**Natural Resources:**

 Life on this planet depends upon a large number of things and services provided by the nature, called as natural resources.

**According to Ramada**:

 In 1984 he define the natural resources such as it is the foam of energy and matter which is essential for the function of organisms, population and ecosystem.

**Classification of Natural resources:**

According to Odum (1971) natural resources can be divided into two categories:

* Renewable Resources
* Non-renewable Resources

**Renewable Resources:**

 The resources that can be replenished through rapid natural cycles, e,g : plants and animals being replaced with time to time, solar energy.

**Non-Renewable Resources:**

 The resources that cannot be replenished through natural cycle, these are of two types:-

* **Recycle:**

These are non-renewable resources which can be controlled after they are used and can be recycled. These are mainly non energy mineral resources which occurs in the earth curst (e g : copper, mercury)

* **Non-recycle:**

These are also non-renewable resources which cannot be recycled anyway. E,g:- fossile fuel and uranium which provide 90% of our energy.

**Following some examples of major natural resources are:-**

* Forest resources
* Water resources
* Minerals resources
* Energy resources
* Land resources

NATURAL RESOURCES:

Life on this planet depends upon a large number of things and services provided by the nature, which are known as Natural Resources. Thus water, air, soil, minerals, coal, forests, crops and wild life are all examples of natural resources.

Any material which is required or used to sustain life or livelihood is termed as are source.

Some examples of resources are air for breathing, water for drinking, land for living and growing food, forests for timber and paper, ores for aluminium, copper, iron and other metals and coal, oil and natural gas for producing energy.

**Natural Resources**

A natural resource is defined as a form of energy and/or matter which is essential for the functioning of organisms, populations and ecosystems.

In the case of humans, a natural resource, in his words, refers to any form of energy or matter essential for the fulfillment of physiological, socio-economic and cultural needs, both at the individual level and that of the community. Life on our planet earth depends upon a large number of things and services provided by the nature, which are known as natural resources. Water, air, soil, minerals, coal, forests, crops and wild life are all the examples of natural resources.

According to Ramade (1984), a natural resource is defined as a form of energy and/or matter, which is essential for the functioning of organisms, populations and ecosystems.

**Classification of natural resources:**

According to Odum (1971), natural resources can be divided into two categories such as

1:Renewable

2:Non renewable resources

**Renewable resources**

The resources that can be replenished through rapid natural cycles are known as renewable resource.

These resources are able to increase their abundance through reproduction and utilization of simple substances. Examples of renewable resources are plants, (crops and forests), and animals who are being replaced from time to time because they have the power of reproducing and maintain life cycles.

Some examples of renewable resources though they do not have life cycle but can be recycled are wood and wood-products, pulp products, natural rubber, fibers (e.g. cotton, jute, animal wool, silk and synthetic fibers) and leather.

In addition to these resources, water and soil are also classified as renewable resources.

Solar energy although having a finite life, as a special case, is considered as a renewable resource in as much as solar stocks are inexhaustible on the human scale.

**Non-Renewable Resources**

The resources that cannot be replenished through natural processes are known as non-renewable resources.

These are available in limited amounts, which cannot be increased. These resources include fossil fuels (petrol, coal etc.), metals (iron, copper, gold, silver, lead, zinc etc.), minerals and salts (carbonates, phosphates, nitrates etc.).

**Non-renewable resources can further be divided into two categories**

1: Re-cycleable

These are non-renewable resources, which can be collected after they are used and can be recycled. These are mainly the non-energy mineral resources, which occur in the earth’s crust (e.g. ores of aluminium, copper, mercury etc.) and deposits of fertilizer nutrients (e.g. phosphate sock and potassium and minerals used in their natural state (asbestos, clay, mica etc.)

2: Non-re cycleable

These are non-renewable resources, which cannot be recycled in any way. Examples of these are fossil fuels and uranium, which provide 90 per cent of our energy requirements

**Some authors prefer to classify resources into biotic and abiotic resources**

1: Biotic resources

These are living resources (e.g. forest, agriculture, fish andwild life) that are able to reproduce or replace them and to increase

2: Abiotic resources

These are non-living resources (e.g. petrol, land, minerals etc.) that are not able to replace themselves or do so at such a slow rate that hey are not useful to consider them in terms of the human life times.

**Following are some examples of the major natural resources:**

* Forest resources
* Water resources
* Mineral resources
* Food resources
* Energy resources
* Land resources

**FOREST RESOURCES**

It is a dense growth of trees, together with other plants, covering a large area of land.

Forests are one of the most natural resources on this earth. Covering the earth like a green blanket these forests not only produce innumerable material goods, but also provide several environmental services which are essential for life.

About 1/3rd of the world’s land area is forested which includes closed as well as open forests

The greatest loss occurred in tropical Asia where one third of the forests resources have been destroyed

**USES OF FORESTS:**

**Commercial Uses**

Many forest lands are used for mining, agriculture, grazing, and recreation and for development of dams.

**Ecological uses**

Production of oxygen

Reducing global warming

Wild life habitat

Pollution moderations

**DEFORESTATION**

The total forest area of the world in 1990 was estimated to be 7000 million hectares which was reduced to 2890 million hectares in 1975 and fell down to just 2300 million hectares by 2000.

**Major causes of Deforestation:**

Shifting cultivation

Fuel requirements

Raw materials for industrial use

Development projects

Growing food needs

Overgrazing .

.

**Water Resources**

**Water resources** are natural **resources** of **water** that are potentially useful. Uses of **water** include agricultural, industrial, household, recreational and environmental activities. All living things require **water** to grow and reproduce.

97% of the water on the Earth is salt water and only three percent is [fresh water](https://en.wikipedia.org/wiki/Fresh_water); slightly over two thirds of this is frozen in [glaciers](https://en.wikipedia.org/wiki/Glacier) and [polar](https://en.wikipedia.org/wiki/Polar_climate) [ice caps](https://en.wikipedia.org/wiki/Ice_cap).[[1]](https://en.wikipedia.org/wiki/Water_resources#cite_note-USGS_dist-1) The remaining unfrozen freshwater is found mainly as groundwater, with only a small fraction present above ground or in the air.

**Source of fresh water**

Surface water

Under river flow

Groundwater

Frozen water

### **Uses of water resources**

### **Agriculture**

### It is estimated that 70% of worldwide water is used for irrigation, with 15–35% of irrigation withdrawals being unsustainable.[[6]](https://en.wikipedia.org/wiki/Water_resources#cite_note-WBCSD_Water_Facts_&_Trends-6) It takes around 2,000 – 3,000 litres of water to produce enough food to satisfy one person's daily dietary need.[[7]](https://en.wikipedia.org/wiki/Water_resources#cite_note-7) This is a considerable amount, when compared to that required for drinking, which is between two and five litres. To produce food for the now over 7 billion people who inhabit the planet today requires the water that would fill a canal ten metres deep, 100 metres wide and 2100 kilometres long.

###  **Industries**



A power plant in [Poland](https://en.wikipedia.org/wiki/Poland)

It is estimated that 22% of worldwide water is used in industry.[[6]](https://en.wikipedia.org/wiki/Water_resources#cite_note-WBCSD_Water_Facts_&_Trends-6) Major industrial users include hydroelectric dams, [thermoelectric power plants](https://en.wikipedia.org/wiki/Electricity_generation#Other_generation_methods), which use water for cooling, [ore](https://en.wikipedia.org/wiki/Ore) and [oil](https://en.wikipedia.org/wiki/Petroleum) refineries, which use water in chemical processes, and manufacturing plants, which use water as a solvent. Water withdrawal can be very high for certain industries, but consumption is generally much lower than that of agriculture.

**Environment**

Explicit environment water use is also a very small but growing percentage of total water use. Environmental water may include water stored in impoundments and released for environmental purposes (held environmental water), but more often is water retained in waterways through regulatory limits of abstraction.[]](https://en.wikipedia.org/wiki/Water_resources#cite_note-13) Environmental water usage includes watering of natural or artificial wetlands, artificial lakes intended to create wildlife habitat, [fish ladders](https://en.wikipedia.org/wiki/Fish_ladder), and water releases from reservoirs timed to help fish spawn, or to restore more natural flow regimes.

Like recreational usage, environmental usage is non-consumptive but may reduce the availability of water for other users at specific times and places. For example, water release from a reservoir to help fish spawn may not be available to farms upstream, and water retained in a river to maintain waterway health would not be available to water abstractors downstream.

**Land resources**

**Food resources**

Most food has its origin in plants. Some food is obtained directly from plants; but even animals that are used as food sources are raised by feeding them food derived from plants. [Cereal](https://en.wikipedia.org/wiki/Cereal) grain is a [staple food](https://en.wikipedia.org/wiki/Staple_food) that provides more food energy worldwide than any other type of crop.[[2]](https://en.wikipedia.org/wiki/Food#cite_note-2) [Corn (maize)](https://en.wikipedia.org/wiki/Maize), [wheat](https://en.wikipedia.org/wiki/Wheat), and [rice](https://en.wikipedia.org/wiki/Rice) – in all of their varieties – account for 87% of all grain production worldwide.[[3]](https://en.wikipedia.org/wiki/Food#cite_note-prodstat-3)[[4]](https://en.wikipedia.org/wiki/Food#cite_note-4)[[5]](https://en.wikipedia.org/wiki/Food#cite_note-5) Most of the grain that is produced worldwide is fed to livestock.

Some foods not from animal or plant sources include various edible [fungi](https://en.wikipedia.org/wiki/Fungi), especially [mushrooms](https://en.wikipedia.org/wiki/Mushroom). Fungi and ambient [bacteria](https://en.wikipedia.org/wiki/Bacteria) are used in the preparation of [fermented](https://en.wikipedia.org/wiki/Fermentation_%28food%29) and [pickled](https://en.wikipedia.org/wiki/Pickled)foods like [leavened](https://en.wikipedia.org/wiki/Baker%27s_yeast) [bread](https://en.wikipedia.org/wiki/Bread), [alcoholic drinks](https://en.wikipedia.org/wiki/Alcoholic_drinks), [cheese](https://en.wikipedia.org/wiki/Cheese), [pickles](https://en.wikipedia.org/wiki/Pickled_cucumber), [kombucha](https://en.wikipedia.org/wiki/Kombucha), and [yogurt](https://en.wikipedia.org/wiki/Yogurt). Another example is [blue-green algae](https://en.wikipedia.org/wiki/Blue-green_algae) such as [Spirulina](https://en.wikipedia.org/wiki/Spirulina_%28dietary_supplement%29).[[6]](https://en.wikipedia.org/wiki/Food#cite_note-6) Inorganic substances such as [salt](https://en.wikipedia.org/wiki/Salt), [baking soda](https://en.wikipedia.org/wiki/Sodium_bicarbonate) and [cream of tartar](https://en.wikipedia.org/wiki/Potassium_hydrogen_tartrate) are used to preserve or chemically alter an ingredient.

**Plants**

Many plants and plant parts are eaten as food and around 2,000 plant species are cultivated for food. Many of these plant species have several distinct [cultivars](https://en.wikipedia.org/wiki/Cultivar).[[7]](https://en.wikipedia.org/wiki/Food#cite_note-7)

[Seeds](https://en.wikipedia.org/wiki/Seed) of plants are a good source of food for animals, including humans, because they contain the nutrients necessary for the plant's initial growth, including many healthful fats, such as [omega fats](https://en.wikipedia.org/wiki/Omega-3). In fact, the majority of food consumed by human beings are seed-based foods. Edible seeds include cereals ([corn](https://en.wikipedia.org/wiki/Maize), [wheat](https://en.wikipedia.org/wiki/Wheat), [rice](https://en.wikipedia.org/wiki/Rice), [et cetera](https://en.wikipedia.org/wiki/Et_cetera)), [legumes](https://en.wikipedia.org/wiki/Legume) ([beans](https://en.wikipedia.org/wiki/Bean), [peas](https://en.wikipedia.org/wiki/Pea), [lentils](https://en.wikipedia.org/wiki/Lentil), et cetera), and [nuts](https://en.wikipedia.org/wiki/Nut_%28fruit%29).

**Animals**

Animals are used as food either directly or indirectly by the products they produce. [Meat](https://en.wikipedia.org/wiki/Meat) is an example of a direct product taken from an animal, which comes from [muscle](https://en.wikipedia.org/wiki/Muscle) systems or from [organs](https://en.wikipedia.org/wiki/Organ_%28anatomy%29).

Food products produced by animals include [milk](https://en.wikipedia.org/wiki/Milk) produced by [mammary glands](https://en.wikipedia.org/wiki/Mammary_glands), which in many cultures is drunk or processed into [dairy products](https://en.wikipedia.org/wiki/Dairy_product) (cheese, butter, etc.). In addition, birds and other animals lay [eggs](https://en.wikipedia.org/wiki/Egg_%28food%29), which are often eaten, and [bees](https://en.wikipedia.org/wiki/Bee) produce [honey](https://en.wikipedia.org/wiki/Honey), a reduced [nectar](https://en.wikipedia.org/wiki/Nectar) from flowers, which is a popular sweetener in many cultures. Some cultures [consume blood](https://en.wikipedia.org/wiki/Blood_as_food), sometimes in the form of [blood sausage](https://en.wikipedia.org/wiki/Blood_sausage), as a thickener for sauces, or in a [cured](https://en.wikipedia.org/wiki/Curing_%28food_preservation%29), [salted](https://en.wikipedia.org/wiki/Salting_%28food%29) form for times of food scarcity, and others use [blood](https://en.wikipedia.org/wiki/Blood) in stews such as [jugged hare](https://en.wikipedia.org/wiki/Jugging).

**Mineral resources**

**Definition:**

Minerals provide the material used to make most of the things of industrial- based society; roads, cars, computers, fertilizers, etc. Demand for minerals is increasing world wide as the population increases and the consumption demands of individual people increase. The mining of earth’s natural resources is, there­fore accelerating, and it has accompanying environmental consequences.

**Types of Mineral Resources:**

Minerals in general have been categorized into three classes’ fuel, metallic and non-metallic. Fuel minerals like coal, oil and natural gas have been given prime importance as they account for nearly 87% of the value of mineral production whereas metallic and non-metallic constitutes 6 to 7%.

1. **Fuel Minerals:**

Coal, oil and natural gas are the basic fossil fuel. We have good reserves for coal but are very poor in more essential fuel — oils and natural gas.

**(i) Coal:**

Proven coal reserves of the country as on January 1994 (estimated by GSI) is about 68 billion tonnes. We are mining about 250 tonnes annually and this rate is expected to go by 400 – 450 tonnes by 2010 A.D. If we could maintain our mining rate of 400 tonnes per year then the coal reserves might last for about 200 years taking proven reserves as 80 billion tonnes.

**(ii) Crude Oil (Petroleum):**

It is believed that petroleum has been formed over a period of millions of years, through conversion of remains of micro organisms living in sea, into hydrocar­bon by heat, pressure and catalytic action. The petroleum on fractional distillation and further processing provides us nu­merous products and by-products.

####  **(B) Metallic and Non-metallic Minerals:**

India is poorly endowed with mineral wealth. Except for iron ore and bauxite our share of world reserves of every other mineral is one percent or less. How­ever, there has been a phenomenal growth in production since independence. As per estimates if the present trend of production continues, we will exhaust our reserves of all the important minerals and fuels, except coal, iron ore, lime­stone and bauxite, in 25 to 30 years.