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FACULTY OF ENGINEERING AND
TECHNOLOGY

Lecture- 3

Natural Resources



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Natural Resources

Natural resources are resources that exist on planet earth independent of any human activity.

Natural resources are natural materials which are used to support life and fulfil needs of human beings.

It includes **air, water, soil, ores, coal, petroleum and all kinds of life forms such as plants, animals and microorganisms.**

On the basis of recovery rate natural resources have been classified into:

- **renewable** resources, and
- **non-renewable** resources.

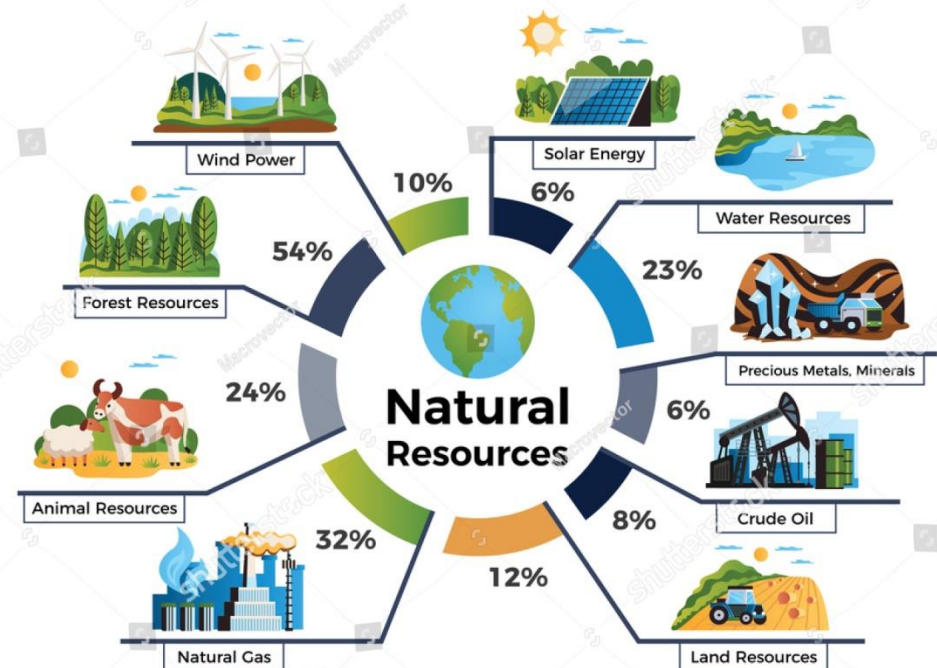


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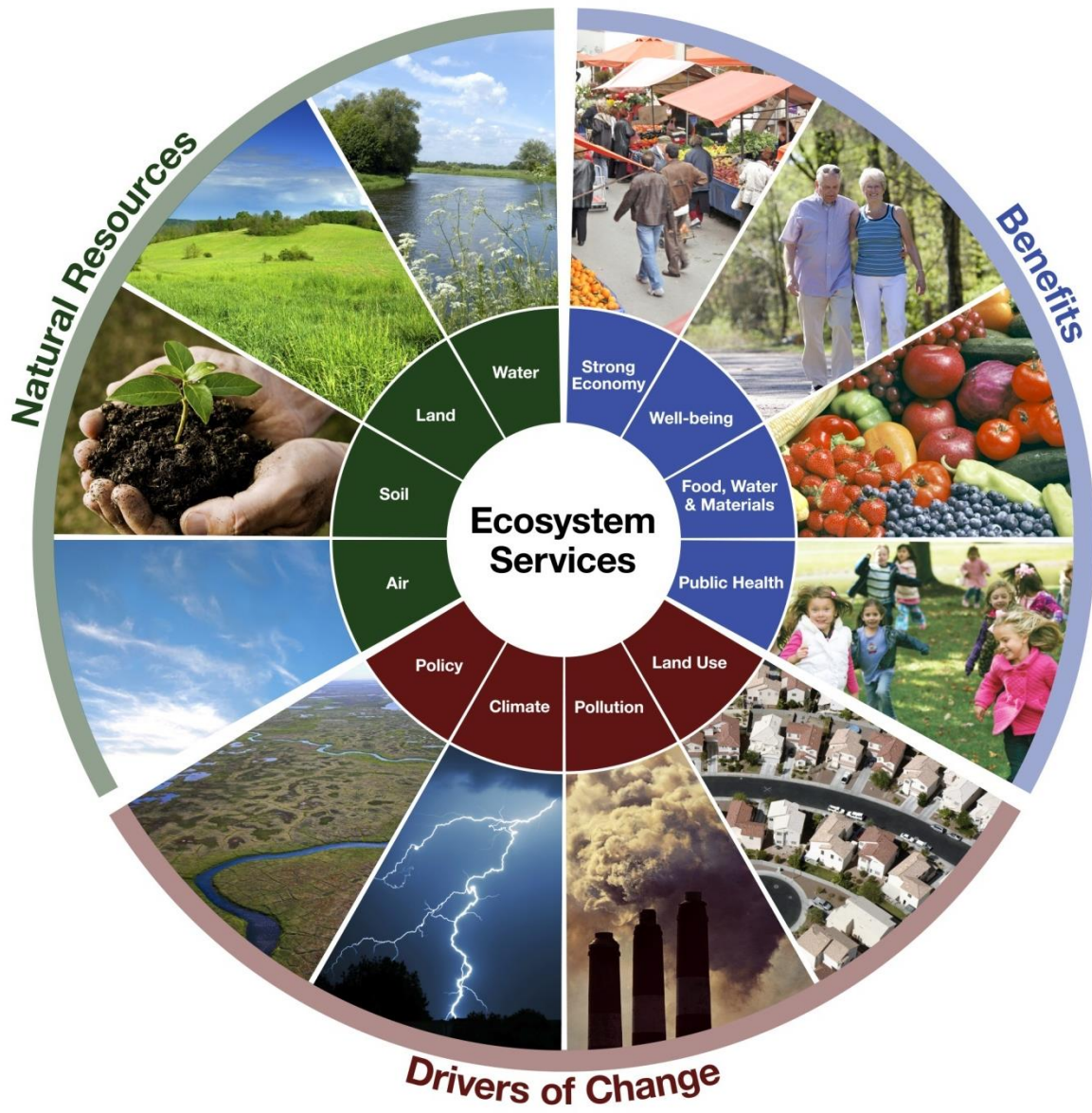


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Renewable and Non-renewable resources

	Renewable resources	Non-renewable resources
Definition	Renewable resources are those resources that can replenish or renew naturally within human life span.	Non-renewable resources are those resources that cannot be replenish or renew naturally within human life span.
Examples	Sunlight, water, soil, wind, plants, etc.	Coal, petrol, oil, diesel, metal ores, etc.

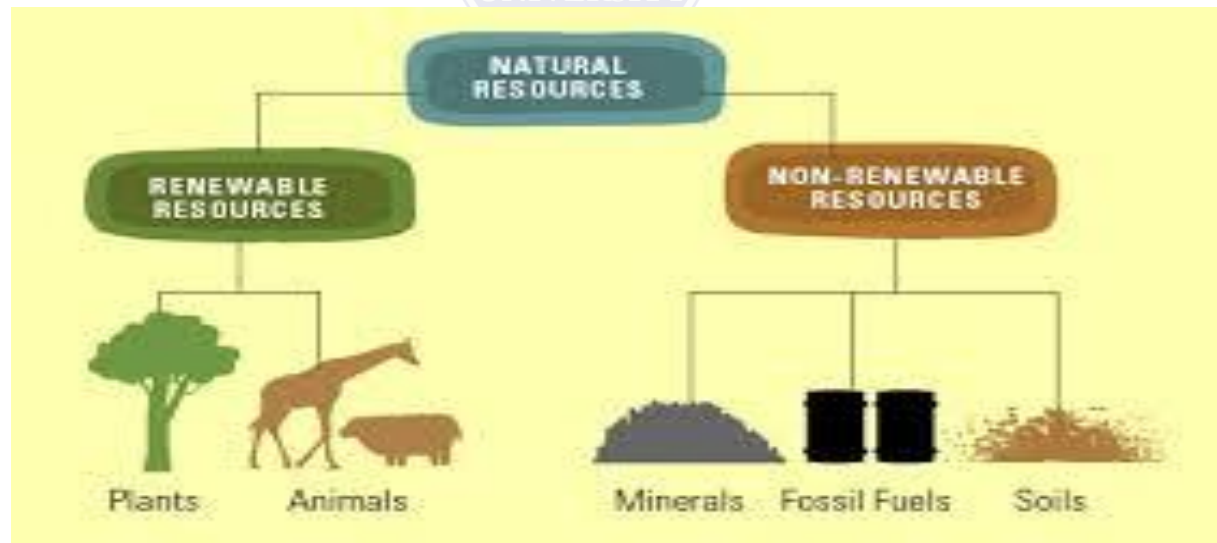


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Types of renewable resources

Forest resources

Forests are the woodland area that are homes for large number of plants, animals, and tribal people.

Forest also provide food, medicines, timber, oxygen and many other valuable things necessary for human survival.



Animal resource

Animals are productive resources that provide various food materials for human consumption such as milk, eggs, meat, etc.

Hides and silk provided by animals are used for making clothes.

Animals are also used for transportation. Some animals are often domesticated as pet like dogs, cats, etc.



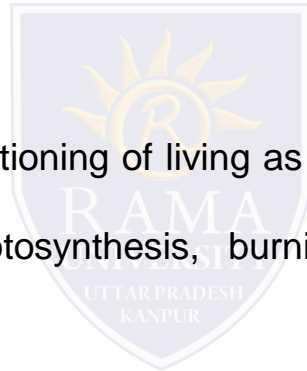
Water resource

Water is most important natural resource which is used by all living organisms to grow and reproduce. Water is a renewable resource however, its non-judicious use or over-exploitation may result in depletion.



Air resource

Air provide gases important for normal functioning of living as well as non-living processes such as breathing, photosynthesis, burning of coal, nitrogen for plant growth, etc.



It act as a medium for climatic phenomenon such as temperature, wind, etc.



Soil resource

Soil is a medium where plants grow and other terrestrial living organisms perform their activities.

Soil provides nutrients, water, and home to living organisms.



Types of non-renewable resources

Fossil fuels

Fossil fuels are formed due to the continuous heating and compressing of organic matter buried beneath the earth's surface over millions of years. The fossil fuels can be in liquid, gas or solid form.

Fossil fuels are highly combustible, hence are good source of energy.

Examples: Coal, crude oil, and natural gas.

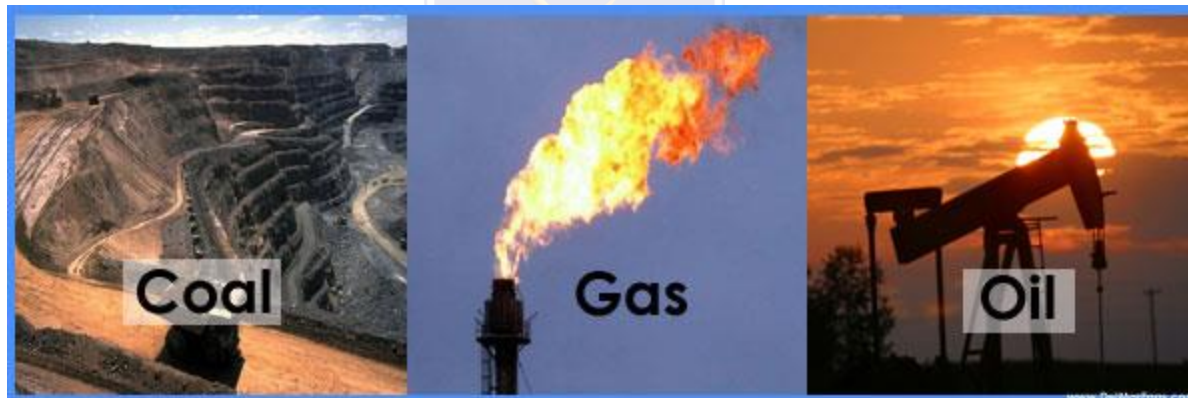


Figure source: <https://images.app.goo.gl/iGf7aBqt82CPLef47>

Crude oil- It is also known as petroleum oil and it is extracted from earth in liquid form. It is refined to produce various products such as **diesel, gasoline, jet fuel, paraffin wax, heating oil, etc.**

Natural gas- Natural gas is a mixture of gases mainly constituting **methane**, with small percentage of carbon dioxide, nitrogen, hydrogen sulphide and helium; and higher alkanes.

Coal- Coal is combustible black material containing carbon and hydrocarbon. The main types of coals are **anthracite**, **lignite**, **bituminous** and **sub-bituminous coal**.



Figure source: <https://images.app.goo.gl/qAQ8hxXSQp9GuvfN8>

Minerals

Earth minerals and metal ores like gold, silver, iron and even Uranium used for production of nuclear energy are non-renewable resources as they are formed from geological processes that take millions of years.



Figure source: <https://images.app.goo.gl/vPMN4xThoa42h7LJ9>

Natural resources and associated problems

The major problems associated with natural resources are:

- Deforestation
- Pollution
- Climate change
- National and international disputes over water resources
- Food scarcity
- Land degradation and desertification
- Displacement of human beings and wildlife
- Loss of biodiversity
- Increased frequency of natural calamities such as floods, droughts, landslides, etc.

