

# POLLUTION IN JAMMU

J&K ENVIS Centre

Department of Ecology, Environment & Remote Sensing,  
Jammu and Kashmir



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**From the Director’s Desk**

I am glad that the first News Letter of the ENVIS for the year 2013-14 has been prepared by the ENVIS Centre J&K. The topic of the current issue is pollution in the Jammu City. Various aspects of pollution in the city have been touched and I am sure the information will be useful for one and all. Disposal of Biomedical Waste and Hazardous Waste Management is a problem that needs immediate attention. In future also efforts would be made to touch upon some of the environmental issues that are affecting the state and where there is a need for specific intervention. I wish all success to the J&K ENVIS Centre, which has now been revived and made fully functional. The new website jkenvis.nic.in also needs to be appreciated as it has come up very well.

(Suresh Chugh) IFS  
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**ENVIS**

Environmental Information System (ENVIS) program is a plan program of the Government of India started in December 1982. Environmental information system plays a vital role not only in formulating environmental management policies but also in the decision making process aiming at environmental protection and improvement of environment for sustaining good quality of life for living beings.

**ABOUT US**

On July 24 2002 under the ENVIS capacity Program, ENVIS node at J&K was sanctioned by the Ministry of Environment and Forests, GOI and it allotted this centre to the Department of Environment and Remote Sensing Govt. of Jammu & Kashmir.

**PROFILE OF JAMMU**

Jammu is one of the three administrative divisions within Jammu and Kashmir, the northernmost state in India. Jammu city, also called Jammu-Tawi, is the largest city in Jammu and the winter capital of Jammu and Kashmir. It is also known as "City of Temples" as it has many temples and shrines, with glittering shikhars soaring into the sky, which dot the city’s skyline, creating the ambience of a holy and peaceful city. Jammu city is facing the pressure of ever increasing population and increasing vehicular traffic density that poses

continuous threat to the Air Quality of Jammu. Though there are various other factors that also contribute to the deterioration of environmental quality of the city.



Figure 1: Jammu Division

**POLLUTION**

“Pollution” is the introduction of undesirable contaminants into the natural environment that causes adverse changes in it. Pollution can be in the form of chemical substances or energy, such as noise, heat, light or radiation. Pollutants i.e. the components of pollution, can be foreign substances/energies or naturally occurring contaminants.

The major forms of pollution are as follows:

- Air pollution
- Noise pollution
- Water pollution
- Wastes which include Hazardous, Biomedical, e-waste etc.

## AIR POLLUTION

Air pollution is the introduction of chemicals, particulates, biological materials, or other harmful materials into the Earth's atmosphere, possibly causing disease, death to humans and damage to other living organisms such as food crops, or the other natural or built environment.

### Causes of Air Pollution

Air pollution is caused mainly by vehicular emissions, fuel combustion in stationary sources, burning of fossil fuels like coal, wood, dry grass, and construction activity. Motor vehicles produce high levels of Carbon Monoxide (CO), Hydrocarbons (HC), Nitrogen Oxides (NO<sub>x</sub>) and Sulphur Oxides (SO<sub>x</sub>). Construction activities, bad roads and combustion are responsible for release of particulate matter into the atmosphere. Commercial activities, industrial emissions also contribute to air pollution.

### Effects of Air Pollution

Some of the effects of Air pollution on Human, Animals and Environment are as:

- Reduced lung functioning, coughing, asthma attacks, bronchitis.
- Irritation of eyes, nose, mouth and throat, headaches, cardiovascular problems, cancer.
- Particulate particles are linked to serious health effects and are also a major cause of visibility impairment.
- Aerosols affect the climate of the earth by changing the amount of incoming solar radiation.
- Acid rain is one of the consequences of air pollution and it destroys fish life in lakes and streams and kills trees, destroy the leaves of plants, can percolate through different layers of soil making it unsuitable for purposes of nutrition and habitation.

*Table No. 1: Ambient Air Quality of Jammu for the fourth quarter of 2012 is represented below:*

Month/ Parameter	RSPM (24 hrs Avg)	SPM (24 hrs Avg)	SO <sub>x</sub> (24 hrs Avg)	NO <sub>x</sub> (24 hrs Avg)
October	87.0	179.7	3.9	12.3
November	119.1	234.9	15.9	4.3
December	102.6	167.4	3.1	8.5
Average	102.9	194.0	7.6	8.4

(Source: State Pollution Control Board, J&K)

### Air Pollution in Jammu

Air pollution has long been recognized as a threat to human health as well as ecosystem. The main sources include smoke emitted by numerous factories and ever increasing vehicular traffic, waste deposition and release of methane gas from paddy fields, which is a major green house gas particularly in congested state like Jammu and Kashmir.

In Jammu district, the total number of registered vehicles is 508309 upto September 2013 (Source: RTO, Jammu) and according to the 2011 Census the total population of Jammu district is 1526406, which means the ratio of population to vehicles is approximately 3:1 and is one of the main sources of Air pollution in Jammu.



*Figure 2: Vehicular Traffic in Jammu City*

## WATER POLLUTION

Water pollution is the contamination of water bodies like lakes, rivers, ponds etc. Water pollution occurs when pollutants are directly or indirectly discharged into water bodies, without adequate treatment or removal of harmful compounds. Water pollution affects plants and organisms living in these water bodies and those who are dependent on these polluted water bodies. In almost all cases the effects are damaging not only to individual species and populations but also to the natural biological communities.

### Causes of Water Pollution

- Untreated Sewage from domestic households, factories and commercial buildings.
- Dumping solid wastes and littering by humans in rivers, lakes and ponds.
- Industrial waste from factories, which use freshwater to carry waste from the plant into rivers, contaminates water with pollutants such as asbestos, lead, mercury and petrochemicals etc.
- Religious practices like idol immersion in rivers, mass bathing in rivers, throwing of leaves, flowers on ceremonies and throwing of animal carcasses etc.

### Effects of Water Pollution

- Some of the waterborne diseases caused by polluted drinking water are Typhoid, Hookworm, Amoebiasis, Giardiasis, Ascariasis, Cholera, Dysentery etc.
- Eutrophication / Nutrient enrichment causes overgrowth of algae, which results in increase in Biological Oxygen Demand (BOD) and quality of water decreases; nutrient pollution can also cause outbreaks of fish diseases.
- May disrupt photosynthesis in aquatic plants and thus affect aquatic ecosystems.
- Terrestrial and aquatic plants may absorb pollutants from water (as their main nutrient source) and pass them up the food chain to consumer animals and humans and culminates in the process of biomagnification.

*Table No. 2: Comparative analysis of different water bodies of J&K State in Fourth Quarter of 2013 is shown below*

Location / Parameter	Mansar Lake	Surinsar Lake	Tawi River	Chenab River
Colour	Colourless	Pale	Light Green	Light Grey
Odour	Slightly pungent	Slightly pungent	Slightly pungent	Odourless
Visible effluent discharge	Drains from commercial establishments	-	Drains 500 mu/s	Nil
Human activities around station	Sewage discharge, Bathing, washing etc.	Washing, bathing, religious activities	Bathing, washing of vehicles	Burning of Dead bodies
Temperature	20 °C	18 °C	16 °C	10 °C
Dissolved Oxygen	6.6	6.2	7.6	7.5
pH	7.42	8.5	8.6	7.8
BOD	4.3	26	7.2	1.2
COD	20	52	18	3.4

(Source: State Pollution Control Board, J&K)

### Tawi River Flows Polluted

Tawi River is the main river which flows through the Jammu city and people have great attachment with this holy river. Water of Tawi is the main source of drinking water. The Tawi River is getting highly polluted and its pollution level has reached at an alarming proportion which is the matter of concern.

The river is now being used as a big sewerage disposal site and its water level has very much reduced. The industrial discharge, municipal waste, chemicals, drainage system, agricultural drainage, polythene bags and dead animals dumped on the river bed affect its water. This has made water, which was used for drinking since centuries, unfit for consumption.



Figure 3: River Tawi

## NOISE POLLUTION

Noise pollution is the disturbing or excessive noise that may harm the activity or balance of human or animal life.

### Causes of Noise Pollution

- **Outdoor Sources:** The outdoor noise is mainly caused by machines, public & private transport, loud music in public transport, motor vehicles, aircraft, trains, election campaigns, religious ceremonies etc.
- **Indoor Sources:** Indoor noise is caused by machines, building activities, music performances, and especially in some workplaces, loud speakers, DJ's etc.

### Effects of Noise Pollution

- It interferes with speech.
- Noise leads to emotional and behavioral stress.
- Noise may permanently damage hearing.

- Noise increases the chances of occurrence of diseases such as headache, blood pressure, heart failure, etc.
- Noise is a problem especially for patients who need rest.

*Table No. 3: A report on Noise level monitoring of prominent places of Jammu city is illustrated below:*

Location	Noise in db(A)	
	Day Time	Night Time
<b>Hospitals</b>		
Government Medical College, Bakshi Nagar, Jammu	74.9	51.3
Government Hospital Sarwal, Jammu	66.9	50.7
SMGS Hospital, Jammu	68.5	50.9
Gandhi Nagar, Jammu	63.2	50.3
<b>Educational Institutions</b>		
Gandhi Nagar College, Jammu	65.2	52.0
Commerce College, Jammu	73.0	50.0
University of Jammu	68.5	50.0
<b>Hon'ble High Court</b>		
Hon'ble High Court, Janipur, Jammu	60.6	40.3
<b>Prominent Religious Places</b>		
Raghunath Mandir, Jammu	72.3	57.9
Bahu Fort (Kali Mata Mandir), Jammu	69.7	62.8
Gurudwara Nanak Nagar, Jammu	64.8	55.1

(Source: State Pollution Control Board, J&K)

### Noise Pollution in Jammu City

The immense increase in the level of noise pollution in Jammu city is casting its disastrous effects widely and at a very rapid pace. One of the major forms of noise pollution in this beautiful city of temples is Public transport vehicles along with their loud music systems. Majority of the matadors plying on different



routes across the city have installed music systems which is a matter of concern for people. DJ's being played at banquet halls are also contributing in this regard.



Figure 4: Various Sources of Noise Pollution

## HAZARDOUS WASTE

Hazardous Waste means any waste which by reason of any of its physical, chemical, toxic, reactive, inflammable, explosive or corrosive characteristics, causes danger or is likely to cause danger to health or environment, whether alone or when in contact with other waste or substances.



Figure 5: Hazardous Wastes

In Jammu & Kashmir, there are 342 hazardous waste generating units. The major industrial processes, generating hazardous waste in the state are:

- Recyclers
- Pesticide Formulation
- Pharmaceutical Formulation
- Steel Rolling Mills
- Paper and Pulp
- Paints and Inks etc.

The hazardous waste generated by the units is being stored, within the unit premises, in the absence of a Treatment, Storage and Disposal Facility (TSDF). In specific cases, permission for transportation of hazardous waste to a TSDF outside the state is granted. The authorization in some cases is also granted for recycling, reuse and reprocessing of hazardous waste.

J&K State Industrial Corporation (SIDCO) has notified 80 kanals of land for setting up of an Integrated Common Hazardous Waste Treatment, Storage, Disposal and Recycling facility (ICHWTSDRF) at Phase-II, Industrial Growth centre (IGC), Samba in village Mandhera, Tehsil and District Samba. Environmental Clearance has been granted by the Ministry of Environment & Forests, Government of India.

Table No. 4: Quantification of Hazardous Waste Generating Units of Jammu Province

Location	No. of Units	Quantification (MT/year)	Landfill (MTA)	Recyclable (MTA)	Incinerable (MTA)
Ind. Complex Bari Brahmana	111	4693.97	3824.66	824.55	43.79
Ind. Estate Gangyal & Digiana	58	1469.46	257.16	1210.18	2.25
Other areas of Jammu	13	342.33	137.04	135.29	70
Ind. Growth Centre Samba	57	1724.26	201.96	1510.54	12.86
Birpur/Other areas of Samba	31	17.90	8.86	7.44	1.52
Ind. Estate Kathua	62	6201.84	3918.63	2263.77	18.23
IID Centre Udhampur	10	519.29	469.15	50.10	0.03
<b>Total</b>	<b>342</b>	<b>14969.05</b>	<b>8817.46</b>	<b>6001.87</b>	<b>148.68</b>

(Source: State Pollution Control Board, J&K)

## E-WASTE

e-waste describes material from discarded electrical or electronic devices. This category includes discarded computers, office and home equipments, mobiles etc. The total e-waste

generation and disposal in the state was worked out by adding the quantities of e-waste collected by scrap dealers and dismantlers in the State.

*Table No. 5: Total e-waste Generation & Disposed in the J&K State*

Region	Quantity of WEE handled by scrap dealers (tons/year)	Quantity of WEE sold to dismantlers on auction basis (tons/year)	Major Items	Other Items
Jammu	253.20	93.50	Refrigerators, T.V Sets & Computers	A.C's, Washing Machines, Coolers, Ceiling Fans, Motors & PCB's
Kashmir	110.00	21.00	Refrigerators, T.V Sets & Computers	Washing Machines, Geysers, Coolers, Ceiling Fans, Motors, PCB's & Heating Appliances
Ladakh	14.50	INA	Refrigerators, T.V Sets & Computers	Washing Machines, Geysers, PCB's & Heating Appliances
Total	377.82	114.50		

**Total e-waste generated 492.32 tons**

(Source: Status of E-Waste Management in J&K, SPCB J&K)

## BIOMEDICAL WASTES

Bio-medical waste means, any waste which is generated during the diagnosis, treatment or immunization of human beings or animals or in research activities. Common producers of biomedical waste include hospitals, health clinics, nursing homes, medical research laboratories, offices of physicians, dentists, and veterinarians, home health care, and funeral homes.

The prescribed authority for the implementation of the rules in this regard is the J&K State Pollution Control Board.

*Table No. 6: Status of Bio-medical waste in Jammu Division*

Total no. of Health Care Facilities (HCF's)	783
Total no. of Beds	4698
Total no. of HCF's applied for Authorization	226
Total no. of HCF's granted Authorization	159
Total qty. of Waste Generated (kg/day)	881

(Source: State Pollution Control Board, J&K)

Separate Bio-medical Waste Management Cells have been set up in all three regions of State viz., Jammu, Kashmir and Ladakh respectively.

The Health Care Facilities (HCF's) in Jammu, Samba and Kathua districts were utilizing the Common bio-medical waste treatment facility of Pathankot, Punjab for the final disposal of their waste. But recently a private facility has come up in District Samba which is catering to the needs of HCF's falling within 150 km's of its radius.



*Figure 6: Biomedical Wastes*

## REPORT ON CEMENT INDUSTRIES

On the advise of the Environment Committee of the Legislative Assembly a committee under the Commissioner/Secretary industries was constituted to look into the working of the Cement Industry in the state.

The report inter-alia states that:

- In the state of J&K, there are 54 numbers of existing/operational units.
- Most of the units have installed the basic required pollution control devices.
- The unit holders are not fully providing air plugs/mufflers etc. to workers.
- The plantation found in and around the units is inadequate to act as a physical barrier to prevent the dispersal of dust and Suspended Particulate Matter (SPM).
- Study revealed that there is neither any Environmental Impact Assessment (EIA) conducted nor the submission of Environmental Management Plans (EMP's) for old units. Whereas it is a statutory requirement to obtain prior Environmental Clearance for a new project or expansion of the existing plants from MoEF for Category 'A' Project and State EIA Authority (SEIAA) for Category 'B' Projects.
- Cement manufacturing involves two main areas of Environmental concerns, namely Dust Pollution, release of Green House Gases (GHG's), mining activities and other ecological problems.
- In the cement industry, limestone mining area is spread over 600 to 1000 acres of land and regularly subjected to various operations like drilling, blasting, crushing of limestone and movement of heavy earth moving equipment in the area. These operations result in heavy dust emission, unless strict preventive measures are taken.

Various Environmental hazardous are also associated with the release of Oxides of Nitrogen (NO<sub>x</sub>), Sulphur dioxide (SO<sub>2</sub>), Oxides of Carbon (CO & CO<sub>2</sub>), Particulate matter, SPM, Volatile Organic Compounds (VOC's), Hydrogen Fluoride, Hydrochloric Acid (HCl) and Polychlorinated dibenzodioxins etc.

### Recommendations:

- It is recommended to stabilize the area with plantations, refilling of mining pits etc.
- The proposed site should be away from residential and other sensitive locations.
- The new units should be allowed to setup only after seeking prior environmental clearance.
- Conducting EIA prior to the establishment of the unit should be enforced.
- There should be proper declared zonation for establishment of cement units.

## BRICK KILN

On the advise of the Environment Committee of the Legislative Assembly a Rapid EIA study was conducted by Department of Ecology, Environment & Remote Sensing in Ranbir Singh Pura area of Jammu. Study revealed that there are 31 brick kilns operating in the area. The study further revealed that there was loss of about 32 Ha of land due to soil extraction for brick making. The particulate matter and soot released during brick making is detrimental not only for human beings but also for animals. During the study, it was observed that 41 males, 19 females and 3 children were suffering with respiratory diseases like breathlessness, bronchitis and asthma. The emissions from the chimneys are loaded with high concentration of Fluoride, Sulphur dioxide, Nitrogen Oxide, Carbon monoxide and Suspended particulate matter. These emissions also affect the mango orchards located in the nearby areas.

The survey was concluded with the recommendation to adopt more scientific approach and a well knit policy for control and operation of brick kilns to ensure environmental restoration.



Figure 7: Brick Kiln

## WAYS TO HELP THE PLANET



**Plant a Tree:** It's good for the air, the land, can shade your house and save on cooling (plant on the west side of your home), and they can also improve the value of your property.



**Avoid Plastic Bags:** They are not biodegradable, and are making their way into our oceans, and subsequently, the food chain. Stronger, reusable bags are an inexpensive and readily available option.



**Recycle:** Recycled glass reduces related air pollution by 20 percent and related water pollution by 50 percent. If it isn't recycled it can take a million years to decompose.



**Go Green Shopping:** You can conserve resources, save energy, and prevent waste by buying products that are energy efficient, reusable, made with recycled content or are recyclable and have less or no plastic content.



**Share:** Take what you've learned, and pass the knowledge on to others. If every person you know could take one small step toward being greener, the collective effort could be phenomenal.

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## WORLD ENVIRONMENT DAY

World Environment Day ('WED') is celebrated every year on June 5 to raise global awareness to take positive environmental action to protect nature and the planet Earth. It is run by the United Nations Environment Programme (UNEP).

The 2014 theme for World Environment Day will focus on '**Small Islands and Climate Change**', the official slogan for the year 2014 is:

**'Raise Your Voice, Not The Sea Level'**



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World Environment Day - 5 June 2014

