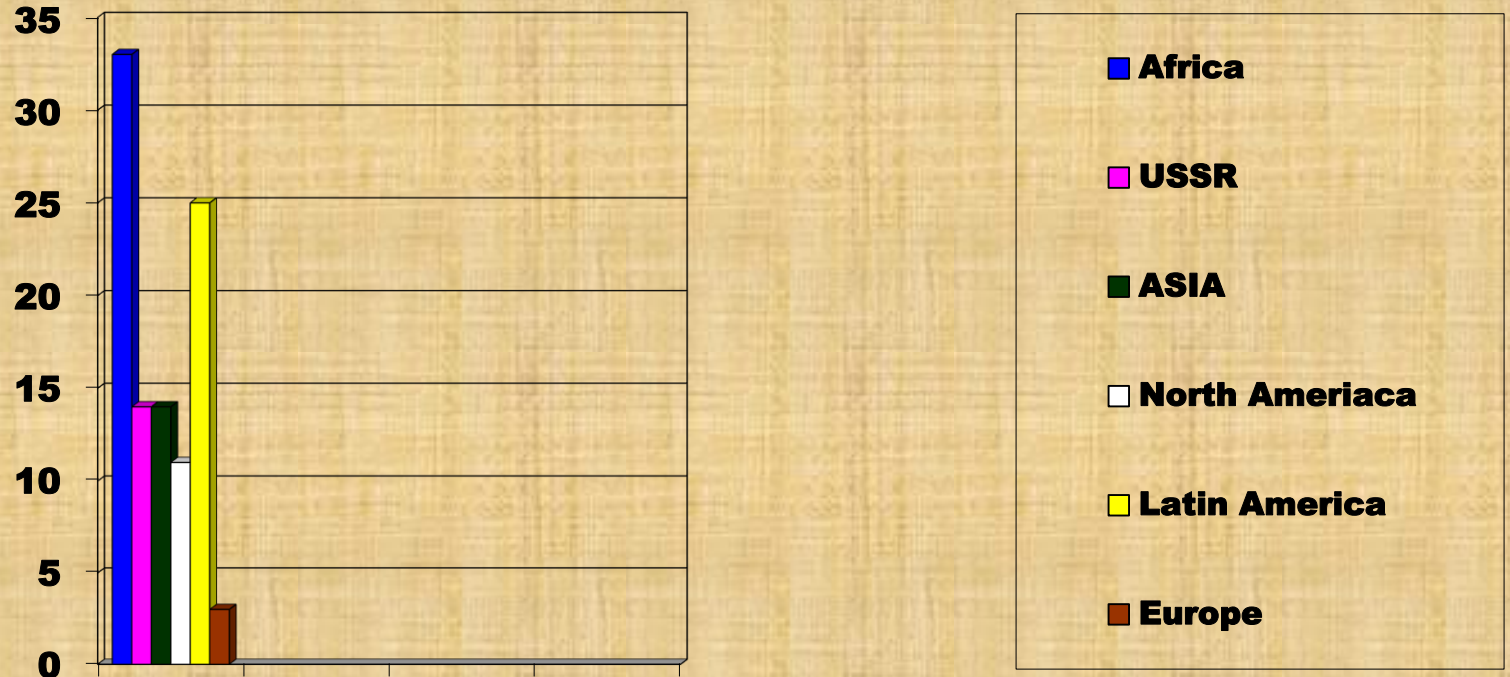

FOREST
RESOURCES

Forest Resources

- Forests are one of the most important natural resources on this earth.
- Almost 1/3rd of world's land area is forested which includes closed as well as open forests.
- 1 acre per every minute deforested recent-information



- Open forests are mixtures of trees, shrubs and grasses in which, unlike closed forests, the tree canopies do not form a continuous closed cover

FOREST RESOURCES

- ✓ Covers earth like a green blanket…
- ✓ Produce innumerable goods…
- ✓ Provides several environmental services…
- ✓ 1/3rd of the world's land area is forested.
- ✓ Former USSR – 1/5th

  Brazil – 1/7th

  Canada – 6-7%

  USA – 6-7%

Forest Functions

- Watershed Protection
  1. Reducing surface water run-off
  2. Preventing flash floods & soil erosion
- Atmospheric Regulations
  1. Maintaining CO_2 levels for plant growth
  2. Maintaining local climatic conditions
- Erosion Control (holding soil)
- Land Bank (maintaining soil nutrients & structure)
- Local Use (Consumptive use)
  - Food for human and Cattle
  - Fuel wood and Charcoal
  - Poles for building homes and as timber
  - Fibers & Sericulture of silk
  - Medicinal plants
- Market Use (Productive use)
  - Fruits, gum, fiber, construction, paper production etc…..

USES OF FORESTS

Commercial Uses

- ✓ Timber
- ✓ Fire wood
- ✓ Pulp Wood
- ✓ Food items
- ✓ Gum
- ✓ Resins
- ✓ Non-edible Oils
- ✓ Rubber
- ✓ Fibers
- ✓ Lac
- ✓ Bamboo Canes
- ✓ Fodder
- ✓ Medicines…

Ecological Uses/services

- ✓ Production of Oxygen
- ✓ Reducing of Global Warming
- ✓ Wild Life Habitat
- ✓ Regulation of Hydrological Cycle
- ✓ Soil Conservation
- ✓ Pollution Moderators

OVER EXPLOITATION OF FORESTS & DEFORESTATION

- ✓ Increased Population ➔ Increased requirements.
- ✓ Total forest area in 1900 – 7000 million ha
  1970 – 2890 million ha
  2000 – 2300 million ha
- ✓ Deforestation rate is less in temperate countries compared to tropical countries (40-50%).

Region	Forested area (km^2)	% of land area
World	39,000,000	26.19%
Latin America and the Caribbean	9,640,000	45.67%
East Asia and the Pacific	7,332,000	35.18%
Africa	6,500,000	21.80%
Canada and the United States	4,680,000	26.00%
European Union	1,600,000	35.00%
Australia	1,470,832	19.00%
West Asia (Middle East and Arabia)	36,600	01.00%

Country	Forested area (km^2)	% of land area
Russia	7,762,602	45.40%
Brazil	4,776,980	56.10%
Canada	3,101,340	31.06%
United States	3,030,890	30.84%
China	1,821,000	18.21%
Australia	1,470,832	19.00%
Democratic Republic of the Congo	1,219,326	52.00%
Argentina	945,336	34.00%
Indonesia	884,950	46.46%
India	778,424	23.68%

Deforestation

- It is defined as the reckless falling of trees by human beings for their ulterior ends.
- The rate of deforestation is approximately 1.7 crore hectares annually worldwide.

Causes of Deforestation:

- Shifting cultivation
- Fuel requirements
- Raw Material for industrial use
- Development of projects
- Growing food needs
- Overgrazing
- Development of agro-business
- Mining Activities

WHAT IS DEGRADATION?

- Deforestation: which has been defined as "the clearance of forest for agriculture or other purposes" .
- vegetation degradation: various other changes which do not involve complete clearance, and has been defined as "the temporary or permanent reduction in the density, structure, species composition or productivity of vegetation cover."

CAUSES OF DEFORESTATION

- ✓ Shifting Cultivation
  - 300 million people living as shifting cultivators.
  - 5 lakh ha of forests cleared annually.
- ✓ Fuel Requirements
  - Increase in fuel wood requirement
    - 1945 – 65 million tons
    - 2001 – 300-500 million tons
- ✓ Raw Materials for Industrial Use
  - wood for making boxes, furniture, railway sleepers, plywood…
  - Pulp for paper industry.
- ✓ Development Projects
  - Hydroelectric power projects, Big dams, Roads, Mining…
- ✓ Growing Food Needs
  - Creation of agricultural land and settlements by clearing forests.
- ✓ Overgrazing

CONSEQUENCES OF DEFORESTATION

- ✓ It threatens the existence of many wild life species due to destruction of their natural habitat.
- ✓ Biodiversity is lost.
- ✓ Hydrological cycle gets affected, thereby influencing rainfalls.
- ✓ Problems of soil erosion and loss of soil fertility increases.
- ✓ In hilly areas it often leads to landslides.

Major Activities in Forests

- Timber Extraction
- Mining
- Dams and River valley projects effect on forests and tribal people

Effects of Timber Extraction:

- ❖ Poor logging results in a degraded forest
- ❖ Soil erosion, especially on slopes
- ❖ Sedimentation of irrigation systems
- ❖ Floods may be intensified on upstream watershed
- ❖ Loss of Biodiversity
- ❖ Climate changes such as lower precipitation
- ❖ Exploitation of tribal people by contractors
- ❖ Loss of long term forest productivity

How to conserve forests?

Case study (Joint forest management-JFM)

- Importance is given to local communities in Forest Management.
- Under JFM schemes, Forest Protection Committees are formed from local community members only.
- The Local people were given some economic benefit to involve them in conservation.
- Initially informal collaboration of local communities and the Forest Department began in 1972, in Midnapore District of West Bengal.
- Later JFM has evolved into a formal agreement which identifies and respects the local community's rights and benefits that they need from forest resources.
- They participate in restoring green cover and protect the area from being over-exploited.

desertification (another misunderstood term)

- refers to land degradation in dry areas.
- However, degradation is used here in a purely descriptive sense, following the pathfinding work by FAO and UNEP to refer to changes in the quality of forest cover which are an inevitable consequence of most forms of cultural forest modification, and only lead to deforestation in the most extreme cases.

Two types of land degradation: soil degradation and vegetation degradation.

- These are closely linked together, and the phenomenon known as desertification involves them both.

- but vegetation degradation has been neglected relative to soil degradation, largely because it is difficult to monitor it.

three main reasons for neglecting vegetation degradation :

- (a) vegetation distribution is heterogeneous: tree cover in open forests typical is more diffuse and variable than in closed forests.
- (b) reflectance measured by satellite sensors is affected by spatial mixing of signals from vegetation and bare soil.
- (c) land uses are less spatially separated than in humid areas, and often the same area of land has multiple uses.