TOPIC 5

NATIONAL PARKS AND NATURE RESERVES

Scope

The Committee on National Parks and Reserves of the SCOPE/UNEP Symposium on Environmental Science in Developing Countries endorsed the Nairobi Manifesto on the Conservation of Natural Resources declared by President Mzee Jomo Kenyatta in 1963 and hailed its spirit of regional and international cooperation. Emphasis in this report has been placed on national parks, although other types of protected areas both natural and cultural were mentioned.

Since the first national park was created at Yellowstone in 1872, the growth of the world's national park system has been spectacular. More than 1,000 national areas now meet the standards required for the United Nations List of National Parks and Equivalent Reserves, prepared and published annually by IUCN. In addition there exist hundreds of smaller reserves (less than 1,000 hectares) or reserves which otherwise fail to qualify for this list.

Despite the expansion of areas under protection, many of the world's major ecosystems are represented in only a few protected areas, and some lack any protection; this is particularly true of marine ecosystems. A high percentage of those ecosystems which are of restricted size and distribution are not represented in reserves. There is a need to provide adequate protection for representative areas of all ecosystems, bearing in mind the ecological requirements of the species being protected.

In many countries it has proved difficult to provide adequate protection or management for those parks and reserves which have been set aside. Mexico, for example, has 49 legally proclaimed national parks, but only 15 have adequate protection and management by UN List standards. In Indonesia, where a great number have been designated, only a few reserves are actually protected.

Everywhere in the developing world the existing national park system is threatened by increasing numbers of people, their domestic animals, conflicts of interest (e.g., conservation versus agriculture and mining), and suffers from the lack of planning for, and control over, land use, despite the fact that national parks and equivalent reserves represent sound land use.

The values of protected natural areas are widely recognized by scientists, but less so by laymen and governments. These values include direct economic benefits derived from tourism; scientific values of a wide variety, many of which become in time economic values; educational values; and aesthetic or recreational values. Each of these can be expanded into an impressive list of

contributions which protected natural areas provide for the economic, physical, and psychological well-being of the people of any nation and the world. National parks and reserves justly deserve a place in any land use planning scheme.

Natural areas which shelter ethnic groups dependent on hunting, fishing, and food gathering preserve the heritage of human wisdom derived from a long association with nature, such as the use of wild plants and animals for medicinal purposes. National authorities must give special attention to the proper designation of such lands. Cultural reserves may contain historical or archaeological sites and monuments; or forms of land use, associated domestic animal breeds, and crop-plant varieties now being replaced by modern agricultural practices.

Options

The need for expanding the existing systems of parks and reserves (including marine parks) and for providing more adequate protection and management for such protected areas is obviously important. In the absence of such systems, environmental deterioration is likely to accelerate since without examples of the potential productivity of natural ecosystems, man may accept as normal the continued degradation that accompanies poor land use practice.

Without a reservoir of wild plant and animal species, including gene pools of the progenitors of our domestic species, the continued productivity of domesticated species may be jeopardized. Without the protection of watersheds and fragile areas by parks and reserves, the disruption of agricultural lands will be a continuing problem.

To establish, protect, and manage a park and reserve system, the following guidelines are recommended:

(1) The network of parks and reserves should include representative areas of all ecosystems and should include a system of cultural reserves (cultivated landscapes with genetically valuable domestic varieties and examples of viable land use practices).

(2) Where possible, an equitable distribution of income or other benefits derived from a national park should be made to local inhabitants who would otherwise be adversely affected by the park's existence. Such benefits must be clearly labeled as national park income.

(3) Authorities should take due consideration of the adverse ecological effects on national parks from other developments (irrigation, hydroelectric projects, excessive tourism, etc.).

(4) Population growth and pollution stemming from agricultural or industrial practices outside of the park should be monitored with respect to park management.

(5) The poaching of animals, wood, or other park and reserve products, as well as dynamiting and poisoning coral and marine life, to meet local needs or for sale to commercial interests must be prevented. The situation is aggravated by food shortages, increasing demands for

raw materials by the developed countries, and the existence of illegal trade networks dealing in wild-land products. It can perhaps be alleviated in part by attention to point (2). Governments of developing countries should be made aware of the fact that this destruction of natural resources for a comparatively small economic benefit can be irreversible.

(6) It is necessary to enhance productivity on agricultural and pastoral lands in order to relieve the pressure on parks and reserves. This requires an equitable distribution of income from this enhanced productivity.

(7) Education of the public in general and *young people in particular* at all levels to appreciate the values of protected natural and cultural areas should be undertaken. The parks and other public information centers have an important role in this respect.

(8) The integration of parks and reserves with surrounding land uses is needed to avoid the proximity of incompatible forms of land use and to avoid the disruption of parks by the intrusion of developments intended to facilitate other economic activities, e.g., dams and reservoirs, highways, human settlements, mining, and industrial development.

(9) Surveys and inventories of park resources are essential.

(10) Definition of goals and objectives to be accomplished and of those "natural" conditions which are to be maintained must be established for each area.

(11) Development of park management plans should be based on points (8) and (9). Particular attention should be paid in planning developments to accommodate tourism to the primary conservation function of the reserve.

(12) The development of systems of zoning based on points (8), (9), and (10) is needed.

(13) Research must be planned which is related specifically to the above objectives.

(14) The apparent lack of coordination between the advisors of UN and other agencies and developing countries must be solved. Those seeking advice about particular problems are often given differing opinions, not only by advisors in varying interrelated fields, but also by people in the same agency. As a result, the country seeking advice may either choose the most comfortable solution or ignore them all.

Institutional problems

(1) Most developing countries need a *National Scientific Council* to advise on the proper management of natural resources and to review and advise upon all proposed economic developments or major land use changes in view of their impact upon the total environment, including protected areas. In some countries (e.g., Swaziland) a *Natural Resources Board* serves this function, at least in part. Such a council should meet regularly with decision-making authorities.

(2) In most developing countries national park and wildlife protection agencies occupy a low rank in the political hierarchy. The creation of Ministries and Departments of Natural Resources may be an effective means of remedying this. These Ministries or Departments should be accorded equal rank with other agencies.
(3) Proper training for park administrative and management personnel as well as for research scientists is urgently needed. The development of regional schools (such as Mweka or Garoua in Africa) appropriately related to university systems so that all levels of training can be accommodated is to be recommended. Particular attention should be given to the needs of Southeast Asia and Latin America.

Research needs

Research within parks and reserves should be directed primarily towards more adequate protection and management of their ecosystems. Research which lacks immediate application to national park management must be postponed until basic research needs are satisfied, unless such research is fully funded by outside sources and does not interfere with park functions.

(1) It is essential that surveys and inventories must be conducted within the parks to reveal the nature and extent of the park ecosystems and the status of species populations. Support for taxonomic research, both botanical and zoological, must be made available.
(2) Ecological monitoring must be carried out on a continuing basis within each park. This should include censuses, studies of animal population structure, mobility studies, continuous recording of climatic and vegetational changes, appraisal of animal and plant pathology, levels and effects of pollutants, particularly biocides, etc.
(3) The effects of fire and other disturbances and tourist pressure need additional study to allow for proper management of park ecosystems.
(4) Research on the carrying capacities of parks and reserves for animals and human visitors should be determined and appropriate measures taken to reduce the pressures on national park values.
(5) Research should be carried out on the feasibility of using wild animals as crops to determine the potential for producing sustained yields. This research will have important implications for areas *outside* national parks. The effect on the total ecosystem involved should also be studied.
(6) Further research on the effects of pesticides on wild animal and plant populations should be carried out.
(7) Particular attention should be paid to the dissemination of research results among the national parks and reserves of the world. In this connection, the role of the Information Referral System being developed by UNEP should be examined. The UNESCO science information exchange system and other regional and sectorial information exchange systems should also be considered as vehicles for accomplishing this objective.

(8) Safeguards should be developed regarding research work by visiting scientists in developing countries. These should include agreements to leave with the host institution: (a) copies of raw data; (b) collections of plant and animal specimens; and (c) copies of films and photographs, as well as an agreement to publish within a reasonable time and to provide the host institution with a reasonable number of copies of all publications.