

SEMESTER III –MAJOR BASED ELECTIVE 1V  
GEOGRAPHY OF ECONOMIC ACTIVITIES  
CODE-18KP3GELG4Credit - 4

Hours – 6

**UNIT I:** Concept of Natural Resources –  
Meaning, Definition,  
Importance and Characteristics  
Types of resources -  
Renewable & Non-renewable resources  
Factors affecting utilization of resources  
Resource conservation

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## Concept of Natural Resources

- Human geography evolved from physical geography, when the geographers realized that resource can't be studied in isolation from humans.
- Then, came the question of establishing a branch of geography which could study the economical relation of the human with the nature in a given spatial dimensions.
- These gave birth to resource geography, which studies not only the natural resources, but also provides a spatial analysis to the resources in context to the human economical needs.

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### Meaning & Definition

- Any component of the natural environment that can be utilized by man to promote his welfare is considered as a natural resource.
- The natural resource can be a substance, an energy unit or a natural process or phenomenon.
- Ramade (1984: 9) defined resource as "a form of energy and/or matter which is essential for the functioning of organisms, populations and ecosystems". A resource in his words is "any form of energy or matter essential for the fulfillment of physiological, socioeconomic and cultural needs, both at the individual level and that of the community"

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- Natural resources are found in the environment and are developed without the intervention of humans. Common examples of natural resources include air, sunlight, water, soil, stone, plants, animals, and fossil fuels.
- The natural resources are naturally occurring materials that are useful to man or could be useful under conceivable technological, economic or social circumstances or supplies drawn from the earth supplies such as food, building and clothing materials, fertilizers, metals, water, and geothermal power.

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## Importance and Characteristics

Natural resources are only the part of sum total of environment condition that forms the human existence. These resources are used to fulfil the physical and cultural needs of society.

Amongst the earth`s resources the following contribute significantly to human welfare: (i) Forests (ii) Water (iii) Minerals (iv) Food (v) Energy and (vi) Land

The forests are storehouse of biodiversity and provide important environmental services to mankind.

Minerals essential to our industrialized society and daily life are non-renewable resources.

It is estimated that one or more parts of about 30,000 plant species can be eaten by people; however, interestingly only 15 plant and 8 animal species supply as much as 90% of food eaten by us.

Future energy needs of rapidly expanding human population will demand the exploitation of most energy sources.

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Land itself is a major resource, needed for food production, animal husbandry, industry, and for our growing human settlements. Land as a resource is now under serious pressure due to an increasing 'land hunger'.

The quality of human life and the quality of ecosystems on earth are indicators of the sustainable use of resources. There are clear indicators of sustainable lifestyles in human life.

These three together are known as the '**Human development index**'.

The quality of the ecosystems have indicators that are more difficult to assess.

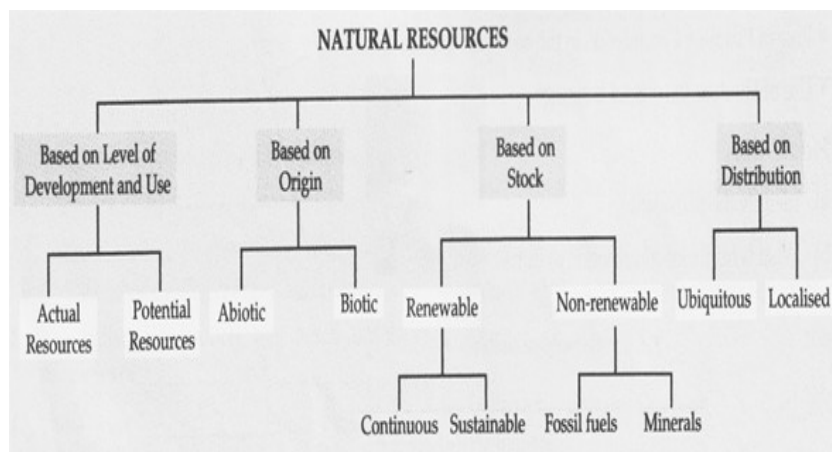
- A stabilized population.
- The long term conservation of biodiversity.
- The careful long-term use of natural resources.
- The prevention of degradation and pollution of the environment

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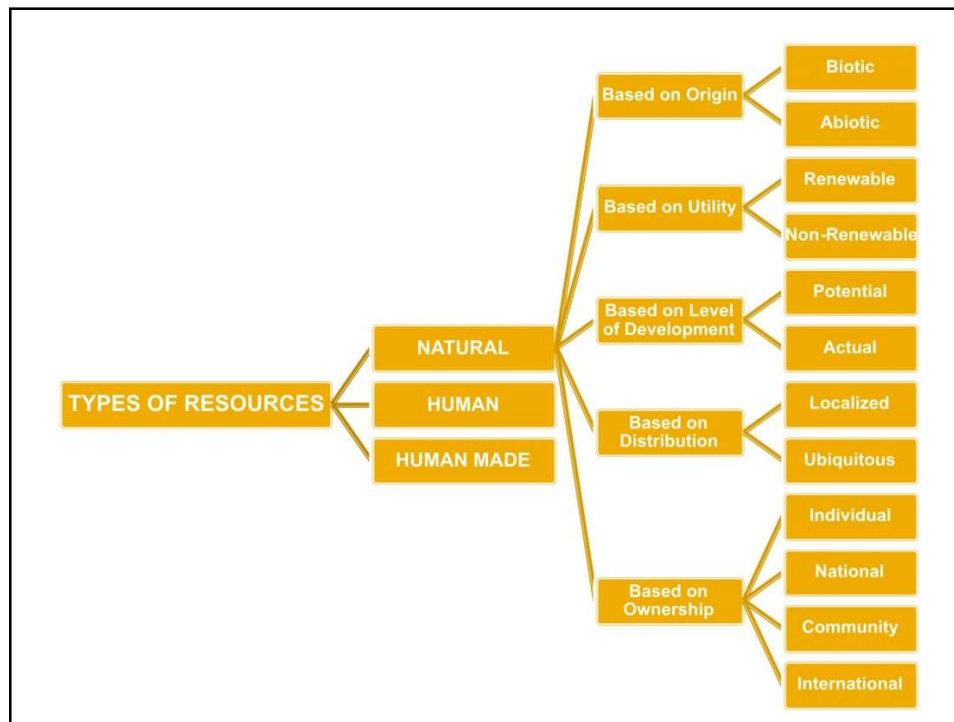
Table 1: Classification of resources. Adopted from Wacker, Blank (1999).

	Time for regeneration	Environmental resources	Energy resources	Material resources
Renewable	< 1 year, controllable by humans	Agricultural products, (non permanent) pollution of water and air	Solar energy, water, ethanol	Salt
Semirenewable	1 - 200 years, no human influence	Fish, forests, ground water, (permanent) pollution of water and air	Geothermal energy, water, firewood	
Non-renewable	No economic relevance	Ozone, endangered fauna and flora	Oil, gas, coal, uranium	Minerals, soil

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## Natural resources

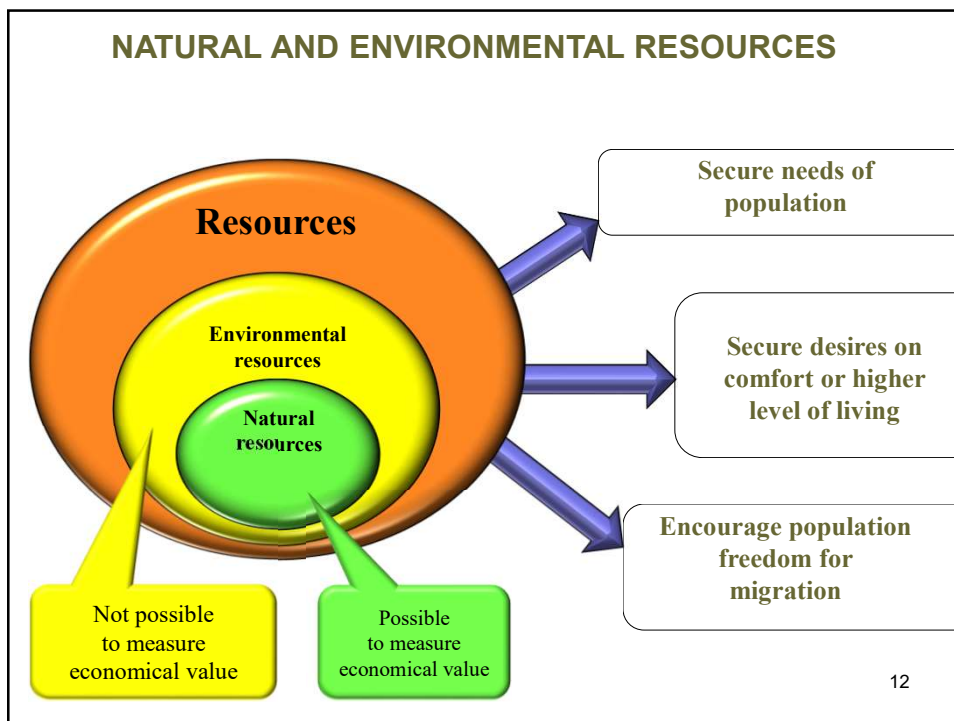
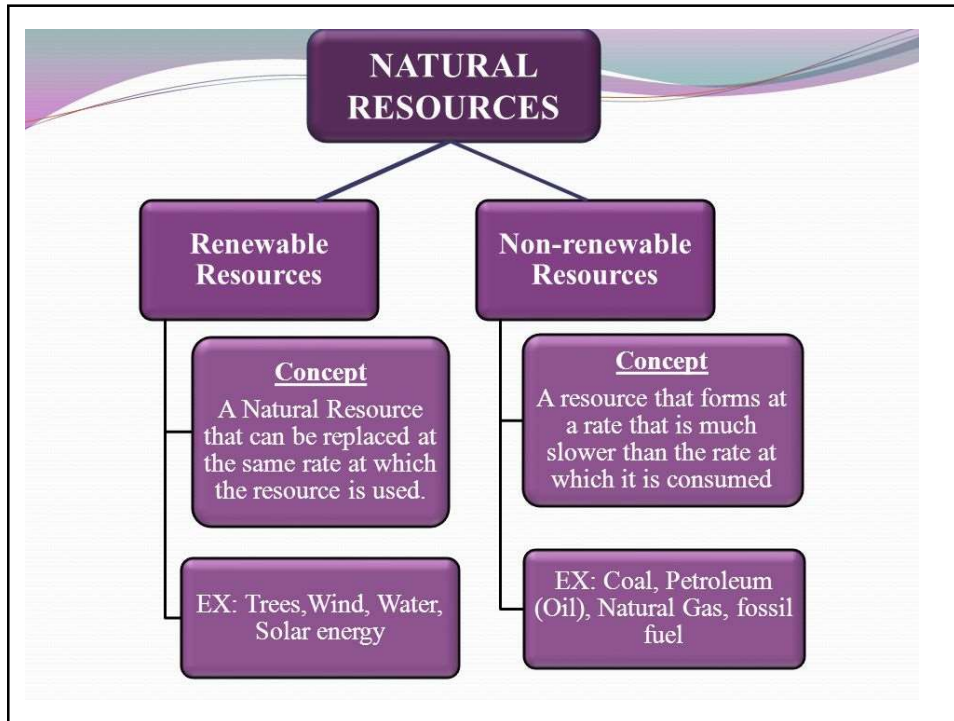
**We are rich in resources that include not only land and nature but also the people.**

**Sustainable use of resources can be ensured by good management – preservation of resources or a slower exploitation of resources so that nature can reproduce them.**

**Over a considerable period of time, the mankind has not been able to manage natural resources effectively due to the population growth, reduced access to a number of resources and over-use of the rest of natural resources.**

**With the growing number of people on our planet and technological advances, our impact on the environment will be intensify.**

**Natural resources are gifts of nature that the mankind uses or can potentially use to create material wealth, to ensure its existence and an increase of welfare.**



## VALUE OF THE ENVIRONMENTAL RESOURCES

As a rule, the economic value of environmental resources is identifiable.  
The value of environmental resources usually cannot be measured in economic categories.

Direct profit



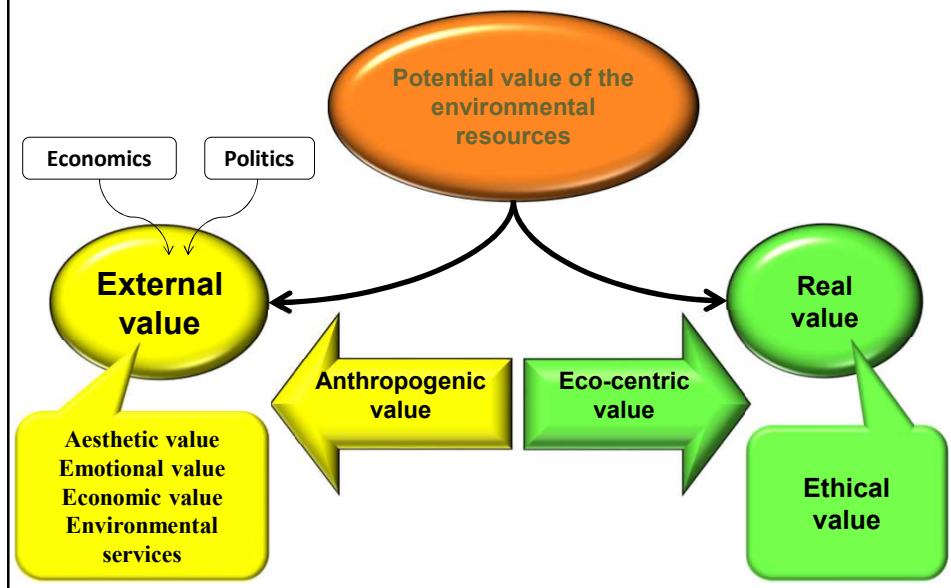
Logging

Indirect profit



Tourism

## VALUE OF THE ENVIRONMENTAL RESOURCES



## VALUE OF THE ENVIRONMENTAL RESOURCES

To convert the aggregate natural resources that are used or can be used for producing various goods into monetary value, economists use the notion 'natural capital'.



Interesting nature, historical or cultural objects, distance to them



Environmental aesthetics in interaction with real estate value

## SUSTAINABLE DEVELOPMENT PRINCIPLES FOR RESOURCES USE

Substances extracted from lithosphere, not be allowed to accumulate in lithosphere systematically.

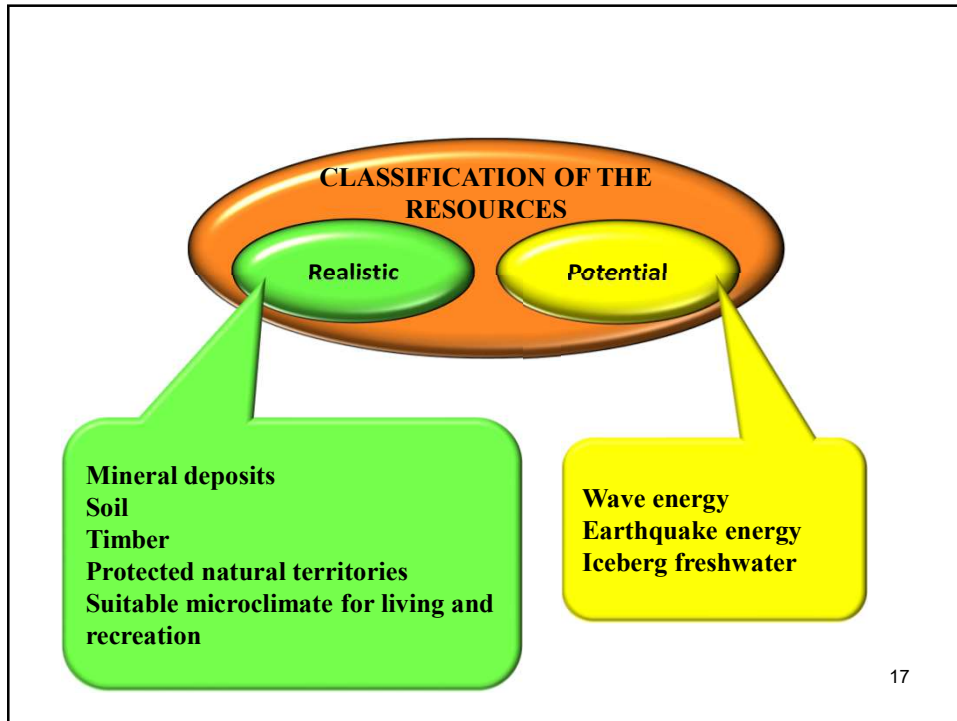
Substances produced by men not be allowed to accumulate in ecosphere systematically.

Nature and production conditions not be allowed to grow worse in ecosphere systematically.

Resources must be to use efficiently, in respect of nature and population needs.

Nature capital does not be reduced.





**POTENTIAL RESOURCES**

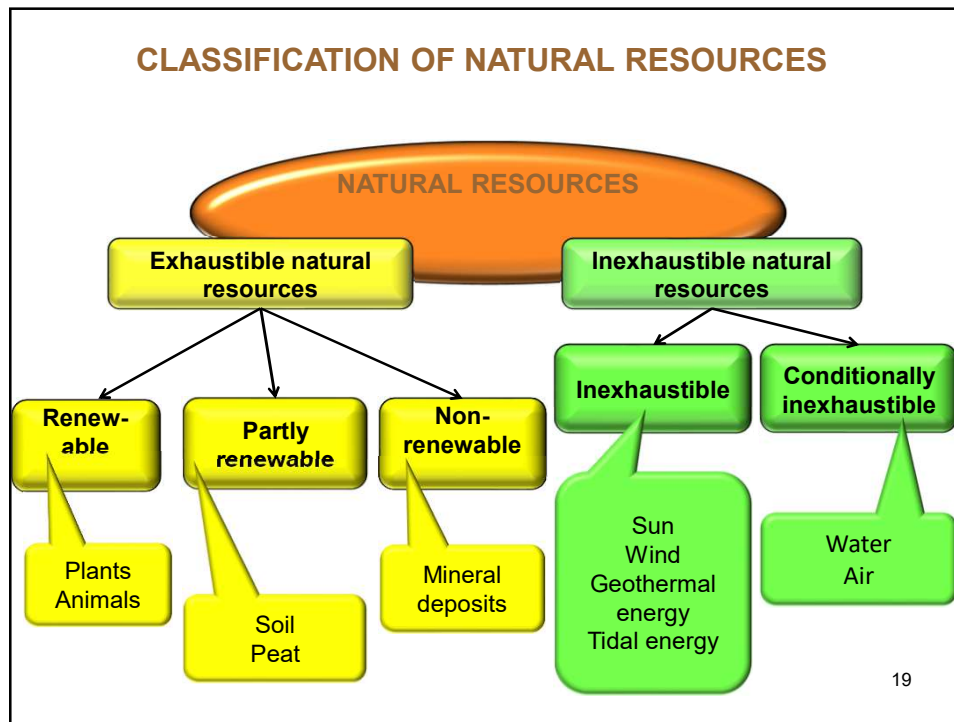
Potential natural resources include those that have not yet been discovered, sufficiently explored or whose use is not economically justified.



Receiver of the sea wave energy



Iceberg as freshwater source



### DEPLETION OF NATURAL RESOURCES

There are numerous examples of ill-considered human activities or mismanagement of natural resources when stores of some resources have been essentially diminished or destroyed.

The most dramatic example of the negative impact of human economic activity on natural resources is the decline or total extermination of populations of game animals.

It has been estimated that during the last 3 000 years **over 100 species of mammals and about 150 species** and subspecies of birds have become extinct.

In many cases animals disappear not only as a result of their extermination but also due to **environmental changes**, when the environment can no longer provide the conditions necessary for the life and reproduction of animal populations.

## Depletion of the ocean resources

Resources of the sea were long considered exhaustible renewable natural resources.

At the turn of the 20th century, the annual per capita consumption of fish was ~16 kilograms. For many peoples fish and other seafood are their principal daily sustenance.

It has been calculated that the total admissible annual harvest of fish and other sea animals in the world amounts to **85 million tons**. However, the figure was ignored until fishing exceeded the species replenishment rate.

**47–50 % of fish and other populations of sea animals have decreased so rapidly that their natural replenishment is nearly impossible;**

**15–18 % of populations are potentially endangered;**

**9–10 % have decreased but their natural replenishment is possible;**

**21 % are moderately exploited;**

**only 4 % of populations have not been affected.**

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Stone Age fish hook made from bone.

## FISHING

Fishing is the activity of trying to catch fish. Fish are normally caught in the wild. Techniques for catching fish include hand gathering, spearing, netting, angling and trapping.



Lake Pátzcuaro butterfly fishermen, Mexico



Stilts fishermen, Sri Lanka

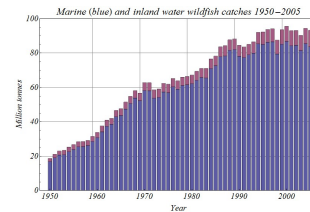


An angler on the Avon Canal, England.

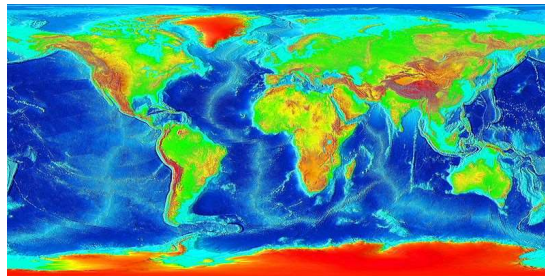
According to the Food and Agriculture Organization of the UN, total world capture fisheries production in 2000 was 86 million tons. The top producing countries were, in order: **China, Peru, Japan, United States, Chile, Indonesia, Russia, India, Thailand, Norway and Iceland**. Those countries accounted for more than **half of the world's production**. China alone accounted for a third of the world's production. Of that production, over 90% was marine and less than 10% was inland.



Spanish tuna seiner  
at the Seychelles Islands



FAO catch statistics, world catches  
1950-2005 in million tonnes



The global continental shelf,  
highlighted in cyan

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## USE OF THE NATURAL RESOURCES

As the provision of natural resources decreases, prices go up, unemployment climbs, and it is the availability of natural resources that largely dictates the migration of population, formation of new settlements and the abandonment of inhabited places in the world.

Historically, the world society has responded to a decrease in the availability of resources with a **price rise** or **replacement** of one resource with another.

For example, in Great Britain, around 1800, **in response to total deforestation people started using coal instead of firewood**, while a century later oil became the main energy resource, cheap and widely available.

The availability of all the Earth's resources is limited in a way, either due to insufficient reserves, complicated extraction or transportation, inadequate technology of extraction and processing.

Thus, a moment comes when the demand for certain resources exceeds that of their extraction.

Society responds to this by a attempts to develop the research and extraction of mineral deposits and to improve extraction technologies.

It stipulates that, with a fixed resource, **a unit of another resource(-s) will yield a progressive decline in productivity when a certain output level is exceeded.**

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### Cultivation of the rice is very labour- and water-consuming



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### Effective management of the natural resources

Many scientists stress that over a long period of time humanity has not been able to manage natural resources effectively, and this is why sustainable use of resources is required.

With the growing number of people and the development of technologies, the impact on the environment is increasing.

It is a matter of historical experience that restriction or suspension of the extraction or use of one or another resource will eventually lead to the conflict of the parties concerned.

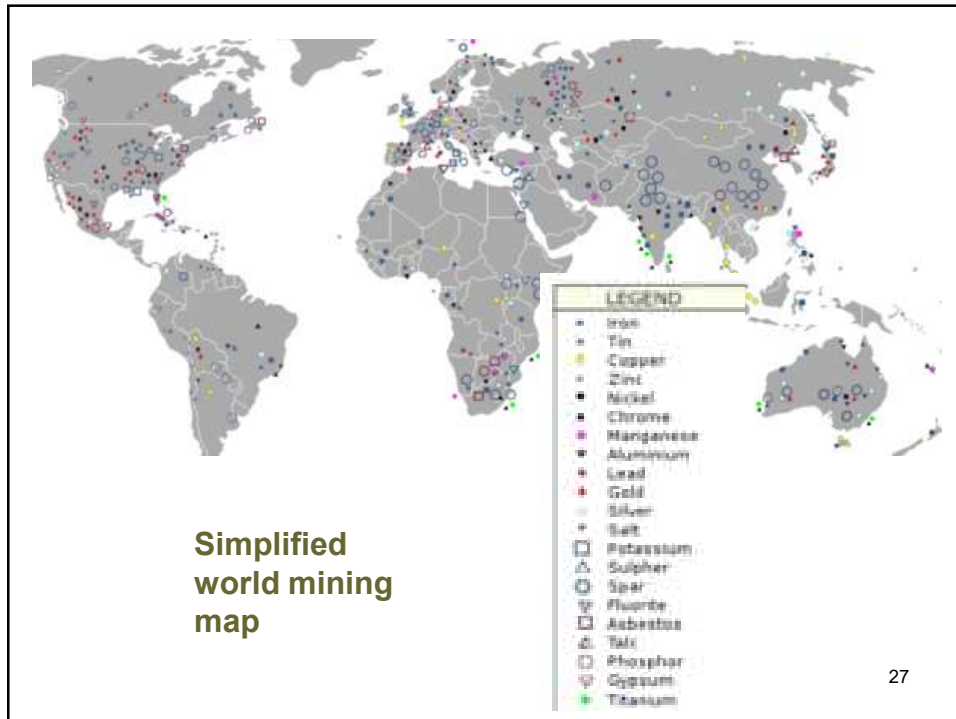
For example, the decrease in the cod population in the Baltic Sea in the early 21st century caused heated discussions about their fishing restrictions.

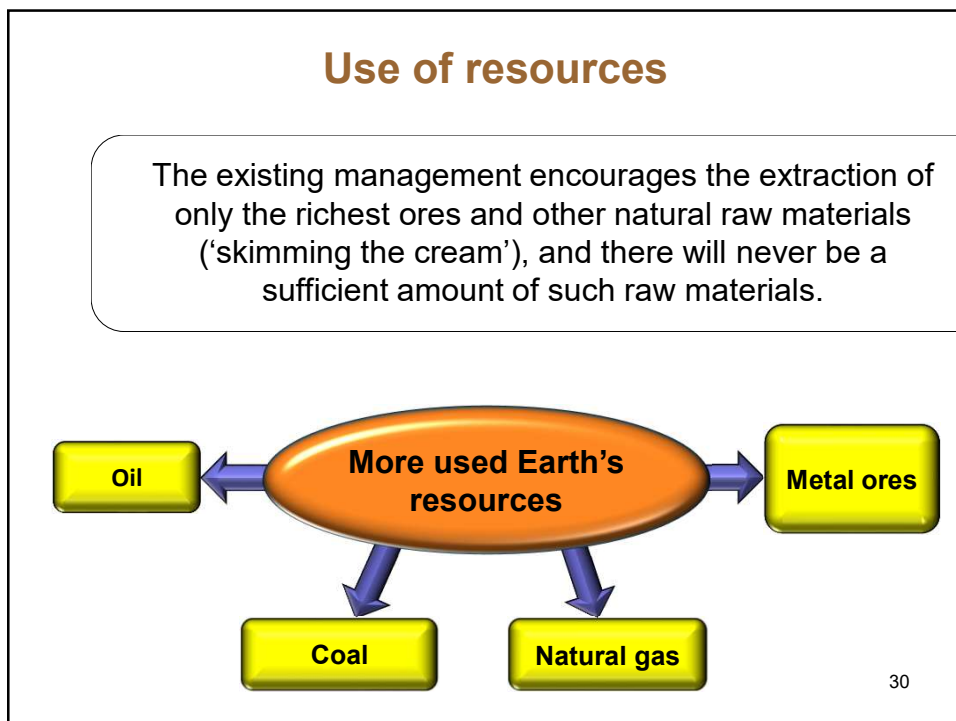
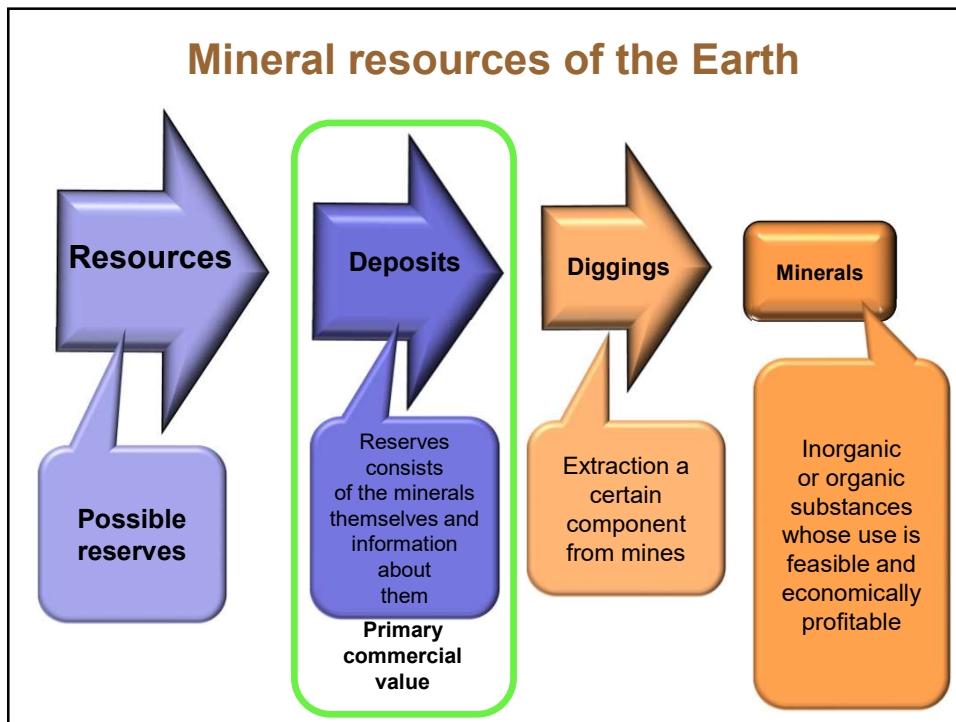
Several European Union countries maintained that cod fishing should be banned, while others considered that it should be only restricted.


Under the circumstances the European Commission adopted a compromise decision which stipulated that **cod fishing quotas will be reduced every year by 15%**.

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### Perspective of the natural resource's use

Although the modern mining industry has less impact on the land and the territories necessary for urban development and the infrastructure of transport and communications, mineral extraction leaves negative effects on the environment.

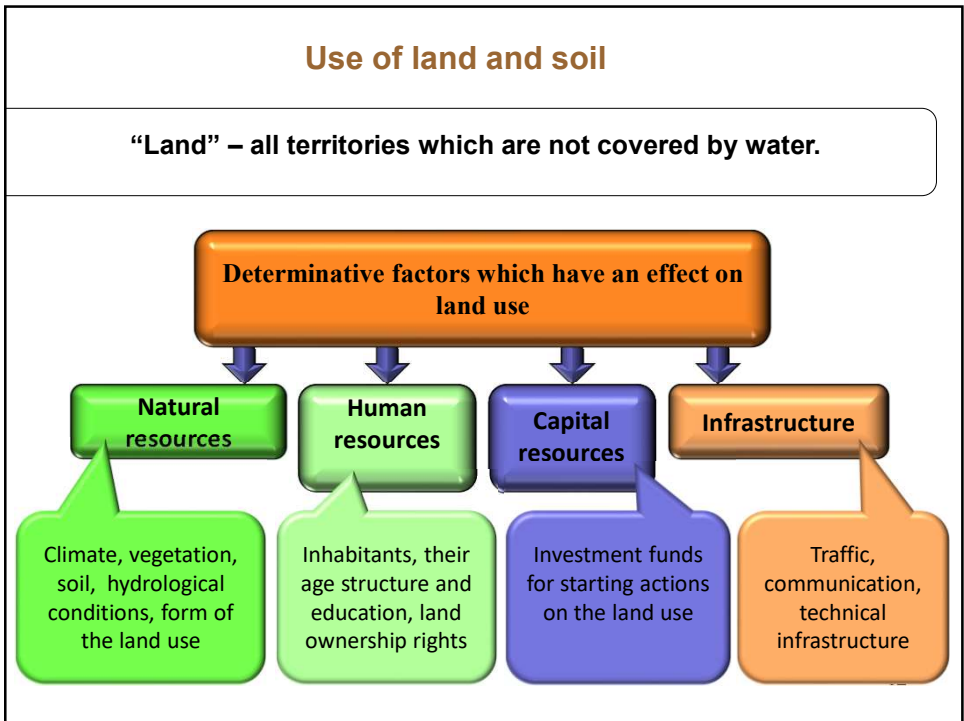
They are connected with loss of agricultural and forest lands and biotopes – in these territories, the natural table of subsurface waters is deformed, and all these territories should be treated as potentially polluted unless appropriate care has been taken of the environment there.

Iron hydroxide precipitate stains a stream receiving acid drainage from surface coal mining.

It isn't acceptable that when billions of people fighting for existence, USA, where are living ~3 % of the world population, use 20 – 25 % of all extracted mineral resources.

All developed countries where are living ~20 % of the world population, use 80 % of all fossil fuel sources.

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## SOIL RESOURCES

Soil development is a long-time, gradual and very complex process.

Soil is commonly understood as the uppermost layer of the Earth's crust formed by mineral particles, organic substances, water, air and living organisms.

Soil is the contact and interaction zone for the Earth, air and water, and the habitat for most of the biosphere.

**The fertility of soil is one of the principal factors that determine the use of land in a certain place.**

Soil properties determine the suitability of the place for:

- agricultural production, including the development of farming or cattle-breeding,
- development of forestry, including nursing of species of trees,
- laying out tourist trails,
- building playgrounds for sports.

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Non-ploughing to reduce soil erosion  
Pennsylvania, USA



Field protective zone's,  
South Dakota, USA

## Soil

Soil degradation directly affects the quality of water and air, biodiversity and climate change.

It can cause deterioration of human health and create hazard to human and animal food safety.

In the European Union, soil degradation processes and the ensuing hazards differ from country to country.

Soil degradation is a problem for all EU Member States.


**Approximately 115 million hectares or 12 % of Europe's total land territory are eroded by water, and 42 million hectares are eroded by wind.**

Nearly 45% of soils in Europe are characterised by a low content of organic matter, mostly in the southern regions, also in France, the United Kingdom and Germany.


Furthermore, there are about 3.5 million potentially polluted sites in the EU Member States.

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### Soil degradation processes



Alley agriculture (crops between scrubs), Peru



Fragmentation (belt's agriculture) Illinois, USA

At present, the total world territory of degraded land exceeds 1.9 billion hectares, which is more than the total territory of arable land.

**The largest areas of degraded land are in Asia (748 million hectares), Africa (495 million hectares) and Latin America (305 million hectares).**

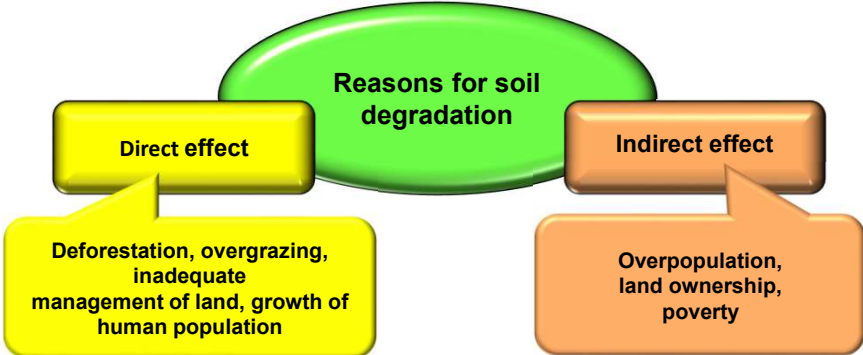
The World Resources Institute points out that nearly 40 % of the currently used agricultural lands suffer from various degrees of degradation, which presents a potential problem for the future concerning production of food for the population.

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## Soil resources

One of the most important renewable natural resources is soil – the biologically active upper layer of land with a unique property – **fertility**.

**To provide the world's population with food, it is imperative that land degradation be reduced.**



```

graph TD
    A([Reasons for soil degradation]) --- B[Direct effect]
    A --- C[Indirect effect]
    B --- D[Deforestation, overgrazing, inadequate management of land, growth of human population]
    C --- E[Overpopulation, land ownership, poverty]
    
```

## Soil resources

Desertification is a loss of natural vegetation which causes a rapid decrease in soil fertility and an eventual total extinction of the soil cover due to soil erosion.

This process involves changes in the soil moisture regimen, and soil gets salinised and compacted.

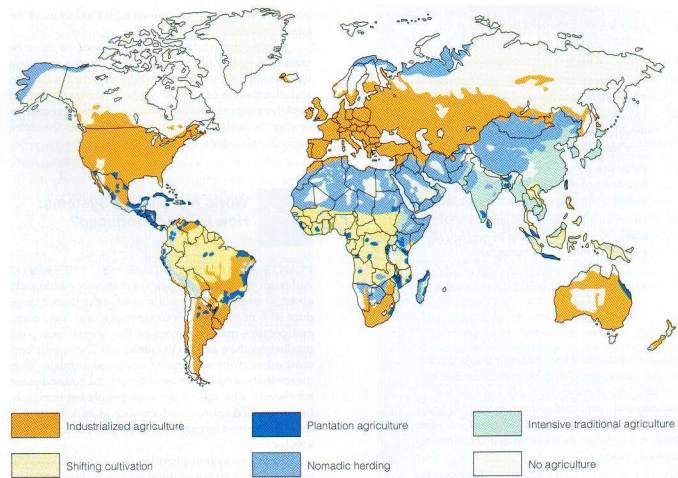


Desertification



Water erosion

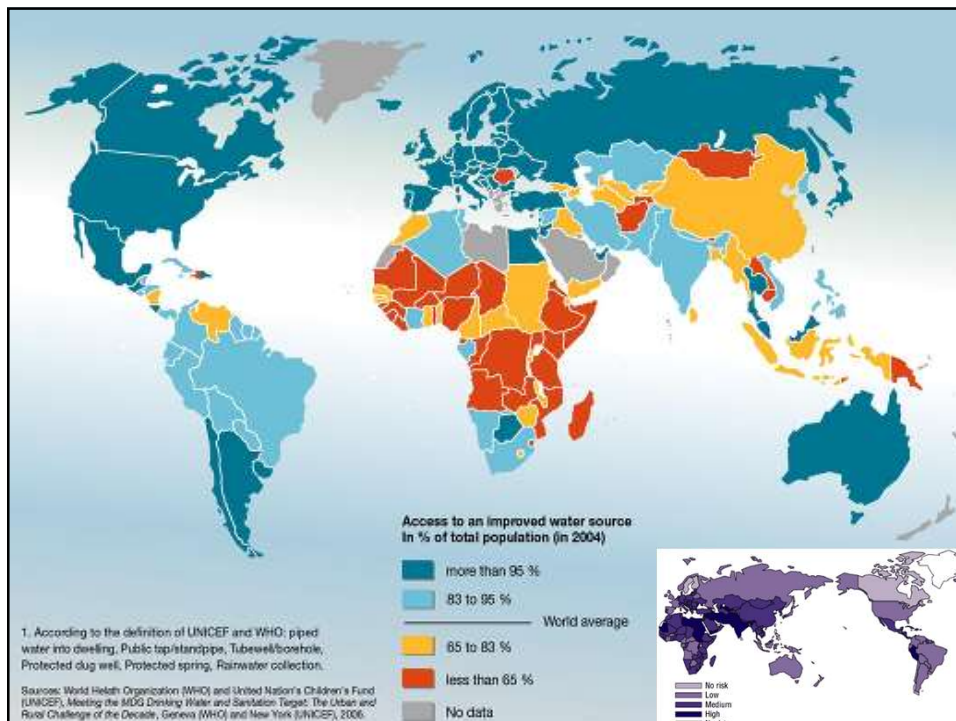
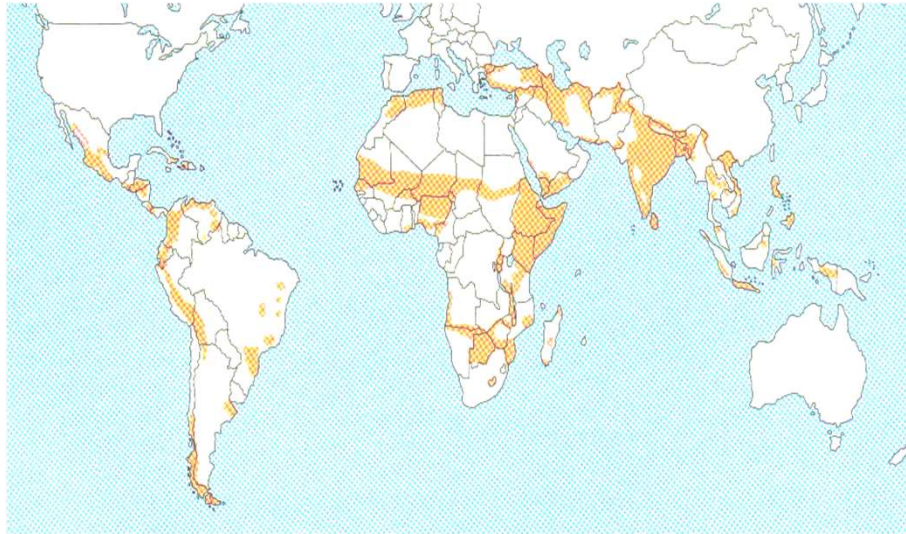
## Use of the main agricultural manners in the World



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## Territories, where population exceed soil capacity for food production



### Water poor countries

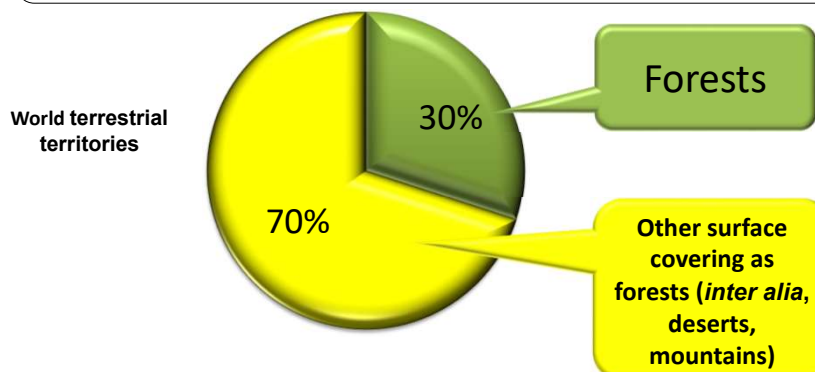
FAO Code	Country	Average precipitation 1961-1990 (km <sup>3</sup> /year)	Internal resources: surface (km <sup>3</sup> /year)	Internal resources: groundwater (km <sup>3</sup> /year)	Internal resources: overlap (km <sup>3</sup> /year)	Internal resources: total (km <sup>3</sup> /year)	External resources: natural (km <sup>3</sup> /year)	External resources: actual (km <sup>3</sup> /year)	Total resources: natural (km <sup>3</sup> /year)	Total resources: actual (km <sup>3</sup> /year)
105	Israel	9.16	0.25	0.50	0.00	0.75	0.92	0.92	1.67	1.67
112	Jordan	9.93	0.40	0.50	0.22	0.68	0.20	0.20	0.88	0.88
124	Libyan Arab Jamahiriya	98.53	0.20	0.50	0.10	0.60	0.00	0.00	0.60	0.60
136	Mauritania	94.66	0.10	0.30	0.00	0.40	11.00	11.00	11.40	11.40
35	Cape Verde	1.70	0.18	0.12	0.00	0.30	0.00	0.00	0.30	0.30
72	Djibouti	5.12	0.30	0.02	0.02	0.30	0.00	0.00	0.30	0.30
225	United Arab Emirates	6.53	0.15	0.12	0.12	0.15	0.00	0.00	0.15	0.15
179	Qatar	0.81	0.00	0.05	0.00	0.05	0.00	0.00	0.05	0.05
134	Malta	0.12	0.00	0.05	0.00	0.05	0.00	0.00	0.05	0.05
76	Gaza Strip (Palestinian Authority)	0.00	0.00	0.05	0.00	0.05	0.01	0.01	0.06	0.06
13	Bahrain	0.06	0.00	0.00	0.00	0.00	0.11	0.11	0.12	0.12
118	Kuwait	2.16	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02

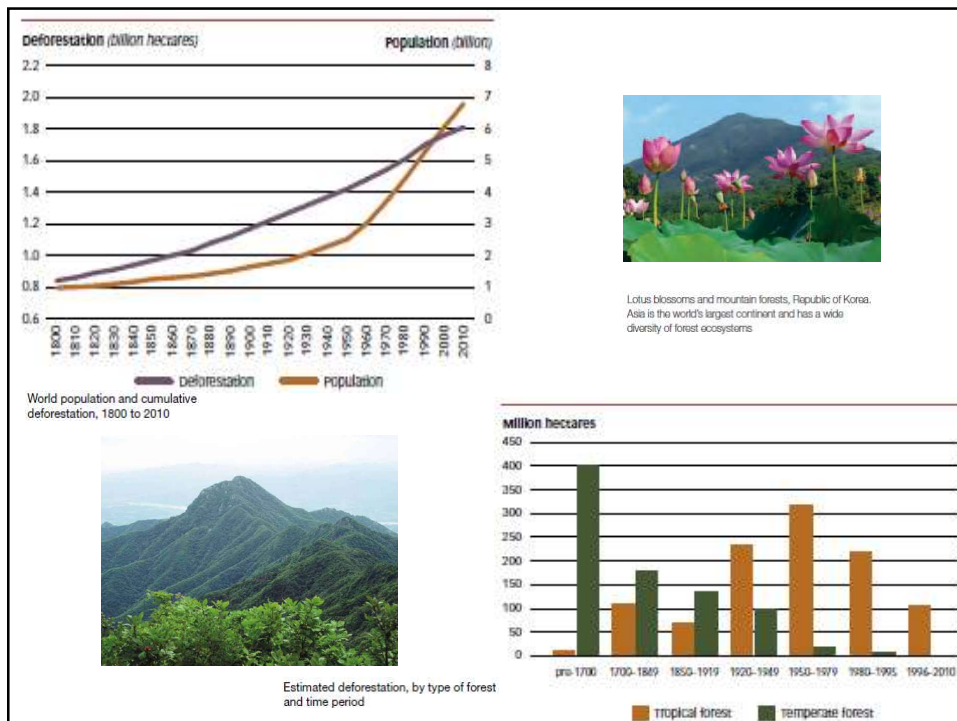
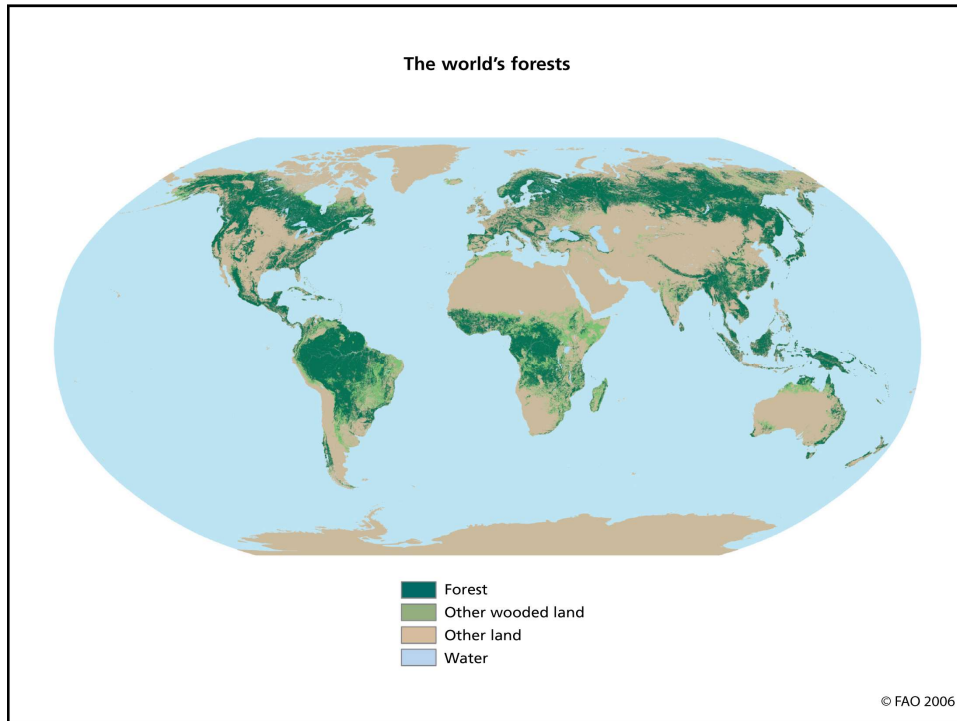
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## FOREST RESOURCES

World forests occupy about 30% of the land territory of all continents, with the exception of Antarctica.

Forest is the biggest ecosystem of the Earth's terrestrial part. The total forested area is **4.14 billion hectares**, with forests of sufficient density occupying about 3 billion hectares.







Natural forest cleared for agriculture in Aceh Province, Indonesia. Tropical deforestation has been the subject of considerable academic study

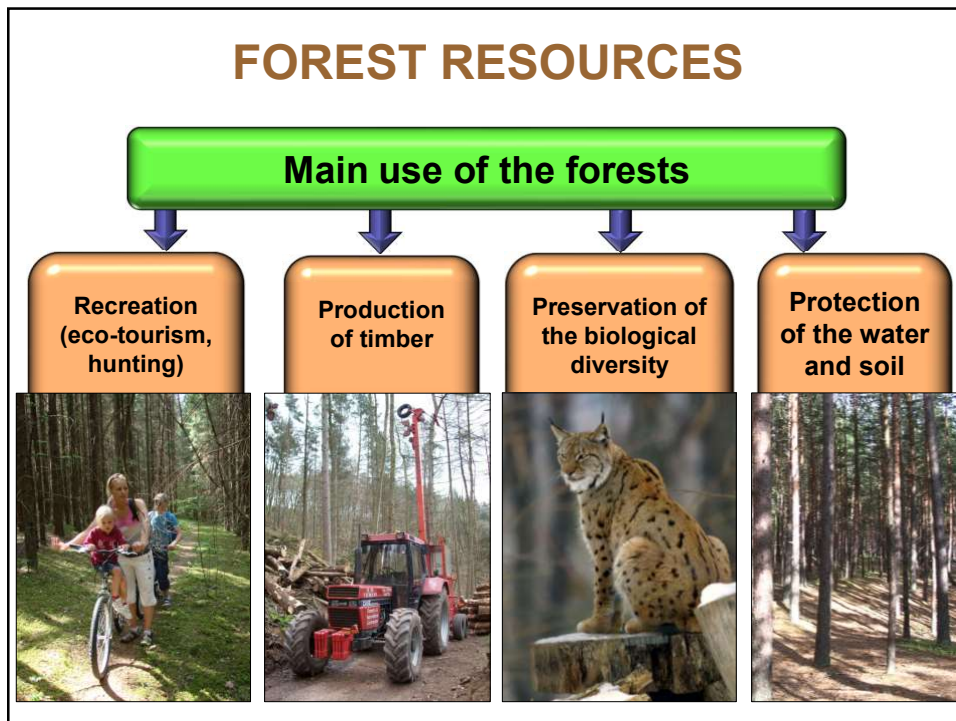


Mangrove forest destroyed by tin mining activities, Thailand. More than 60 percent of the world's major ecosystems are now degraded or used unsustainably



Wood charcoal production, Liberia. For more than 2 billion people, wood energy is critical for cooking, heating and food preservation

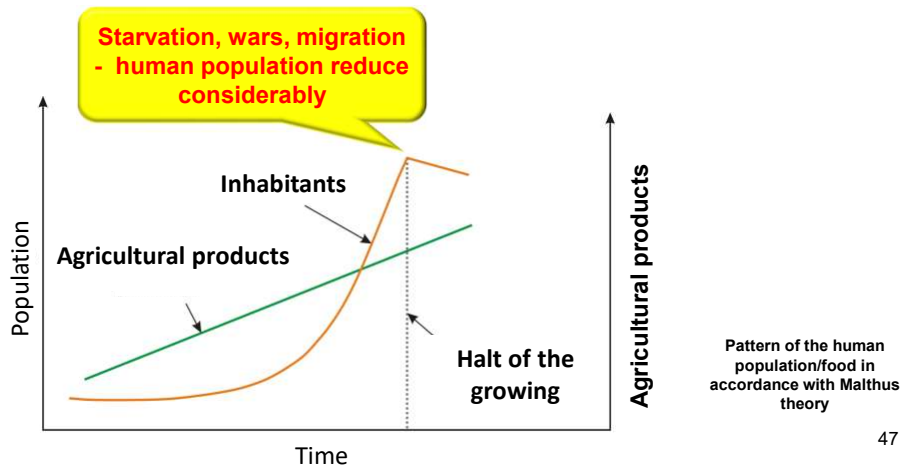
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## Depletion of the environmental and natural resources

The future economic development and growth of the human population in many countries will cause shortage of natural resources, energy, food and water significant for the development of humanity. Global society will face difficult and complex environmental challenges. Under such circumstances, it is simply common knowledge that an optimal use of one or another resource will ensure their sustainability.

In view of the economic, political and environmental interests of the numerous parties involved, any decision on the restrictions of the use of resources in the modern world should be looked upon as a remarkable success.



## FUTURE TRENDS

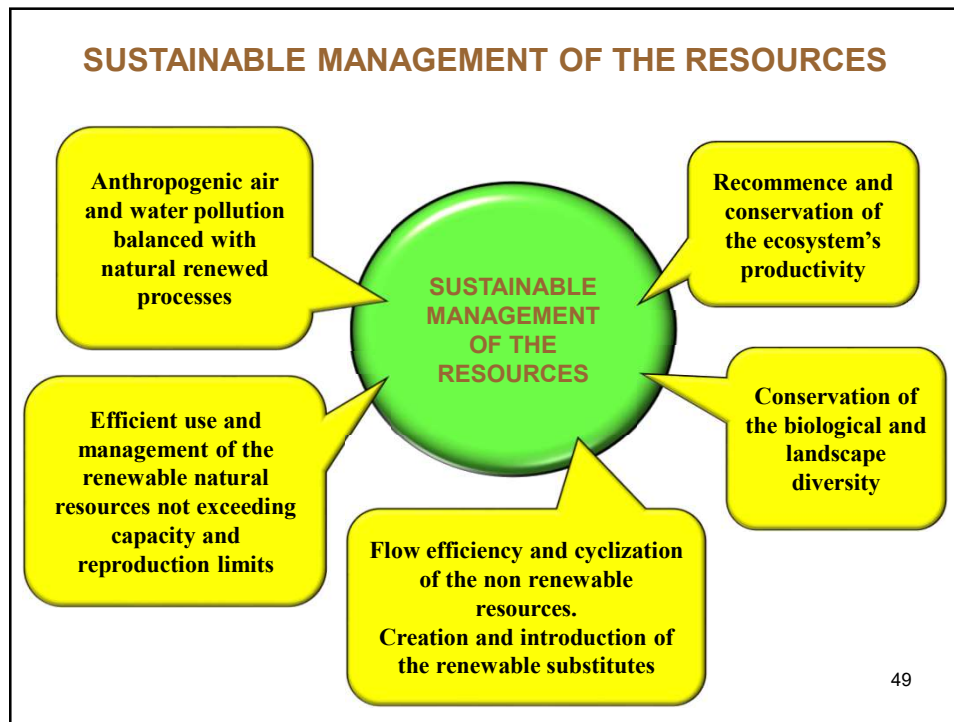
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## **Resource Utilization and Conservation**

- **To satisfy their needs, humans have been using resources is called resource utilisation, for time immemorial.**
- **Human skills, technical knowledge, and hard work convert the neutral stuff into a commodity or service to serve material and spiritual needs of the human society, which is the process of resource utilization**
- **Thus, resources are developed by man.**
- **Resource utilization is caused by culture, culture includes all the equipment and machines, means of transport and communication as well as efficient management, group cooperation, recreation, intellectual work, education, training, improved health, and sanitation.**
- **Without culture, man has only a limited capacity to work and produce.**

Renewable Energy Source	Technology	Description
Solar	Solar photovoltaic (PV)	Solar panels convert the radiation energy from the sun into electricity through silicone cells
Solar	Solar thermal	Heat from the sun is used to heat water for domestic use in houses
Solar	Concentrated Solar Power (CSP)	Large scale solar farms focus the sun's energy to produce high temperatures that run a steam engine to produce electricity
Wind	Wind turbine	Wind power is converted to rotational energy by aerodynamic blades which turn an alternator to produce electricity
Biomass	Biomass space heating	Wood is burned efficiently to heat buildings
Biomass	Biofuels for transport	Energy crops are grown and processed to produce fuel to run vehicles

- In the modern age, the application of science and technology has increased the human capacity and capability to use resources in efficient manner for production purposes.
- In recent decades, in our desire not only to feed the rapidly growing population but also to accelerate economic well-being to vast Indian population, the exploitation of resources has increased phenomenally.
- Production of resources has been motivated by the maximization of output and profit maximization rather than the optimization of net social benefits.
- The precious resource of land is under the threat of degradation, because of soil erosion, deforestation, overgrazing, and careless management of forests.
- This has led to environmental and ecological imbalances as resources were used on unsustainable basis.

**Under the pressure from rapid population growth, the available resources of water are being exploited and depleted at a fast rate.**

**Due to lack of technology only 37 % of total annual flow of Indian rivers and equal proportion of the available ground water resource is available for use.**

## **Resource Utilization and Conservation**

### *Sustainable development*

**Sustainable development means attaining a balance between environmental protection and human economic development and between the present and future needs.**

**It means equity in development and sectoral actions across space and time, Cruz et al (2007).**

**It requires an integration of economic, social and environmental approaches towards development.**

#### **Some Principles of Sustainable Development**

- Respect and care for all forms of life
- Improve the quality of human life
- Conserve the earth's vitality and diversity
- Minimise the depletion of natural resources
- Change personal attitude and practices towards the environment
- Enable communities to care for their own environment.

## Conservation of ResourceS

- Conservation of resources means the **judicious** and **planned** use as well as the **reuse** of natural resources by avoiding their **wastage, misuse, and overuse**.
- Today, depletion of resources is a matter of great concern. In order to reach the maximum production limit, we are using all those resources which are actually the property of future generations.
- In fact, as the concept of sustainable development suggests, *resources are the inheritance which one generation of human society has to pass on to next one*. therefore, striking a balance between the growth of population and the utilisation of resources is absolutely necessary.

- Of course, such a balance is bound to vary in time and space.
- We have to look at the balance between population and resources in a region or country as dynamic rather than static one.
- Any imbalance in either of the two may disrupt the continuity of our economic, social, and cultural development.
- Therefore, resources should be used in a planned way so that imbalance does not take place.

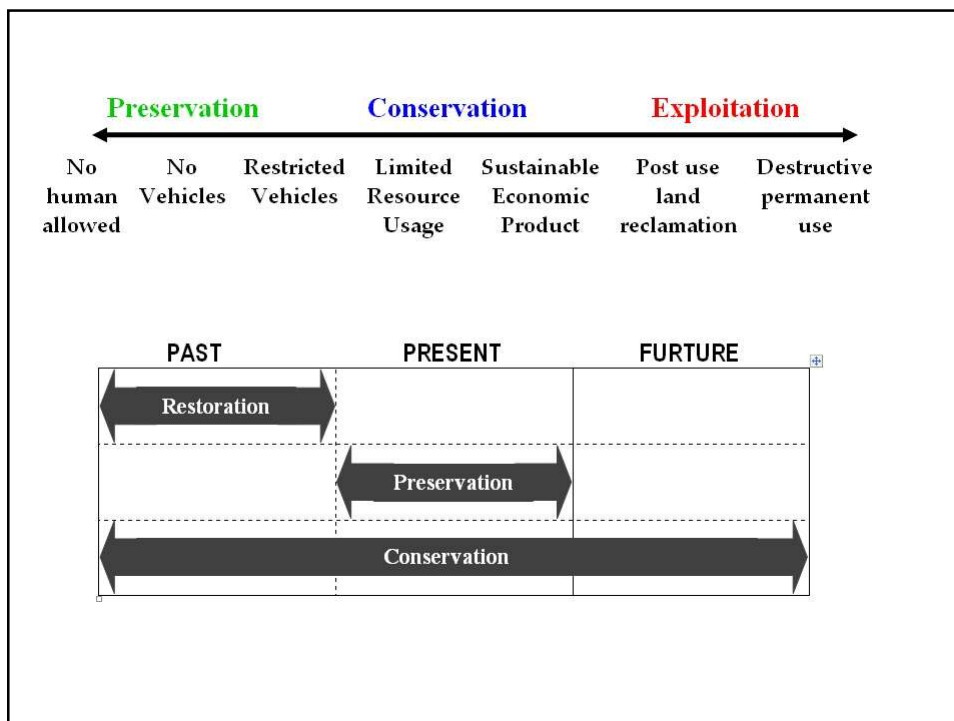
#### 4 Methods of Conservation of Resources

- It is necessary to create awareness about the preservation and conservation of resources among people. They should be made aware of the harmful result of large-scale destruction of natural resources.
- Afforestation, preventing the felling of immature and young trees, and creating awareness amongst the local people about planting and nurturing trees may help in conserving forests.
- Terrace farming in hilly regions, contour ploughing, controlling the shifting cultivation, overgrazing, and plugging the gullies are some of the important methods of soil conservation.
- Construction of dams to impound rainwater, use of sprinklers, drip or trickle irrigation technique, and recycling of water for industrial and domestic purposes will help in the conservation of invaluable water resource.
- Minerals are non-renewable resources, so they need to be conserved through efficient utilisation, development of better technology of extraction and purification, recycling of minerals, and use of substitutes.

#### 5 Policy on Conservation of Resources

- **With growing consciousness of environment conservation, the efficient use of resources has become important for a developing country like India.**
- The Ministry of Forests and Environment was created at the union level in 1980 to give high priority to issues relating forest and environment in the country. By now, all the state government have also created independent ministry of forest and environment.
- National Forest Policy of 1950 was revised in 1988 to make an effective tool as per current needs to protection, conservation, and development of forest in the country. Under this policy, the Social Forestry Scheme was launched to increase green coverage, produce and supply of fuelwood etc.
- National Land Use and Conservation Boards were established in 1983, and restructured in 1985 for land resource conservation and preparation of perspective plan for optimum utilisation of land resources.

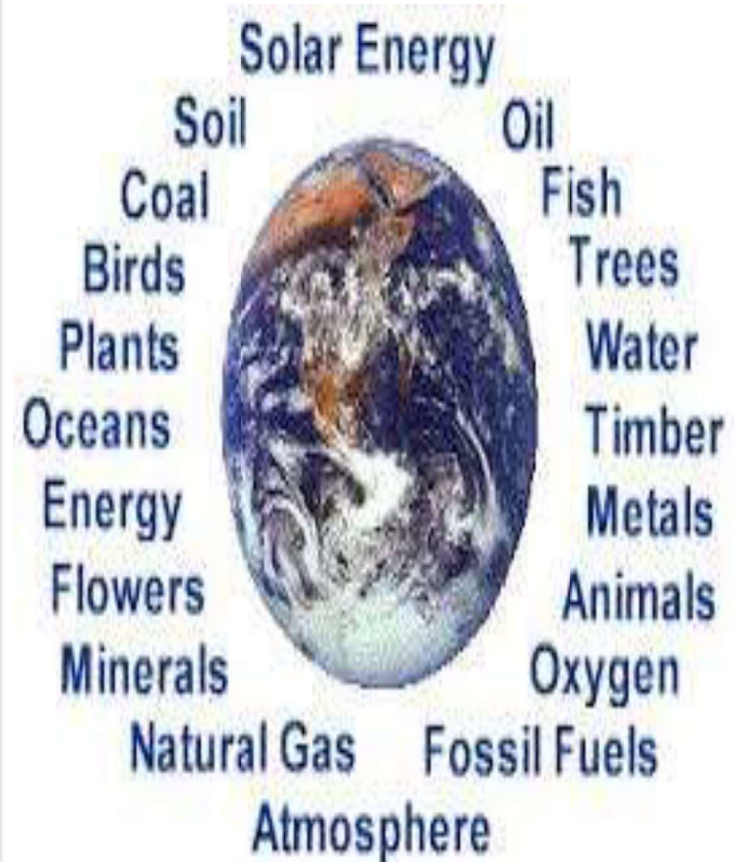
- National Water Policy was adopted in 1987 which accord the highest priority to drinking water, followed by irrigational hydel power generation, navigational, industrial and other uses of water.
- A National Mineral Policy framed in 1990 has allowed both domestic and foreign enterprise to invest in mineral extraction and export. It also allowed the authority to permit investment in mineral extraction directly under the Union Ministry of Mines.
- In new agriculture policy, encouragement is given to use eco-friendly and sustainable agricultural technology, such as biotechnology.



# Natural Resource

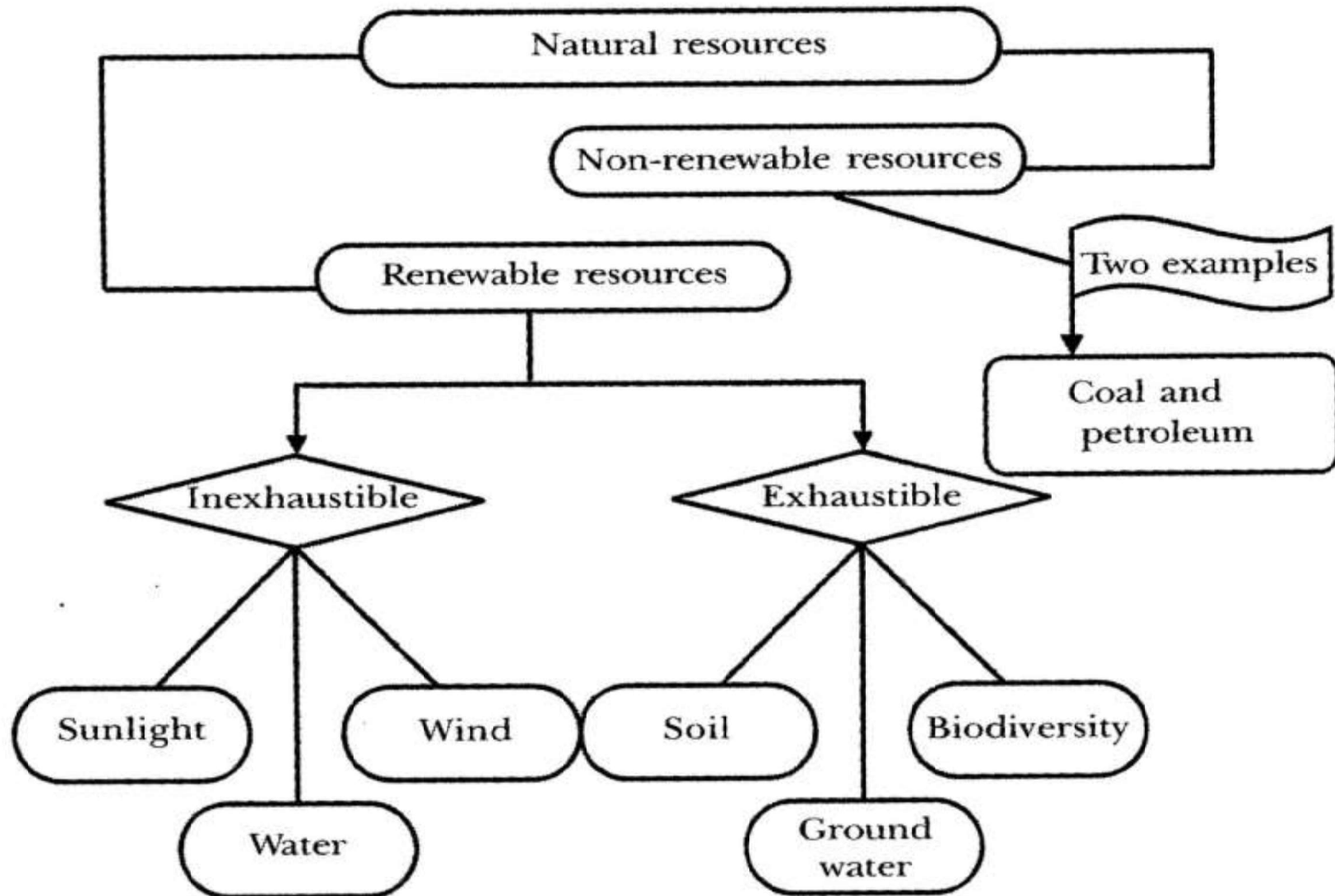
## Meaning

- ◆ Natural resources are naturally occurring substances that are considered valuable in their relatively unmodified (natural) form.
- ◆ Any part of our natural materials that man can be utilized to promote the welfare, may be regarded as natural resources





# Classification of natural resources





# Natural Resource Management

The management of natural resources such as land, water, soil, plants and animals, with a particular focus on how management affects the quality of life for both present and future generations

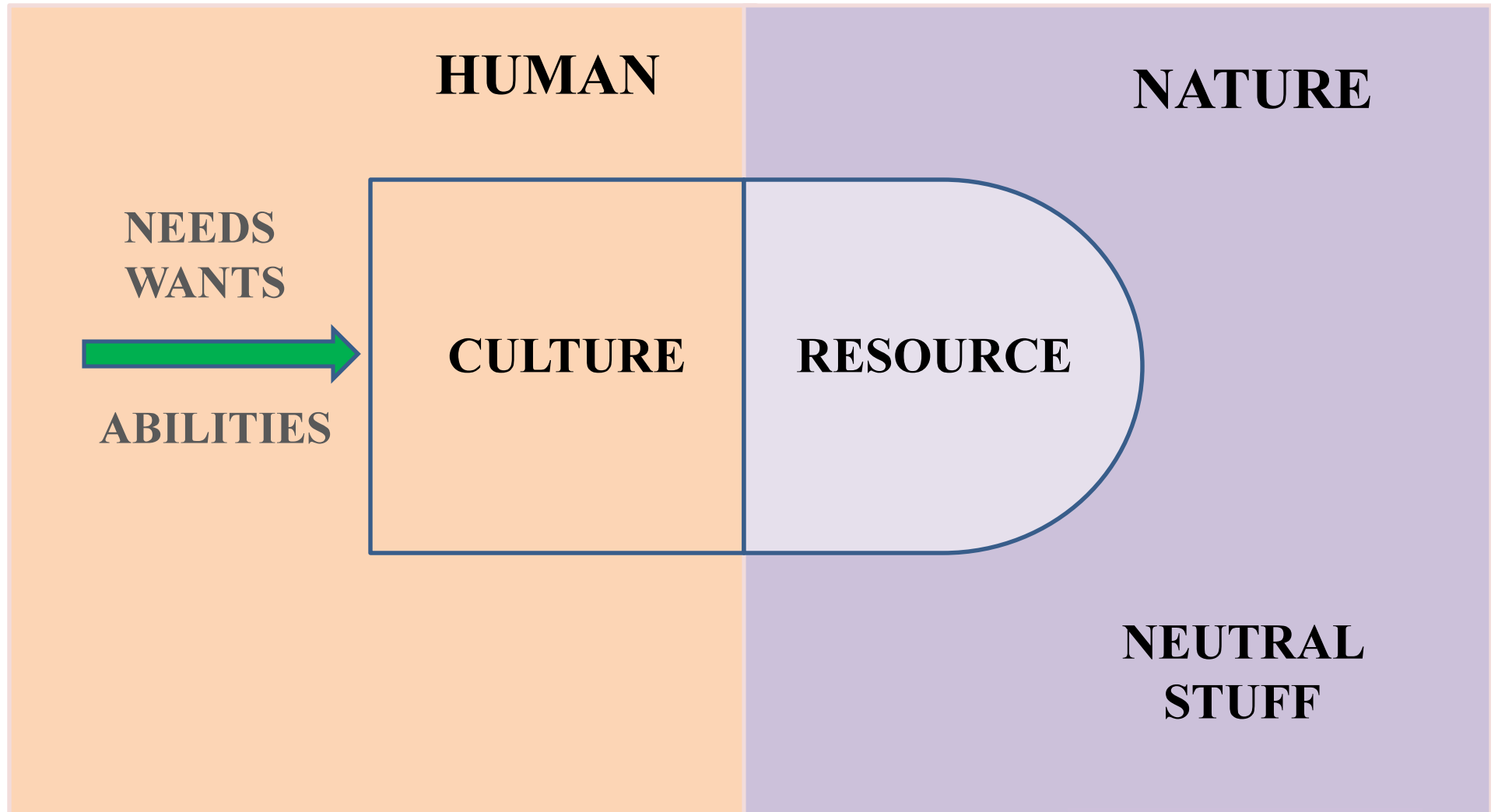
Natural resource management approaches can be categorised according to the kind and right of stakeholders

1. Private property regime :- Individual owned
2. Common property regime :- Government owned
3. Non-property regime :- Lake fishery
4. State property regime :- National forest, National park

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[http://en.wikipedia.org/wiki/Natural\\_resource\\_management](http://en.wikipedia.org/wiki/Natural_resource_management)

# Relationship of Culture, Nature and Resource



Zimmerman, 1951

# Casual factors of threat on NRM



**Development pressure on nature resource base**



**Encroachment on natural resources**



**Exploitation of natural resources**



**Human induced disasters causing stress on natural resources**



**Threats to NRM- wrong and faulty approaches**



**Management of human resources**



**Political and policy issues**

# INDIA'S EFFORTS FOR BIODIVERSITY CONSERVATION

**Dr. M. S. Swaminathan (1983) suggested the following categories**

- ❖ Cultivated varieties in current use
- ❖ Primitive cultivars or land races
- ❖ Wild species of potential value to man

## **In-situ conservation-conservation under natural condition**

- ❖ It includes conservation of plants and animals in their native ecosystems or even man made eco-systems
- ❖ It appeals only to wild fauna and flora
- ❖ It aims at preservation of land races with wild relatives

## **Ex-situ conservation-conservation under controlled condition**

- ❖ It is done through establishment of gene banks
- ❖ It is chief mode for preservation of genetic resources
- ❖ Seeds, plant cells, tissues, organs are preserved under appropriate conditions

# Resource management/development





# Planning for resources use



Agriculture



Horticulture

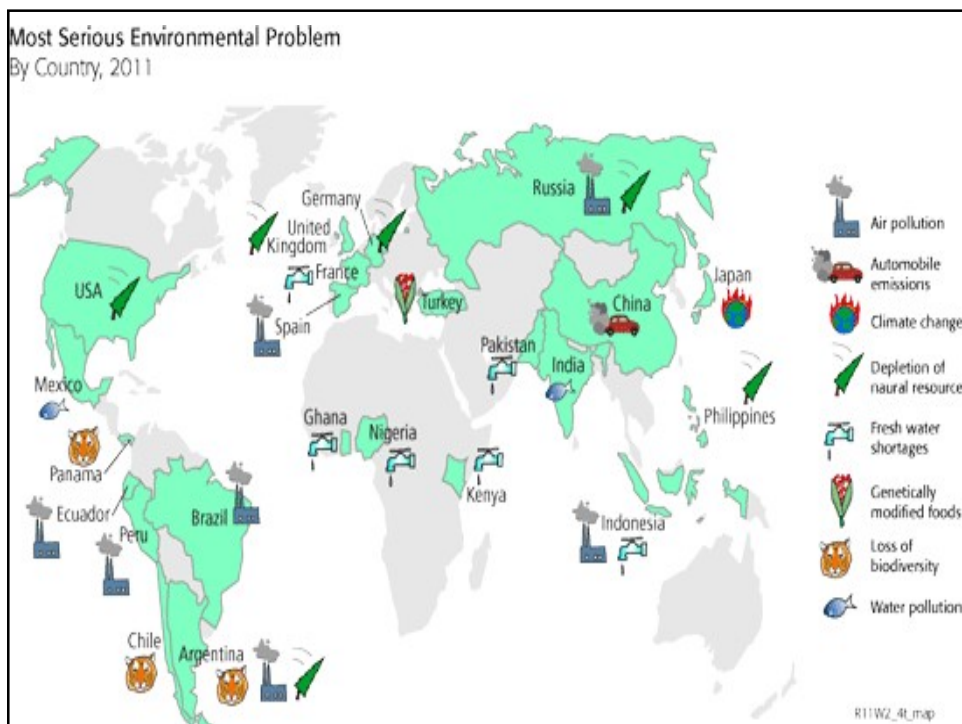


Forestry



Animal husbandry





**UNIT II: Economic Geography: Location of economic activities and spatial organization of economies: Classification of economies: Sectors of economy: Primary, Secondary, Tertiary and quaternary.**

### Spatial Organization

- The idea that geography is the study of spatial organization was emphasized by **Edward J. Taaffe (1974)**. This view sits alongside **man-land relations** and **area studies**, and, along with **earth science**, these are the four geographic traditions suggested by William D. Pattison (1964).
- Apart from general geographic knowledge about where to locate, **spatial organization** helps people understand **how to organize geographic space** (in which space is seen as **property or territory**) to satisfy their needs and demands.

### Development of Spatial Tradition

Geography has traditionally sought to examine the **spatial organization of human activities** and the principles that account for them.

**Immanuel Kant (1724–1804)**, a prominent philosopher, proposed that the geographical and historical sciences extend humans' knowledge, in which **geography focuses on space**, while history deals with time.

An outstanding German geographer, **Alfred Hettner (1859–1941)**, stated that geography was a spatial or chorological science that **studied the relationships of diverse phenomena** in terms of space or areas.

**Richard Hartshorne (1899–1992)**, interpreted earlier research as making geography a largely descriptive and interpretative study of **areal differentiation** and an important part of area studies.

**Burgess** proposed a descriptive **urban land-use model in 1925** that divided cities into **six concentric zones** expanding from downtown to the suburbs: central business district (CBD), factory/ industry zone, zone of transition, working-class housing zone, residential zone, and commuter zone.

**Homer Hoyt (1895–1984)** modified the concentric zone model of city growth, presenting a **sector model in 1939** through a study of residential areas in the North American context. In this model, **transport had directional effects** on land uses.

Following Burgess and Hoyt's monocentric city model, **Harris and Ullman (1945)** introduced a **multiple nuclei model** with more effective generalization of urban land use.

Through case studies in London and Chicago, Harris and Ullman found that the **spatial structure of large cities was organized with irregular sectors and multiple separate CBDs**, which were shaped by different degrees of accessibility, land use, and regional specialization.

**Satellite settlements are typical examples and follow neither the concentric zone theory nor the sector theory.**

**Settlements, as the space in which most human activities are carried out, are the main research field in studies of the spatial organization of regions.**

**An examination on the rankings of cities at the global scale was first completed by a geographer, Mark Jefferson (1863–1949), This phenomenon is also known as the law of the primate city, which was defined by Jefferson as being at least twice as large as the next largest city and more than twice as significant.**

**Zipf's law, a special case of Pareto distribution, is still widely used by geographers to describe how urban systems are organized.**

**Today, both the rank-size rule and the law of the primate city are still important approaches for statistically analyzing the structure of urban systems.**

Central place theory was proposed by Walter Christaller (1893–1969) in 1933 and is a milestone for studying the organization of human settlements.

Christaller asserted that **settlements** simply functioned as **central places** providing **services to surrounding areas**, and built the central place theory with a case study in southern Germany. Central places and their market areas form a hierarchy in which the demand and supply of goods and services of different kinds are (spatially) equilibrated.

**Spatial organization relates to many research themes examined at different scales, including :**

- **The distribution of agricultural activities** (such as the Corn Belt),
- **Industry layout** (such as steel factory layout),
- **services location** (such as geography of retail shops),
- **Distribution of human settlements,**
- **central place and urban systems,**
- **Distribution of infrastructure layout,**
- **movements of people, and**
- **land-use patterns in cities.**

The spaces in which human activities take place are usually studied at three **research scales**:

- ✓ **Global, Regional, and Local.**
- ✓ **Meanwhile, space can also be considered abstractly as comprising three geometric elements: points, lines, and area.**

As such, **spatial organization patterns** can be classified statically into three types:

- ✓ **Contiguous structures** (including uniform regions and functional regions),
- ✓ **discrete structures** (such as settlements and network cities), and
- ✓ **Integrated structures that combine both.**

### **Contiguous structures**

Are constituted by **spatially continuous surfaces** (areas or zones) with a functional center: Known as functional regions, for example, urban regions and industrial regions are functional regions, It can be continuous on the basis of **similarity** in some respect called uniform regions: agricultural and climatic regions are typical of uniform region.

### **Discrete structures**

Are constituted by **network elements** (mainly points and lines) that comprise, for example, transportation economic complex axis and pole-axis systems.

### **Integrated structures**

some geographic systems are usually a **combination of** contiguous and discrete structures. This kind of system is called an integrated structure.

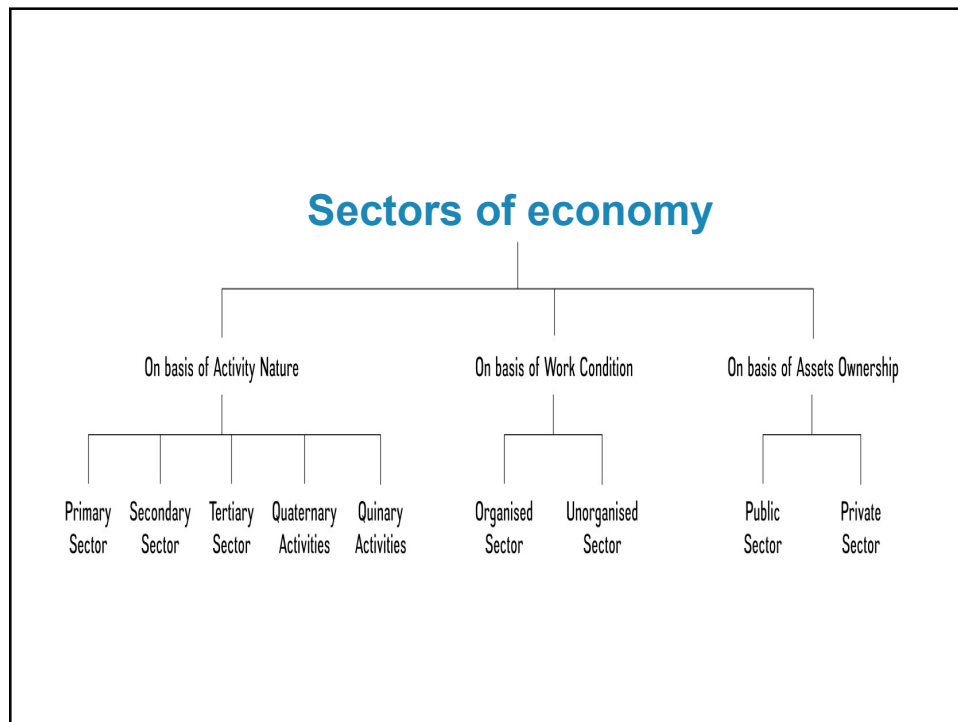
Eg.

- optimized development areas;
- key development areas;
- restricted development areas; and
- prohibited development areas.

### **Classification of economies: Sectors of economy**

- Economic activities result in the production of goods and services while sectors are the **group of economic activities classified on the basis of some criteria.**
- Economy can be classified into various sectors on the basis of **ownership, working conditions** and the nature of the activities.
- All economic activity was in the primary sector during early civilization. After the surplus production of food, people's need for other products increased which led to the development of the secondary sector.
- The growth of secondary sector spread its influence during the industrial revolution in the nineteenth century.
- A support system was needed to facilitate the industrial activity. Certain sectors like transport and finance played an important role in supporting the industrial activity.





### Primary Activity

- In Primary sector of economy, activities are undertaken by **directly using natural resources**. Agriculture, Mining, Fishing, Forestry, Dairy etc. are some examples of this sector.
- It is called so because it **forms the base for all other products**. Since most of the natural products we get are from agriculture, dairy, forestry, fishing, it is also called Agriculture and allied sector.
- People engaged in primary activities are called **red-collar workers** due to the outdoor nature of their work.

### Secondary Activity

- It includes the industries where **finished products** are made from **natural materials produced in the primary sector**.
- Industrial production, cotton fabric, sugar cane production etc. activities comes under this sector.
- Hence its the part of a country's economy that **manufactures goods**, rather than producing raw materials
- Since this sector is associated with different kinds of industries, it is also called **industrial sector**.
- People engaged in secondary activities are called **blue collar workers**.

#### Examples of manufacturing sector:

Small workshops producing pots, artisan production.

Mills producing textiles,

Factories producing steel, chemicals, plastic, car.

Food production such as brewing plants, and food processing.

Oil refinery.

#### Core Industries

*Eight Core Industries are Electricity, steel, refinery products, crude oil, coal, cement, natural gas and fertilizers. The Index of Eight Core Industries is a monthly production index, which is also considered as a lead indicator of the monthly industrial performance. The Index of Eight Core Industries is compiled based on the monthly production information received from the Source Agencies.*

## Tertiary Sector/Service Sector

- This sector's activities help in the **development of the primary and secondary** sectors. By itself, economic activities in tertiary sector **do not produce a goods** but they are an aid or a **support for the production**.
- Goods **transported** by trucks or **trains, banking, insurance, finance etc.** come under the sector. It provides the value addition to a product same as secondary sector.
- This sector jobs are called **white collar jobs**.

### **Pink Collar Worker (Tertiary Sector)**

- **Pink-collar worker** is one who is employed in a job that is traditionally considered to be **women's work**. The term **pink-collar worker** was used to distinguish **female-orientated jobs** from the **blue-collar worker**, a worker in manual labor, and the **white-collar worker**, a professional or educated worker in office positions.
- A pink collar worker need not require as much professional training as white-collar professions. They do not get equal pay or prestige. Men rarely work in pink collar jobs. **Some examples of pink collar occupations are baby sitter, florist, day care worker, nurses etc.**

*Lately, the pink collar worker is educated or trained and they have to continue to strive for advancement in their careers. Today, women have more opportunities in traditionally male white-collar jobs and men work in traditionally female pink-collar jobs.*

### Quaternary Activities

- These are specialized tertiary activities in the '**Knowledge Sector**' which demands a separate classification.
- The quaternary sector is the **intellectual aspect** of the economy. It is the process which enables **entrepreneurs to innovate** and **improve the quality of services** offered in the economy.
- Personnel working in office buildings, elementary schools and university classrooms, hospitals and doctors' offices, theatres, accounting and brokerage firms all belong to this category of services.

**Like other tertiary functions, quaternary activities can also be outsourced.**

### Quinary Activities

- The quinary sector is the part of the economy where the **top-level decisions are made**. This includes **the government which passes legislation**. It also comprises the **top decision-makers in industry, commerce and also the education sector**.
- These are services that **focus on the creation, re-arrangement and interpretation of new and existing ideas**; data interpretation and the use and evaluation of new technologies.
- Profession under this category often referred as '**gold collar professions**', they represent **another subdivision of the tertiary sector** representing **special and highly paid skills of senior business executives, government officials, research scientists, financial and legal consultants, etc.**