

## UNIT 3: NATURAL RESOURCES

---

A resource is anything useful or can be made useful to humans to meet their needs and wants and the resource which directly available for use from nature is called natural resource. In simple way we can define natural resource as “Natural resources are resources that exist without the actions of humankind”.

WTR, 2010 define natural resources as “stocks of materials that exist in the natural environment that are both scarce and economically useful in production or consumption, either in their raw state or after a minimal amount of processing”.

According to Ramade (1984), a resource may be defined as a form of energy or matter which is essential for the functioning of the organisms, populations and ecosystem. All the ecological variables like energy, matter, space, time and diversity combinedly are referred as natural resources.

### 3.1 TYPES OF NATURAL RESOURCES

---

Natural resources vary greatly in their location, quantity and quality. Some of the resources are essential to survival, while others merely satisfy societal wants. There are numerous ways to classify the types of natural resources like:

i. **On the basis of the source of origin:**

**Biotic resources:** these resources come from living and organic material. These include forests, animals, and microorganisms and include the materials that can be obtained from them. Biotic natural resources also include fossil fuels like coal and petroleum etc. since they originate from organic matter that has decayed.

**Abiotic resources:** these resources come from non-living and inorganic material. These resources include land, fresh water, air, and heavy metals (gold, iron, copper, silver, etc.).

ii. **On the basis of the their stage of development:**

**Potential resources:** these are resources that exist in a region and may be used in the future. For example, if a country has petroleum in sedimentary rocks, it is a potential resource until it is actually drilled out of the rock and put to use.

**Actual resources:** these are resources that have been surveyed, their quantity and quality has been determined, and they are currently being used. The development of actual resources is dependent on technology.

**Reserve resources:** this is the part of an actual resource that can be developed profitably in the future.

**Stock resources:** these are resources that have been surveyed, but cannot be used due a lack of technology. An example of a stock resource is hydrogen.

iii. **On the basis of their occurrence/ ownership:**

**Individual resources:** these are resources owned by individuals privately. It includes land owned by a farmer, urban people own plots, houses and other property, plantation, pasture lands, ponds, water in wells etc.

**Community resources:** these include resources that are accessible to all the members of the community like the village grazing grounds, burial grounds, village ponds, public parks, picnic spots, playgrounds in urban areas are accessible to all the people living there.

**National resources:** these include all the resources belonging to the nation because the country has legal powers to acquire even private property for public good. Examples: All minerals, water resources, forests, wildlife, land within the political boundaries and oceanic area upto 12 nautical miles from the coast.

**International resources:** there are available to all countries and have no boundaries. It includes the sunlight, air and the oceanic resources beyond 200km of the Exclusive Economic Zone belong to open ocean.

iv. **On the basis of their utility:**

Natural resources may be forest resource, water resource, food resource, energy resource, land resource etc.

v. **On the basis of availability or exhaustibility:**

**Inexhaustible resources:** they are not likely to be exhausted by human's consumption. Example: solar energy, wind power, rainfall, power of tide, hydro power, atomic energy etc.

**Exhaustible resources:** they are likely to be exhausted upon their continuous exploitation as they have limited stock on the earth. Exhaustible resources may be non-renewable and renewable.

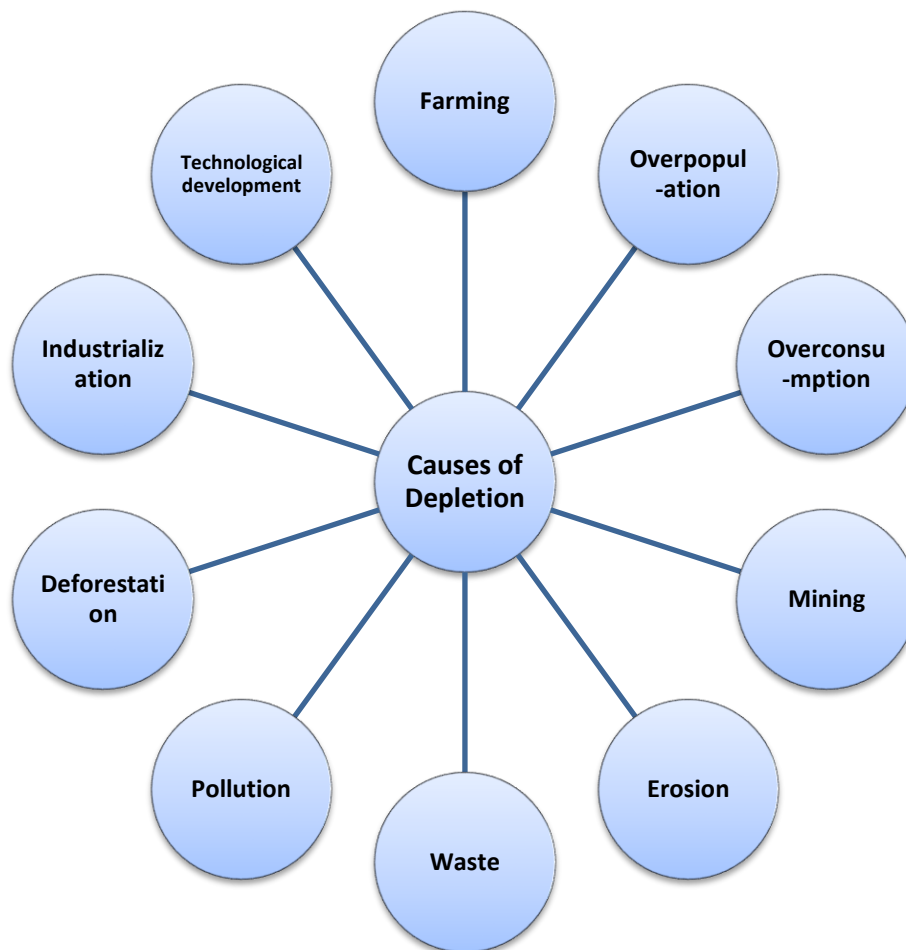
1. **Non-renewable resources:** they lack ability of recycling or replaced after a very long time. Ex. - biological species, minerals, fossils fuels etc.

2. **Renewable resources:** the resources which can be renewed and reproduced by physical, chemical or mechanical processes are known as renewable resources. Ex. - water, soil fertility, natural vegetation, wildlife, aquatic animals, humans etc.

### 3.2 DEPLETION OF NATURAL RESOURCES

---

All means of satisfying human needs, at a given time and place, are called resources. Human is not only closely associated with nature but human's progress also lies in their outright dependence on nature. Rapid increase in population has forced human to consume resources at a rate beyond their regeneration. There are many causes depletion of natural resources:



**Farming** can be a severe cause for natural resource depletion. The soil will be harmed due to unsustainable farming practices, an excessive use of fertilizers and pesticides and use of heavy machines can also destroy the soil structure.

**Overpopulation** is another cause. An increasing number of people aspire a consumption-intensive lifestyle right now.

How we deal with our **waste** is another great cause for the issue of excessive resource extraction. We just throw away our garbage without separating it. Thus, many precious resources are lost since they will be burnt instead of reusing them.

**Erosion** can also cause resource depletion in the sense that natural resources can be lost due to the erosion of soil.

Excessive **mining** behavior leads to excessive resource extraction and can also harm the local environmental system.

A modern anthropogenic activity is a major contributor of **pollution** into the natural environment. The soil, air, lakes, and seas are being contaminated with sewage, radioactive materials, toxic chemicals, and other pollutants.

**Large-scale mineral and oil exploration** has been gradually growing due to the advancements in technology, development and research in the contemporary era.

Humans are **clearing forests** for agricultural reasons, residential complexes, and industrial purposes. The World Bank reported that the net loss of global forest between 1990 and 2016 was 1.3 million square kilometers.

Through our advances in **industrialization**, we need an increasing amount of resources to develop new technologies and to supply enough things of our daily use.

**Technological development** may either save resources or contribute to resource depletion, depending on our intentions.

### 3.3 EFFECTS OF RESOURCE DEPLETION

---

1. **Air pollution:** deforestation leads to a higher level of air pollution. Industrial processes result in the emission of harmful gases.
2. **Health effects:** Resource depletion also indirectly contributes to severe health effects like, cancer and other disease.

3. **Global warming:** By processing natural resources, quite harmful greenhouse gases (ex. - CO<sub>2</sub>, methane) are emitted into the air.
4. **Loss of forests:** Deforestation, lead to a loss of forests. This problem is especially severe in the Amazonian Rainforest where huge areas of forests have been cut down in the past. Farmers often burn down forest intentionally.
5. **Extinction of animals and plants:** By extracting resources, we usually destroy the habitat of a variety of animals and plants.
6. **Depletion of elements and minerals:** If the extraction rate of natural resources stays on the levels we currently face, it is quite logical that many precious elements and minerals will be entirely depleted in the near future.
7. **Water shortages:** Due to overexploitation, industrial processes and the inappropriate disposal of waste in water bodies, water shortage will become a quite severe problem in the near future.
8. **Oil shortages:** we need great amounts of oil in our daily lives. This can lead to a massive shortage or even to the depletion of oil since oil is a fossil resource.
9. **Gas shortages:** Since we consume quite high amounts of it on a daily basis, we will likely run out of gas sooner or later.
10. **Economic effects:** The price for goods, including natural resources, is determined through supply and demand on the world market. The supply is likely to drop in the future since resources will become scarcer.

### **3.4 SOLUTION OF RESOURCE DEPLETION**

---

1. **Reduction in consumption:** One of the most obvious solutions to the resource depletion problem is a reduction in consumption.
2. **Save electricity:** we should save electricity in our daily activities whenever possible. For instance, this could mean switching off the lights when you do not urgently need it or to give up watching TV.
3. **Buy more power-efficient devices:** we should buy the energy efficient models instead of old energy intensive ones.
4. **Avoid plastic:** Plastic is made out of oil. Since oil is a non-renewable natural resource, the avoidance of plastic means saving natural resources.
5. **Fishing rules:** we can assure the sustainability of fishing and the supply with fish in the future.

- 6. Switch to public transportation facilities:** You could use public transport instead of personal car or even use your bike for short distances.
- 7. Electric cars:** Electric cars are another option for saving natural resources compared to cars using fossil fuels.
- 8. Stop deforestation:** stopping or at least doing deforestation in a sustainable way would mitigate the resource depletion issue.
- 9. Recycle and reuse:** We can all contribute to mitigate resource depletion through the recycling and reuse of old things.
- 10. Sustainable agriculture:** We have to make sure that farmers have the incentive to grow their plants in a sustainable manner in order to be able to use our farming areas for a long period of time.
- 11. Organic gardening:** If you have a garden or a balcony, you could grow your own vegetables. Thus, through organic gardening, you can make a small impact to mitigate the resource depletion issues.
- 12. Reduce waste:** you should make sure to produce as little waste as possible.
- 13. Use food efficiently:** we should take more care what and how much food we buy and make sure that we consume all of it.
- 14. Renewable energies:** The switch from fossil to renewable energies is a very important step in order to mitigate the resource depletion problem.
- 15. Government regulations:** To make sure that many measures against resource depletion are implemented, governments have to install effective control mechanisms.
- 16. Education:** We have to make sure that people understand the adverse impact of resource depletion on our global environmental system.
- 17. Convince others:** We have to show people how the depletion of resources adversely affects our planet.

The depletion of natural resources is a big problem. It has several adverse effects on humanity as well as on the whole environmental system. There are many measures that can help to prevent resource depletion. Many of them can be applied by everyone. Together, we can fight resource depletion in an efficient manner if we are willing to contribute our part.