3RD CSE-PSCST STATE LEVEL ORIENTATION WORKSHOP FOR

GREEN SCHOOLS PROGRAMME

under Environment Education Programme ENVIRONMENT EDUCATION IN ACTION

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Introduction to India's Environmental Challenges

The story of a forest

Mattewara: A movement

In Ludhiana. Punjab's biggest tract of forest – 2,300 acres. Biodiversity-rich.

2020 – proposal for industrial park – recipe for disaster

2022 – industrial park project cancelled due to public opinion and pressure

PUBLIC MOVEMENTS TO SAVE THE ENVIRONMENT DO SUCCEED.

OUR ENVIRONMENT IS PERPETUALLY THREATENED.

Speaking about environment: forests and biodiversity

- Threat to forests and biodiversity much talked about. An ‘obvious’ environmental concern
- Depletion, diversion, climate change (wildfires), urban sprawl…
- Punjab – only 3.67 per cent under forests. Over 140 trees felled every day in the state (2024)
- Punjab forestland diversion – dip. From 290 ha in 2014-15 to 150 in 2023-24
- Pan-India problem: 2023-24 -- 29,000 ha diverted (highest since 2014-15); 2013-23 – decline in forest cover in 11 states.

Speaking about environment: water

- Not an inexhaustible resource.
- Surface water sources contaminated
- Ill-planned, inadequate treatment infrastructure
- Cities draw water from sources that are further and further away – water conflicts, costs
- Groundwater – huge pressure. Depleting aquifers. From 75 districts in 2014, India had 135 districts in 2024 where level is below 40 metres
- Climate change: Erratic and variable rains. Droughts. Floods.
- Day Zero a reality – a water-starved world: in 2050, 55 Indian cities to be affected

Water: the case of Punjab

- Severe groundwater depletion – due to paddy cultivation; contamination by pesticides.
- Punjab left with groundwater to last for 17 years (2022 report). CGWB says levels could drop by 1,000 feet by 2039.
- Extraction rate of groundwater much more than what is available – 20.6 billion cubic metre net annual availability; almost 34 BCM taken out. 72% of land depends on tubewells for irrigation
- Polluted water linked to rising cancer cases -- Ludhiana, Fazilka, Ferozepur, Muktsar
- Less than 10 per cent of wastewater recycled

Speaking about environment: air

- Largely an urban challenge – almost every class/tier city facing it
- A cocktail of toxic gases. Vehicular emissions. Industrial emissions. Use of dirty fuels. Dust. Burning of waste.
- Result: Severe health problems – average life expectancy of Indians shortened by 3 years 6 months due to air pollution (2022)
- Carbon-based emissions – direct link to global warming and climate change

Air: the case of Punjab

- Stubble burning: 2024 – over 10,000 incidents. 2022 research by MIT – 6 Punjab districts contribute 40 per cent of the exposure to PM2.5 from stubble burning -- Barnala, Sangrur, Patiala, Moga, Ludhiana, Fatehgarh Sahib

- Three cities in the list of 20 most polluted in India (2023-24): Mandi Govindgarh (10th), Ludhiana (14th), Amritsar (16th). Chandigarh and Mohali also in the list.

- Measures being undertaken: Short-duration paddy varieties introduced to give enough time to farmers to clear the fields without setting them on fire. Better stubble management techniques – brick kilns mandated to use paddy straw-based pellets

Speaking about environment: waste

- Primarily a consumption-driven, waste-generating society
- India – 62 million tonne generated annually. Only about 12 MT treated. Over 30 MT dumped in landfills
- On an average, Indians generate 3 and half times their weight as waste every year
- Over 3 million tonne is plastic waste. Barely 30 per cent recycled. 2022-23 – record high generation of 4.14 MT despite ban on some single-use items
- 147 per cent increase in e-waste generation between 2017 and 2024
- Over 3,000 landfills – where is the space for more?
- Methane emissions from dumpsite wet wastes – potent GHG

Waste: the case of Punjab

- 2022 CAG report indicts Punjab for laxity in managing its plastic waste – main problem: lack of credible ground-level data
- 150 dumpsites (2019-20 data) – 1,334,940 tonne of waste dumped annually. Over 7 million tonne of legacy waste – 55% yet to be remediated
- Over 128,000 tonne of plastic waste generated in 2022-23 – registered almost 50% jump in generation between 2018-19 and 2022-23
- State initiatives: 8 clusters created for setting up integrated MSW management plants – but needs to move on from its 'landfill' mindset. Has reported to the NGT in 2023 about the progress in bridging the gap between generation and treatment – says it now processes 79% of the solid waste it collects

Speaking about environment: Climate change

- Mother of all challenges. Biggest existential crisis. Everything else links to it
- On the ground: Disrupts agriculture due to erratic monsoons. Extreme weather events increasing in intensity and frequency. Huge economic losses. Climate-induced migration. Severe health impacts. Heat stress in urban habitats.
- 2024 – warmest air on record. Extreme weather events on 88 per cent of days. 5.4 million people displaced
- IN PUNJAB: Major blow to agriculture: PAU report points to a decrease in yields between 13-1 per cent by 2050. Maize yield to fall by 13 per cent, rice by 1 per cent, cotton by 11 per cent. Food insecurity. Economic downturn.

Environment and India

- A nation of vast resources and a very large number of poor dependent on these resources

- Challenges that have always been there, but at different scales: Contaminated water and depleting water levels. Degraded lands and its resources. Vanishing forests and wildlife…

- A development paradigm that has enlarged the scale and scope of these challenges.

- Agriculture: Population growth-urbanization-industrialization = decline in share of agricultural land = unsustainable farming practices, cultivation of water-intensive crops in water-scarce areas. Over 50% of Punjab's irrigation now dependent on tubewells.

Equity. Growth. Sustainability

- We need to develop and grow, but in a sustainable manner.
  How do we do that?

- Needed: A development paradigm that harmonises every one's needs with the need to maintain ecological balance

- At the same time, should increase the productivity of our resources

- Many challenges. Biggest challenge: identify and implement a development pathway that will lead to greater equity, growth and sustainability

How do we do it?

- **WATER:** Catch the rain where it falls. Rejuvenate every waterbody. Store and recharge. Mission Amrit Sarovar -- 2.4 million waterbodies – India's first such census. 83 per cent being used. Management of water structures -- control to local communities. Minimise use, conserve – water-efficient agriculture, water-efficient household appliances. Recycle and reuse – decentralized treatment systems

- **AIR:** Focus on low-emission modes of transport – walking-cycling, electric mobility, public transport. Invest in cleaner technologies and fuels. Stubble burning – incentivize, provide alternative channels of use. Encourage industrial use of stubble by providing storage and transportation facilities for stubble

- **WASTE**: Idea of waste as a RESOURCE. Begin in our homes, workplaces, our lives. Segregate at source. Process, recycle, reuse. Minimise use of products that we cannot recycle and reuse. Landfills are not an option – zero-landfill habitats. Beginnings have been made – SBM, AMRUT, SMART Cities programmes – focus on material recovery and reuse – circular economy

- **CLIMATE CHANGE**: Improve farmers' access to climate information. Better forecasting of extreme weather. Link farmers to financial institutions so that they can access climate-smart technologies and practices. Reduce emissions. Stop sending wet waste to landfills. Stop burning waste. Shift to a clean energy lifestyle – renewable sources of power, electric mobility.

ENVIRONMENT not about trees and tigers, nature and forests ONLY.

It is an entity which helps us survive, and on which all development depends. Development without concern for environment can only be short term development.