industry. The industry has to displace its canopy hood away from the crucible while charging of raw material with the help of magnetic crane, this causes escape of untreated emissions into the atmosphere.</p> <p>Whereas, the above said problem is not present in the case of side hood.</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	PPCB & PSCST	<p>The industrial units falling under Khanna 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.</p> <p>Presently, the induction furnaces have installed conventional canopy hoods with ID fans for the suction of emissions. These</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.
Mining	1. Efforts for good mining practices	-	-	-	There is no major mining activity in Khanna 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	-	-	-	-do-
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 Corporation	Since, no major construction activity is being carried out in Khanna. The minor activities being carried out by individual household are being checked by the Municipal Council 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 and dust suppression units.	Short Term	Within one month and continue as regular activity	Punjab Pollution Control Board, Municipal Corporation	-do-
	3. Ensure Carriage of construction material in closed /	Short Term	Within one month and continue as regular activity	Punjab Pollution Control Board, Municipal	-do-

	covered vessels.			Corporation	
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 two RDS stations, the air quality index remains between moderate and poor in most of the times every year. PM ₁₀ changes very oftenly, the reasons of which are mainly like air polluting industries located in a radius of 5 Km of Khanna 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 Khanna 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. The Punjab Pollution Control Board is under process to install AAQMMS in Khanna area.
	2. Engage with concerned authorities on continual basis for maximizing coverage of LPG /PNG for domestic and commercial cooking with target of 100% coverage.	Mid Term	180 days	State Govt.	Punjab Pollution Control Board has requested to Ministry of Petroleum and Natural gas to include Khanna cluster into the Mandi Gobindgarh cluster so that M/s IRM Energy which is responsible for supplying PNG to industries present in Mandi Gobindgarh cluster, may supply pressurized natural gas to the similar industries

					present in Khanna cluster also.
	3. Monitoring of DG sets and action against violations.	Short Term	Within one month and continue as regular activity	Punjab Pollution Control Board & Municipal Council	-
<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.</p> <p>** Source group is based on local understanding, in future this may be strengthened with emission inventory/source apportionment</p>					