

Engineering and Corporate Social Responsibility

UNIT 5

Natural Resources

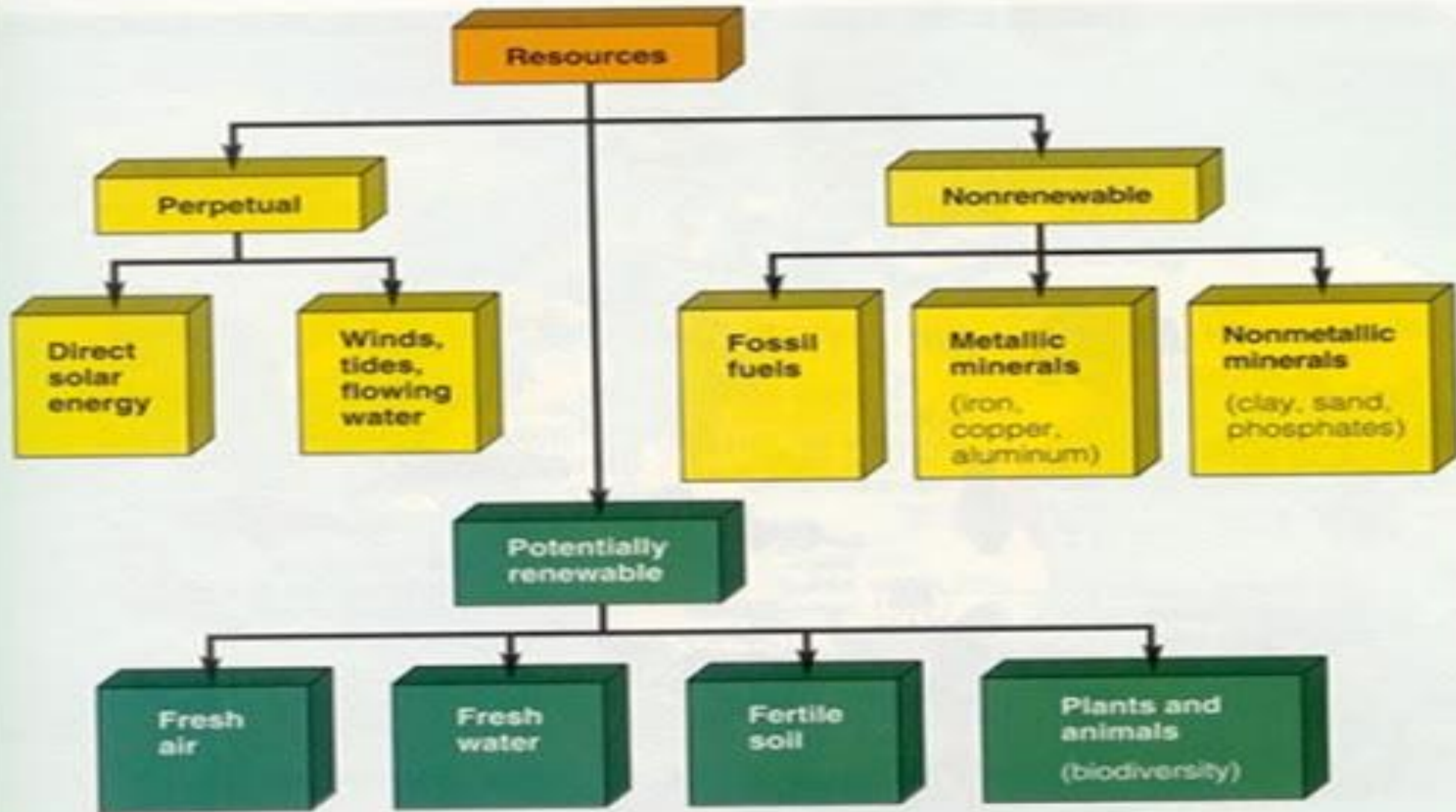
⌘ Natural resources are the substances that are supplied by nature and needed for survival.

- Include air, water, soil, sun, plants, animals, and *fossil fuels* (coal, oil, and natural gas).

Many natural resources are limited in supply and cannot be renewed.

⌘ Pollution is the action or process of making natural resources unsafe or unusable.

- ⌘ Smoke and exhaust causes the air to become dirty and harmful to breathe.
- ⌘ Waste dumped into waterways harms fish and animals.
- ⌘ Nuclear waste can pollute air, water, and soil.



Atmosphere

- Oxygen for human respiration (metabolic requirements).
- Oxygen for wild fauna in natural ecosystems and domestic animals used by man as food.
- Oxygen as a part of carbon dioxide, used for the growth of plants (in turn are used by man).

The atmosphere forms a protective shell over the earth.

The lowest layer, the **troposphere**, the only part warm enough for us to survive in, is only 12 kilometers thick.

The **stratosphere** is 50 kilometers thick and contains a layer of sulphates which is important for the formation of rain. It also contains a layer of **ozone**, which absorbs ultra-violet light known to cause cancer and without which, no life could exist on earth.

The atmosphere is not uniformly warmed by the sun. This leads to air flows and variations in climate, temperature and rainfall in different parts of the earth. It is a **complex dynamic system**. If its nature is disrupted it affects all mankind.

To continue to support life, air must be kept clean.

. The buildup of carbon dioxide which is known as '**greenhouse effect**' in the atmosphere is leading to current global warming.

- Air pollution leads to **acute and chronic respiratory diseases** such as various lung infections, asthma and even cancer.

Hydrosphere

- Clean water for drinking (a metabolic requirement for living processes).
- Water for washing and cooking.
- Water used in agriculture and industry.
- Food resources from the sea, including fish, crustacea, sea weed, etc.
- Food from fresh water sources, including fish, crustacea and aquatic plants.
- Water flowing down from mountain ranges harnessed to generate electricity in hydroelectric projects.

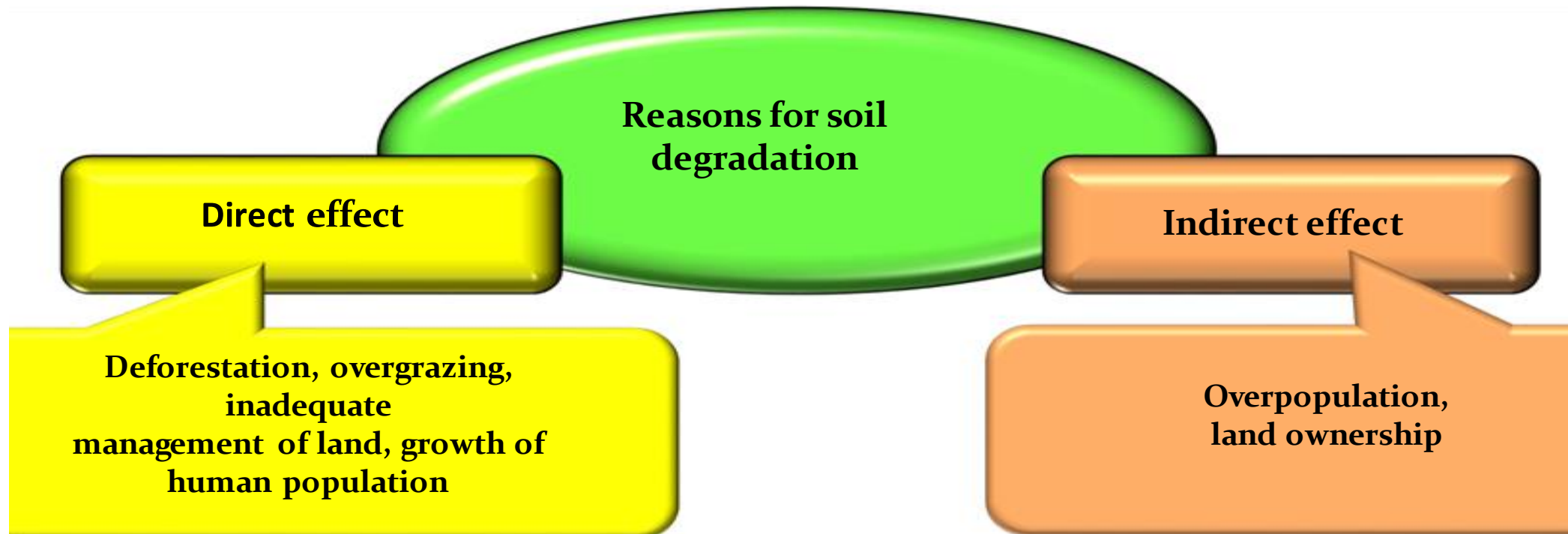
Lithosphere

- **Soil**, the basis for agriculture to provide us with food.
- **Stone, sand and gravel**, used for construction.
- **Micronutrients** in soil, essential for plant growth.
- **Microscopic flora, small soil fauna and fungi in soil**, important living organisms of the lithosphere, which break down plant litter as well as animal wastes to provide nutrients for plants.
- A large number of **minerals** on which our industries are based.
- **Oil, coal and gas**, extracted from underground sources. It provides power for vehicles, agricultural machinery, industry and for our homes.

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.



Biosphere

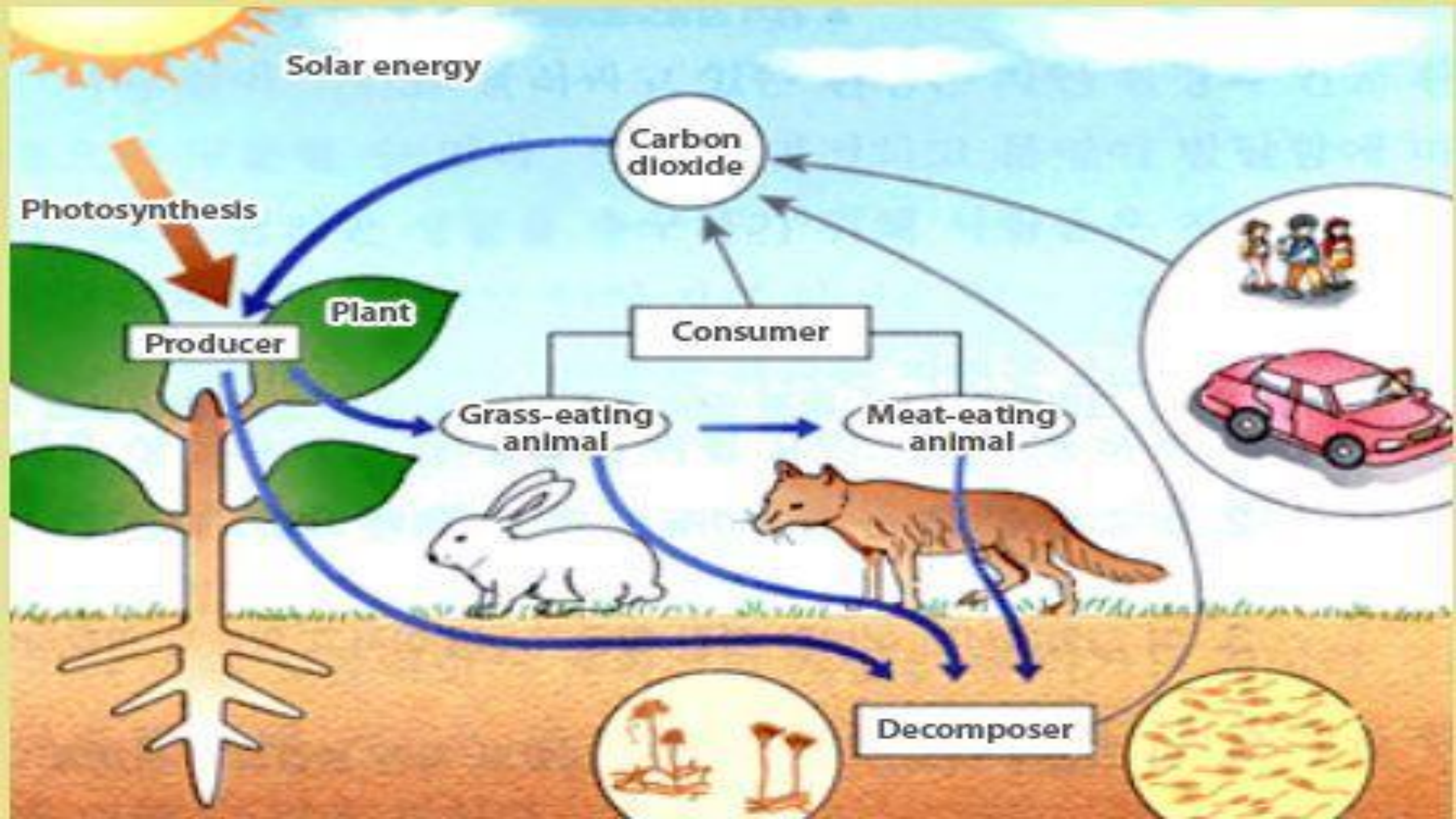
- Food, from crops and domestic animals, providing human metabolic requirements.
- Food, for all forms of life which live as interdependent species in a community and form food chains in nature on which man is dependent.
- Energy needs: Biomass fuel wood collected from forests and plantations, along with other forms of organic matter, used as a source of energy.
- Timber and other construction materials.

This is the relatively thin layer on the earth in which life can exist.

Ecosystem

An **ecosystem** is a community of living organisms in conjunction with the nonliving components of their environment, interacting as a system. These biotic and abiotic components are linked together through nutrient cycles and energy flows.

Energy enters the system through photosynthesis and is incorporated into plant tissue. By feeding on plants and on one another, animals play an important role in the movement of matter and energy through the system.



Ecology

∞ Ecology is the study of all living things in relation to each other and the environment.

- ∞ Helps people to better understand the environment.
- ∞ Teaches people how to protect it.

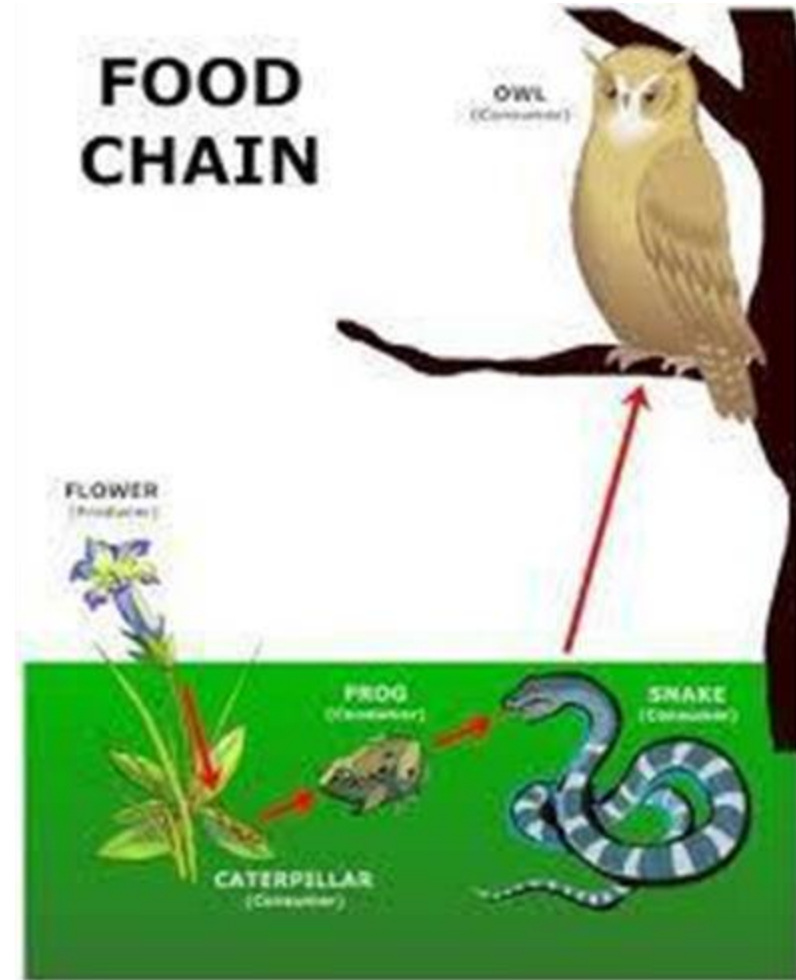
Environment

∞ The surroundings in which a person, animal, or plant lives. the natural world of land, sea, air, plants, and animals.

- What happens to the environment affects all living things.

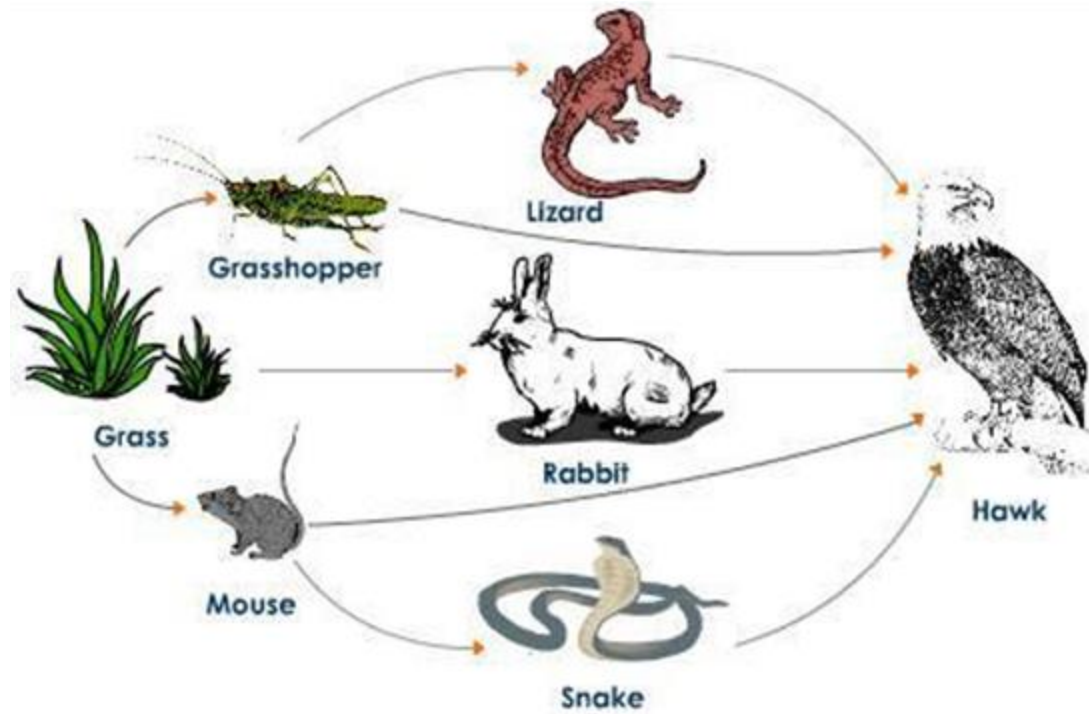
Food Chain

- A food chain shows the flow of energy between the organisms in environment.



Food Web

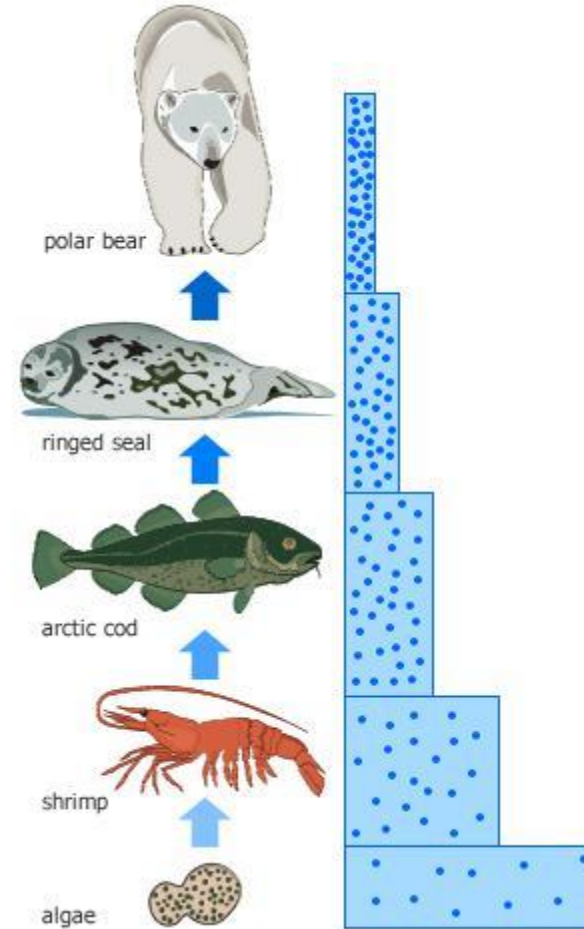
- Food web is put many food chain in one ecosystem.



A Food Web In a Grassland Ecosystem With Five Possible Food Chains

Bioaccumulation

The buildup of toxins in top consumers after eating many smaller organisms in a food web.



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’.

Direct profit



Logging

Indirect profit



Tourism

Pollution:

- **Agricultural**

- **DDT**

- **Fertilizers**

- **Animal wastes (nitrogen)**

- **Homes**

- **Strong cleaning agents**

- **Industry**

- **Toxic gases and wastes**

- **Acid rain**

Causes of Environmental Problems



Population growth



Unsustainable resource use



Poverty



Excluding environmental costs from market prices



Trying to manage nature without knowing enough about it

The need for sustainable lifestyles:

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.

- Increased longevity
- An increase in knowledge
- An enhancement of income.

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

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

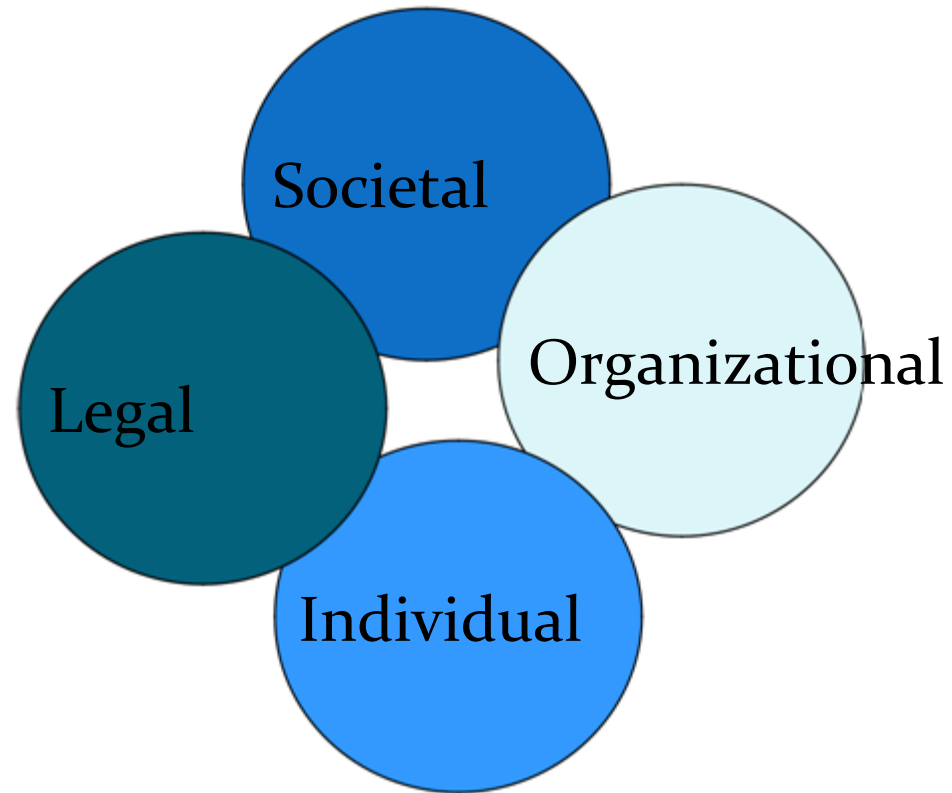
- A stabilized population.
- The long term conservation of biodiversity.
- The careful long-term use of natural resources.
- The prevention of degradation and pollution of the environment.

Ethics:

- *A set of rules and values that define right and wrong conduct.*
- They indicate when behavior is acceptable and when it is unacceptable.



Ethical Perspectives for Evaluating Behavior



Societal Perspective

- Societal Ethics – standards that govern how members of a society are to deal with each other on issues of fairness, justice, poverty, and individual rights.
- - The idea of what is ethical behavior is largely influenced by the society in which the behavior occurs.
- Various public opinion surveys suggest a growing disenchantment with the lack of ethical behavior



Legal Perspective

- *Laws*: society's values and standards that are enforceable in the courts.
- *Employment-at-will*: a traditional common-law concept holding that employers are free to discharge employees for any reason at any time and that employees are free to quit their jobs for any reason at any time.

Organizational Perspective

- To provide guidance for employees, an organization can define ethical and unethical behaviors.
- Organizations can also guide employee actions both formally and informally.

Individual Perspective

- Despite prevalent societal, legal, and organizational interpretations of what is ethical, individuals have their own values and a sense of what is right or wrong.
- Lawrence Kohlberg
- - Suggested people develop morally, much as they do physically, from early childhood to adulthood.
- As they develop, their ethical criteria and patterns of moral reasoning go through **stages of moral development**

CORPORATE SOCIAL RESPONSIBILITY

It can be described as the continuous commitment by corporations towards the economic and social development of society in which they operate.

It is more of a social obligation as to how the corporate relate to their

- customers,
- employees,
- suppliers,
- society and
- also towards the environment from which they use various resources for their profits.

Four Pillars of Corporate Sustainability Concept

According to Wilson (2003) Corporate Sustainability₁ includes:

- Sustainable development
- Corporate Social Responsibility
- Stakeholder Theory

Accountability

Key Issues in CSR



Labour rights:

child labour

- forced labour
- right to organise
- safety and health

- **Environmental conditions**

- water & air emissions
- climate change

- **Human rights**

- **Poverty Alleviation**

- job creation
- public revenues
- skills and technology

Need for Corporate Social Responsibility

- To reduce the social cost.
- To enhance the performance of employees.
- It a type of investment.
- It leads to industrial peace.
- It improves the public image.
- Can generate more profit.
- To provide moral justification.
- It satisfies the stakeholders.
- Helps to avoid government regulations & control.
- Enhance the health by non polluting measures.

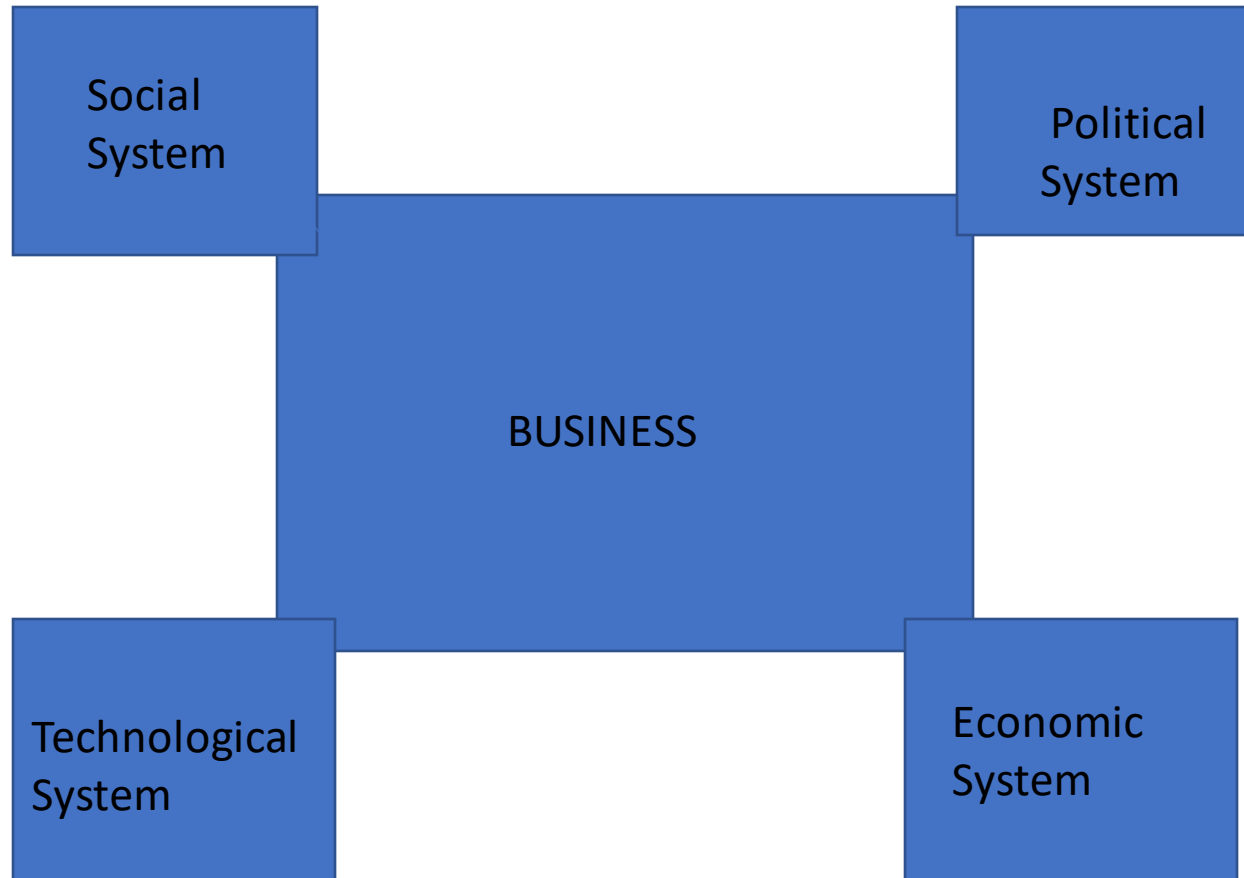
Business and Social Responsibility

Business plays a significant role in

- economic,
- social,
- political and
- technological affairs.

So business owes responsibility to all segments of society.

The wealth of a country is to a great extent controlled by business. This gives business and its executives “**enormous power**” to affect the lives of employees, consumers, shareholders, etc.



CORPORATE SOCIAL RESPONSIBILITY THEORIES AND MODELS

- The Stakeholder Theory
- The Archie Carroll Model
- Ackerman's Model

The Stakeholder Theory

Stakeholders are “any group or individual who can affect or is affected by the achievement of a corporation’s purpose”.

2 TYPES:

1. **Primary or Participant Stakeholder:** is one without whose continuing participation the corporation cannot survive as a going concern.
2. **Secondary or Non Participant Stakeholder:** are defined as those who influence or affect, or are influenced or affected by the corporation, but they are not engaged in transactions with the corporation and are not essential for its survival.

Stakeholders

These include:

- Shareholders
- Employees
- Customers
- The local community

A single person may have different stakes in the organization, e.g. they may be a customer, a prospective employee or an investor.

Stakeholders Groups

Three Main Groups:

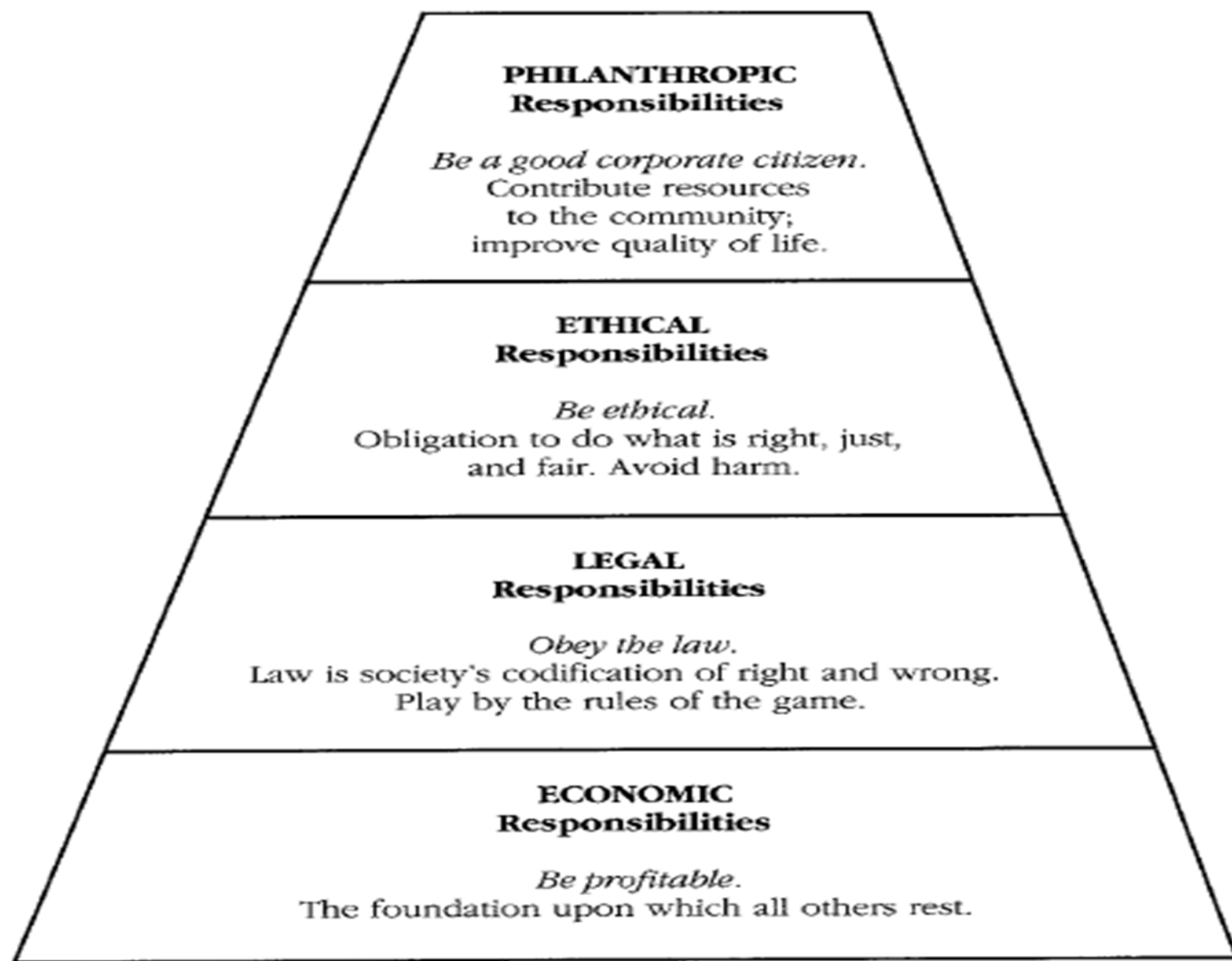
1. **Organizational stakeholder:** are the stockholders and the managers.
2. **Economic stakeholder:** customers are the most vital stakeholders. Bankers, creditors and suppliers are also included here. These parties serve as the important interface between the company and the larger societal environment.
3. **Societal stakeholder:** These determine the business environment under which the companies operate. The most common players here are-
 - various governmental agencies
 - non govt. organizations
 - regulators
 - communities

The Archie Carroll Model

According to this model, four kinds of social responsibilities constitute total Corporate Social Responsibility:

- economic
- legal
- ethical
- philanthropic

The Pyramid of Corporate Social Responsibility



Ackerman's Model

Micro-level theorist Robert Ackerman was among the earliest people to suggest that responsiveness should be the goal of corporate social endeavor.

Ackerman described three phases through which companies commonly tend to pass in developing a response to social issues.



Social Responsibility Models

Ackerman's model - three phases

- **First phase** - Top management recognizes social problem
- **Second phase** – The company appoints staff specialists to look into the issue and find measures to tackle it
- **Third phase** - Implementation of the strategy derived by the specialists

Corporate Social Responsibility Towards Various Stakeholders

Responsibility towards

Government

- Obey rules & regulations.
- Regular payment of taxes.
- Cooperating with the Govt to promote social values.
- Not to take advantage of loopholes in business laws.
- Cooperating with the Govt for economic growth & development.



Responsibility towards Society

- Carrying on business with moral & ethical standards.

- Prevention of environmental pollution.

- Minimizing ecological imbalance.

- Contributing towards the development of social health, education

- Making use of appropriate technology.

- Overall development of locality.



Responsibility towards Shareholders

- To ensure a reasonable rate of return over time.
- To work for the survival & the growth of the concern.
- To build reputation & goodwill of the company.
- To remain transparent & accountable.



Responsibility towards Employee

- To provide a healthy working environment.
- To grant regular & fair wages.
- To provide welfare services.
- To provide training & promotion facilities.
- To provide reasonable working standard & norms.
- To provide efficient mechanism to redress worker's grievances.
- Proper recognition of efficiency & hard work.



Responsibility towards consumers

- Supplying socially harmless products.
- Supplying the quality, standards, as promised.
- Adopt fair pricing.
- Provide after sales services.
- Resisting black-marketing & profiteering.
- Maintaining consumer's grievances cell.
- Fair competition.



CSR Management

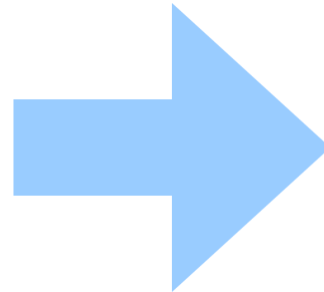
Plan

- Consult stakeholders
- Establish code of conduct
- Set targets



Act

- Corrective action
- Reform of systems



Do

- Establish management systems and personnel
- Promote code compliance



Check

- Measure progress
- Audit
- Report

