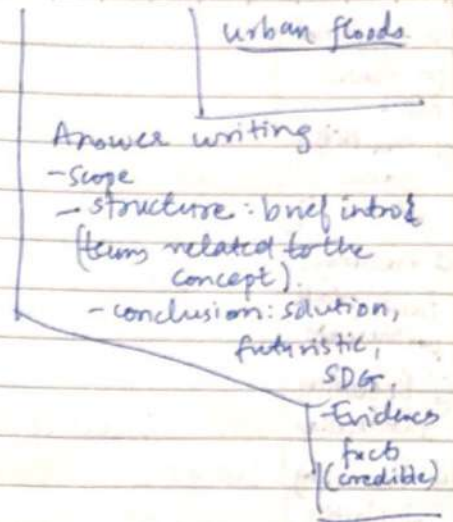
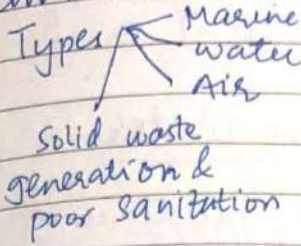


Date

No.

Environmental Pollution:



1. Marine Pollution:

- Context:
- Incidence (Extent of problem)
- Causes
- Consequences
- Efforts at
  - Global level
  - National level.

'Plastic Debris' - 48th <sup>Environment</sup> ~~Earth~~ day - "Beat Plastic Pollution"

WEF Report 2017 - 'amount of plastic would be more than that of ~~fish~~ fish in oceans by 2025 if current level of pollution is not minimised.'

Ocean Conservancy: Every year 8 million tonnes of plastic into ocean. eg. Great Pacific Garbage Patch.

2016: 1st Integrated Global Impact Assessment Report (on marine pollution).

- (1) Plastic Pollution
- (2) Agricultural Runoff
- (3) Pesticide Discharge
- (4) Oil spills
- (5) Persistent Organic Pollutants
- (6) Ammocious nuclear waste.

(microplastic) < 5mm

Reasons: Discharge of solid waste

Consequences: ① Threats to biodiversity - coral reef entanglement with plastic, sharks & whales swallowing plastic.



Other effects of plastic pollution: soil pollution, poisoning ocean, air pollution, social cost, health impact, bioaccumulation (leaching of toxic chemicals), financial loss (tourism, recreation etc.), exacerbating natural disaster (city floods, etc.)

National University of Singapore

to achieve SDG-3, 11, 12, 14

Date No.

Way Ahead for Plastic Polln:

② Trophic Transfer (Zooplankton ingesting microplastics).

- ① Enacting strong policies
- ② Encourage Public-private partnership
- ③ Exploring alternatives
- ④ Promoting bioplastics
- ⑤ Promote Green Social Responsibility

Solution - SDG-14: Life Below water

Goal 1: Aims to reduce & prevent the incidence of marine pollution by 2025

UN launched 'Save Our Seas' Campaign in 2017 under CLEAN SEAS programme to generate global awareness regarding problem of marine pollution and to save at least 30% of oceans by 2036.

India - 7500 km coastline → 4 mn people depend on fisheries  
 ↓  
 contributes to 5% of <sup>agri</sup> GDP & 1% of GDP.

Warmer Seas responsible for Cyclones & extreme events - NASA

① Plastic management Rules, 2016

increasing thickness to disincentivise free use of plastics.

segregation at source + dedicated land for waste mgmt facility.

Responsibilities of local bodies & gram Panchayats

Reuse of plastics wastes.

extended producer responsibility

② Ban by state govts.

India: 16% global population but 4% freshwater resource

2. Water Pollution

Jan 2018: Min. of Env. & Forests Climate change launched; Rejuvenation of major river systems.

Central Water Commission Reports

→ Status of trace & toxic metals in Indian River system.



## Major issues related to water polln in India:

1. Lack of coordination among states
2. Lack of water data (in coverage, robustness, efficiency)
3. Climate change - hot summers - glaciers melting, erratic monsoons.
4. Groundwater contamination.
5. Toxicity of rivers.

National University  
of Singapore

NITI Aayog  
Report

⇒ 70% of drinking water in India is contaminated; by 2030 - water availability will shrink to half (World Bank)

- As per CWC Report, Ganga is the most severely polluted river in the country with more than five toxic metals above the permissible limits.
- 42 rivers in India have at least 2 toxic heavy metals beyond permissible limits.
- As per CPCB, around 302 river stretches in India have BOD above the safe limits.
- As per Namami Gange statistics, 12600 km of Indian rivers are polluted and 2800 km of Namami Gange rivers are polluted.

Causes: Industrial activities - mining, chemical, industries

- Agricultural runoff
- Domestic sewage discharge & industrial effluents.

Consequences: Eutrophication (↓ biodiversity)

- Heavy metals - degenerative neurological diseases and can also be carcinogenic, and thus health hazard & increases burden on health & deteriorates human resources.

Solutions:

Practical  
Solutions

diffat

Dom

Namami  
Gange which

focus only on

pollution

- (1) New strategy from MOEFCC for rejuvenation of river system → whole ecology of river basin (reducing pollution from wetlands, flood plains, lakes)  
[Ecology based approach].



Strategy for sewage treatment plan  
- major focus on downstream of Kanpur.

(2) Setting up of Common Effluent Treatment Plants for industrial units.

(3) Bioremediation / Green remediation, wetlands (using water hyacinth, duckweed).

(4) CWC recommends regular monitoring with frequency of 4 times a year for river water systems in the country.

(5) Using waste water as resource. UN recommends graduating from linear approach to circular approach (recycle, reuse, resource recovery) (Treatment & Disposal)

\* Global technology in water treatment & conservation \*

### 3. Air Pollution:

- has become an all pervasive problem in India

As per WHO, 2017 findings with respect to PM<sub>2.5</sub> out of the 20 most polluted cities in the world - 14 are in India!

w.r.t. PM<sub>10</sub>, out of 20 most - 13 are in India!

eg. Delhi, Faridabad, Kanpur, Gurugram, Varanasi





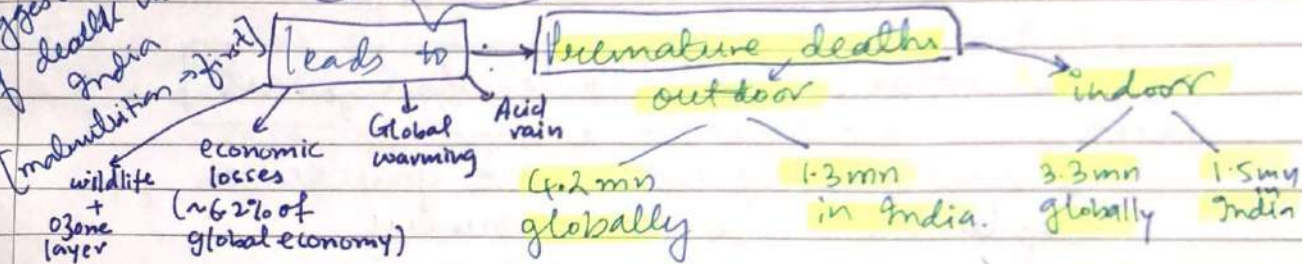
Air Pollution

Outdoor pollution

Indoor pollution / Ambient air pollution

\* Pollution is the second biggest cause of death in India

- 3bn people in the world don't have access to clean fuel.



Solutions:

EPCA : Nodal Authority

Graded Responses Action Plan - only for NCR.

PM Ujjwala Yojana

MDEFCC: came up with Draft National Air Clean programme.

Clean Air India Initiative with Netherland  
↳ (INDUS Impact - project: to halt burning of rice strubble).

NITI Aayog has come up with 15-point action plan for tackling pollution in 10 most polluted cities - "Breathe India".

- Encouraging use of EV & hybrid vehicle
- Using high grade coal for thermal power plants
- Phasing out of private diesel vehicles by 2020.
- Include scheme "Feebate" (fees on polluting vehicles & rebates on EVs).

- CCEA has approved a scheme of Institute-management of crop residue.

Dust storms

Lung infections



Initiatives:

- \* Carbon emissions by thermal power plants (TPPs) - norms for this to reduce PM10, SO2, NOx
- \* Dust mitigation Plan
- \* PM Ujjwala Yojana (for indoor pollution)
- \* SC ban on fire crackers.

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Date No.

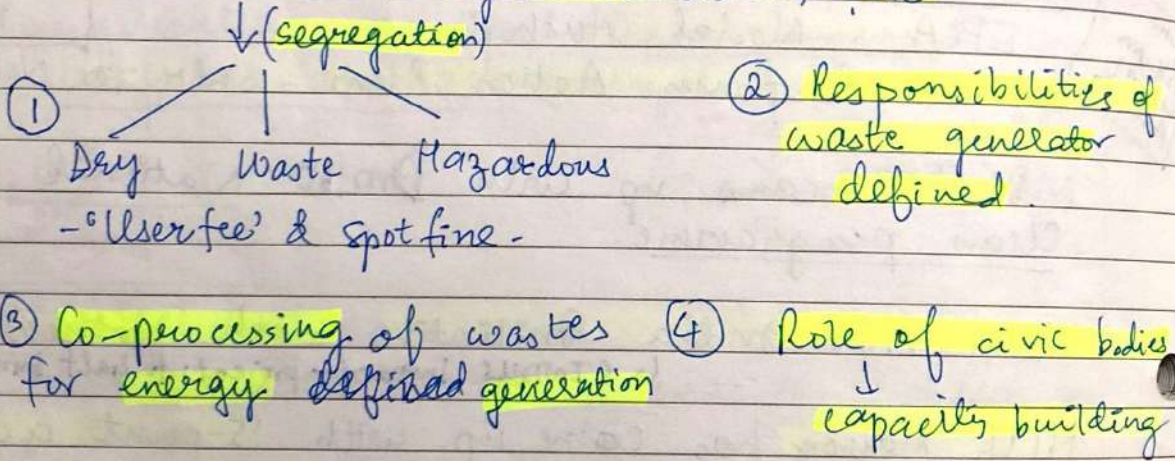
• Deforestation and deforestation needs to be managed as during recent dust storms, the dust coated with toxic compounds became a serious concern too.

• BS-VI, Petcoke & furnace oil banned in UP, RJ & HR.

(4) Sanitation & Solid Waste Management

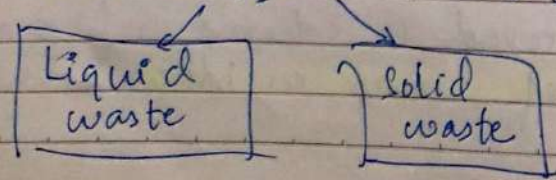
200-600 gm solid waste generate on per capita basis in the country.

Solid waste management rules, 2016



Sanitation - preventing people from coming in contact with wastes by providing facilities & services for the treatment & disposal of human excreta & other liquid wastes produced in homes, work places & public buildings.

Waste management - collection, treatment & disposal of solid wastes. (segregation)





Issues with Urban Solid Waste Mgmt.

- Lacks scientific management & safe disposal of waste, landfill sites are overburdened; very few local bodies have prepared long term plans for effective solid waste management, lack of processing facilities, failure of waste-to-energy projects, funding issues

Consequences of poor waste management:

- Groundwater contamination, health hazards due to open dumping, spread of endemics to animals, frequent fires.

Environment Impact Assessment

Recent protest:

① Steelite industry, 2018  
Tubicucin - 13 people proposed killed

② Neutrino project:  
bodi hills (T.N.)

↑  
MoEFCC granted clearance.

③ 7000 trees cutting  
down in Delhi

= only transparent EIA process is sustainable

- EIA - a decision making tool to assess impact of proposed activity on environment & locals in the vicinity

conducted by respective state PEB (SPCB).

- 6 steps: (under EPA, 1986):

- ① Screening
- ② Scoping
- ③ Public Consultation - needs transparency
- ④ Appraisal - prepared by proposer itself
- ⑤ Decision Making
- ⑥ Monitoring



Neutrino.

↓  
2nd proposed (after vote).

↓  
Near Shaha Natl park  
↓  
misconceived as nuclear reactor.

we need - transparent & effective EIA

↓  
strengthening Public consultation

(limited resources & weak rehab. processes)

↓  
EIA only in Japan, China & Europe

"Good Practices" - strategic Env. Assessment. The EIA process in India though under legislation E.P. Act 1986 but is often not carried out in letter & spirit. The following suggestions if implemented can make the whole EIA a more transparent & effective process.

↓  
No evidence of health hazard.

① The stage of public consultation should be given its due importance.

↓  
"science & democracy need to share hands & create awareness"

② The aim of the project proponent and government agencies should be to take into account the environment, social & health concerns of local populations & address these in a time bound manner.

③ The preparation of EIA report should be mandatorily done by specialised and credible 3rd party agencies (as opposed to the present system in which reports are mostly prepared by the project proponents).

"SEA"

④ India can also graduate towards strategic Environmental Assessment (as practiced in developed countries like Australia, Canada, Denmark) from the present EIA process. Under SEA, whole range of environmental implications and issues related to sustainable devp. are covered. This



also includes social and health concerns of local population.

⑤ Under SEA, active involvement of all stakeholders is done right from the stage of conceptualisation of the project. On the contrary, in India, involvement of public takes place after conceptualisation & at the stage of public consultation.

⑥ Under SEA, due consideration is given by the govt. to various alternatives of the proposed project. Whereas in India, consideration of alternatives is completely absent.

⑦ Public hearing & EIA Report Preparation under SEA are done in local language, whereas in India, it is mostly in English. This compromises the transparency of the EIA process.

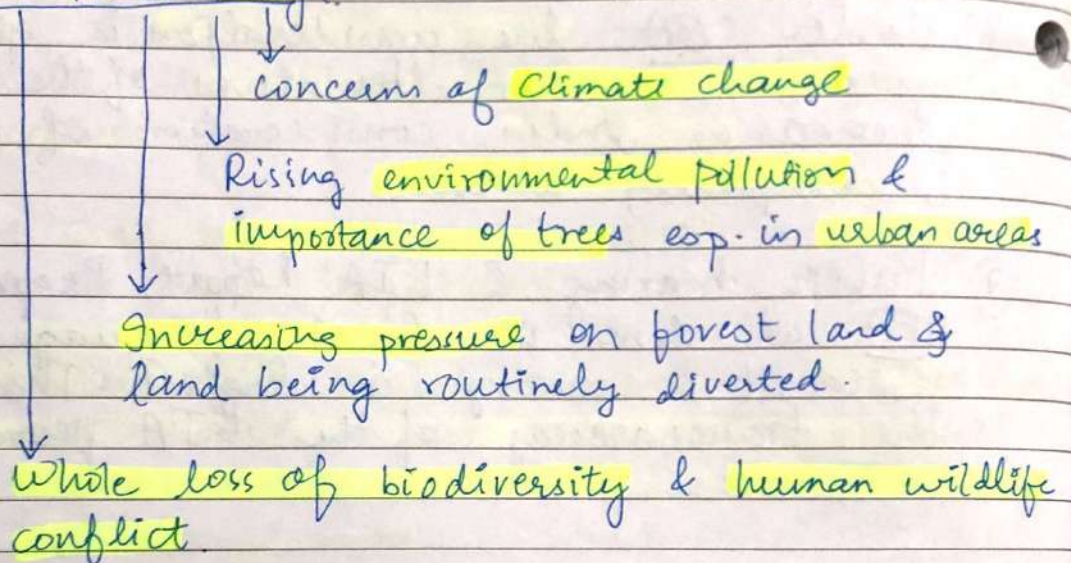


## Draft National Forest Policy, 2018. (earlier in 1988).

> As per ISFR 2017, the forest & tree cover is 24-39% and the aim of National Forest Policy, 1988 is 33% tree cover.

> Aim: to safeguard ecological & livelihood interests.

> Why New Forest Policy?



> Features:

- Tried to integrate contemporary realities (integrated forest management).

- Bodies to be set up

National Forestry Board

National Community Forest Management Mission

- Industrial Plantations - for quality timber based on PPP

⇓  
"silent forest"

↓  
can't support biodiversity!



## Critical Analysis:

- Industrial Plantation should take on degraded and waste land.
- Easier norms for forest land diversity.
- Species like eucalyptus & poplar can be replaced with indigenous species.

negative  
attitude  
towards  
public  
prop.

The new forest policy is definitely long overdue and the draft policy has also taken lightly into account present day challenges like climate change.

However, the objective of 33% <sup>TGA</sup> Gross Area under forest & tree cover should not only be met through industrial plantations. Forests with their huge biodiversity are critical for providing many ecosystem services (like carbon sequestration) & therefore are integral to sustainable development.

The draft forest policy also aims to reduce the frequency and intensity of rampant forest fires happening in the country.



## Human-Wildlife Conflict

In last 3 yrs, 1 person has been killed everyday either by tiger or by elephant. And from April 2014 - March 2017, 1144 have been killed of tiger attacks.

### Reasons:

- shrinking quality wildlife habitats  
} increasing urbanisation → shifting colonies,  
} infrastructure like trains through habitats -  
} bison, elephants, nilgais.  
} Reduction in wildlife corridors.

number of tigers has increased from 1800 to 2226 in 2014. but this increase has not been met with a proportional increase in the protected areas. Contrarily, the overall areas under protected area is decreasing though the number of protected areas is decreasing in.

Solutions: As per Nat'l Wildlife Action Plan - (2017-31):

- (1) Trained workforce under forest department
- (2) Use of traditional knowledge for mitigating the conflict (eg. beehives/chill fences keep elephants away).
- (3) Awareness amongst locals on dos & don'ts.
- (4) Placing the dead carcass on jungle tracks for carnivores.
- (5) Fox white pigs & Rhesus macaque can be sedated & relocated to other forest location.