



Collegedunia NCERT Notes

The Ultimate NCERT Revision Guide for Class 12 Geography

Chapter 9: Geographical Perspective on Selected Issues and Problems

India: People and Economy (Part 2) | New NCERT (2026-27)

NCERT Notes Class 12 Geography Chapter 9 Geographical Perspective on Selected Issues and Problems

Also see for this chapter: [NCERT Solutions](#)

What This Chapter Covers

This chapter studies four selected issues that link people, land and the environment in India: **environmental pollution** (air, water, land and noise), **urban waste disposal**, **rural-urban migration with the problem of slums**, and **land degradation**. The aim is to understand the human causes, the geographical pattern, the effects on health and economy, and the steps taken to manage each problem. Exam framing is CBSE board (Unit 5), and these themes also appear in **CUET** and **UPSC** preparation.

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1 Environmental Pollution: An Overview

Environmental pollution results from the release of substances and energy from the waste products of human activities. When harmful matter or energy is added to air, water or land in amounts that the natural system cannot absorb, the environment becomes polluted and unfit for use. India faces all major forms of pollution because of its large population, fast industrial growth and rising consumption. This section sets up the basic idea of a pollutant, the way pollution is classified, and the common sources you must know for the exam.

1.1 Pollution and Pollutants

A **pollutant** is the substance or energy that causes harm. **Pollution** is the condition or process of the environment becoming dirty and unhealthy because of those pollutants. The difference is simple but a favourite one-mark question.

Pollution vs Pollutant

Pollutant = the agent (the cause). Example: sulphur dioxide, sewage, plastic, loud noise.

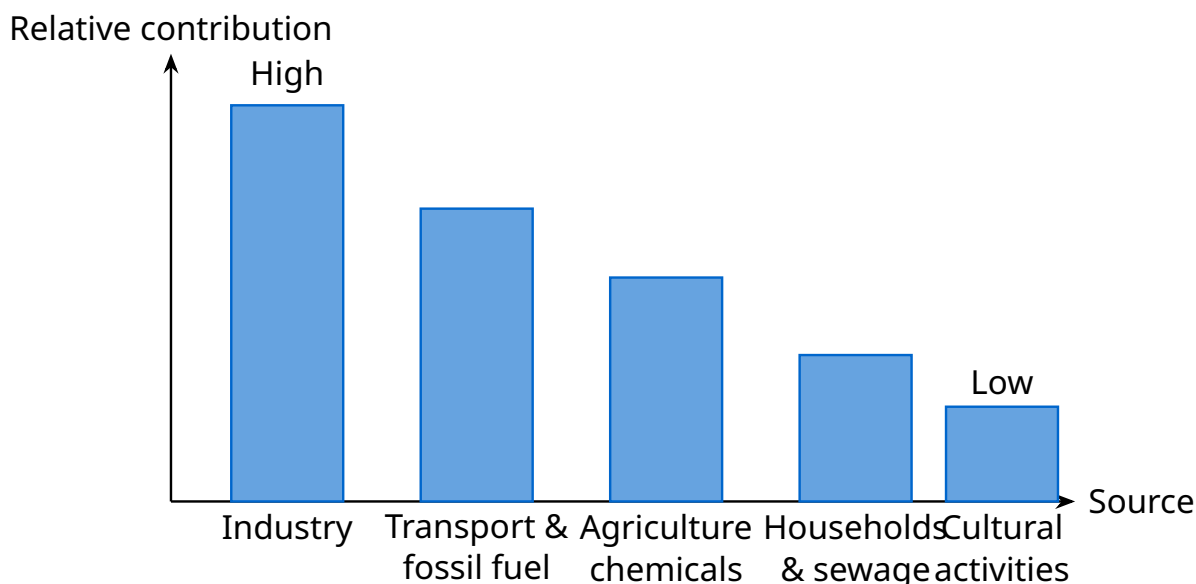
Pollution = the effect or state (the dirty, harmful condition of air, water or land that the pollutant creates).

Pollution is classified on the basis of the **medium** through which pollutants are carried and spread. The four main types are listed below.

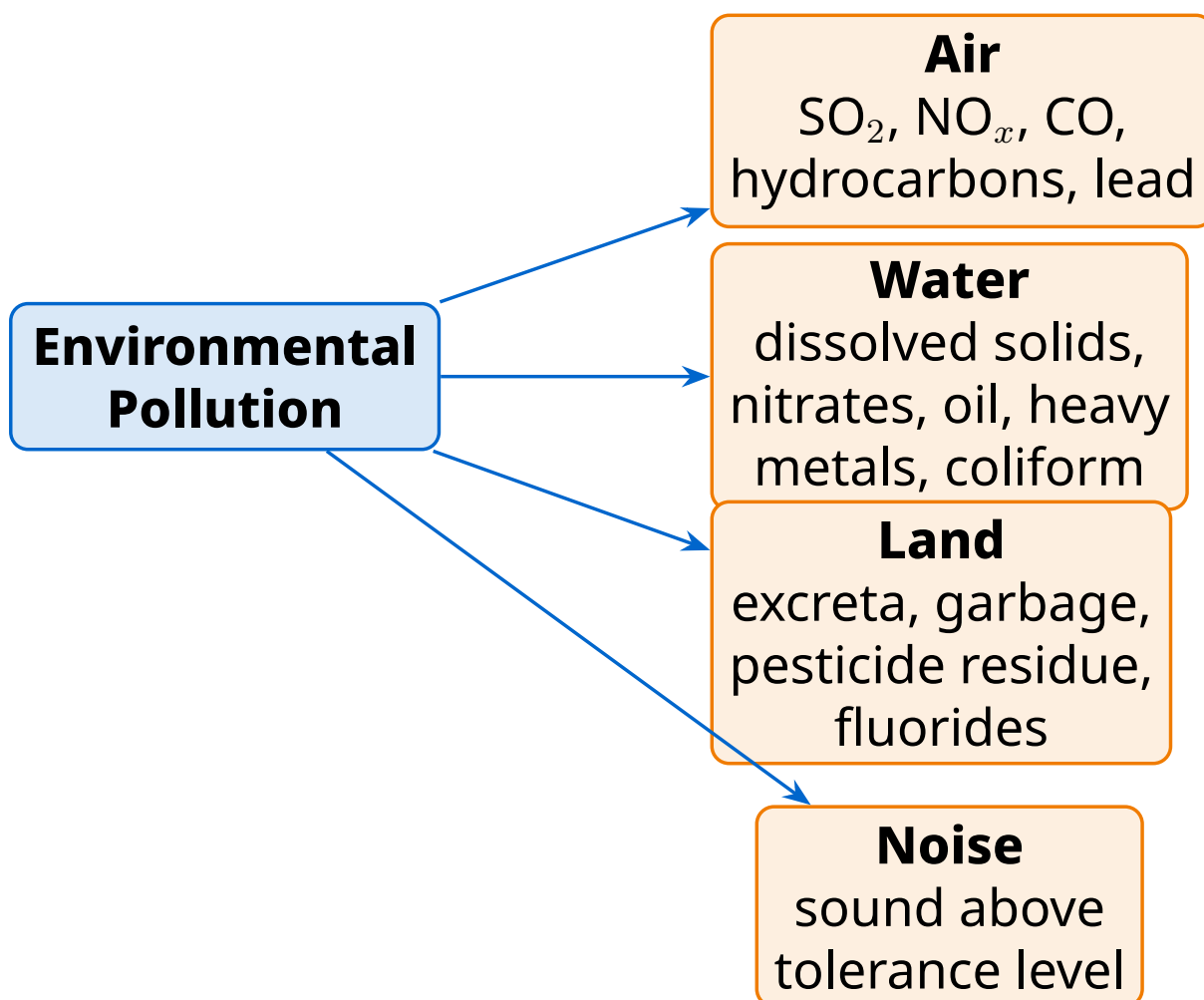
Type	Carried and spread through
Air pollution	The atmosphere (gases, dust, smoke)
Water pollution	Surface water and ground water
Land (soil) pollution	The land surface and soil
Noise pollution	The air, as unwanted sound waves

1.2 Types and Sources at a Glance

Pollutants come from both natural sources (erosion, landslides, decay of plants and animals) and human sources (industry, farming, transport, households). For the exam, human activity is the real cause of concern, and **industry is the single most significant contributor**. The bar chart below shows the relative share of major sources contributing to overall pollution loads in India (indicative pattern).



The diagram below summarises which pollutants belong to which type, the way the NCERT table presents it.

**One-mark winner**

If a question asks for "the most significant source of water pollution," the safe answer is **industry**. For air pollution, the standard answer is **combustion of fossil fuels**.

2 Water Pollution

The careless use of water by a growing population and expanding industry has badly lowered the quality of India's water. Surface water from rivers, canals and lakes is never fully pure; it always carries some suspended particles and organic and inorganic matter. Trouble begins when the concentration of these substances rises so much that the **self-purifying capacity** of water can no longer clean it. This section covers the causes, the worst-hit rivers, the health effects, and the major clean-up programme.

2.1 Causes of Water Pollution

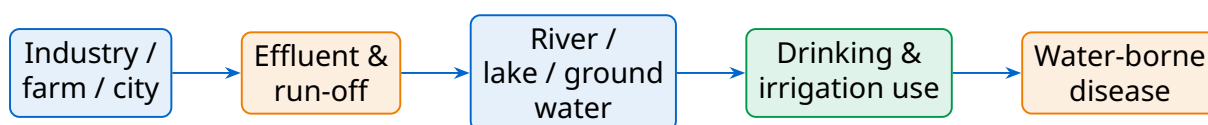
Human beings pollute water through industrial, agricultural and cultural activities. The contribution of each is different in nature.

- **Industrial** (the biggest cause): factories release industrial waste, polluted waste water, poisonous gases, chemical residues and heavy metals into rivers and lakes. Leather, pulp and paper, textiles and chemical industries are the major polluters.
- **Agricultural**: inorganic fertilisers, pesticides and herbicides are washed into rivers and lakes by rain, and also seep into the soil to reach ground water. Fertiliser raises the **nitrate content** of surface water.
- **Cultural**: pilgrimage, religious fairs and tourism add waste directly to water bodies.

Self-purifying Capacity

Flowing water naturally breaks down small amounts of waste through dilution, sedimentation and the action of microbes. Pollution becomes a crisis only when the pollutant load **exceeds** this natural cleaning ability.

The flow diagram traces how a pollutant moves from a factory to a person's body.



Yamuna Foam

On the outskirts of Delhi the Yamuna often carries a thick layer of white foam, formed by untreated detergents and industrial effluent. It is one of the most visible signs of river pollution in India and appears regularly in the news around festival time.

2.2 The Ganga and the Yamuna

River pollution is common to all rivers, but the Ganga draws the most concern because it flows through one of the most densely populated regions of the country. The table lists the polluted stretches and the main polluters that NCERT highlights.

River (State)	Polluted stretches	Main polluters
Ganga (UP, Bihar, West Bengal)	Downstream of Kanpur; downstream of Varanasi; Farakka Barrage	Industrial waste from Kanpur; domestic waste from Kanpur, Prayagraj, Varanasi, Patna, Kolkata; dumping of carcasses
Yamuna (Delhi, UP)	Delhi to confluence with Chambal; Mathura and Agra	Domestic and industrial waste of Delhi; agricultural run-off; water extraction by Haryana and UP for irrigation

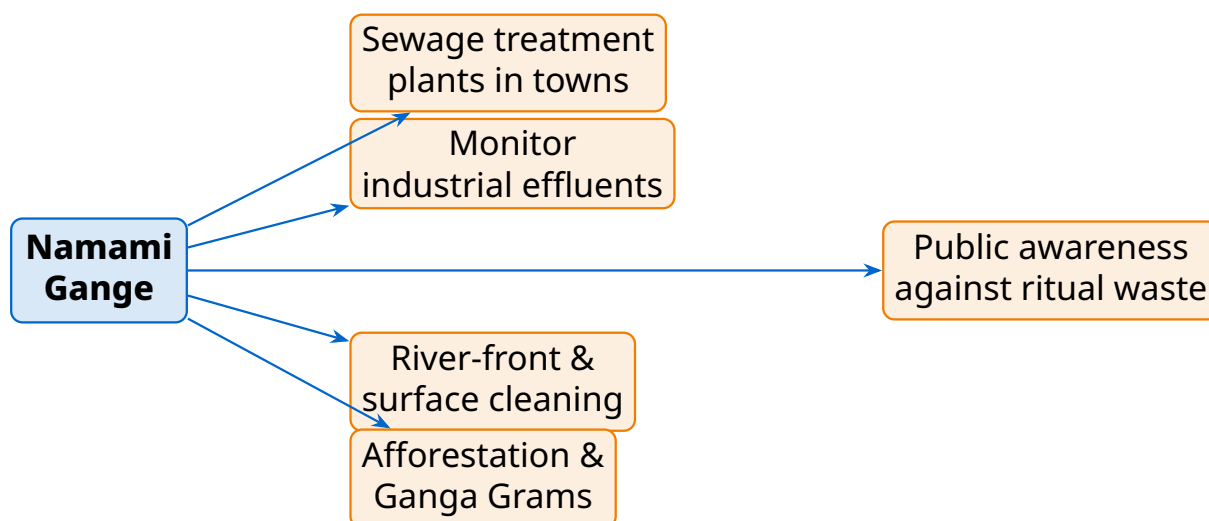
Why the Yamuna Suffers Twice

Upstream, Haryana and UP draw out large volumes of water for irrigation, so less clean water is left to dilute waste. Downstream, Delhi dumps its domestic and industrial waste in. Less dilution plus more waste means a sharply higher pollutant concentration.

2.3 Health Effects and the Namami Gange Programme

Water pollution is a major source of **water-borne diseases**. The common ones are diarrhoea, intestinal worms and hepatitis. The World Health Organization estimates that about **one-fourth of communicable diseases** in India are water-borne.

To clean the Ganga, the **National Mission for Clean Ganga** was set up, and the **Namami Gange Programme** was launched to control pollution effectively. Its main objectives are shown below.



Remember Namami Gange: "STAR-P"

Sewage treatment, **T**reat & monitor industrial effluent, **A**fforest the banks (Ganga Grams), **R**iver-front and surface cleaning, **P**ublic awareness. The river becomes a "STAR" again with "P" (people) on board.

Don't confuse the two names

The **National Mission for Clean Ganga** is the body; the **Namami Gange Programme** is the scheme it runs. Writing them as the same thing loses a mark in a definition question.

[Download the Full NCERT Solutions PDF for this chapter](#)

3 Air, Noise and Land Pollution

Besides water, the chapter studies three more media of pollution. Air pollution comes mainly from burning fuels, noise pollution has become serious only in recent decades, and land pollution builds up from solid waste. Each has its own sources, units and health effects, and each is examined separately below.

3.1 Air Pollution

Air pollution is the addition of contaminants such as dust, fumes, gas, fog, odour, smoke or vapour to the air in an amount and for a duration that harms living things and property. With more fuels burnt for energy, the emission of toxic gases has risen sharply.

Main Sources and Pollutants

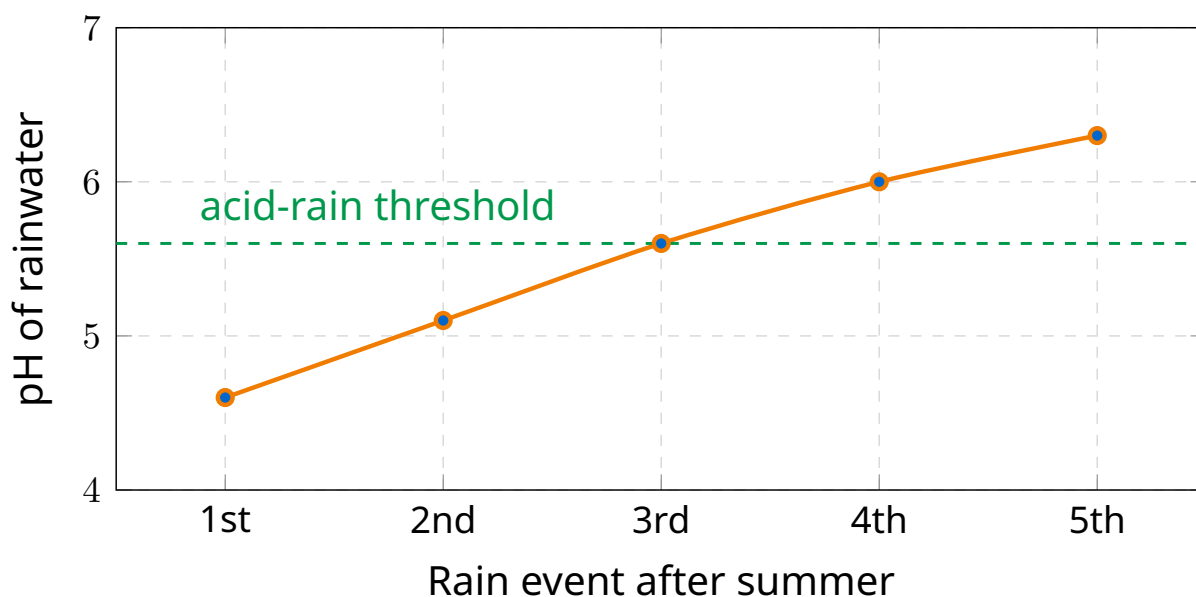
Sources: combustion of fossil fuels, mining, and industries.

Pollutants released: oxides of sulphur and nitrogen, hydrocarbons, carbon dioxide, carbon monoxide, lead and asbestos.

Air pollution causes diseases of the **respiratory, nervous and circulatory** systems. Two special effects are important for the exam.

- **Urban smog:** a smoky fog over cities caused by atmospheric pollution; very harmful to human health.
- **Acid rain:** rainwater analysis shows the pH of the first rain after summer is always lower (more acidic) than later rains, because the air holds a heavy load of acidic oxides.

The chart shows how the pH of successive rains rises (becomes less acidic) as the atmosphere is washed clean.



Smog in Indian Cities

Every winter, cities like Delhi and Mumbai report dense smog as vehicle exhaust, crop-residue smoke and industrial fumes get trapped near the ground. Schools shut and flights are delayed, a direct, everyday cost of air pollution.

3.2 Noise Pollution

Noise pollution is the state of unbearable and uncomfortable sound for human beings, caused by noise from different sources. It became a serious concern only in recent years because of new technology. The steady noise level is measured by sound level expressed in **decibels (dB)**.

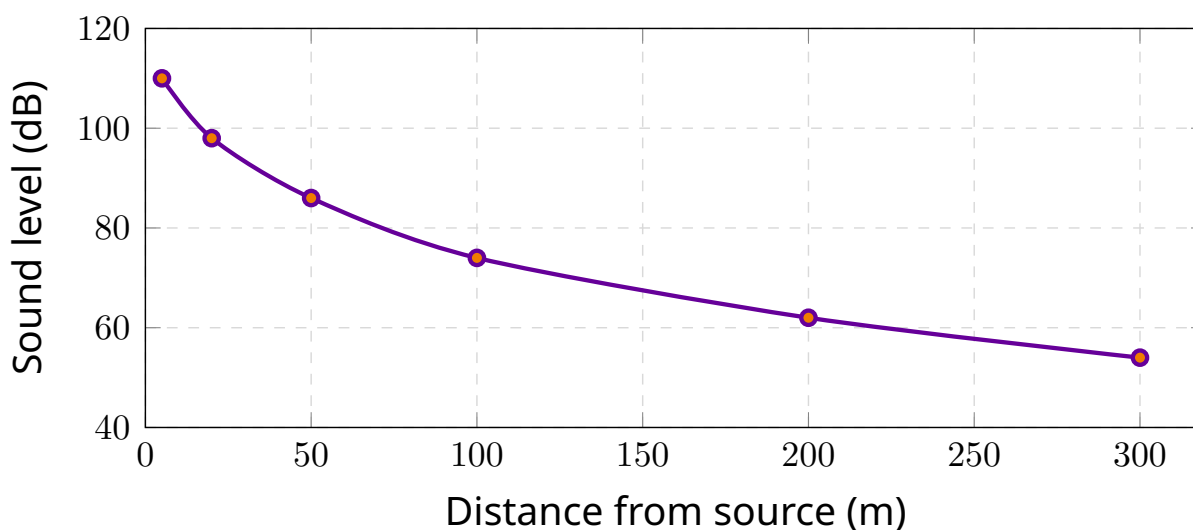
Sources and Key Features

Main sources: factories, mechanised construction and demolition, automobiles and aircraft; with added bursts from sirens and loudspeakers at festivals.

Biggest single nuisance: traffic noise, because its intensity depends on the type of vehicle, train or aircraft and the condition of the road.

Key property: noise pollution is **location specific** and its intensity falls as distance from the source increases.

The diagram shows how the sound level (in dB) drops as you move away from the source.



- In **sea traffic**, noise pollution is confined to the harbour, due to loading and unloading.
- Industries cause noise pollution with varying intensity depending on the type of industry.
- It is hazardous in many metropolitan and big cities of India.

Unit alert

Noise level is always measured in **decibels (dB)**. If an MCQ option says "noise is measured in dB," that is the correct one.

3.3 Land Pollution and Solid Waste

Land pollution builds up mainly from **solid waste**, the variety of old and used articles dumped at different places. These include stained metal pieces, broken glassware, plastic containers, polythene bags, ash, floppies and CDs, also called refuse, garbage and rubbish.

Solid waste comes from two sources:

- **Household / domestic** establishments, disposed of on public lands or on private contractors' sites.
- **Industrial / commercial** establishments, collected and disposed of by municipal facilities at low-lying landfill areas.

Why Solid Waste is Dangerous

Solid waste creates an obnoxious smell and harbours flies and rodents that carry diseases such as typhoid, diphtheria, diarrhoea, malaria and cholera. Untreated waste also ferments slowly and releases toxic biogas, including **methane**, into the atmosphere.

Land pollution is not only soil chemistry

Students often write only "fertiliser and pesticides" for land pollution. NCERT stresses **solid waste** (garbage, plastics, industrial debris) as the main land-pollution problem in urban India. Cover both.

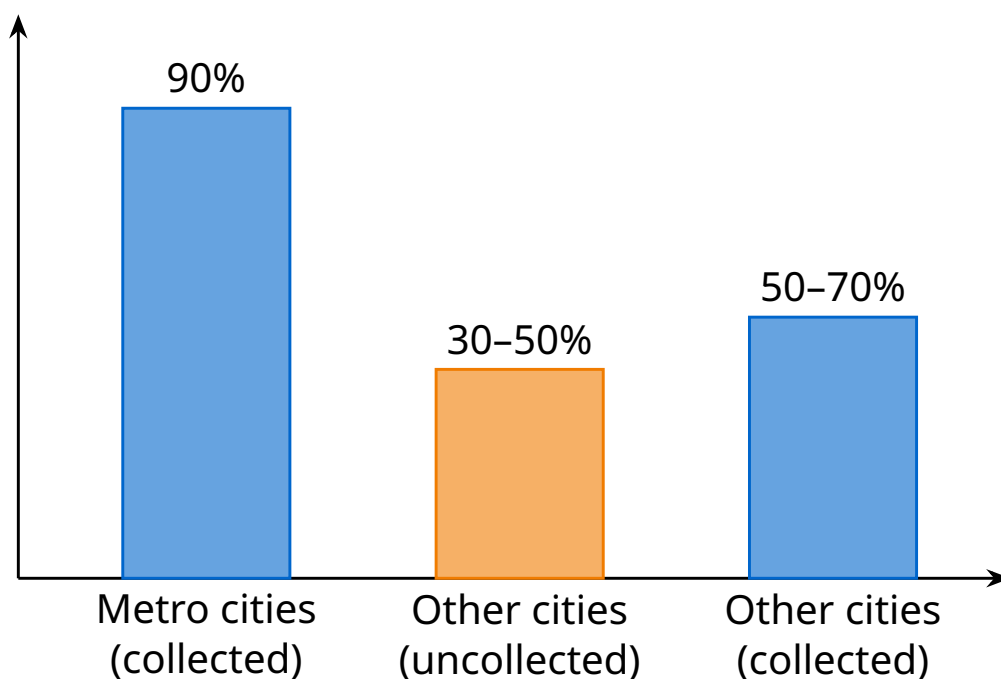
4 Urban Waste Disposal

Urban areas are marked by overcrowding, congestion and facilities that cannot keep up with a fast-growing population. The result is poor sanitation, foul air and a mounting pile of solid waste. As the quantity of waste has grown enormously, its disposal has become one of the most serious environmental problems in Indian cities. This section looks at the scale of the problem, the gap between large and small cities, and the idea of treating waste as a resource.

4.1 The Scale of the Problem

The collection and disposal record differs sharply between the biggest cities and the rest. The comparison below uses the figures NCERT quotes.

Solid waste (per cent)



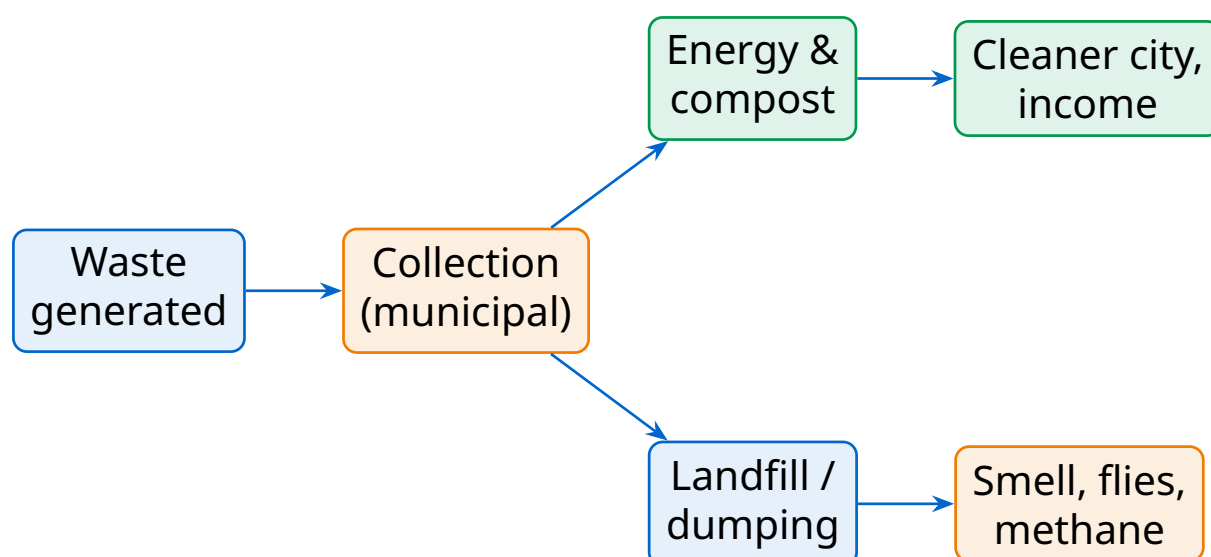
- In metropolitan cities like **Mumbai, Kolkata, Chennai and Bengaluru**, about **90 per cent** of solid waste is collected and disposed.
- In most other cities and towns, about **30 to 50 per cent** of the waste generated is left uncollected. It piles up on streets, in open spaces between houses and on wastelands, causing serious health hazards.

Waste as a Resource

NCERT argues that waste should not just be dumped but **treated as a resource**. It can be used to generate energy and compost. Untreated waste, by contrast, ferments and leaks methane, so management is both an environmental and an economic opportunity.

4.2 Sources, Hazards and the Waste Cycle

The dumping of industrial waste into rivers links land pollution back to water pollution: river pollution from city-based industries and untreated sewage causes serious health problems downstream. The cycle below shows the full path of urban waste and the two ways it can end.



Case Study: Daurala near Meerut

Based on the "polluter pays" principle, an NGO-led effort with community participation restored the ecology of Daurala village near Meerut. The groundwater had been contaminated by heavy metals leaching from the untreated waste water of Daurala industries. The community enhanced the water-tank capacity, laid a 900 m pipeline for potable water, desilted and recharged the village pond, built rainwater-harvesting structures and planted 1000 trees, bringing a new lease of life to its twelve thousand residents.

The "polluter pays" principle

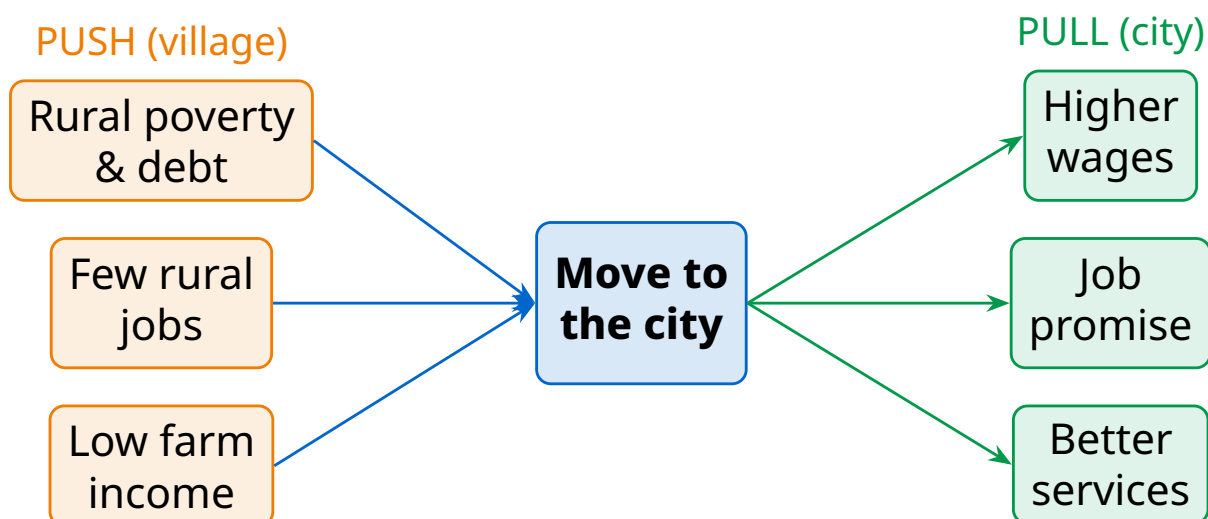
If a question asks which principle guided the Daurala model, the answer is **"polluter pays"**, the idea that the party causing pollution must bear the cost of cleaning it.

5 Rural-Urban Migration and the Problem of Slums

The flow of population from villages to cities is one of the defining processes of modern India. It is driven by a push from poor rural areas and a pull from the perceived opportunities of cities. While migration can lift a family's income, it also crowds the cities and creates slums, the worst residential areas. This section explains the causes of migration, its selective nature, and the harsh living conditions in slums.

5.1 Why People Move: Push and Pull

Population flow from rural to urban areas is caused by many factors. They are grouped into **push factors** (forces driving people out of villages) and **pull factors** (forces drawing people to cities).



How Urban Population Grows

Cities grow in three ways: **natural increase** (birth rate exceeds death rate), **net in-migration** (more people move in than out), and **reclassification** (a formerly rural settlement is re-counted as urban). In India, after 1961, roughly **29 per cent** of urban growth has come from rural-to-urban migration.

The case of **Ramesh**, a welder from the Talcher coal region of Odisha, illustrates the process. He moved with a contractor through Surat, Mumbai, Bharuch, Jamnagar and other places, remitting about Rs. 20,000 a year home. The remittances lifted his family's standard of living, but he bears the pain of separation because the job is temporary and transferable.

Migration is Selective: Male-dominated

In developing countries the poor, semi-literate and unskilled migrants often end up in low-wage menial jobs in the urban informal sector. Because wages are too low to support the whole family in the city, spouses are left behind in the village to look after children and the elderly. So the rural-urban migration stream is **dominated by males**.

Remittances

Money sent home by migrant workers (remittances) is mainly used for daily consumption, healthcare and children's schooling, and partly for buying land and building houses. For many rural families, remittances are the main route out of poverty.

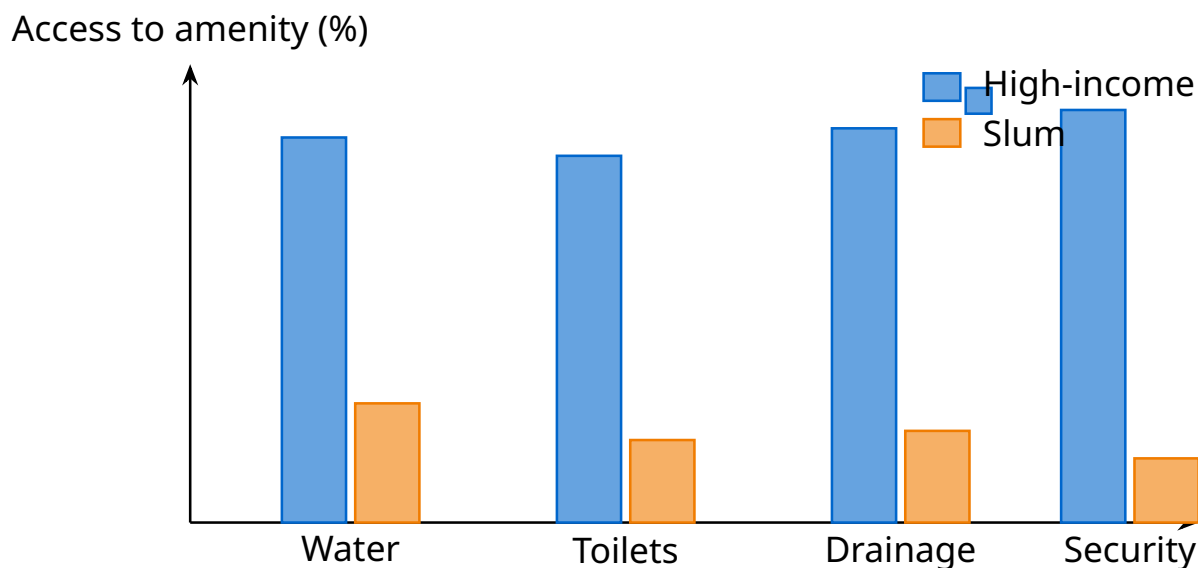
5.2 The Problem of Slums

Cities in India are not uniform. At one extreme are farm houses and high-income localities with wide roads, street lights, water, sanitation, parks and security. At the other extreme are the **slums, jhuggi-jhopari clusters and shanty colonies**, where migrants who could not afford proper housing occupy environmentally unfit, degraded land.

What Slums Are Like

Slums are residential areas of the **least choice**: dilapidated houses, poor hygiene, poor ventilation, and a lack of basic amenities such as drinking water, light and toilets. Open defecation, unregulated drainage and overcrowded narrow streets make them serious health and socio-environmental hazards.

The chart contrasts the access to basic amenities between high-income localities and slums.



Most slum dwellers work in low-paid, high-risk, unorganised jobs. They are undernourished, prone to disease, and cannot afford proper education for their children. This poverty makes them vulnerable to drug abuse, alcoholism, crime, vandalism, apathy and finally **social exclusion**.

Dharavi, Asia's Largest Slum

Dharavi in central Mumbai is a dense maze of two- and three-storey temporary buildings where a single rented room may hold twelve or more people, amid uncollected garbage and stagnant water. Yet it produces ceramics, pottery, embroidery, zari work, leather goods, garments and jewellery that reach the richest homes in India and abroad, a sharp picture of how slums both suffer and create wealth.

Swachh Bharat Mission

The Swachh Bharat Mission (SBM) is part of the urban renewal mission launched by the Government of India to improve the quality of life in urban slums through sanitation and cleanliness.

Slum problems: "WHO-SE"

Water shortage, **H**ygiene poor, **O**vercrowding, **S**anitation absent, **E**xclusion socially. Ask "WHO-SE problem is it?" to recall the five slum issues.

6 Land Degradation

Pressure on agricultural land rises not only because land is limited but also because its quality is falling. Soil erosion, waterlogging, salinisation and alkalinisation all reduce the productive capacity of land. If land is used continuously without

managing its fertility, productivity declines and the land degrades. This section defines land degradation, classifies wastelands, and presents a successful management case study.

6.1 Meaning and Processes

Land degradation is generally understood as a temporary or permanent decline in the productive capacity of land. Not all degraded land is wasteland, but an unchecked process of degradation can convert land into wasteland.

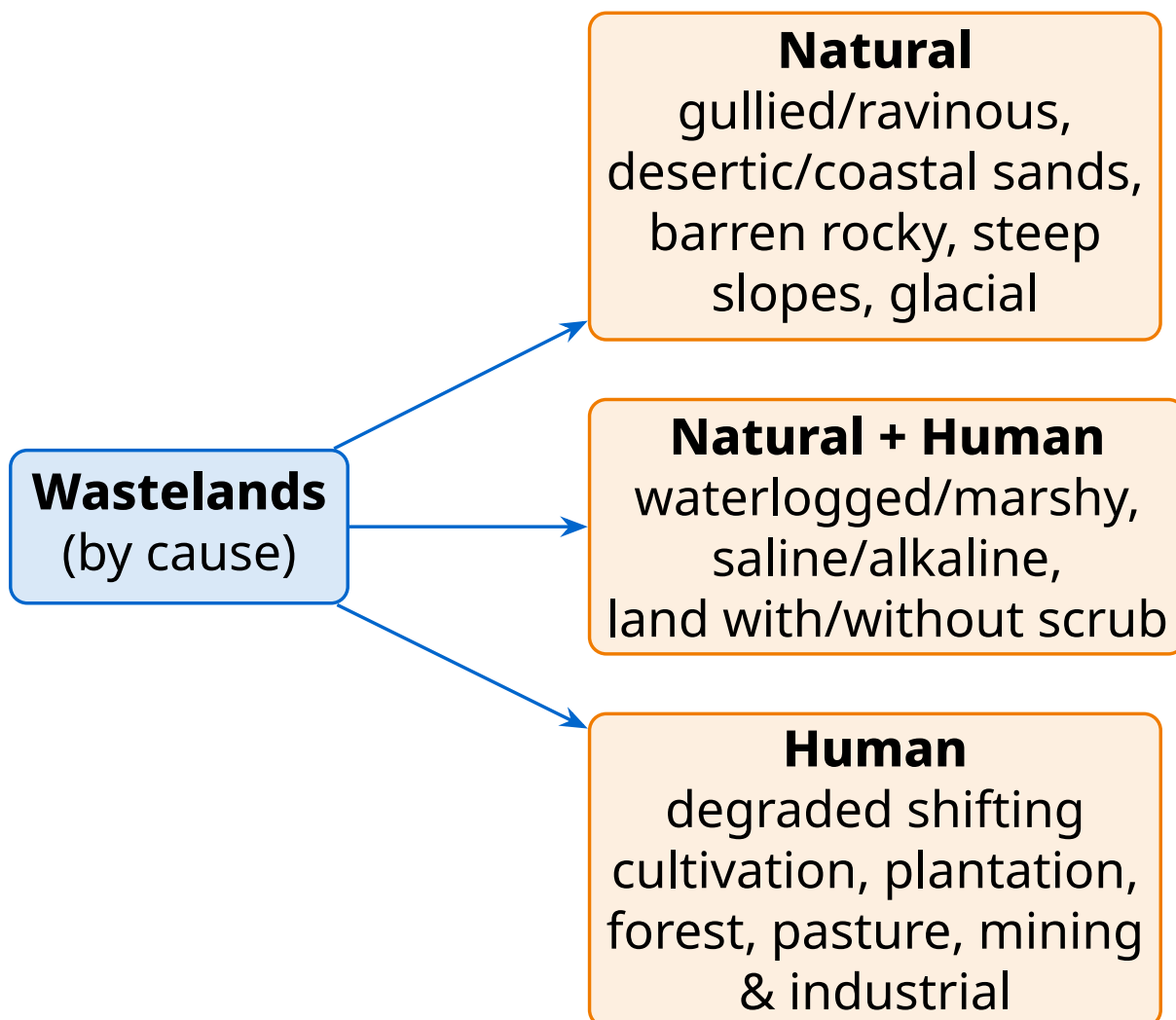
Two Processes That Degrade Land

1. Natural processes: erosion, landslides, desertification, glacial and coastal action.

2. Human-made processes: improper farming, over-use without fertility management, untreated industrial waste, over-irrigation causing waterlogging and salinity.

NCERT notes that wastelands caused by **man-made processes are more important** than those from natural processes.

The **National Remote Sensing Centre (NRSC)** has classified wastelands using remote-sensing techniques, grouping them by the process that created them. The classification tree below organises the main categories.

**NRSC, not NRSA**

The agency that classifies India's wastelands by remote sensing is the **National Remote Sensing Centre (NRSC)**. Write the full form correctly; a wrong expansion can cost the mark.

6.2 Managing Land Degradation: Watershed Programmes

A **Watershed Management** programme links land, water and plants together. It tries to improve people's lives through natural-resource management and the participation of the community. The Jhabua case shows how this works on the ground.

Case Study: Jhabua District, Madhya Pradesh

Jhabua, in the westernmost agro-climatic zone of MP, is among the five most backward districts of the country, with a high concentration of tribal (mostly Bhil) population and heavy forest and land degradation. Watershed programmes funded by the Ministries of Rural Development and Agriculture

were successfully implemented here. The Rajiv Gandhi Mission for Watershed Management treated about **20 per cent** of the district's area in five years, preventing degradation and improving soil quality.

In the Petlawad block, the Bhils of Sat Rundi hamlet (Karravat village) revitalised their common property resources. Each household planted and maintained one tree on the common land, grew fodder grass on the pasture, and adopted **social fencing** with stall feeding instead of open grazing.

Conflict Solved by Inclusion

When a villager from an adjoining village encroached on the common pasture, the community did not just evict him. They invited the encroacher to **join their user group** and share the benefits of the greened common land. Including the defaulter ended the conflict and protected the resource, a model of community-based resource management.

Link to CPR

Land degradation connects to the idea of **Common Property Resources (CPR)** from the chapter on Land Resources and Agriculture. Mentioning CPR and community participation strengthens a 5-mark answer on managing degradation.

Causes of land degradation: "SWAS"

Soil erosion, **W**aterlogging, **A**lkalisation, **S**alinisation. One breath, "SWAS", recalls the four degradation processes NCERT lists.

7 Quick Reference Summary

This section pulls the whole chapter into a single revision sheet: the key facts table, the exam-trend table, and the related Collegedunia resources for this chapter. Use it for last-minute revision before the board or CUET exam.

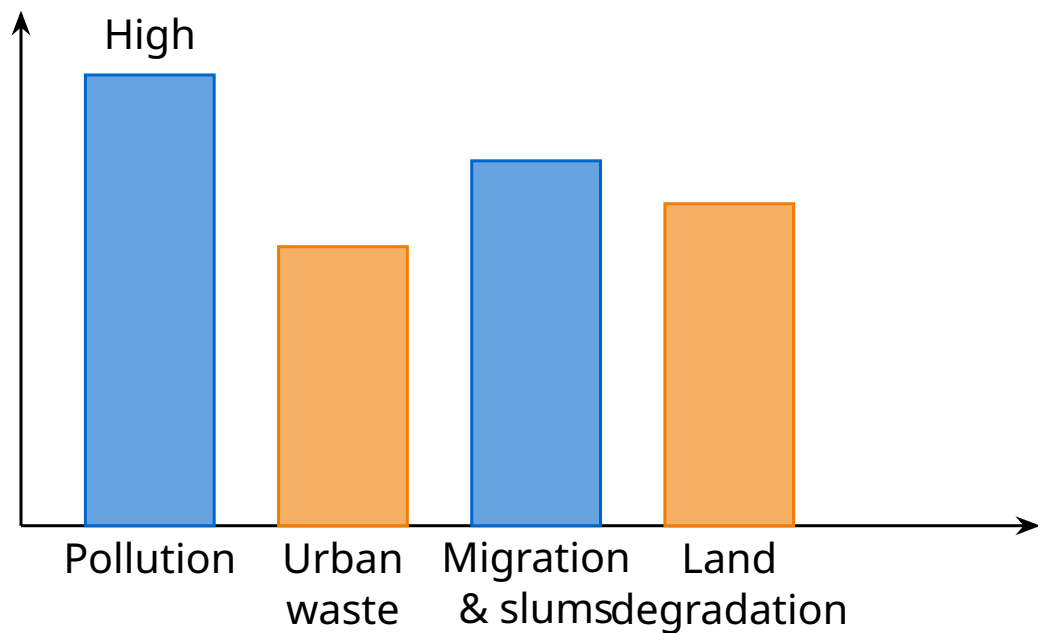
7.1 Key Facts at a Glance

Term / Idea	Key point to remember
Pollution vs pollutant	Pollutant = cause (the substance); pollution = effect (the harmful state)
Biggest water polluter	Industry; major: leather, pulp & paper, textiles, chemicals
Most polluted rivers	Ganga and Yamuna
Water-borne diseases	Diarrhoea, intestinal worms, hepatitis; $\approx 1/4$ of communicable diseases
Clean-up programme	National Mission for Clean Ganga $\rightarrow$ Namami Gange
Air pollution sources	Combustion of fossil fuels, mining, industries
Air pollutants	SO_x , NO_x , CO, CO_2 , hydrocarbons, lead, asbestos
Special air effects	Urban smog; acid rain (low pH of first rain)
Noise unit	Decibel (dB); traffic is the biggest nuisance
Solid-waste gas	Methane (from slow fermentation of untreated waste)
Metro waste collected	$\approx 90\%$; other cities leave 30–50% uncollected
Urban growth from migration	$\approx 29\%$ (after 1961)
Migration stream	Male-dominated; spouses left in villages
Largest slum	Dharavi, Mumbai
Wasteland agency	National Remote Sensing Centre (NRSC)
Degradation processes	Soil erosion, waterlogging, salinisation, alkalisation
Management model	Watershed Management (Jhabua); "polluter pays" (Daurala)

7.2 Exam Trend and Important Questions

The visual below shows how marks are typically spread across the four issues of this chapter in CBSE and CUET-style papers (indicative weightage).

Typical weightage



Marks	Likely question	Topic
1	Difference between pollution and pollutants	Pollution
1	Which river is highly polluted? (Yamuna / Ganga)	Water pollution
3	Major sources of air pollution	Air pollution
3	Problems of urban waste disposal in India	Urban waste
5	Nature of water pollution in India	Water pollution
5	Problem of slums in India	Slums
5	Measures to reduce land degradation	Land degradation

Answering 5-markers

For a 5-mark "problem of slums" answer, structure it as: **(1)** what slums are, **(2)** why they form (migration + unaffordable housing), **(3)** living conditions, **(4)** social effects, **(5)** government response (SBM). Five clear points fetch five marks.

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