



ChapterNotes

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CHAPTER NOTES

Environmental Issues Class 12 Notes — CBSE Biology Chapter 16

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Environmental Issues Class 12 Notes — CBSE Biology

Chapter 16

Chapter 16 — **Environmental Issues** — is the final chapter covering pollution, waste management, deforestation, ozone depletion, and global warming. Carries **4-6 marks** and is highly relevant to current affairs.

Key Concepts

Air Pollution

Pollutant	Source	Effect
CO	Vehicle exhaust, incomplete combustion	Binds to Hb → reduces O ₂ transport
SO ₂ , NO _x	Fossil fuels, industries	Acid rain (pH < 5.6), respiratory problems
Particulate matter (SPM)	Construction, vehicles	Respiratory issues, reduced visibility
CFCs	Refrigerants, aerosols	Ozone depletion

Catalytic Converter

Fitted in vehicles; contains Pt, Pd, Rh catalysts. Converts CO → CO₂, NO_x → N₂, unburnt HC → CO₂ + H₂O. Unleaded petrol required (lead inactivates catalyst).

Water Pollution

- **Eutrophication:** Excess nutrients (N, P from fertilisers/sewage) → algal bloom → O₂ depletion → fish death
- **BOD:** High BOD = polluted water. Sewage treatment reduces BOD.
- **Biomagnification:** Concentration of toxic substances (DDT, mercury) increases at each trophic level. DDT in lake water: 0.003 ppm → in fish-eating birds: 25 ppm

Solid Waste Management

- **Sanitary landfill:** Waste compacted and covered with soil
- **Incineration:** Burning waste at high temperature (for hospital waste)

- **Composting:** Organic waste → compost (biodegradable waste)
- **E-waste:** Electronic waste; contains toxic metals; needs careful recycling
- Integrated Waste Management: Reduce → Reuse → Recycle

Ozone Depletion

Good ozone: In stratosphere (15-30 km) — protects from UV radiation

Bad ozone: In troposphere — pollutant

CFCs → Cl radicals → destroy O_3

$Cl + O_3 \rightarrow ClO + O_2$; $ClO + O \rightarrow Cl + O_2$ (Cl recycled — 1 Cl atom destroys ~100,000 O_3 molecules)

Ozone hole: Discovered over Antarctica

Montreal Protocol (1987): International agreement to phase out CFCs

Global Warming & Greenhouse Effect

- **Greenhouse gases:** CO_2 , CH_4 , N_2O , CFCs, water vapour
- Trap heat in atmosphere → global temperature rises
- Effects: sea level rise, melting glaciers, extreme weather, coral bleaching
- **Kyoto Protocol (1997):** Binding targets for reducing GHG emissions

Deforestation

- Causes: agriculture, urbanisation, logging, mining
- Effects: soil erosion, loss of biodiversity, CO_2 increase, desertification
- **Chipko Movement (1974):** Gaura Devi and villagers hugged trees to prevent logging in Garhwal Himalayas
- **Joint Forest Management (JFM):** Government + local communities manage forests together

Case Studies

Issue	Solution
Vehicular pollution in Delhi	CNG conversion of public transport, Bharat Stage emission norms
Noise pollution	Green belt of trees, silencers, noise barriers
Radioactive waste	Deep geological burial, nuclear waste treatment
Agrochemical pollution	Organic farming, IPM (Integrated Pest Management)

Quick Revision Points

- Air pollution: CO, SO₂, NO_x, SPM, CFCs; Catalytic converter: Pt-Pd-Rh
- Water pollution: eutrophication (algal bloom), biomagnification (DDT)
- Ozone depletion: CFCs → Cl radicals; Montreal Protocol (1987)
- Global warming: CO₂, CH₄; Kyoto Protocol (1997)
- Deforestation: Chipko Movement (1974), JFM
- Solid waste: reduce-reuse-recycle; sanitary landfill, incineration, composting
- Biomagnification: DDT increases at each trophic level
- BOD: high = polluted; reduced by sewage treatment

← **Previous: Biodiversity and Conservation**

Last Chapter — Well Done!



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