CLASS 10 · CONTEMPORARY INDIA II · CHAPTER 1

Resources and Development

Every section of the chapter in one sentence, with the key terms highlighted. To self-test, cover the highlighted words with a strip of paper, then check yourself. The figures and photos are taken from the chapter PDF.

One-liners Soil table Memory tricks Flashcards Quiz Revision plan

One line per section

1 **What is a Resource?**

Anything in our environment that meets our needs and is **technologically accessible**, **economically feasible** and **culturally acceptable** is a resource; it comes from the interaction of **nature, technology and institutions**, and resources are **not free gifts of nature** but a **function of human activities**.

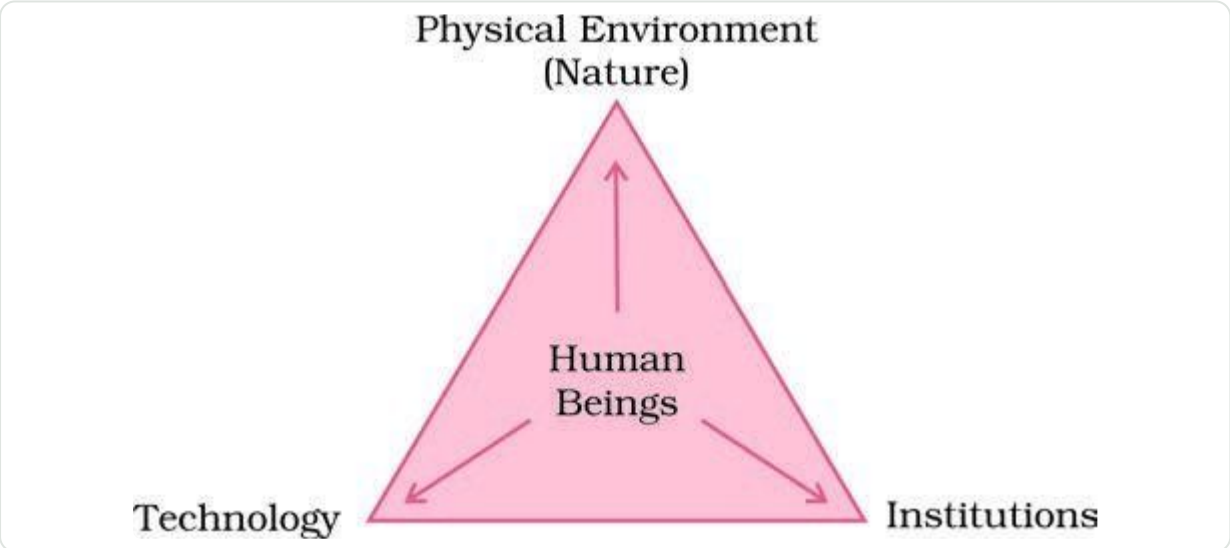


Fig. 1.1: Interdependent relationship between nature, technology and institutions

1.1 Classification of resources

By **origin** (biotic / abiotic), by **exhaustibility** (renewable / non-renewable), by **ownership** (individual, community, national, international) and by **status of development** (potential, developed, stock, reserves).

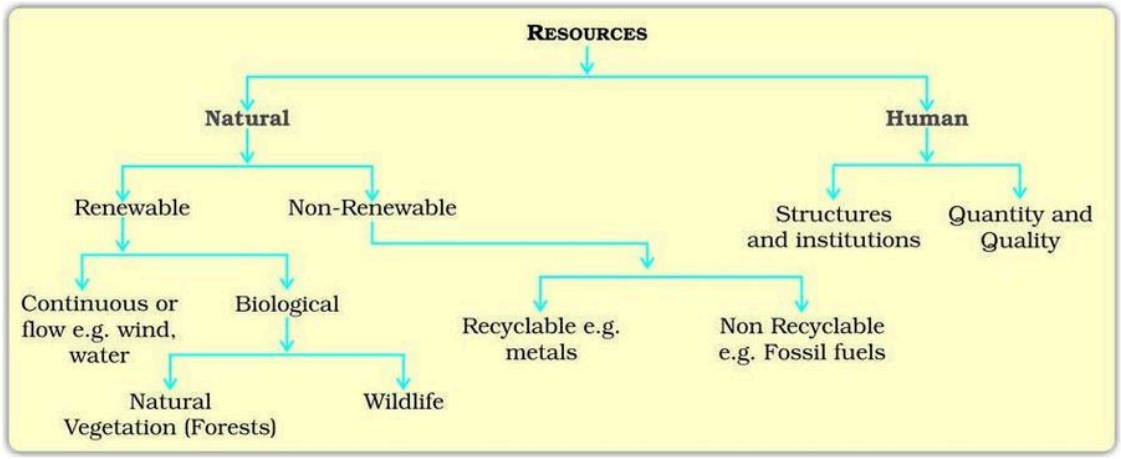


Fig. 1.2: Classification of resources

2 Development of Resources

Using resources as free gifts caused three problems: **depletion** for the greed of a few, **accumulation in few hands** (**haves and have-nots**), and **global ecological crises** such as global warming, ozone depletion, pollution and land degradation; so we need **equitable distribution** and **resource planning** for sustainable existence.

2.1 Sustainable development

Development should happen **without damaging the environment**, and present development should **not compromise the needs of future generations**.

2.2 Rio de Janeiro Earth Summit, 1992

In **June 1992**, over **100 heads of states** met in **Rio de Janeiro, Brazil** for the **first International Earth Summit**, signed the **Declaration on Global Climatic Change and Biological Diversity**, endorsed the **Forest Principles** and adopted **Agenda 21**.

2.3 Agenda 21

Signed at **UNCED** (Rio, 1992) to achieve global sustainable development by fighting **environmental damage, poverty and disease** through global co-operation, with every **local government drawing its own local Agenda 21**.

3 Resource Planning

India has uneven resources: **Jharkhand, Chhattisgarh, MP** are rich in minerals and coal, **Arunachal** has water but no infrastructure, **Rajasthan** has solar and wind energy but no water, and the cold desert of **Ladakh** has rich culture but lacks water, infrastructure and minerals; so planning must be **balanced at national, state, regional and local levels**.

3.1 Resource Planning in India

It has three steps: **identification and inventory** (surveying, mapping, qualitative and quantitative estimation), a **planning structure** with technology, skill and institutions, and **matching with national development plans**, starting from the **First Five Year Plan**.

3.2 Resources alone are not enough

Resources help development only with **appropriate technology and institutional changes**, as **colonisers** with better technology exploited colonies; in India development also depends on **quality of human resources** and **historical experiences**.

3.3 Conservation of Resources

Gandhiji said **"enough for everybody's need, not for anybody's greed"** and wanted **production by the masses** instead of mass production; the **Club of Rome (1968)**, Schumacher's **Small is Beautiful (1974)**, the **Brundtland Commission Report (1987)**, which gave "Sustainable Development" in **Our Common Future**, and the **Rio Earth Summit (1992)** pushed conservation.

4 Land Resources

Land is a **finite** resource that supports vegetation, wildlife, people, economy and transport; India has **plains 43%** (agriculture and industry), **mountains 30%** (perennial rivers, tourism, ecology) and **plateaus 27%** (minerals, fossil fuels, forests).

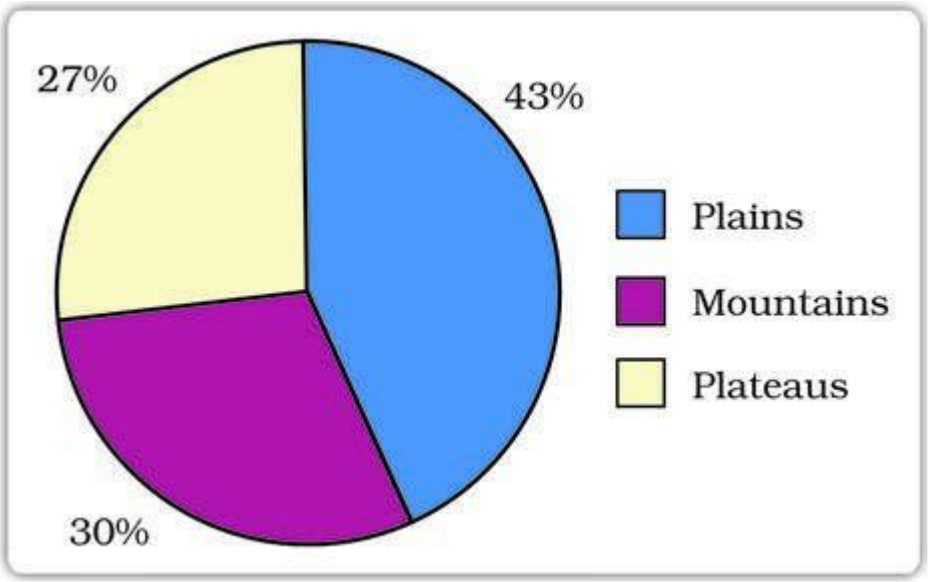


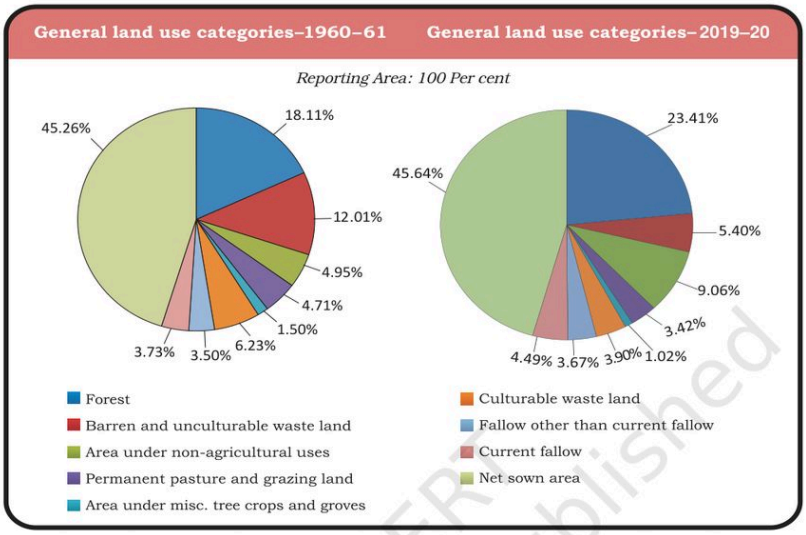
Fig. 1.3: India, land under important relief features

4.1 Land Utilisation

Land is used as **forests**, **land not available for cultivation** (barren/waste + non-agricultural uses), **other uncultivated land** (pastures, tree crops, **culturable waste > 5 years**), **fallow land** (**current fallow ≤ 1 year**, **other fallow 1–5 years**) and **net sown area**; **gross cropped area = net sown area + area sown more than once**.

4.2 Land Use Pattern in India

Land use depends on **physical factors** (topography, climate, soil) and **human factors** (population density, technology, culture); of India's **3.28 million sq km**, data exists for only **93%**; NSA is **over 80% in Punjab and Haryana** but **under 10% in Arunachal, Mizoram, Manipur, Andaman & Nicobar**; forests are below the desired **33%** of the **National Forest Policy (1952)**.



Source : Directorate of Economics and Statistics, Ministry of Agriculture and Farmers Welfare, Government of India, 2023

Fig. 1.4

Fig. 1.4: General land use categories, 1960-61 vs 2019-20

5 Land Degradation and Conservation Measures

95% of our food, shelter and clothing comes from land, but it is degraded by **mining** (Jharkhand, Chhattisgarh, MP, Odisha), **overgrazing** (Gujarat, Rajasthan, MP, Maharashtra), **over-irrigation** causing **waterlogging, salinity and alkalinity** (Punjab, Haryana, western UP), **mineral dust** and **industrial effluents**; fix it with **afforestation**, **shelter belts**, **grazing control**, **thorny bushes on sand dunes**, mining control and **treated effluents**.

6 Soil as a Resource

Soil is the **most important renewable natural resource** and a **living system** that takes **millions of years** to form a few cm, shaped by **relief, parent rock, climate, vegetation and time**; its profile runs **top soil → subsoil → substratum → unweathered parent bed rock**.

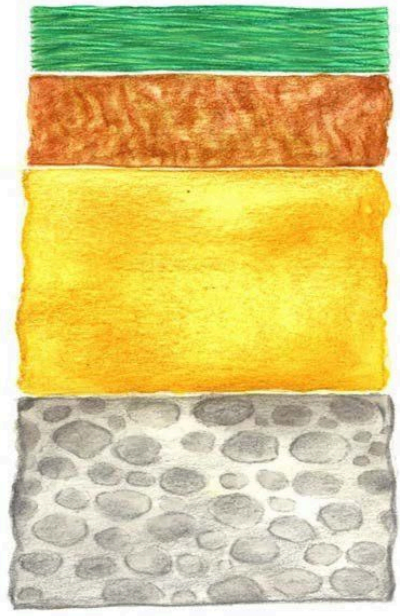


Fig. 1.5: Soil profile (top soil, subsoil, substratum, unweathered parent bed rock)

6.1 Alluvial Soil

The **most widespread** soil, laid by the **Indus, Ganga and Brahmaputra** across the northern plains and in the deltas of the **Mahanadi, Godavari, Krishna, Kaveri**; it is **Bangar (old, more kankar)** or **Khadar (new, finer, more fertile)**, rich in **potash, phosphoric acid and lime**, good for **sugarcane, paddy, wheat**, with coarse soils in **Duars, Chos, Terai**.



Fig. 1.6: Alluvial soil

6.2 Black Soil

Also called **regur** or **black cotton soil**, formed from **Deccan trap (basalt) lava** in Maharashtra, Saurashtra, Malwa, MP, Chhattisgarh; it is **clayey**, **holds moisture**, rich in **calcium carbonate, magnesium, potash, lime** but **poor in phosphoric content**, **cracks in summer** (aeration) and is **sticky when wet**.

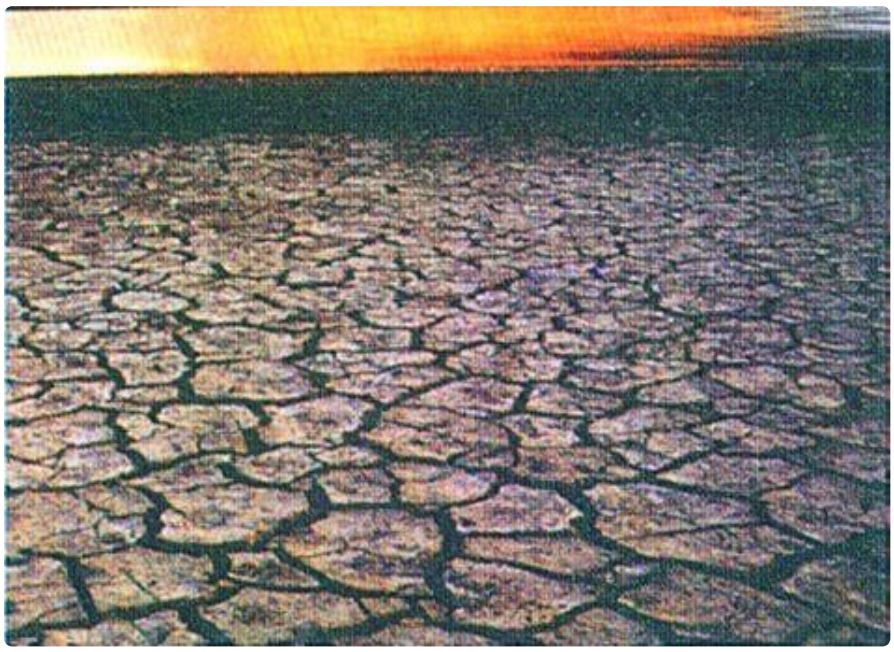


Fig. 1.7: Black soil, with deep summer cracks

6.3 Red and Yellow Soils

Formed on **crystalline igneous rocks** in **low-rainfall** eastern and southern Deccan (also Odisha, Chhattisgarh, Western Ghats piedmont); **red from diffusion of iron**, **yellow when hydrated**.

6.4 Laterite Soil

From Latin **'later' = brick**; formed by **intense leaching** in hot climates with alternate wet and dry seasons; **acidic (pH < 6)** and **nutrient-poor**, but with conservation it grows **tea and coffee** (Karnataka, Kerala, TN hills) and **cashew** (red laterite of TN, AP, Kerala).



Fig. 1.8: Laterite soil

6.5 Arid Soil

Red to brown, **sandy and saline** (common salt is obtained from it), **lacks humus and moisture**, has a **kankar layer** below that blocks water, and becomes cultivable with **irrigation**, as in **western Rajasthan**.



Fig. 1.9: Arid soil

6.6 Forest Soil

Found in **hilly and mountainous areas**; **loamy and silty** on valley sides, **coarse** on upper slopes, **acidic with low humus** in snowy Himalayas, and **fertile on river terraces and alluvial fans**.

7 Soil Erosion and Soil Conservation

Soil erosion (**denudation and washing down**) is caused by deforestation, overgrazing, construction, mining, wind, glaciers and water, giving **gullies → bad land** (**ravines in Chambal**), **sheet erosion** and **wind erosion**; prevent it with **contour ploughing**, **terrace farming** (western & central Himalayas), **strip cropping** and **shelter belts** (western Indian desert).



Fig. 1.10: Soil erosion

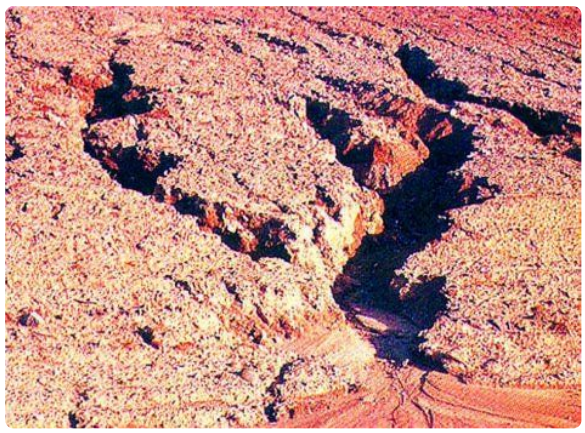
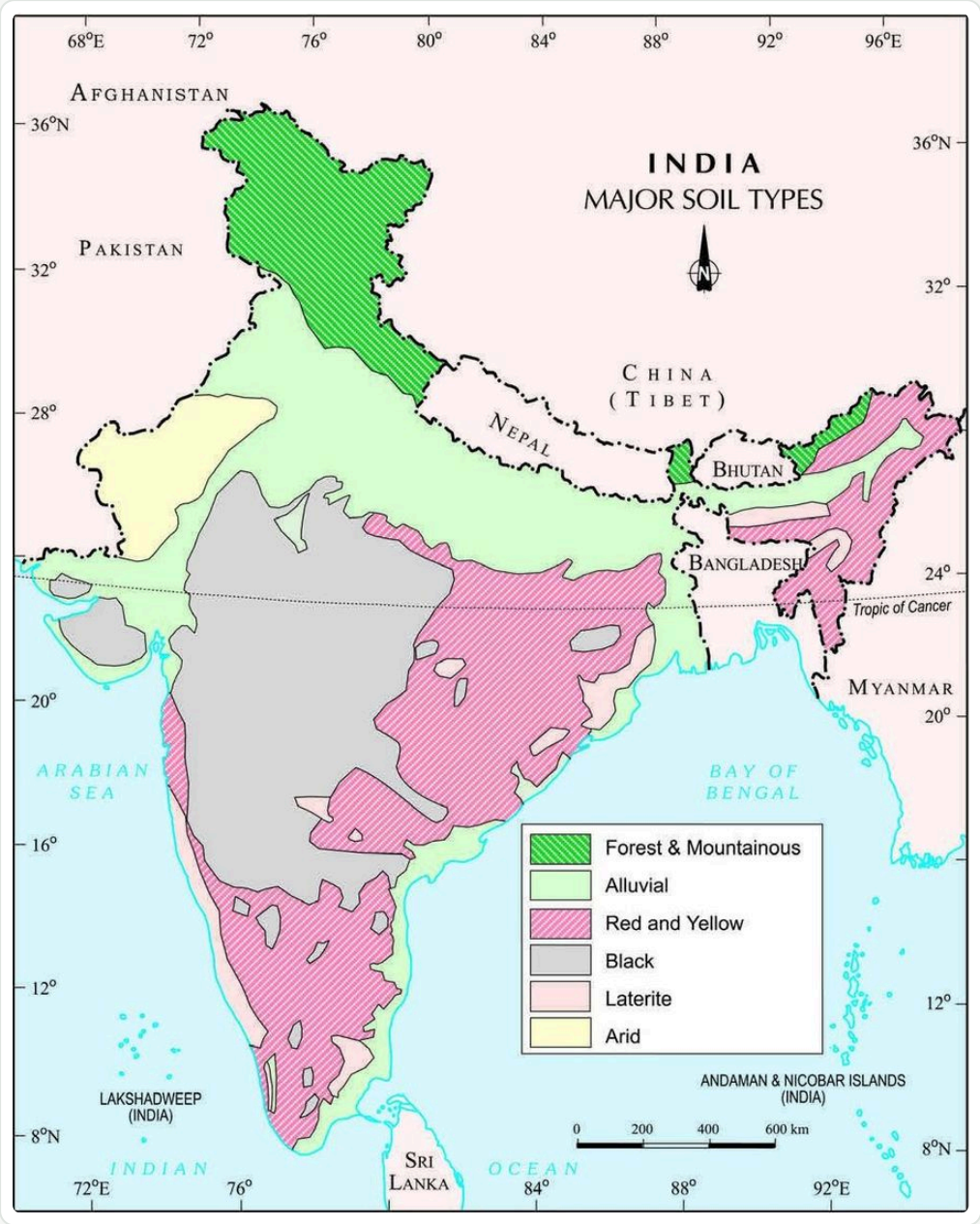


Fig. 1.11: Gully erosion

Six soils in one table



India: Major Soil Types (map from the chapter)

SOIL	WHERE	KEY FEATURE	CROPS / USE
Alluvial	Northern plains; eastern deltas; Rajasthan & Gujarat corridor	Most widespread; Bangar (old) / Khadar (new); potash, phosphoric acid, lime	Sugarcane, paddy, wheat, cereals, pulses
Black (Regur)	Maharashtra, Saurashtra, Malwa, MP, Chhattisgarh; Godavari & Krishna valleys	Basalt lava, clayey, holds moisture, cracks in summer, poor in phosphorus	Cotton

SOIL	WHERE	KEY FEATURE	CROPS / USE
Red & Yellow	East & south Deccan, Odisha, Chhattisgarh, Western Ghats piedmont	Crystalline igneous rock, low rain; iron = red, hydrated = yellow	(not named in chapter)
Laterite	Southern states, Western Ghats (Maharashtra), Odisha, parts of WB, North-east	"later" = brick; intense leaching; acidic, pH < 6	Tea, coffee, cashew nut
Arid	Western Rajasthan	Red–brown, sandy, saline, no humus, kankar layer below	Cultivable after irrigation
Forest	Hilly & mountain areas, Himalayas	Loamy/silty in valleys, coarse on slopes, acidic in snow areas	Fertile on river terraces & alluvial fans

Memory tricks

DEFINITION OF RESOURCE

TEC

Technologically accessible, **E**conomically feasible, **C**ulturally acceptable. Think "a resource needs TEC support".

4 BASES OF CLASSIFICATION

O-E-O-S

"Only Elephants Own Stock": Origin, Exhaustibility, Ownership, Status of development.

OWNERSHIP TYPES

I-C-N-I

Grow outward like circles: **I** (me) → **C**ommunity → **N**ation → **I**nternational.

RELIEF OF INDIA

43 · 30 · 27

Plains 43, Mountains 30, Plateaus 27. They add to 100. Plains are the biggest because they feed us.

5 LAND-USE CATEGORIES

F-L-O-F-N

"Farmers Like Old Fresh Nuts": Forests, Land not available, Other uncultivated, Fallow, Net sown.

FALLOW YEARS

1 · 1–5 · 5+

Current fallow ≤ 1 yr → Other fallow 1–5 yrs → Culturable waste > 5 yrs. The longer it sits, the worse the name.

SOIL-FORMING FACTORS

R-P-C-V-T

"Rabbits Prefer Carrots, Vegetables Too": Relief, Parent rock, Climate, Vegetation, Time.

ALLUVIAL RIVERS

IGB + MGKK

North: **I**ndus, **G**anga, **B**rahmaputra. East deltas: **M**ahanadi, **G**odavari, **K**rishna, **K**averi (north to south).

BANGAR VS KHADAR

B = Budha

Bangar = **B**udha (old) with kankar "bones". **K**hadar = **K**id (new), finer and more fertile.

BLACK SOIL

Black = Basalt = Cotton

Volcano lava cooled into black basalt; black soil holds water like a sponge, so cotton loves it. Weak in **P**hosphorus: "Black is Poor in P".

LATERITE

Later = Brick

Heavy rain washed (leached) the goodness out, leaving brick-red acid soil. Rescue crops: **T**ea, **C**offee, **C**ashew ("TCC").

SOIL CONSERVATION

C-T-S-S

Contour ploughing, **T**errace farming, **S**trip cropping, **S**helter belts: "Cats Tear Soft Sofas".

Conservation timeline: read it as a story

- **1952** National Forest Policy sets the 33% forest target.
- **1968** Club of Rome: first systematic call for conservation.
- **1974** Schumacher, *Small is Beautiful*: Gandhian ideas again.
- **1987** Brundtland Commission: "Sustainable Development", book *Our Common Future*.

1992 Rio Earth Summit (June): Agenda 21, Forest Principles.

Trick: the gaps go 16 → 6 → 13 → 5 years. Or remember "Rome, Small, Brundtland, Rio" as "Ram Sells Bread Rolls".

Which state, which cause of land degradation

Mining + deforestation	Jharkhand, Chhattisgarh, Madhya Pradesh, Odisha (the mineral belt)
Overgrazing	Gujarat, Rajasthan, Madhya Pradesh, Maharashtra (dry western cattle lands)
Over-irrigation	Punjab, Haryana, western Uttar Pradesh (green revolution canals → waterlogging, salinity, alkalinity)
Mineral dust	Limestone grinding for cement; calcite and soapstone for ceramics. Dust stops water soaking in.

MP is the only state in two lists (mining and overgrazing).

Flashcards

Cover the green answer, say it out loud, then check.

Three conditions for something to be a resource?

→ Technologically accessible, economically feasible, culturally acceptable

Four bases for classifying resources?

→ Origin, exhaustibility, ownership, status of development

Who said 'enough for everybody's need, not anybody's greed'?

→ Gandhiji

Which report introduced 'Sustainable Development'?

→ Brundtland Commission Report, 1987 (Our Common Future)

Where and when was the first Earth Summit?

→ Rio de Janeiro, Brazil, June 1992

Main aim of Agenda 21?

→ Global sustainable development; every local government makes its own local Agenda 21

Three steps of resource planning in India?

→ Identification & inventory, planning structure, matching with national plans

Share of plains, mountains, plateaus?

→ 43%, 30%, 27%

Culturable waste land is left uncultivated for...

→ More than 5 agricultural years

Gross cropped area =

→ Net sown area + area sown more than once in a year

Desired forest cover and which policy?

→ 33%, National Forest Policy 1952

Land degradation cause in Punjab & Haryana?

→ Over-irrigation → waterlogging, salinity, alkalinity

Most widespread soil in India?

→ Alluvial soil

Old vs new alluvium?

→ Bangar = old (more kankar); Khadar = new (more fertile)

Other names of black soil?

→ Regur soil, black cotton soil

Why is red soil red?

→ Diffusion of iron in crystalline and metamorphic rocks

'Later' means...

→ Brick (laterite soil)

What restricts water infiltration in arid soil?

→ Kankar layer in the lower horizons

Bad land in the Chambal basin is called...

→ Ravines

Ploughing along contour lines is called...

→ Contour ploughing

Quick quiz

First three are the textbook MCQs. Correct answers are marked in green.

1. Main cause of land degradation in Punjab?

Intensive cultivation | Deforestation | **Over irrigation** | Overgrazing

2. In which state is terrace cultivation practised?

Punjab | Plains of Uttar Pradesh | Haryana | **Uttarakhand**

3. Black soil is predominantly found in...

Uttar Pradesh | **Maharashtra** | Rajasthan | Jharkhand

4. Soil found in the river deltas of the eastern coast?

Laterite | Arid | **Alluvial** | Forest

5. Laterite soil in Karnataka, Kerala, TN hills is useful for...

Cotton | **Tea and coffee** | Wheat | Sugarcane

6. Club of Rome advocated resource conservation in...

1952 | **1968** | 1974 | 1987

7. Net sown area is less than 10% in...

Punjab | Haryana | **Mizoram** | Uttar Pradesh

8. Black soil is poor in...

Lime | Potash | **Phosphoric content** | Magnesium

9. Planting rows of trees to break wind is called...

Strip cropping | **Shelter belts** | Contour ploughing | Terracing

10. Puzzle: soil of the Great Plains of India?

Alluvial | Black | Red | Arid

Revision plan

Day 1
Read the one-liners aloud twice. Then cover the highlights and fill the blanks.

Day 2
Write the soil table from memory on blank paper. Check and fix in red.

Day 4
Flashcards + quiz. Re-read only the sections you missed.

Day 7
Explain the chapter to someone in 5 minutes without looking.

Day 14
Answer the 120-word textbook questions using the key terms.

MAP METHOD

On a blank India outline map, colour the six soils and mark the land-degradation states. Pictures stick better than lists.

MEMORY PALACE

Walk through your home: the **door** is "TEC resource", the **living room** is Rio 1992, the **kitchen** is land use, the **garden** holds the six soils, the **terrace** is soil conservation.

BLURTING

Close the book, set a 5-minute timer and write every key term you remember. The gaps show you what to revise.