Chapter 1

Natural Resources and Their Use

Chapter Notes:

What are Natural Resources?

- Natural resources are materials and substances found in nature that are valuable to humans.
- Nature includes all life and non-life forms that exist in our environment and are not human-made.
- These elements become "resources" when humans use them for sustenance or to create new things for consumption.
- For an entity to be considered a resource, it must be technologically accessible, economically feasible to exploit, and culturally acceptable.
- **Examples**: Water, air, soil, coal, petroleum, precious stones, metal ores, timber.

Categories of Natural Resources

Natural resources can be categorized based on their uses and whether they are renewable or non-renewable.

- **Based on Use**
  1. **Resources essential for life:** Air, water, and soil are fundamental for life on Earth, and we cannot create them ourselves.
  2. **Resources for materials:** Nature's gifts are used to create physical objects for utility or beauty (e.g., wood for furniture or carvings). India's diverse geography provides a wide range of materials like wood, marble, coal, and gold.
  3. **Resources for energy:** Energy is vital for modern living (electricity, transportation, production processes). Sources include coal, water, petroleum, natural gas, sunlight, and wind.

- **Renewable and Non-Renewable Resources**

Nature's Principle: Nature functions in a restorative and regenerative manner.

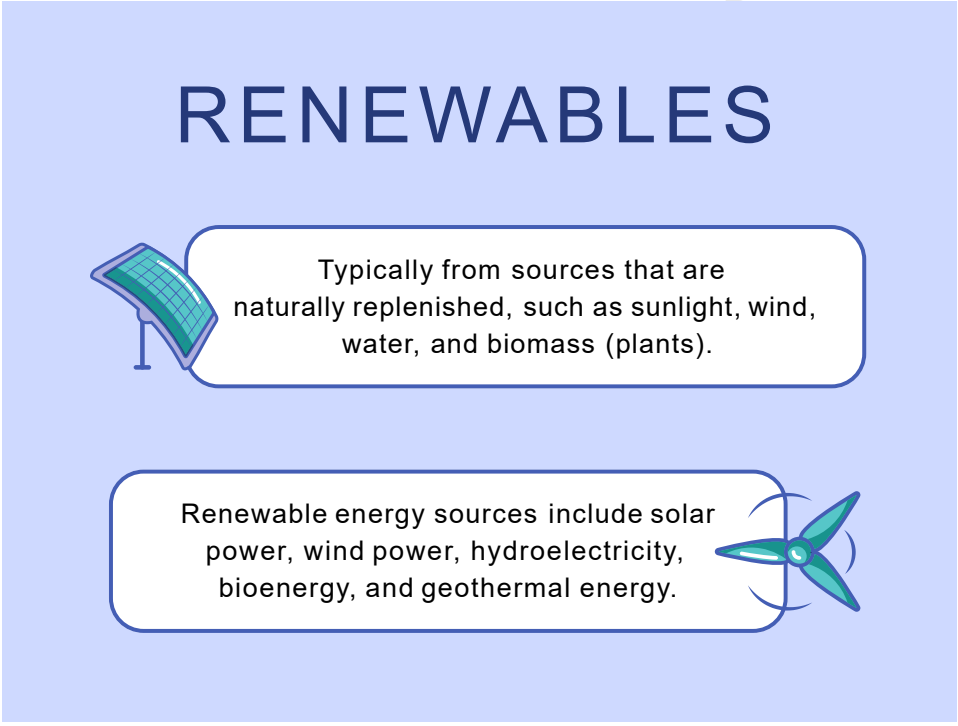
Restoration: Returning something to its original healthy state after degradation (e.g., skin healing, forest recovering from wildfire).

Regeneration: Nature's ability to create new life and conditions for thriving (e.g., planting trees to restore an ecosystem, natural cycles where decomposed matter enriches soil for new growth).

1. **Renewable Resources:**

- Exhibit restorative and regenerative characteristics over time.
- Examples: Solar energy, wind energy, energy from flowing water, timber from forests.
- Condition for renewability: The natural rhythm of restoration and regeneration must not be disturbed. Over-harvesting timber or disturbing natural cycles can deplete these resources.
- Human actions like fossil fuel-driven industrialization and deforestation have disturbed nature's cycles, leading to issues like rising temperatures and melting glaciers, impacting water security.
- Over-fishing, like with tuna, is an example of commercialization disturbing ecosystem balance.
- Industrial waste discharged into rivers can disturb Nature's cycle, making water poisonous and unable to support life.
- Ecosystem functions and services: Natural processes that benefit humans (e.g., trees producing oxygen, forests filtering water, preventing erosion, providing habitat).

2. **Non-renewable Resources:**



- Created over long periods and cannot be replenished at the rate we consume them.
- Examples: Fossil fuels (coal, petroleum), minerals and metals (iron, copper, gold).
- India's coal reserves, for instance, are estimated to last only about 50 years with increasing demand.
- Judicious use is necessary until sustainable alternatives become widely available.

NON-RENEWABLES

Non-renewable resources include coal, oil, natural gas, minerals such as uranium and precious metals such as copper.

Non-renewable resources contribute to environmental issues like air pollution, climate change, and habitat destruction.

Distribution of Natural Resources and its Implications

- Natural resources are unevenly distributed globally and within countries.
- This uneven distribution influences human settlements, trade patterns, international relations, and conflicts.
- Industries located near resources create employment and economic opportunities, leading to the growth of townships and improved quality of life.
- However, these benefits can come with costs, including displacement of people and threats to sacred places.
- Resource distribution affects national and international trade.
- Sharing of natural resources, especially across political boundaries (states or countries), can lead to tensions (e.g., Kaveri River water dispute in India).

The 'Natural Resource Curse'

- Having abundant natural resources does not guarantee economic prosperity; some resource-rich regions may experience slower economic growth, a phenomenon known as the 'natural resource curse' or 'paradox of plenty'.
- This occurs when economies fail to develop industries that convert resources into higher-value products.
- India has largely avoided this curse by investing in industries to meet its growing needs.
- Balancing resource extraction with sustainability is crucial, and human knowledge, good governance, and strategic planning are key to ensuring lasting benefits from natural resources.

Responsible and Wise Use of Natural Resources: Stewardship

Sustaining life on Earth requires respecting Nature and using resources in a way that allows for restoration and regeneration of renewables, and judicious use of non-renewables.

Irresponsible treatment of resources has led to pollution, biodiversity loss, and climate change.

1. **Restoration and Regeneration of Renewable Resources**

- **Groundwater Overexploitation:** In many parts of India, groundwater extraction for irrigation exceeds replenishment rates, leading to depletion and unavailability (e.g., Punjab).

- **Remedies**: Water harvesting, rejuvenation of ponds/tanks, reducing wasteful consumption, and water reuse.
- **Punjab Case Study:** The Green Revolution led to increased water-intensive crops and over-pumping of groundwater, causing levels to drop and chemical contamination.
- **Soil Degradation:** Improper use of chemical fertilizers and pesticides has degraded soil.
- **Traditional Practices**: Use of natural fertilizers (cow dung), mulching, multi-cropping, and proper ploughing methods for holistic soil management.
- **Sikkim Case Study**: Sikkim successfully transitioned to 100% organic farming, leading to increased biodiversity, tourism, and farmer incomes.
- **Cement Production:** A polluting industry that releases dust, affecting health, plant yields, and causing soil and water pollution.
- **Solutions**: Guidelines for minimising pollution, and the development of sustainable alternative materials (stone, mud, plant-based, recycled plastics).
- **Vrikshayurveda**: Ancient Indian botanical science promoting sustainable agriculture through specific plant recommendations for soil types, seed treatment, irrigation techniques, and natural pest management.

2. Responsible and Judicious Use of Non-Renewables

- It is crucial to use non-renewable resources carefully to ensure they last until more sustainable alternatives are found.
- **Shift to Renewables:** Transitioning to renewable energy sources for as many purposes as possible is essential.
- **International Solar Alliance (ISA):** Launched by India and France in 2015, this alliance of sunshine-rich countries focuses on harnessing solar power, channeling investments, sharing expertise, and creating affordable financing.
- **Bhadla Solar Park:** A symbol of India's commitment to solar energy transition.

Conclusion

- "Natural resources" are materials and substances from Nature valuable to humans.
- Categorizing resources as renewable and non-renewable is important.
- The "resource curse" can be overcome through investments in technology and skills.
- Vigilant and judicious use of resources is necessary for sustainability, ensuring their availability for current and future generations.
- Our relationship with Nature calls for stewardship of natural resources, promoting restoration, regeneration, and sustainability. The concept of
- Lokasangraha (acting for the well-being of all) is relevant in this context.

The Big Questions (Page 1).

1. How do we categorise natural resources?

Answer: Natural resources can be categorised in multiple ways:

- **Based on Use:**

1. Resources essential for life (air, water, food)
2. Resources used for materials (wood, marble, metal ores)
3. Resources used for energy (coal, sunlight, wind, petroleum)

- **Based on Renewability:**

Renewable resources – Can regenerate naturally if used sustainably (e.g., solar energy, water)

Non-renewable resources – Formed over millions of years and deplete with use (e.g., coal, petroleum)

2. What is the connection between the distribution of natural resources and different aspects of life?

Answer: The distribution of natural resources is **uneven** across the world and even within countries. This affects:

- **Human settlements**: People tend to live near water bodies, fertile lands, or mineral-rich areas.
- **Economic activities**: Resources influence industries, agriculture, and job opportunities.
- **Trade and Politics**: Regions with valuable resources engage in trade or even face conflicts over control.
- **Cultural and Social impact:** Sacred sites and local traditions are often connected to natural resources.

For example, the availability of coal and iron ore in eastern India has led to the growth of mining industries there.

3. What are the implications of unsustainable use / over-exploitation of natural resources?

Answer: Unsustainable or excessive use of resources leads to:

- **Resource depletion**: Groundwater, forests, and soil fertility may get exhausted.
- **Environmental degradation**: Pollution of air, water, and soil harms ecosystems.
- **Biodiversity loss**: Natural habitats are destroyed, threatening plant and animal life.
- **Climate change**: Overuse of fossil fuels contributes to global warming.
- **Health hazards**: Industrial waste and chemicals affect human health (e.g., in Punjab, pesticides have entered groundwater).

DON'T MISS OUT (Page 3)

Q. In many indigenous traditions of the world, Nature is considered sacred. In such traditions, Nature is seen as a nurturer and nourisher.

Do you know of practices that reflect this?

Answer: Yes, several cultural and religious practices reflect the sacredness of Nature:

- **Tulsi Puja:** In many Indian households, the Tulsi (holy basil) plant is worshipped daily as a symbol of purity and health.
- **Sacred Groves:** Certain forests are protected by tribal communities and not cut down because they are considered the abode of local deities.
- **Offering Arghya to the Sun:** People offer water (arghya) to the Sun God as a mark of gratitude during morning prayers.

- **Nag Panchami:** Celebrated in parts of India to worship snakes, acknowledging their role in balancing ecosystems.
- **Respect for Rivers:** Rivers like the Ganga and Yamuna are worshipped as goddesses and are believed to purify and sustain life.

These practices show reverence for Nature and aim to protect and sustain natural resources.

THINK ABOUT IT (Page 3)

Q. Take a pause. Look at yourself and the things around you. What is the origin of each of them? At some point, they all lead to Nature — even the plastic button on your shirt.
What does this suggest about our relationship with Nature?

Answer: This suggests that everything we use or consume — whether it is food, clothes, furniture, or even man-made items like plastic — has its roots in **natural resources**. For example:

- **Plastic** comes from petroleum, a fossil fuel extracted from the Earth.
- **Clothes** are made from cotton (a plant) or synthetic fibres derived from natural gas.
- **Food** grows in soil and needs water, air, and sunlight — all gifts of Nature.
- **Electronics** use metals like copper and lithium mined from the Earth.

This highlights that we are deeply **dependent on Nature** for our survival and comfort. It reminds us to respect and protect natural resources because they are the foundation of our lives.

THINK ABOUT IT (Page 4)

Q. What might be the different criteria we can use to categorise natural resources?

Answer: Natural resources can be categorised based on several criteria:

- **Based on their use:**
  1. **Resources essential for life** – such as air, water, and soil which are vital for survival.
  2. **Resources for materials** – like wood, metals, and stones used to make goods.
  3. **Resources for energy** – such as coal, petroleum, sunlight, and wind, which provide power for various activities.

- **Based on renewability:**
  1. **Renewable resources** – can be regenerated naturally (e.g., sunlight, wind, water, forests if used sustainably).
  2. **Non-renewable resources** – take millions of years to form and cannot be replenished quickly (e.g., coal, petroleum, minerals).

- **Based on origin:**
  1. **Biotic resources –** obtained from the biosphere, such as plants, animals, and forests.
  2. **Abiotic resources** – non-living, such as air, water, metals, and minerals.

These categories help us understand, manage, and conserve resources more effectively.

DON'T MISS OUT (Page 6)

Q. Do you know of other traditional practices that help the ecosystem to stay in balance?

Answer: Yes, many traditional practices across India and the world have helped maintain ecological balance. Some examples include:

- **Sacred Groves:** Many communities in India preserve small patches of forests as sacred groves (e.g., in Meghalaya and Tamil Nadu), where no trees are cut or animals harmed. These act as biodiversity hotspots and help conserve flora and fauna.
- **Seasonal Grazing:** Pastoral communities, such as the Gujjars in the Himalayas, follow seasonal grazing patterns. This allows grasslands time to regenerate, preventing overgrazing and land degradation.
- **Jal Kranti – Traditional Water Harvesting:** Step-wells (baolis), tankas, and johads in Rajasthan and Gujarat are traditional rainwater harvesting systems that help recharge groundwater and manage drought.
- **Mixed Cropping & Crop Rotation:** Indigenous farming practices like baranaja in Uttarakhand (growing 12 crops together) maintain soil fertility, reduce pests, and ensure food diversity.
- **Natural Pest Control:** Use of neem leaves, ash, garlic sprays, and other natural materials for pest control helps reduce chemical use and keeps soil and water safe.
- **Restricting Timber Use:** In several forest communities, trees are only felled for specific purposes like rituals or building homes, ensuring forest regeneration.

These practices are community-driven, sustainable, and reflect a deep understanding of ecological balance.

LET'S EXPLORE (Page 7)

Q. Identify human actions in your surroundings that result in Nature losing her ability to restore and regenerate. What types of interventions can be undertaken to restore Nature's cycle?

Answer:

- **Human actions that harm Nature's ability to regenerate:**
  1. **Excessive use of plastic –** causes land and water pollution, harming soil organisms and marine life.
  2. **Deforestation for construction and firewood –** leads to loss of biodiversity and soil erosion.
  3. **Overuse of chemical fertilizers and pesticides –** degrades soil quality and contaminates water.
  4. **Excessive groundwater extraction –** lowers water tables and depletes local water sources.
  5. **Air pollution from vehicles and industries –** affects plant life and contributes to climate change.
  6. **Dumping waste into rivers and lakes –** pollutes water and kills aquatic organisms.

- **Interventions to restore Nature's cycle:**
  1. **Promote afforestation and protect green spaces –** helps restore biodiversity and regulate climate.
  2. **Encourage organic farming and composting –** improves soil health and reduces chemical use.
  3. **Adopt rainwater harvesting and water-saving methods –** helps replenish groundwater.
  4. **Use eco-friendly materials and reduce plastic use –** minimizes non-biodegradable waste.
  5. **Implement proper waste segregation and recycling –** reduces landfill pressure.
  6. **Spread awareness and involve communities in conservation efforts –** ensures sustainable practices at the local level.

These steps can help rebuild Nature's regenerative capacity and ensure a healthy environment for future generations.

DON'T MISS OUT (Page 7)

Q. What are ecosystem functions and ecosystem services? How do they benefit humans?

Answer: Ecosystem functions are the natural processes carried out by the environment to maintain balance and support life.

- Examples include:
  1. **Producing oxygen** (e.g., by trees)
  2. **Filtering water** through soil and vegetation
  3. **Preventing soil erosion** with plant roots
  4. **Pollination** by bees and insects
  5. **Providing habitats** for birds, insects, and animals
- Ecosystem services are the **benefits** that humans receive from these natural functions. For example:
  1. Trees produce oxygen → **we breathe clean air**
  2. Forests filter water → **we get clean drinking water**
  3. Soil is protected → **our crops grow well**
  4. Bees pollinate crops → **we get fruits and vegetables**
  5. So, when Nature performs a function and **humans benefit** from it, that becomes an **ecosystem service**.

Also, a **mature tree** can produce around **275 litres of oxygen per day**, while a **human requires around 350 litres per day**, showing how closely our survival depends on Nature.

LET'S EXPLORE (Page 8)

Q. Take up a small research study to assess the types of renewable resources in your region. What has been the change in their status over time? Make a small report that identifies the reasons for the change and what may be done.

Answer: Research Report: Status of Renewable Resources in [Your Region – e.g., Gujarat]

- **Renewable Resources Found in the Region:**
  1. **Solar energy** – Abundant sunlight throughout the year.
  2. **Wind energy** – Available especially in coastal and open areas.
  3. **Groundwater and river water** – Used for agriculture and drinking.
  4. **Forest resources** – Limited areas with tree cover.
  5. **Biomass** – Cow dung and crop residue used in villages.

- **Change in Status Over Time:**

Resource	Status 10 Years Ago	Current Status
1. Solar energy	Limited use	Increased use (solar panels, farms)
2. Wind energy	Untapped potential	Wind farms set up in some districts
3. Groundwater	Plentiful in most areas	Declining due to overuse
4. Forest cover	Stable but low	Slight increase due to afforestation
5. Biomass use	Traditional use in villages	Still used, but reduced in urban areas

- **Reasons for Change:**
  1. Over-extraction of **groundwater** for agriculture and urban use.
  2. Government **schemes promoting solar and wind energy.**
  3. Afforestation campaigns in schools and communities.
  4. Urbanisation leading to reduction in biomass and forest areas.
  5. Increased awareness of **climate change** and renewable energy.

- **Suggestions for Improvement:**
  1. Promote **rainwater harvesting** and efficient irrigation.
  2. Encourage installation of **solar panels** in schools and homes.
  3. Enforce stricter regulations on **groundwater use**.
  4. Educate people about **sustainable resource management.**
  5. Increase investment in **green technologies**.

LET'S EXPLORE (Page 8)

Q. What are the non-renewable resources that you use daily, directly or indirectly? What are the possible renewable substitutes? What are some of the steps we can take to transition to renewables?

Answer:

- **Daily Use of Non-Renewable Resources:**

Non-Renewable Resource	How It Is Used Daily
1. Petroleum (petrol/diesel)	For vehicles like buses, scooters, cars
2. Coal	For electricity generation in thermal power plants
3. Natural Gas	For cooking in homes (LPG gas cylinders)
4. Plastics (from crude oil)	Used in packaging, bags, containers, etc.

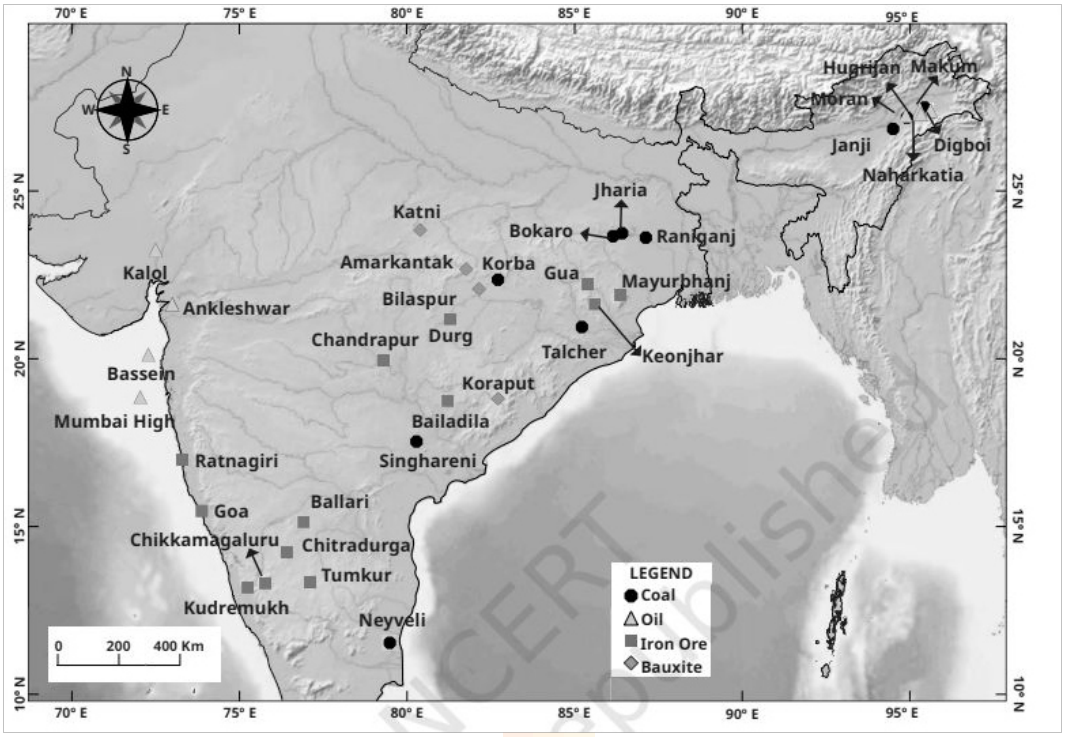
- **Possible Renewable Substitutes:**

Non-Renewable Resource	Renewable Alternative
1. Petroleum/Diesel	1. Electric vehicles powered by solar or wind energy
2. Coal (electricity)	2. Solar panels, wind turbines, hydroelectric power
3. Natural Gas (LPG)	3. Biogas, solar cookers
4. Plastic items	4. Cloth bags, jute bags, biodegradable materials

- **Steps to Transition to Renewable Resources:**
  1. **Use solar panels** in homes and schools to reduce electricity from coal.
  2. **Promote electric vehicles** and provide public transport powered by renewables.
  3. **Adopt biogas plants** in rural areas for cooking needs.
  4. **Reduce, reuse, and recycle** plastic and shift to eco-friendly alternatives.
  5. **Educate people** about the long-term benefits of renewable resources.
  6. **Support government policies** and campaigns that encourage green energy.

LET'S EXPLORE (Page 9)

Q. Observe the map in Fig. 1.11. Notice the uneven distribution of important minerals. What types of resources are available in your region? How are they distributed?



Answer: Region Chosen: [Example: Odisha]

(You can replace this with your own state or region)

- **Types of Resources Available in Odisha:**

Resource Type	Specific Minerals Available
1. Metallic	Iron ore, bauxite, manganese
2. Non-metallic	Coal
3. Energy	Hydro power (from rivers)
4. Others	Chromite

- **Distribution Pattern in the Region:**
  1. **Iron ore**: Found in large deposits in **Keonjhar** and **Mayurbhanj** districts.
  2. **Bauxite**: Found in **Koraput** and **Rayagada** districts.
  3. **Coal**: Available in **Talcher** and **Ib Valley** coalfields.
  4. **Manganese & Chromite**: Found in **Sukinda Valley**.
  5. **Hydropower**: Generated from **Hirakud Dam** and other river-based projects.
- **Key Observations:**
  1. Mineral resources are **concentrated in specific districts.**
  2. Areas rich in minerals often have **mining industries and townships** nearby.
  3. There is a **lack of even distribution**, which creates regional economic disparities.
  4. Infrastructure like roads and railways are **developed around these mineral zones.**

Conclusion:

The map highlights that natural resources are not spread equally. In regions like Odisha, minerals are clustered in pockets. While this boosts industrial growth in those areas, it also requires careful planning to manage **ecological balance and displacement of communities.**

LET'S EXPLORE (Page 10)

Q. Select any two natural resources.

(a) Gather information about their availability across different parts of India. Mark them on a map. What do you observe about their distribution? What are the types of economic activities connected with them?

(b) Discuss the implications of extracting the natural resources in those parts for current and future generations. Suggest ways in which we can use Nature's gifts in responsible ways.

Answer: Selected Natural Resources: **Coal, Iron Ore**

(a) Availability and Distribution:

Coal:

- **Major States:** Jharkhand (Jharia, Bokaro), Odisha (Talcher), Chhattisgarh (Korba), West Bengal (Raniganj), Madhya Pradesh (Singrauli)
- **Observation:** Coal is **concentrated in eastern and central India.**
- **Economic Activities:**
  1. Thermal power generation
  2. Iron and steel industries
  3. Employment in mining and transport

Iron Ore:

- **Major States:** Odisha (Keonjhar, Mayurbhanj), Jharkhand (Singhbhum), Chhattisgarh (Bailadila), Karnataka (Ballari), Goa
- **Observation:** Iron ore is **mostly found in hilly and forested regions.**
- **Economic Activities:**
  1. Steel production
  2. Export of raw iron ore
  3. Development of mining towns

(b) Implications of Extraction:

- **For Current Generation:**
  1. Boosts economy and employment
  2. Helps industrial development
  3. Improves local infrastructure
- **For Future Generations:**
  1. Risk of **resource exhaustion** (non-renewable)
  2. **Deforestation and loss of biodiversity**
  3. **Water and air pollution** from mining
  4. **Displacement** of local communities
  5. Unequal development across regions
- **Responsible Use Suggestions:**
  1. Follow **sustainable mining practices**
  2. Implement **reforestation** and eco-restoration
  3. Use **technology to reduce waste and pollution**
  4. Encourage **recycling of metals**
  5. Ensure **fair rehabilitation** for displaced people
  6. Switch to **renewable energy** for long-term sustainability

LET'S EXPLORE (Page 10)

Q. Find out about such a conflict in the international context. Discuss your findings in the class.

Answer: Conflict Chosen: The **Nile River** Water Dispute

- **Countries Involved:** 1. Egypt 2. Sudan 3. Ethiopia
- **Background of the Conflict:**
  1. The **Nile River** is a vital water source for several countries in northeastern Africa.
  2. **Egypt** and **Sudan** rely heavily on the Nile for agriculture, drinking water, and industry.
  3. **Ethiopia** began constructing the **Grand Ethiopian Renaissance Dam (GERD)** on the Blue Nile in 2011 to generate hydroelectric power.
- **Cause of Conflict:**
  1. Egypt fears the dam will **reduce the flow of Nile water** downstream, threatening its **water security.**
  2. Ethiopia argues it has the right to use the water to **meet energy needs and promote development.**
  3. Sudan is caught in between, concerned about water flow regulation and safety of the dam.
- **Impacts:**
  1. Diplomatic tensions between the three nations have risen.
  2. Multiple **rounds of negotiations** have taken place but no permanent agreement has been reached.
  3. There are fears the situation could escalate if **mutual agreements are not made.**

Conclusion & Lessons:

Water conflicts arise when **shared natural resources cross political boundaries.**

Peaceful negotiation, fair distribution, and **international cooperation** are essential.

Like the Kaveri dispute in India, **shared water resources need long-term agreements and transparency** in usage and planning.

LET'S EXPLORE (Page 11)

Q. What do you think are the different inputs required to enable the use of the natural resources available in different geographical areas?

Answer: To effectively use natural resources in different geographical areas, a combination of the following key inputs is required:

1. **Technological Input**
   - **Advanced machinery and tools** are needed to extract, process, or transport resources (e.g., oil drilling equipment, solar panels, irrigation systems).
   - **Example**: Extracting petroleum from deep-sea reserves requires high-tech oil rigs.
2. **Human Skills and Labour**
   - Trained **manpower** is essential to operate machines, manage processes, and innovate better methods.
   - **Example**: Engineers and skilled workers are needed in mining, farming, and renewable energy sectors.
3. **Capital Investment**
   - Setting up infrastructure like factories, storage units, transportation, and processing plants requires **money and financial planning.**
   - **Example**: Building a hydroelectric dam needs huge investment and planning.

4. **Government Policies and Regulations**
   - **Supportive policies**, fair resource-sharing laws, and environmental regulations are crucial for sustainable use.
   - **Example**: Water-sharing agreements between states/countries help avoid conflicts.
5. **Scientific Research and Innovation**
   - Research helps in **better utilization, waste reduction**, and **finding alternatives** to scarce resources.
   - **Example**: Research in organic farming improves soil health and reduces dependency on chemicals.
6. **Transport and Connectivity**
   - **Roads, railways, and ports** are needed to move resources from extraction sites to markets or factories.
   - **Example**: Iron ore from mines in Odisha is transported to steel plants across India.
7. **Public Awareness and Community Participation**
   - People's involvement and **respect for nature** can ensure responsible usage.
   - **Example**: Local communities managing forests under joint forest management (JFM) schemes.

Conclusion:

Efficient use of natural resources requires not just their presence, but the right combination of technology, human effort, investment, governance, and ecological awareness. Without these, even resource-rich regions may remain underdeveloped.

Questions and activities (Page 19)

1. What can make what is today a renewable resource non-renewable tomorrow? Describe some actions that can prevent this from happening.

Answer: A renewable resource can become non-renewable if it is **used faster than it can regenerate**. For example, if forests are cut down rapidly without allowing time for regrowth, they may be permanently lost.

Actions to prevent this include:

- Sustainable harvesting (e.g., regulated logging)
- Reforestation and afforestation
- Water conservation and rainwater harvesting
- Reducing overfishing and allowing fish to breed
- Promoting renewable energy like solar and wind instead of relying heavily on biomass

2. Name five ecosystem functions that serve humans.

Answer: Five important ecosystem functions that benefit humans are:

- **Production of oxygen** by trees
- **Pollination** of crops by bees and insects
- **Water filtration** by forests and wetlands
- **Soil formation and protection** by plant roots
- **Climate regulation** through carbon storage in forests and oceans

3. What are renewable resources? How are they different from non-renewable ones? What can people do to ensure that renewable resources continue to be available for our use and that of future generations? Give two examples.

Answer: Renewable resources are those that **regenerate naturally** over time, like **sunlight, wind, and forests.**

Non-renewable resources, such as **coal** and **petroleum**, take millions of years to form and cannot be replaced once exhausted.

- To ensure renewable resources remain available:
- Use them **sustainably**
- Avoid overexploitation
- Practice **conservation**
- Raise awareness and involve local communities

Examples:

Water – Preserve water bodies and prevent pollution

Forest resources – Avoid deforestation, plant trees regularly

4. Identify cultural practices in your home and neighbourhood that point to mindfulness in the use of natural resources.

Answer: Some traditional and cultural practices that show mindfulness include:

- **Using clay pots or earthen lamps (diyas) instead** of plastic or synthetic items
- **Offering water to plants or sacred trees** like Tulsi or Peepal
- **Using kitchen waste for composting**
- **Celebrating festivals like Makar Sankranti or Pongal,** which thank nature for harvest
- **Collecting and reusing rainwater**

5. What are some considerations to keep in mind in the production of goods for our current use?

Answer: Important considerations include:

- **Minimizing pollution** during production
- Using **eco-friendly** or **recyclable materials**
- Ensuring **efficient energy use**
- Promoting **local and sustainable production**
- Avoiding **wastage of raw materials**
- Respecting the **limits of natural resources** and not harming ecosystems