

Summary of Benefits and Costs of Protected Areas

Categories of Protected Areas Identified by the International Union for the Conservation of Nature and Natural Resources

Scientific reserve/strict nature reserve. Objectives: To protect nature and maintain natural processes in an undisturbed state in order to have ecologically representative examples of the natural environment available for scientific study, environmental monitoring, and education and for the maintenance of genetic resources in a dynamic and evolutionary state.

National park. Objectives: To protect large natural and scenic areas of national or international significance for scientific, educational, and recreational use under management by the highest competent authority of a nation.

Natural monument/natural landmark. Objectives: To protect and preserve nationally significant natural features because of their special interest or unique characteristics.

Managed nature reserve/wildlife sanctuary. Objectives: To ensure the natural conditions necessary to protect nationally significant species, groups of species, biotic communities, or physical features of the environment requiring human intervention for their perpetuation.

Protected landscape. Objectives: To maintain nationally significant natural landscapes characteristic of the harmonious interaction of people and land while providing opportunities for public enjoyment through recreation and tourism within the normal lifestyle and economic activity of these areas.

Resource reserve. Objectives: To protect the natural resources of the area for future use and curb development that could affect the resource pending the establishment of objectives.

Natural biotic area/anthropological reserve. Objectives: To allow societies living in harmony with the environment to continue their way of life undisturbed by modern technology.

Multiple-use management area/managed resource area. Objectives: To provide for the sustained production of water, timber, wildlife, pasture, and outdoor recreation; the conservation of nature is primarily oriented to the support of economic activities (although specific zones can also be designed within these areas to achieve specific conservation objectives).

International Designations (may also be designated one of the above):

Biosphere reserves are sites of exceptional richness with respect to the diversity and integrity of biotic communities of plants and animals within natural systems. Commonly used for research, education, and training.

World heritage sites are unique natural and cultural sites considered to be of outstanding universal significance.

SOURCE: Adapted from John A. Dixon and Paul B. Sheman *Economics of Protected Areas-A New Look at Benefits and Costs* (Washington, DC: Island Press, 1990).

Benefits of Protected Areas

Accrual of Benefits Depends on Protected Area Conservation Objectives:

1. maintenance and conservation of environmental resources, services, and ecological processes
2. production of natural resources such as timber and wildlife
3. production of recreation and tourism services
4. protection of cultural and historical sites and objects
5. provision of educational and research opportunities

Benefit Categories:

1. Recreation/tourism
2. Watershed protection
 - . Erosion control
 - . Local flood reduction
 - . Regulation of stream flows
 - Soil formation
 - . Circulation and cleansing of air and water
 - . Global life support
4. Biodiversity
 - . Genetic resources
 - Species protection
 - . Ecosystem diversity
 - . Evolutionary processes
5. Education and research
6. Consumptive benefits
7. Nonconsumptive benefits
 - . Aesthetic
 - Spiritual
 - Cultural/historical
 - . Existence value
8. Future values
 - Option value
 - Quasi-option value

SOURCE: Adapted from John A. Dixon and Paul B. Sherman, *Economics of Protected Areas-A New Look at Benefits and Costs* (Washington, DC: Island Press, 1990).

Costs of Protected Areas

Direct Costs—related to the establishment and management of protected areas that appear as budgetary outlays

Establishment of Protected Area:

- Land acquisition
- Relocation of residents
- . Road and facility development
- . Development of management plan

Management of Protected Area:

- Administration and staff
- Maintenance of roads and facilities
- Monitoring and research
- Enforcement
- Visitor educational program
- Local rural development program

Indirect Costs—impacts of protected area establishment resulting in damage to property or injury to people or wildlife

- . Damage caused by wildlife straying from the protected area

Opportunity Costs—the loss of potential benefits associated with alternate uses of the area

- . Foregone resource output from the site
- Foregone resource output from intensive management/exploitation of the site
- . Foregone benefits from nonresource uses of the site

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