

GE 2211 Environmental Science and Engineering

Unit – II

[www.msubbu.in](http://www.msubbu.in)

# Values of Biodiversity

M. Subramanian

Assistant Professor  
Department of Chemical Engineering  
Sri Sivasubramaniya Nadar College of Engineering  
Kalavakkam – 603 110, Kanchipuram (Dist)  
Tamil Nadu, India  
[msubbu.in\[at\]gmail.com](mailto:msubbu.in[at]gmail.com)

# Contents

- value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values

[www.msubbu.in](http://www.msubbu.in)

# Biodiversity Values

- Biodiversity provides *goods* that have direct use values (food, wood, textiles, pharmaceuticals...), and is an inexhaustible *source of innovations*
- *Example of pharmaceuticals:*
  - More than 20,000 species have been used for medicinal purposes
  - 41% of prescription drugs in the USA have their active ingredients derived from living organisms (25% from plants, 13% from microorganisms, 3% from animals)
  - Over 70% of promising anti-cancer drugs come from plants in the rainforest

## Biodiversity Values (contd.)

- It is a *natural heritage*, source of aesthetic, spiritual, cultural, and recreational values
- It supports *ecosystem services* that have indirect values (primary production, nutrient cycling, soil formation, crop pollination, water purification, climate regulation, disease regulation...)

# Ecological Role of Biodiversity

- All species provide at least one function in an ecosystem. Each function is an integral part of regulating the species balance, species diversity and species health: all aspects which are intrinsic for the ecosystem as a whole to survive and prosper

# Economic Role of Biodiversity

- **Food:** Crop Biodiversity or agrobiodiversity.
- **Goods:** Various things like timber, paper, medicines.
- **Recreation:** Wildlife tourism, trekking nature photography, birdwatching

# Scientific Role of Biodiversity

- **Genetic resources:** Biotechnology and genetic engineering use the genes of organisms to make new crops and medicines.
- Each species can give scientist some clue as to how life evolved and will continue to evolve.