Chp-1 Natural Resources and their Uses
Answer Key

GEAR UP — PAGE 2

Things we use every day	Source in nature
1. Paper	Plants (trees)
2. Pencil	Plants and minerals
3. Electricity	Water, sunlight, wind, coal, petroleum or natural gas
4. Shoes / Clothes	Animals and plants

1. If these natural resources were not available, humans would not be able to produce basic items such as paper, clothes, tools and electricity. Daily life, industries and agriculture would be severely affected because raw materials and energy sources come directly from nature.

2. It is not possible for humans to create natural resources on their own. Nature provides air, water, soil, forests and minerals. Humans can only transform these materials into useful products by applying skills and technology.

PROGRESS — PAGE 5

1. Air **2.** Energy resources **3.** Renewable resources

4. Coal **5.** Human-made resources

PROGRESS — PAGE 14

1. (🗺) **2.** (✓) **3.** (🗺) **4.** (✓)

1. (✓)

LET US PRACTISE — PAGES 15–16

A. 1. (c) When it is used to meet human needs

2. (c) Solar energy

3. (d) Petroleum

4. (b) Resource-rich regions may not achieve economic prosperity

B. 1. renewable **2.** Human-made **3.** Groundwater depletion, soil degradation

4. stewardship

C. 1. A natural resource is any material or substance obtained directly from nature such as air, water, soil, minerals, forests and sunlight.

2. Nature becomes a resource when humans extract, use or consume elements of nature and add value and utility to them.

3. Restoration in nature refers to repairing damaged natural systems so that they can function properly again.

4. The natural resource curse is the situation in which regions rich in natural resources still experience slow economic growth, poverty or poor living standards due to poor governance and lack of diversification.

D. **1.** Renewable resources are those natural resources that can rebuild themselves through natural cycles. Sunlight, flowing rivers, wind and forests are examples. These resources remain renewable only if natural systems are not disturbed by overuse, pollution or climate change.

2. Non-renewable resources are resources that take millions of years to form and cannot be replaced once they are used. Coal, petroleum and minerals such as iron and copper belong to this group. Their limited nature makes careful and responsible use essential.

3. Excessive use of chemical fertilisers and pesticides reduces soil fertility and damages soil structure. This problem can be addressed by using organic manures such as cow dung and compost.

Continuous cultivation without proper soil care leads to erosion and nutrient depletion. This can be reduced by adopting mulching and multi-cropping systems to retain soil moisture and improve fertility.

4. Non-renewable resources are limited and take millions of years to form, so once exhausted they cannot be replaced within human time scales. Their extraction and use also cause pollution and environmental damage, making careful and reduced use necessary for long-term sustainability.

E. **1.** Classification of Natural Resources:

Based on origin

(i) Biotic resources: Resources obtained from living organisms such as plants and animals.

(ii) Abiotic resources: Resources obtained from non-living components such as water, air and minerals.

Based on renewability

(i) Renewable resources: Resources that can be regenerated through natural cycles, for example forests and sunlight.

(ii) Non-renewable resources: Resources that are limited and can be exhausted, for example coal and petroleum.

Based on development

(i) Potential resources: Resources that are known to exist but are not fully utilised.

(ii) Actual resources: Resources that have been surveyed and are currently being used.

2. Environmental impact of cement production

(i) Cement production releases large quantities of carbon dioxide into the atmosphere.

(ii) This increases air pollution and contributes significantly to global warming and climate change.

Measures being taken to address the environmental impact

(i) Cement factories are installing pollution-control devices to reduce harmful emissions.

(ii) Alternative fuels and raw materials are being used to lower carbon output.

(iii) Waste materials are recycled in the manufacturing process.

(iv) Energy-efficient technologies are being adopted to reduce environmental damage.

3. Difference between renewable and non-renewable resources

Renewable Resources	Non-renewable Resources
(i) These resources replenish naturally within a short time.	(i) These resources take millions of years to form.
(ii) They are environment-friendly and reduce pollution.	(ii) They cause pollution when extracted or burnt.
(iii) Examples in India include sunlight, wind, flowing water and forests.	(iii) Examples in India include coal, petroleum, iron and copper.
(iv) They can support long-term use if properly protected.	(iv) They will eventually get exhausted once fully used.
(v) They help reduce dependence on fossil fuels.	(v) They increase dependence on mining and drilling.

Effect of management of resources on long-term sustainability can be described as follows:

(i) Proper management of renewable resources ensures continued availability for future generations.

(ii) Overuse of non-renewable resources leads to scarcity and environmental damage.

(iii) Responsible use of both types of resources protects ecosystems and supports sustainable development.

4. Causes and extent of groundwater overexploitation in Punjab can be described as follows:

(i) Groundwater overexploitation began during the Green Revolution due to the large-scale cultivation of water-intensive wheat and paddy crops.

(ii) Free or subsidised electricity encouraged farmers to pump excessive amounts of groundwater for irrigation.

(iii) Heavy use of chemical fertilisers increased pressure on natural systems.

(iv) In many areas, groundwater has fallen to a depth of nearly 30 metres.

(v) About 80 per cent of the state is classified as over-exploited.

Impacts and long-term consequences:

(i) Groundwater levels have continuously fallen, which has increased the cost and difficulty of irrigation.

(ii) Soil and water quality have seriously degraded due to overextraction and chemical use.

(iii) Short-term food security was achieved, but it has resulted in long-term environmental damage.

(iv) Agricultural sustainability has been reduced over time due to the decline in natural resource quality.

F. 1. *Vriksha¯yurveda* literally means the science of life and healing of trees, derived from the Sanskrit words vrksa meaning tree and a¯yurveda meaning science of life.

2. *Vriksha¯yurveda* was formally documented in Surapala's Vriksha¯yurveda, written around the 10th century CE.

3. (i) Vriksha¯yurveda focuses on the healthy growth and nourishment of plants by describing systematic methods of planting and nurturing trees.

(ii) It also emphasises the protection and conservation of vegetation, reflecting a deep understanding of nature and ecology developed over several millennia in Indian civilisation.

ASSERTION-REASON PAGE 16

1. (a) Both (A) and (R) are true and (R) is the correct explanation of (A).

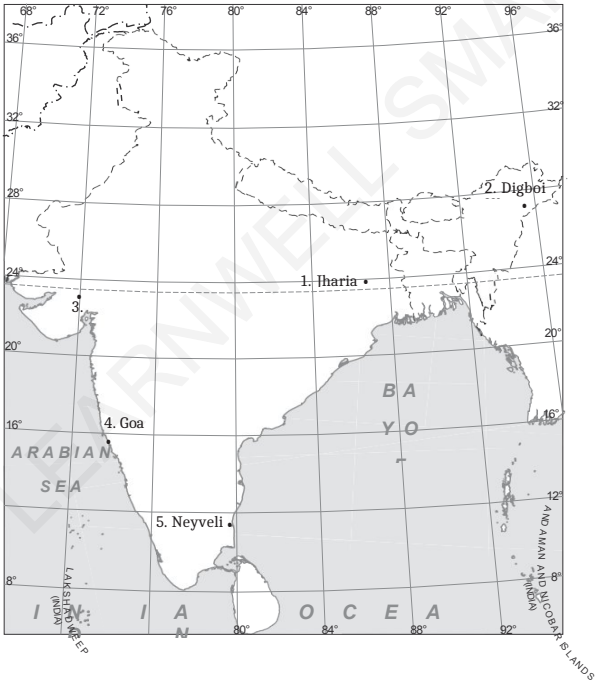
2. (a) Both (A) and (R) are true and (R) is the correct explanation of (A).

PICTURE-BASED QUESTIONS PAGE 16

1. Solar energy and wind energy.

2. Solar energy is used to generate electricity and provide heat for homes and industries. Wind energy is used to produce electricity through wind turbines and supports clean power generation.

MAP SKILLS PAGE 17



HOTS (HIGHER-ORDER THINKING PAGE 17

Although India possesses abundant minerals such as coal and iron, the presence of natural resources alone does not ensure economic prosperity or balanced development. This situation is often described as the 'paradox of plenty'.

(i) Economies may become excessively dependent on the extraction of natural resources and fail to develop other important industries.

(ii) There is often inadequate investment in processing raw materials into higher-value finished products.

(iii) Employment opportunities remain limited due to lack of diversification across different sectors.

(iv) Poor governance, corruption and mismanagement affect the extraction of resources and the fair distribution of revenue.(v)Education, skill development and capacity building in non-resource sectors are often neglected.

As a result, regions rich in minerals may still experience slow economic growth and lower living standards.

LIFE SKILLS PAGE 17

Clearing a forest for construction can disturb ecological balance and affect both the environment and human life. The following problems and solutions can be identified.

Problems:

- Clearing the forest can lead to loss of wildlife and biodiversity because animals lose their natural habitat.
- It can cause soil erosion and reduced soil fertility due to the removal of tree cover.
- It can disturb the ecological balance and reduce air quality as fewer trees remain to absorb carbon dioxide and produce oxygen.

Possible solutions:

- Strict regulation and monitoring of construction activities should be enforced to limit deforestation.
- Afforestation and replanting of trees should be carried out in and around the affected area.
- Public awareness should be created about the importance of forests and sustainable development to encourage community participation in conservation.