27/06/2020

KOL Environment Class - 8

[Landfills & Air Pollution, e-waste, e-commerce waste, Bio Medical Waste, Noise Pollution, Microwave Pollution, Space Degradation, Environment Impact Assessment]

Landfills

There are three big Landfills in Delhi, where waste incineration is responsible for release of toxic gases like DIOXINS and FURANS. Both of which are carcinogenic in nature. Dioxin is a group of hundred gases. Most detrimental of which is 2,3,7,8, Tetrachloro Dibenzo p-dioxin (TCDD) Dioxin is also emitted from pesticide making paper and pulp bleaching. Under the Biomedical waste management rules 2016, chlorinated plastic bags and gloves have been banned as incineration of these waste are responsible for emission of Dioxins and furans.

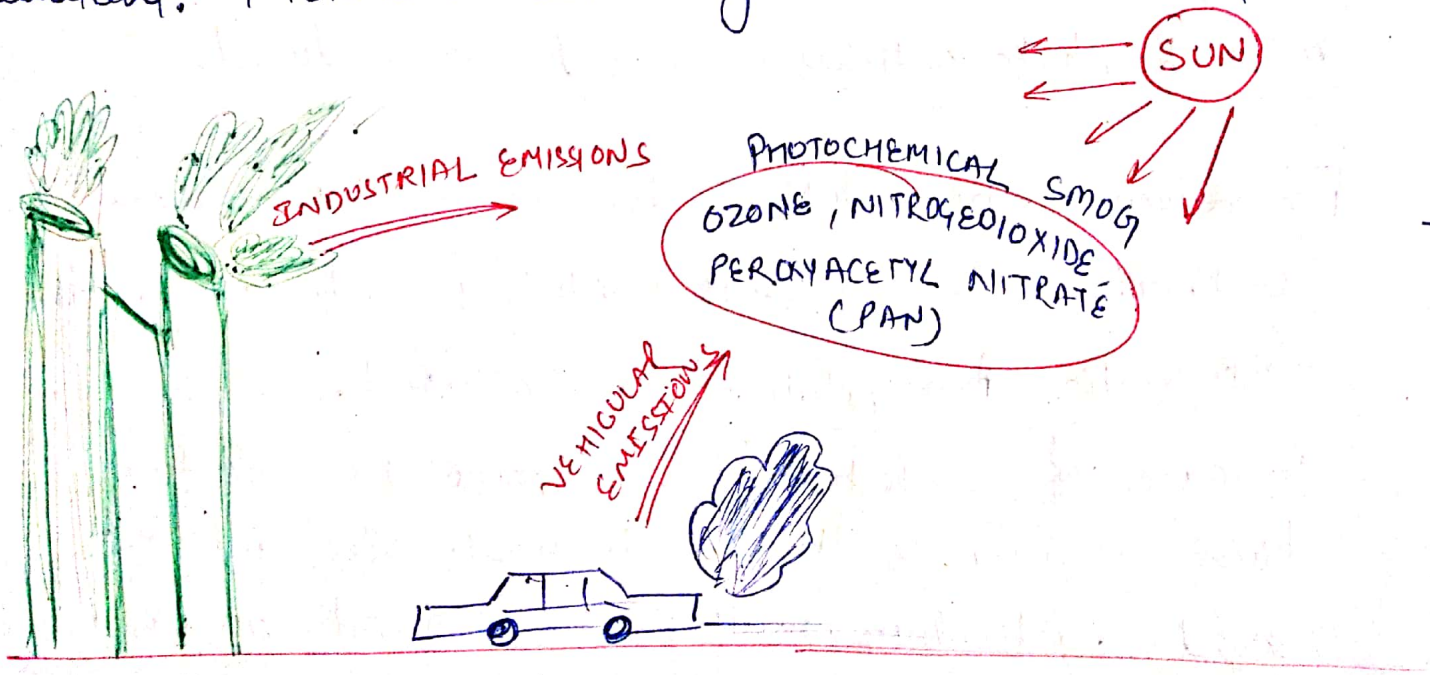
Landfills are also source of odour pollution. WHO recognised is odour as a pollutant which is responsible not only influence the quality of life but also social well being of a person. The adverse impact include vomating, anxiety, stress, loss of sleep, etc. There is no law in india govering odour pollution only guidlines are present perteining to Solid waste management Rule, 2017.

1. In order to check this buffer zone should be established b/w the landfills and settlements.
2. Olfectometer should be established at various places to measures smell we should also have the system of "ODOUR HOUR". But were we to check the source of smell which is liquid or solid waste.

* Air Pollutant

There are two main type of air pollutant.

1. Primary Air Pollutant → which are directly present in atmosphere due to industrial or vehicular emissions.
2. Secondary Pollutant are those which would be generated when atmospheric constituent acts on primary air pollutant. Photo chemical smog, is the best example.



due to vehicular and industrial emissions when Hydro carbon and nitrogen oxides are emitted in the atmosphere sun light acts on it and gets converted into oxidant like O_3, NO_2 and PEROXYACETYL NITRATE (PAN) which are important constituents of Photochemical smog this phenomena takes places in those parts of metropolitan cities where vehicular emission or industrial emission is high. It influences the respiratory system. O_3 is responsible for corrosion of buildings. On the other hand PAN is responsible for destroying chloroplast in plant as such photosynthesis would be reduced.

For reducing air pollution devices like Arresters (centrifuge), scrubbers which is a wet Jacket, and electrostatic Precipitator can be used.
In case of Electrostatic Precipitator electric charge is given to the contaminat air and the charged particulate matter is gathered on a separate platform. To reduce air pollution super tree can also be used which purifies air for 20,000 people and roughly equivalent to 1200 trees.

Green mufflers should also be established on both sides of road.

Indoor plants can be used like ARICA PALM, MONEY PLANT and Snack PLANT.

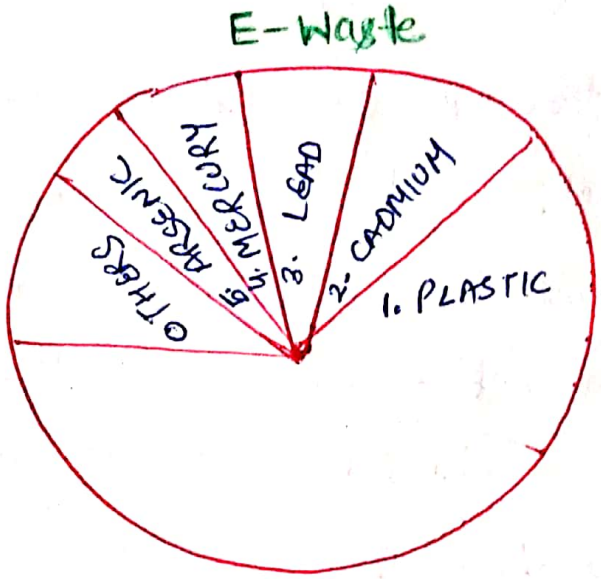
Vehicular emissions can be reduced through catalytic converter in which the catalyst used is Platinium or Paladium. it is responsible for reducing the harmful gases like NOx into Nitrogen which can escape into the atmosphere.

Presently BS IV norms have been enforced India but we would be switching on to BS VI these are based on the european norms and separate for Petrol and diesal vehicles. The indicators include CO, HCs, NOx and PM and is measured in terms of gm/km.

The National environment engineering research institute Nagpur was responsible for developing a device called VAAYU to reduce air pallution which consist of a FAN to trap the air a chamber to seeve out particulate matter and dust and another Chamber consisting of activated carbon which converts harmful gas like carbon monoxide into less harmful like CO_2.

These activate carbon have a coating of titanium oxide above it.

E-Waste



1.	Americium	Smoke Alarm	Carcinogenic
2.	Mercury	Monitors	Dementia
3.	Sulphur	Lead Acid battery	Liver & kidney Damage
4.	Cadmium	Rechargable Battery	Lung & kidney Damage.
5.	Lead Solder	Monitor & Circuit	Lack of Cognitive behaviour.
6.	Beryllium Oxide	CPUs.	Skin Damage.
7.	Hexavalent Chromium	Hardener for Steel Plates	DNA Damage
8.	~~Plastic~~ BFR	Plastic Component	Harmonal Imbalance Bioaccumulative

Electronic waste are those which either have electrical or electronic circuit as well as a power source.

It is a matter of concern in India because India is regarding as dumping station of e-waste by the developed world. India is the 5th biggest producer of e-waste in the world and produces 1.7 million tonnes of e-waste every year but in India more than 95% of e-waste is disposed by unorganised sector as the disposal units in India are less in number. The disposal mechanism is either energy intensive like pyrometallergy or costly affair Hydrometallurgy.

In adition there are number of hazardous substances present in e-waste.

In the year 2007 electrical and electronic Equipment waste ~~Rules~~ were passed under which e-waste should be disposed by authorised agencies of the government approved by SPCB and CPCB.

In the year 2011, government of India asked private company to establish collection centres for e-waste so that it can be separated from the general waste.

In the year 2013, the ~~government of Delhi~~ Govt. of Delhi imposed a very high tax on transportation of e-waste of other parts to the Delhi.
Under the e-waste managment ~~rule~~ 2016, the responsibilty is on the private company to collect e-waste and CPCB is the only authorty to allow disposal of e-waste.

E-Commerce Waste

More than 30% of solid waste generated in US is e-commerce waste. India the e-commerce packaging industry is growing day by day. Thes waste consist of Paper, plastic, Cardboard boxes, bubble wrap etc. A number of these waste can be easily recycled but due to lack of regulation they are ending up in landfills & Drains. It includes paper and cardboard boxes which comes at the cost of forset cover. The plastic waste present in it consist a number of chemical which have adverse impact on health. The consumers insist on immediate delivery which disallowes these commodities to deliver in an integrated manner.

STYROFOAM is a extended form of polystrene which is carcinogenic in nature. for this purpose the consumer should insist on sustainable delivery of the commodities. there should be a principle of "Buy back". and Private company should collect these waste under EPR (Extended producer responsibility).

When the Govt of Maharastra imposed plastic ban in 2018 it extended to include e-commerce waste also.

Noise Pollution

1. Near educational institution and hospital within the range of 100m Silent zone Area have been developed.

2. Green Mufflers established on both sides of road, work only reduced air pollution but also noise pollution

3. Ear Muffs have been provided to the industrial workers.

Noise Pollution

10 dB	Just Audible
20 dB	WHISPER
35-60dB	Normal Conversation
80dB↑	Noise pollution
120dB	Ear-drum Damaged.
180 dB	Death.

Note point

Noise Pollution — 40 dB ↑ (WHO)

Sound mufflers used by Russia to bend the sound waves so that ↓ submarine can not be detected by active sonar.

Bio-Medical Waste

These are those waste which are biological in origin and in resposible for spread of infectitous diseases. It consist of hazardous substances among the hospital waste. 10 to 25% is harazdous in nature. and among it 15 to 18% infectitious in nature. The first regulation related to biomedical waste was passed in the year 1988 in US called medical waste Tracking Act. In the year 1998, Bio medical waste disposal Act was passed in India and on NOV 28, 2013 NGT declared that this type of waste would be disposed only after environmental clearance. The Biomedical waste managment Rule not only banned chlorinated plastic bags & gloves but was also responsible for enlarging the ambit of this waste to include the waste from vaccination centres, healthcare facilities, Blood donation camps etc. It calls for immediate collection of

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waste and separation of this waste by using barcode. There are two mechanism of disposal Insitu and Ex-situ.

Insitu is costly and Ex-situ is frequently used. Before transportation of this waste Autoclaves are used in which steam is passed under pressure over this waste to reduce the germ load. It can be transported in plastic bean or cardboard boxes. If the waste is liquid for bleaching purpose sodium hydroxide would be used. The main mechanism of disposal is waste incineration, (One such pollution is called microwave pollution.)

Microwave Pollution

Due to improper establishment of mobile towers and use of wi-fi etc. and unnatural frequency is constantly present in the environment which is term as microwave pollution. According to the report submitted by scientist of IIT mumbai, microwave pollution is responsible for damage to nucleic Acid, damage to immune system, development of cancerous tumours, alteration of brain waves

It is also responsible for diminishing number of House sparrow. The frequency emitted by mobile towers have a thermal impact on the offsprings of Saparrow present inside the eggs because of which their brain rupture.

There are other reasons behind their decline which includes,

1. use of Pesticides in gardens
2. Urban Heat Island responsible for habitat loss.

Use of Unleaded Petrol, the combustion of which is responsible for generation of methyl Nitrite which is detrimental for their survive.

In the 2007, Save Sparrow Compaign was launched by ONGC from Dehradun in order to restablished the habitat of Sparrow. Microwave pollution, the habitat of also disturbed honey bees.

The adverse impact of 5G communication includes health concern according to doctors as the radiation level would enhanced it would also enhance global warming as it is energy intensive process.

Black carbon would be emitted on large scale due to burning of propellants.

Space Congestion would be enhanced as a large number of satellite would be sent into space.

This communication can be justified on the following grounds-

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1→ It is required for industrial revolution 4.0 which is based on machine to machine communication and also artificial intelligence.

2. According to WHO, no form of microwave pollution is present.

3. Physics is still unclear about the adverse impact of non-ionising frequency on human health.

ALIEN / EXOTIC / INVASIVE PLANTS

These plants are not natural to our ecosystem, they are endanic to some other ecosystem but is responsible for environmental degradation in our ecosystem. They are responsible for reducing the fertilty of soil. changing the PH value and impede the growth of other plants they also release chemicals called Allelo-chemicals. The Phenomena through which they impede the growth of other plants is called Allelopathic effect. there are numerous example in India.

1. PARTHENIUM → It is a type of weed, the seeds of which came to India through wheat import from US and have spread on a large scale it impedes the growth of grasses, legumes, vegetables.

2. LANTANA → It is a shrub which is subtropical American in origin. It was used as a ornamental plant and impedes the growth of Teak, coffee etc.

3. WATER HYACINTH → It was brought from amazon basin to India and was used as an ornamental plant which is responsible for degradation of India.

4. Blue PINE → It can found in hilly trap of H.P and J&K. It is responsible for impeding the growth of Astavarga (8 medicine plant) which is used in Ayurveda.