

# Resources and Development

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## Check Point 01

**Q. 1. In which category of resources would metals be classified?**

**Answer:** Metals are important resources. They are categorized under elements. Metals are good conductors of electricity and heat. Metals are made of non-renewable elements and are found naturally in the earth's crust. Metals can also be recycled to eliminate its need for non-renewable resources.

**Q. 2. Under what conditions do you think resources can become developed resources?**

**Answer:** Developed resources are those resources which are suitable for utilisation after a careful survey of their quantity and quality. The conditions under which resources can become developed are that they need to have the technology to utilize the resources to their full potential. Sufficient manpower, economy and sufficient knowledge of limitations and availability of the resource is required to develop them.

**Q. 3. Give an example of a non-renewable resource that is non- recyclable also.**

**Answer:** A non-renewable resource is a finite resource. It cannot renew itself completely, making it a valuable and limited in quantity. An example of a renewable resource is coal. Coal is a fossil fuel which is derived from the remains of plants and animals that lie buried in the earth. It takes billions of years to form naturally, so it is considered to be a non-renewable resource.

**Q. 4. Name two states that are backward in spite of having rich mineral deposits.**

**Answer:** The two states that have rich mineral deposits are Jharkhand and Orissa. These states are backward in spite of rich mineral deposits because of the required technology, economy and facilities for development lack in these areas. There is a lack of quality support and human resources in the utilization of the resources. The factors which contribute to the lack of development is the unstable government in the case of Jharkhand. There have been frequent changes in the government due to fewer chief ministers, their short reigns and the failure of political parties in achieving majority vote from the people contribute to the formation of an unstable government. Thus, there is no progress.

**Q. 5. What was Gandhiji's concern about resources conservation?**

**Answer:** Gandhiji voiced his opinions about the utilization of natural resources. He placed importance on simple living, that is, utilising resources to fulfil needs, not greed. His motive was to lift poverty from villages by introducing manual labour in the production of village economy and check unlimited consumption and exploitation of

natural resources. He stated that renewable resources should be utilized and their usage should be minimalized to complete the natural cycle of regeneration and maintain permanence of our survival. His non-violent principles are evident in his methods to preserve natural resources as he believed that violence in the destruction and wastage of natural resources would disrupt the harmony of nature and hinder growth and progress.

## **Check Point 02**

### **Q. 1. What percentage of land in India is put for agriculture uses?**

**Answer:** Agricultural lands in India was estimated to be 60.45% in 2015. Agriculture is the principal means of income in India. The agricultural lands refer to the lands that are suitable for cultivation, that is arable land. Arable lands are those lands on which temporary crops are sown and cultivated. It includes meadows, gardens and fallowed land. Permanent crops are grown on lands for longer periods of time and do not need to re-cultivated after harvesting. This includes lands on which flowers, shrubs and trees with edible food products. The areas of land which are excluded from arable lands are those lands abandoned due to shifting cultivation and slash and burn cultivation and the lands on which trees grow naturally, or woods.

### **Q. 2. Name two states where land degradation is caused by overgrazing.**

**Answer:** Overgrazing refers to the excessive grazing of farm animals like cattle, sheep, horses and goats. Overgrazing is a major cause of land degradation because animals tear up roots along with the shoots and leaves of grasses on fertile pastures and leave the land barren and prone to erosion by wind and water. Two states in India which are affected by overgrazing are Rajasthan and Madhya Pradesh.

### **Q. 3. What does the Net Sown Area represent?**

**Answer:** Net Sown Area represents the total area of land sown once or twice in a year. The land is estimated by the sowing of crops in a year. The plains of Haryana in India have more percentage of the net sown area. This is calculated to keep track of the number of crops sown in a particular piece of land and form an estimate of the progress of agriculture and the overall economy of the country.

### **Q. 4. What are wastelands?**

**Answer:** Wastelands refer to areas of land which are unused, empty, barren and unfit for cultivation and building. It is the result of neglect, excessive cultivation and sowing of crops over long periods of time with lesser time to retain its fertility. It can also occur due to use of harmful fertilizers and chemicals which increase acidic content of the soil, killing the micro-organisms which aid in its fertility, soil erosion which is caused by loss of fertile top soil by wind and water, deforestation etc.

### **Q. 5. What should be the area under forest cover to maintain ecological balance?**

**Answer:** Ecological balance refers to the balance of ecosystems which is maintained by the abundance of forest cover, vegetation, wetlands, rivers and streams and the harmony between the living organisms such as humans, plants and animals and their environment and ensuring their survival. This balance is maintained by natural phenomena such as photosynthesis which ensures that all organisms are coexisting. Humans must understand their role in maintaining the ecological balance by practicing sustained development, protecting the environment from pollution and degradation due to their activities which hinder the natural balance. The percentage of forest cover which maintains ecological balance is 33%.

### **Check Point 03**

**Q. 1. Which is the most widespread soil in India?**

**Answer:** Among the soils of India, alluvial soil is the most widely spread soil. This is due to its natural fertility and abundance in the river valleys and plains which constitute a major part of arable land in India. This soil contains adequate amounts of humus, potash, lime and phosphoric acid which is suitable for cultivation and bountiful harvests. It supports the growth of a wide variety of crops like sugarcane, rice, pulses etc. which are the basic foods of Indians.

**Q. 2. Which soil is found in Deccan plateau?**

**Answer:** Black soil or regur soil is found in the Deccan Plateau in India. It is a soil formed by the flow of lava. These soils have a rich black colour due to the abundance of lime, iron, magnesium, aluminium, and potassium. It has a clayey texture which is likely influenced by the climate. It has a high water retaining capacity, swells to become sticky due to monsoons and develops cracks when it is dry.

**Q. 3. What restricts the infiltration of water in desert soil?**

**Answer:** Arid or desert soils are found in deserts. These soils are formed by wind activities and are sandy in nature. It lacks moisture and humus due to the dry climate and high temperature which causes rapid evaporation. It is infertile and saline due to lack of rainfall. Due to the high quantity of calcium carbonates and sodium, kankar is formed and restricts infiltration of water in the soil.

**Q. 4. Name a method that can prevent soil erosion in non-slope areas or plains?**

**Answer:** A method by which soil erosion can be prevented in non-slope areas is cover cropping. This process involves planting crops like corn, cereal, and oats to protect the fertile top soil from being washed or blown away by rainfall and winds. This method can be done between periods of harvesting and re-sowing of principal crops to aid income, reduce the loss of arable land and barrenness. It also enables the farmer to remove excess weeds. It also enables nitrogen fixing, improving quality and texture of the soil.

### **Self Assessment**

**Q. 1. Write down different methods of checking soil erosion.**

**Answer:** Different methods to check soil erosion are:

**(i) Control overgrazing by livestock-** Cattle, sheep, goats and other livestock tear up roots from the soil and ruining the texture and leave the land barren and exposed to wind and rain.

**(ii) Mixed Cropping-** it involves growing a variety of crops, mixed together. It is sown in rows or in regular intervals to prevent the soil from erosion.

**(iii) Plant trees-** Planting trees help to break wind and guard the soil against erosion. It also binds the soil with its deep roots and regulates the climate of a place by bringing sufficient rainfall.

**(iv) Terracing-** Terraces are built on steep slopes to control soil erosion. It levels the soil and supports are built to prevent landslides. It requires skill and hard labour to build it.

**(v) Ploughing of Contours-** It involves ploughing the land along the contour line to protect the soil from surface run-off by water.

**Q. 2. Overgrazing may cause land degradation. Give examples of some states affected by this.**

**Answer:** Gujarat, Rajasthan, Madhya Pradesh are some states affected by overgrazing. These states are growing fast in terms of agriculture and industry, and energy. Land degradation, however, is a major hindrance on the road to progress in these states. This is due to the large growth of population, rapid urban growth which has placed stress on the fertile lands, following intensive agricultural practices, heavy use of fertilizers, overgrazing, deforestation, etc. Overgrazing is a major cause of land degradation due to loss of protective cover of crops, grass and other plants by livestock, to aid in income and industry.

**Q. 3. Differentiate current fallow land from another fallow land.**

**Answer:**

<b>Current Fallow Land</b>	<b>Other Fallow Land</b>
(i) It is left fallow for a period of one year.	(i) It is left fallow for a period of one to five years.
(ii) It is done is to cultivate permanent crops.	(ii) It is done to cultivate temporary crops.

**Q. 4. What is the comparative change in barren and waste land pattern in India between 1960-61 and 2008-09?**

**Answer:** Barren and wasteland in India decreased by 12.01% to 8.61% between 1960-61 and 2008-09. This was caused due to massive efforts by the government of India. They have introduced new farming techniques and irrigation like the introduction of HIV seeds, use of tractors and ploughing machines to harvest crops and other such technologies to increase the rate of income of farmers. Other methods include the use of wastelands for agricultural activities to increase net sown areas, the uncertainty of current fallow techniques which depend on rainfall and sowing of regular crops, encroachment of rural and urban settlements which place undue pressure on wastelands.

**Q. 5. Differentiate Net sown Area from cultivable land?**

**Answer:**

<b>Net Sown Area</b>	<b>Cultivable Land</b>
(i) It refers to the total areas of land which are sown with crops and vegetation.	(i) It consists of net sown area, fallow lands, and culturable wastelands.
(ii) It calculates the total area of crops sown in a year.	(ii) It is an estimate of areas which are suitable for cultivation.
(iii) Approximately 141 million hectares is the net sown area.	(iii) The area of cultivable land is subject to change and is shrinking in recent years due to the building of industries, roads etc.

**Q. 6. Distinguish between khadar and Bangar soils.**

**Answer:**

<b>Khadar</b>	<b>Bhangar</b>
(i) It consists of newer deposits of alluvial soil. The soil is renewed every year.	(i) Consists of older deposits of alluvial soil. Alluvium deposits are frequent without renewal.
(ii) It is found on the flood plains, near the bottom of the valleys.	(ii) It is found in large parts of Northern plains near 30 metres above sea level.
(ii) More fertile in nature, finer in texture	(iii) Less fertile in nature, coarse in texture
(iv) It is known as dhaya in Punjab.	(iv) It is known as a bet in Punjab.

**Q. 7. How is red soil different from laterite soil?**

**Answer:**

<b>Red Soil</b>	<b>Laterite Soil</b>
(i) The rocks that lead to the formation of red soil are granites, gneisses and quartzite.	(i) They are formed by weathering of rocks.
(ii) Rich in potash and potassium.	(ii) Rich in ferric oxides
(iii) It is found in Madhya Pradesh, Chota Nagpur Plateau, Karnataka, Andhra Pradesh and others.	(iii) It is found on summits of Eastern and the Western Ghats, Malwa Plateau, Vindhyan Ranges, Maharashtra, and parts of Karnataka.
(iv) It is suitable for growing wheat, rice, pulses, tobacco with the proper use of fertilizers and irrigation.	(iv) It is suitable for growing tea, coffee, coconut, rubber with manure and proper irrigation.

**Q. 8. State the different causes of soil erosion pertaining to the following region and suggest remedial measures for the same.**

**(a) Mountainous regions**

**(b) Steep slopes and plateaus**

**(c) Coastal areas**

**(d) Desert areas**

**(e) River plains**

**Answer: (a) mountainous regions**

**Cause:** Lack of trees lead to loosening of soil which gets washed away due to rainfall and wind

**Remedy:** Afforestation

**(b) Steep slopes and plateaus**

**Cause:** Lack of trees lead to loosening of soil which gets washed away due to rainfall and wind

**Remedy:** Afforestation

**(c) Coastal areas**

**Cause:** caused by hydraulic action, abrasion, impact and corrosion by wind, water, and other forces, natural or unnatural.

**Remedy:** Reduce human interference

**(d) Desert areas**

**Cause:** Desert areas are largely affected by winds as there is little vegetation to hold the soil.

**Remedy:** Change land-use pattern and reduce overgrazing and conversion into agricultural lands.

**(e) River plains**

**Causes:** Pollution of river bodies, encroachment of river banks

**Remedy:** Prevent urbanisation very close to river bodies, prevent dumping of wastes into the river bodies.

**Q. 9. Why is it important to have a planned strategy for the developing of resources in India?**

**Answer:** It is important to have a planned strategy for the development of resources because, in a country like India, there is a vast population and uneven distribution of resources. To make good use to the available resources, there must be good planning, by keeping in mind the technology, skills and economy required to resolve the problems of lack and enhance all areas of development. In India, therefore, its first Five Year Plan essentially includes Resource Planning. Through resource planning, the wastage caused over-consumption of resources, followed by our socio-economic problems can be prevented by the conservation of resources. Leaders like Gandhiji believed that modern technology caused massive exploitation and extinction of resources.

**Q. 10. "Indiscriminate used of resources has led to numerous problems". Justify the statements in three points.**

**Answer:** The statement is justified because:

**(i)** Exploitation of resources by greedy and powerful people lead to a massive depletion of resource and deprives the weak and future generation.

**(ii)** There is an unequal distribution of resources in every state, leading to excessive development in some areas and severe lack in others. Even the society has been divided on the basis of economy and facilities available.

**(iii)** Unplanned and unchecked use of resources has also resulted in problems which are shared by all the countries of the world. This includes environmental degradation, global warming, pollution, depletion of the ozone layer, etc.

**Q. 11. Explain how deforestation is responsible for land degradation and soil erosion.**

**Answer:** Deforestation occurs when there is excessive felling of trees and to clearing large forests for agricultural practices and building settlements and industries or mining for valuable minerals in the earth's crust. This leads to soil erosion and land degradation because deforestation leaves the soil bare and prone to erosion by wind and water, and

the fertility of the soil is also lost due to human activities. Also, the lack of trees to regulate the rainfall and the overall climate of a region results in desertification because there is no physical barrier against loss of top soil which aids in healthy growth of crops and vegetation for survival.

**Q. 12. Discuss the importance of soil for human beings.**

**Answer:** Soil is a valuable natural resource because it gives life to this planet. Since food is one of the basic needs for survival, fertile soil provides good crops for human consumption, stores water and filters it for the growth of vegetation and crops. Humans also use soil to build houses and towns, store waste, get fuel and energy for daily needs, and make clothing and extract water for daily consumption and growth of various industries. The progress of a country depends on soil, and it is also the home to various ecosystems which maintains the ecological balance of the world. It helps regulate the overall temperature and climate by the growth of trees and vegetation and maintains biodiversity.

**Q. 13. Why did the colonial government never try to conserve resources?**

**Answer:** The colonial government never tried to conserve resources because they were utilising them on a massive scale to aid in their growth and progress of industries and trade. Trade was the means by which the British government gained control of India and in order to meet the growing demands of trade and commerce, and increase imperial power, the colonial government exploited various natural resources of India including felling of trees for building ships to boost trade, clearing forests to build railroads for communication and transportation of goods, supplies, ammunition and soldiers across the country.

**Q. 14. Mentions any four characteristics of forest soils.**

**Answer:** Forest soils are found in mountainous regions where there is an abundance of forests. Frequent rains have made this soil very fertile and rich with humus. The nature and texture of the forest soils vary due to climate. Some other characteristics are:

- (i)** Some soils are dry, sandy, and unstable due to winds on the plains of the Indus valley.
- (ii)** Soils in the Northern and Central Zones of India are alluvial in nature, and some are red soils. Other types include laterite and black soils which are prevalent in Maharashtra and Orissa.
- (iii)** In the Southern regions, the soils have originated due to various geological phenomena like weathering of rocks etc. The soil is dry and shallow. Black cotton soil is also available in some areas.
- (iv)** In the Eastern regions, laterite soils are common. Other types include red, alluvium, and clay. The soils are fertile because there is an abundance of fallen leaves which add



to the cycling of nutrients. The rocks from which these soils originated from are crystalline, metamorphic.

**Q. 15. Write a short note on the following topics.**

**(a) Terrace farming**

**(b) Shelter belts**

**(c) Forest or mountainous soils**

**Answer: (a) Terrace farming**

Terraces are built on steep slopes to control soil erosion. It levels the soil and supports are built to prevent landslides. It requires skill and hard labour to build it.

**(b) Shelter belts**

Shelter belts are rows of trees, usually along fence lines. Where there is a lot of cultivated land, shelter belts reduce wind erosion. They reduce wind speed and provide sheltered areas on the leeward (the side away from the wind) and windward (the side toward the wind) sides of the shelterbelt.

**(c) Forest or mountainous soils**

It covers 8% of India's total geographic area. They are loamy and silty and lack humus. They are useful for cultivating tea, spices, coffee and fruits. It is found in lower parts of valleys and hilly regions of J&K, Himachal Pradesh, Uttarakhand, etc.

**Q. 16. How does land get degraded due to human activities?**

**Answer:** Land degradation is a major problem that the environment is facing in modern times. Human activities are the major factors for degradation due to:

**(i) Over-Grazing:** Over-grazing involves the grazing of livestock like cattle, sheep, etc., over large areas of grassland and pastures. The large herds contribute to over-grazing because when they eat the grass or other shoots, they rip out the roots, leaving the land barren and infertile.

**(ii) Shifting cultivation:** It is a process of agriculture in which some areas of land are cleared for cultivation and then abandoned to retain its fertility by natural means. This practice leaves various lands unfertile and barren due to over-farming, or the excess growth of weeds.

**(iii) Jhumming:** Jhum cultivation is the name given to slash and burn method of cultivation in India. It is practiced by tribes and involves clearing up a piece of land by burning of vegetation, cutting of trees in forests to cultivate crops. After a few years of cultivation, the land is left unfertile and severe erosion occurs on the barren land.

**(iv) Deforestation:** This involves cutting trees on a massive scale to clear lands for building houses, agriculture and other human activities. It causes major land degradation because such lands become deserts due to infertility, erosion of essential soils, the extinction of some animal species etc. Rainfall is also affected drastically.

**Q. 17. Suggest measures to check soil erosion by rivers.**

**Answer:** Soil erosion by rivers can be checked by:

**(i) Planting Trees:** One of the most effective ways to control soil erosion is by planting trees or other vegetation along the shores of rivers. Trees also control the direction of winds, and the roots bind the soil to prevent it from being washed away by water.

**(ii) Building Dams:** Dams or walls can be built to control the direction of the river and prevent surface run-off of soil and prevent flooding of riverbanks and control landslides.

**(iii) Prevent land degradation:** Land degradation should be prevented in order to control soil erosion. It includes afforestation or re-planting of trees after they are cut for timber to bind the soil, contour cropping, preventing excessive grazing etc.

**(iv) Controlled Agriculture:** Practicing agriculture in a controlled way by contour cropping, well planned irrigational methods to prevent washing away of fertile top soil, use of eco-friendly fertilizers to control acidic content of the soil, etc. helps to reduce soil erosion.

**Q. 18. Discuss the basis on which soil is classified in India.**

**Answer:** Soils in India are classified as:

**(i) Alluvial Soil:** This soil is the most common type found in India. It covers about 43% of the land area. It is abundant in northern plains and river valleys, and in the peninsula. It is grey in colour, and the texture is sandy, loamy or clayey. It is highly fertile because it consists of humus, lime and other organic compounds. It is also rich in potash. These soils are mainly transported and deposited by rivers. It consists of two types of soil: Khadar or new alluvium and Bhangar which is old alluvium. The main crops which can be sown are rice, sugarcane, and pulses.

**(ii) Red Soil:** This type of soil is found mostly in areas of low rainfall. It occupies about 3.5 lakh sq. km of land. It is mostly porous, and clayey and its fertility depends on the area. It is red in colour due to iron oxide and is rich in potash and potassium. It is found in parts of Karnataka, Andhra Pradesh, Chota Nagpur Plateau, West Bengal and Uttar Pradesh. The crops that are sown on red soil are wheat, cotton, potatoes, fruits, and millets.

**(iii) Black Soil:** It is also known as regur soil. It is found in the Deccan Plateau and has a high water-retaining capacity. It is rich in iron, lime, calcium, potassium, aluminium and magnesium. It is clayey in texture and develops cracks when dried. It is best for growing cotton.

**(iv) Laterite Soil:** It is derived from the Latin word “later” which means brick. It is found in areas of high rainfall and temperature. It is red in colour due to the gravel of red sandstones. They are rich in ferric oxides and in higher places there may be a higher content of humus. It is rich in iron and aluminium. Heavy leaching occurs in this type of soil leading to its infertility. After irrigation and adding of manure, this soil is suitable for growth of tea, coffee, rubber and coconut. It also supports the growth of grazing grounds and is useful as a building material.

**(v) Desert Soil:** It is also known as arid soil. This soil occupies 4.32% of the land. It consists of Aeolian sand and clay. This soil is formed by sands blown by the wind which causes desertification of the land. Occurs in Rajasthan, Punjab and Haryana. Sandy, clay less soil occurs in the coastal regions of Orissa, Kerala and Tamil Nadu. It has very minimum organic matter and calcium carbonate and phosphate. Drought tolerant crops like pulses, cotton, barley and maize are grown on desert soil.

**(vi) Forest Soil:** This kind of soil is found in Eastern and Western Ghats. It occurs in places of high rainfall. Humus content is less leading to the acidic nature. It is suitable for tea, coffee and spices.

**(vii) Mountain Soil:** This kind of soil occupies 6.5% of land in India. This soil is mainly found on hill slopes covered by forests. It is found in the valleys of the Himalayan region on the north side. It requires a high amount of fertilizer for good crop yield. It is suitable for wheat, maize and temperate fruits.

**Q. 19. Imagine yourself as one of the heads of states attending the international Earth summits at Rio de Janeiro, Brazil in 1992. Discuss some measures taken by your country to combat environmental damage, poverty and disease.**

**Answer:** From 3<sup>rd</sup> to the 14<sup>th</sup> of June in the year 1992, Rio de Janeiro hosted the United Nations Conference on Environment and Development to discuss the state of the global environment. It concluded with the Earth Summit, and the leaders of 105 nations attended this conference to show their commitment to sustainable development. These nations

**Some measures taken by my country are:**

**(i)** Introduction of agro-industries or farm industries in the rural areas to provide employment to farmers and labourers.

**(ii)** Introduction of HIV seeds, agricultural machinery, eco-friendly fertilizers to boost the agricultural economy and better production.

**s** Spreading awareness of environmental pollution and other issues like health, sanitation, and diseases among rural and urban areas on a massive level, by rallies, movements, programs, etc.

(iv) Building organizations to protect the environment and contribute to the welfare of poverty-stricken areas, the minorities like women children and elderly, providing facilities for healthcare, education and sanitation.

(v) Undertaking steps to protect forests and promote deforestation and reforestation, preserve the wildlife of forests by building national parks and biological reserves.

(vi) Protect marine life and ocean by curbing disposal of wastes from factories, domestic waste, and litter. Taking steps to prevent oils spill from petroleum platforms.

(viii) Marshy Soil: This soil occurs in humid areas with heavy rainfall. It is black in colour and highly acidic. It occurs in Sunderbans of West Bengal, coastal regions of Tamil Nadu, Bihar and Uttrakhand.

**Q. 20. Explain the importance of conservation of resources.**

Answer: Conservation is the process in which the natural resources are cared for and protected from depletion and extinction. Renewable resources like trees and plants, water, and air can be replaced gradually. Non-renewable resources like fossil fuels, minerals and essential oils cannot be replaced as it takes millions of years to form naturally. Conservation of natural resources is necessary because as the years are passing, and the human population has increased rapidly, thereby adding to the demand and consumption of natural resources. This is placing extreme pressure on the resources, which are depleting faster than they are replaced. Through carefully planned methods and sustainable development, we can prolong the availability of natural resources for future generations. Through conservation, we can reduce wastage and maintain the biodiversity of nature and prevent natural cycles and eco-systems from getting disrupted, thus endangering our lives and that of the animal and plant species. We must not forget that animals too depend on natural resources like forests, rivers and seas to thrive. Their survival cannot be compromised in the name of development.  
**Using resources wisely will also ensure our survival and that of future generations.**

**Q. 21. Describe different idea put forward for Sustainable development.**

**Answer:** Sustainable development is a development that meets the needs of the present without compromising the ability of future generations to meet their own needs. The different ideas of sustainable development are:

(i) Save electricity by using bulbs that consume less power. Turning off lights and fans and other appliances when it is not in use, using generators that store and preserve electricity, using solar lamps as much as possible etc.

(ii) Switching to conventional sources of energy to save fossil fuels by using solar cookers, lamps, panels, wind mills, hydroelectric power plants, etc. to conserve fossil fuels and generate less pollution.

**(iii)** Practicing eco-tourism, afforestation, and agro-forestry, and developing greener and better methods of irrigation to prevent wastage of water and soil erosion by surface runoff.

**(iv)** Generating less waste by recycling and reusing materials in our daily lives. Consuming less plastic and non-biodegradable materials to reduce waste and filter it before releasing it into the environment.