



IV NATIONAL OBJECTIVES AND PRIORITIES FOR CONSERVATION AND SUSTAINABLE UTILIZATION OF BIODIVERSITY

A. National Objectives

1. The goal of the National Biodiversity Action Plan is to conserve as much as possible of the biodiversity on which the livelihood and prosperity of Indonesia depends. The plan's major objectives are:
 - a. to slow the loss of primary forests, wetlands, coral reefs and other terrestrial and marine habitats of primary importance for biodiversity;
 - b. to expand the data and information available on the nation's biodiversity and make it available to policy makers and the public, and;
 - c. to foster the utilization of biological resources in ways that are sustainable and less harmful than current practices.
2. These objectives can only be attained through an integrated and complementary pro-

cess of institutional, policy and legal reform and development, coupled with increased investments through carefully developed projects.

3. Increased participation by the public, particularly by communities living in, and dependent on, areas of high biodiversity, is a major objective of the Action Plan and an important prerequisite for the Plan's implementation. It is recognised that NGOs can play a productive role in increasing participation and must be accepted as partners with government agencies in working to conserve biodiversity.

4. The first priority for maintaining biodiversity must be *in situ* conservation, both within the protected areas network and in oceans, coastal zones, forests and multiple-use and agricultural landscapes outside protected areas. *Ex-situ* conservation can be a useful supplement to species protection within natural ecosystems and for preservation of genetic variety in agricultural systems.

5. In accordance with these priorities, the National Biodiversity Action Plan will comprise four main components:

- *in situ* conservation in national parks, reserves and protection forests;

- *in situ* conservation outside the protected area network in forests, wetlands and agricultural landscapes;
- *in situ* conservation of marine and coastal resources; and
- *ex-situ* conservation including gene banks, seed banks, preservation of crop varieties, and captive breeding programmes.

6. Successful implementation of the Action Plan in each of these areas will require reform and strengthening of policies, institutions and legal arrangements; strong inter-sectoral cooperation; strengthening of arrangements for public participation; setting realistic priorities; identification of research, education and training needs; adequate investments in training, manpower and other needs; careful and participatory project development, and full economic evaluation of the costs and benefits of both conservation and utilization of biological resources.

7. Procedurally the purpose of the Action Plan is to constitute the biodiversity component for the 25 Year Development Plan and for Repelita VI and to provide guidance for policy, legal and institutional reforms, as well as for biodiversity projects.

B. Actions Needed to Conserve Biodiversity Resources

1. In-situ conservation in terrestrial parks and protected areas

Objectives:

- to establish an integrated protected area system covering all major terrestrial habitats and approximately 10 percent of Indonesia's land area;
- to strengthen PHPA, the main agency responsible for conservation areas;

- to gain local support for national parks and protected areas through buffer zone projects and involvement of local communities and NGOs in management decisions;
- to develop innovative and sustainable means of funding for park management and buffer zone activities, e.g. ecotourism; and
- to evaluate options for the management of protection forest to enhance the conservation of biodiversity.



Parks need production forest to buffer them from deforestation, as here on the boundary of Gunung Leuser National Park, Sumatera

Priority Actions

1.1. Endorse the proposed, designated and gazetted conservation areas (terrestrial and wetland ecosystems) as described in the National Conservation Plan and Irian Jaya Plan. Review and update the National Conservation Plan, rationalising boundaries of protected areas as appropriate. As a matter of priority gazette

proposed and designated protected areas of high conservation value to extend the protected area network. The Plan will be revised under the World Bank Forestry 2 project.

1.2. Re-evaluate conservation areas listed under Appendices 6 and 7 (plus other key areas) according to criteria of biological richness, economic benefits, environmental, social and

cultural values, viability, degree of threat, funding and institutional needs. Based on these evaluations, recommend conservation areas for priority conservation action in each biogeographic region.

1.3. Update and implement existing management plans for selected conservation areas of known high biodiversity in all seven biogeographic regions. High priority sites not yet receiving substantial technical assistance include Kerinci-Seblat (Sumatra), Gunung Palung (Kalimantan), Gunung Halimun (Java), Gunung Rinjani (Nusa Tenggara), Rawa Aopa (Sulawesi), Manusela (Maluku), Gunung Lorentz (Irian Jaya).

1.4 Implement protection and management in other priority protected areas (appendix 7) involving where necessary:

- resource inventories and management-orientated research (LIPI, Universities, PSLs, and other interested /competent agencies);
- socioeconomic surveys in communities living in and adjacent to protected areas (NGOs, universities with guidance as necessary);
- boundary revisions and finalisation in consultation with local communities (PHPA with technical assistance as needed);
- boundary marking (BIPHUT with guidance from PHPA);
- management plans and implementation (PHPA with technical assistance as needed and with community /local input); and
- buffer zone activities, identification and implementation (PHPA, communities, NGOs, foundations as appropriate).

1.5. Ensure that management plans specify manpower, resource and training needs for each park and reserve and how these needs are to be

met. This action can be expanded into an estimation of manpower requirements for the whole protected area system, leading to specifications for a national training programme at all levels to strengthen the management capabilities of PHPA.

1.6. Strengthen the protected area network and increase the conservation estate by maintaining buffer zones and habitat corridors in adjacent forest lands outside the protected area.

1.7. Adopt innovative management policies and programmes to ensure the participation of local communities in protected area and buffer zone planning and management. Where local communities lose rights of access to protected areas, management agencies should provide compensation and alternative sources of income or other benefits through buffer zone activities.

1.8. Zone parks and reserves for multiple use. Take special measures to protect the land tenure and traditional harvesting rights of forest-dependent peoples, where such actions are compatible with the management objectives of the conservation area.

1.9. Develop several national parks for ecotourism, provide appropriate infrastructure and take measures to safeguard against over utilisation. Review the feasibility of returning tourism revenues to national parks and protected areas. Projects under World Bank Forestry 2.

1.10. Review the status of the 30 million hectares of protection forests, recognising that they provide valuable conservation estate in addition to their watershed functions. Prepare and adopt guidelines for management of protection forests, under the management authority of provincial forestry departments and PHPA.

1.11. Designate parts of protection forests as 'extractive' reserves for harvesting of non-tim-

ber forest products by local people, providing that such harvesting does not impair the forests' watershed protection function.

Other actions:

1.12. Develop regional conservation programmes to integrate conservation activities and protected area management with regional land use planning.

1.13. In accordance with government policy, decentralise and place more management responsibility in the hands of provincial, local and community authorities, including NGOs and the private sector. Monitor and evaluate different management models to determine what management structures are most appropriate for individual reserves identified by the Biodiversity Action Plan.

1.14. Coordinate donor activities to maximise conservation efforts and resources. Invite donor agencies to assist with priority conservation activities in regions where they have development programmes. Where technical assistance is offered for sites of lesser conservation priority, each case should be carefully reviewed prior to commitment of government facilities, personnel and counterpart budgets.

1.15. Establish a database of agency/donor development activities and locations to identify areas of possible donor interest in the biodiversity plan. Establish mechanisms within PHPA to systematise an approach in securing participation and outside help in priority areas for conservation of biodiversity.

1.16. Strengthen the incentives for staff of PHPA, particularly the field officers, including upgrading of many employees to regular functional staff, extra training opportunities, and awards and recognition for outstanding service.

1.17. Conduct a study on alternative funding mechanisms for improving conservation area management, e.g. endowment funds, private

sector funding, independent foundations, 'flagship species' funds.

2. In-situ conservation outside national parks and reserves

Even if reserves can be well-protected and managed (and many in Indonesia have no protection, staff, nor budgets) conservation areas represent only 8 percent of the nation's land surface. Where reserves become 'habitat islands' they will lose at least some of their original species. The rate and amount of species loss will depend on the size of the reserve. As a general rule a single reserve containing just 10 percent of the original habitat will support only 50 percent of the original species present. However not all the land outside reserves will be converted to permanent agriculture, plantation or urban use. Protection forests, selectively logged forests and other disturbed habitats will come to play an increasingly important role in conservation as primary forest areas continue to decline. Many wetland areas of high conservation value sustain high human use and therefore require conservation action other than protected area status.

Objectives:

- to sustainably utilize and manage biological resources to conserve biodiversity for the benefit of present and future generations;
- to develop an integrated national policy for wetlands management;
- to maintain and generate livelihood opportunities for local communities and to integrate local knowledge in development and management of forest, wetland and agricultural resources;
- to increase crop production while maintaining maximum biodiversity within agricultural systems; and

- to develop diverse plantations and rehabilitate and reforest unproductive and degraded lands to relieve pressure on natural forests and to restore environmental integrity.

Priority Actions - Forests:

2.1. Update the TGHK (Forest Land Use Plan), the legal basis for forest planning at the provincial level to accurately reflect the real forest situation. Demarcate boundaries for priority conservation areas and buffer zones to avoid conflicts of interest that are detrimental to conservation of biodiversity. The RePPPProT maps could be used as a base. Categories of land use and ownership included in the TGHK also need revision; this will require amendments to the Basic Forestry Law to recognise *adat* common property rights (Section V).

2.2. Review and revise forest production policy including such issues as the present TPTI, length of concession, rotation cycle, tax concessions etc to better control and improve logging practices (extent of logging, species extracted) to provide incentives to concessionaires to minimise environmental damage during logging operations.

2.3. Require logging concessionaires to leave undisturbed blocks of forest (minimum 100 ha) of all forest types in a production forest (mixed lowland forests and mangroves) and covering in aggregate 10 percent of the concession area as seed sources, refugia and migration corridors for wildlife. This will include strips of riparian forest 20-40m wide along river banks within production forests.

2.4. Develop HTI (timber estates) and fuel wood plantations on critical lands to relieve pressure on natural forests. Set a target for reducing the extent of, and yield from, production forests over the next 5-10 years as timber from plantations becomes available.

2.5. Establish HTI on degraded lands and not by clearing areas of primary or regenerating

forest. Develop multiple species crops of native trees rather than monocultures of fast-growing exotics. Involve local communities in management of HTI and planting and harvesting of forest products.

2.6. Develop programmes to assess the socio-economic values of ecological and environmental services and exploitation of non-timber forest products to local and national economies. Improve utilization and marketing of these forest products.

2.7. Extend social and community forest programmes, emphasising the participation of people living in and around forests in forestry development activities. Identify traditional land management systems which allow sustainable harvesting of biological resources. Incorporate traditional knowledge into project designs, especially for buffer zones.

2.8. Rehabilitate degraded forest lands. Evaluate and improve existing reforestation programmes. Encourage reforestation of critical lands with native species to develop multiple species, multiple use forests. TFAP projects.

2.9. Establish research programmes to develop better understanding of the functioning and management of tropical forests, through long term monitoring of forest ecology, natural regeneration, seed dispersal and growth and yield.

2.10. Strengthen PHPA and the provincial forestry agencies responsible for protection and management of forest resources. Strengthen PHPA's capability to evaluate environmental impacts of forest activities e.g. logging concessions. Project 31.

Other Actions:

2.11. Reduce the scale of forest development projects to favour development which is locally specific, ecologically and socially sensitive and



designed to retain as much as possible of the biodiversity of the site.

2.12. Develop mechanisms whereby industries dependent on biological resources contribute to long-term conservation and sustainability of those resources e.g. through royalty payments.

2.13. Strengthen the capability of universities and NGOs to monitor biodiversity trends outside conservation areas and protected forests.

Recommended Action: Wetlands

2.14. Survey remaining wetland habitats to assess their status, degree of utilisation and their value to local and provincial economies. Develop criteria for conservation of wetlands based on biological richness, economic benefits, benefits and costs of other land use options, socio-cultural values, scientific value and sustainability of current utilisation.

2.15. Integrate conservation and management of wetlands into provincial and regional development plans.

2.16. Educate decision makers to the services provided by wetlands; create awareness that, in some cases, conservation of wetlands may be the most appropriate form of land use. Develop and disseminate information on successful management approaches for integrated development and sustainable utilisation of wetlands.

2.17. Develop and promote methods for economic evaluation of the goods and services provided by tropical wetlands. AWB are already developing land resource management strategies for wetlands and coastal ecosystems in Sumatra.



Other actions:

2.18. Assess fully all government plans for conversion of wetlands e.g. to agriculture, for their hydrological, fisheries and social impacts. Assess planned investments in river management e.g. damming, irrigation schemes, to determine the downstream impacts of such developments on local wetlands. Implement measures to minimise adverse environmental impacts.

2.19. Extend the clean river programme (Prokaseh) from the present 25 rivers to include other major river systems as appropriate. Strengthen and enforce existing regulations to control pollution which is harmful to aquatic life.

Recommended Actions: Agricultural Lands

2.20. Incorporate biological diversity concerns into agricultural development projects. Circulate and explain the RePPPProT maps which show existing and proposed conservation areas (significant sites for biodiversity) to development planners so that there are no conflicting developments planned through lack of knowledge.

2.21. Provide incentives to local farmers to conserve and to cultivate local varieties of food crops, e.g. rice, even when these varieties provide lower yields. Current regulations and policies should be scrutinized to remove all prohibitions and disincentives to grow local varieties.

2.22. Establish and enforce a system of property rights in genetic resources for farmers.

2.23. Scrutinize policies which promote monocultural export crops for their impact on both biodiversity and on the livelihood security of agricultural communities.

2.24. Encourage multiple cropping systems which simulate the ecology and structure of natural ecosystems, as practised in home and

forest gardens throughout the archipelago and in the *tumpangsari* system in plantations in Java.

2.25. Provide incentives to encourage diversification of food and tree crops appropriate to local soil conditions.

Other actions

2.26. Encourage the use of natural fertilisers, herbicides and pesticides rather than industrial chemicals, when available and appropriate.

2.27. Develop biological control in preference to use of chemicals whenever it is appropriate to do so.

3. Coastal and marine conservation

Conservation of biodiversity in marine areas requires the protection and regulation of very large areas and effective management to control pollution and shared resources. Management constraints are rather different to those for terrestrial systems. Resource users include a much broader community than those who live geographically close, and outsiders often have little or no incentive to protect the resource. Involving local communities in management of reef and other marine resources to control all users can be very effective since better protection brings an immediate incentive in increased fish harvests.

Objectives:

- to extend the area of marine protected areas to 20 million hectares by the year 2000;
- to improve conservation and management of mangrove ecosystems;
- to encourage local community participation in management of marine resources; and

- to develop a rational and integrated coastal zone strategy to conserve biodiversity.

Priority Actions

3.1. Review and update the Marine Conservation Plan. Expand the protected area network to gazette areas of high conservation value (Appendix 8) to give adequate protection to all major marine habitats: coral reefs, sea grass beds, turtle rookeries etc. This will require a considerable increase in manpower and funding.

3.2. Implement protection and management needs for at least one priority reserve in each major biogeographic region. High priority coastal and marine sites, not yet receiving substantial technical assistance include Sungai Sembilang (Sumatra); Karimun Jawa (Java); Berau turtle islands (Kalimantan), Togian Islands (Sulawesi); Raja Ampat Islands; Aru Islands (Maluku), Bintuni Bay (Irian Jaya).

3.3. Strengthen the capacity of PHPA in marine and coastal conservation, giving particular attention to recruitment and training of employees.

3.4. Develop ecotourism in selected marine reserves, being sensitive to the needs of local communities and to the environmental impact of tourism development.

3.5. Encourage the development of community-managed conservation programmes for reefs and other marine and coastal habitats. Recognise and promote marine property rights to enfranchise local communities in the conservation and wise and equitable use of marine resources.

3.6. Survey the extent and status of mangrove habitats. Prior to further expansion of tambak industries, require environmental studies and EIAs to be carried out to determine what areas are too important and ecologically sensitive for development.

3.7. Protect and conserve a mangrove fringe for 200m inland along the shoreline and estuaries to maintain the important functions provided by mangroves e.g. coastal protection, fisheries production. Restore and rehabilitate damaged mangroves.

3.8. Develop a rational coastal zone management strategy and management agency to coordinate inter-sectoral developments which will affect coastal and marine biodiversity.

Other actions:

3.9. Build awareness among decision makers of the national reliance on marine resources, especially fisheries, and the threats from uncontrolled marine pollution.

3.10. Improve the flow of information concerning existing coastal and marine pollution and environmental management programmes. Promote the implementation of existing ocean pollution control programmes.

3.11. Enforce existing regulations to control activities which are damaging to biological diversity: coral mining, fish bombing, over-harvesting of marine resources.

3.12. Declare the whole of the Indonesian seas as a whale sanctuary to provide protection for all six whale species recorded in Indonesian seas (blue, humpback, sei, sperm, fin and minke whales). This action would complement the actions of other Indian Ocean nations.

3.13. Take appropriate measures and enforce existing legislation to protect important marine species such as dugongs, marine turtles, and whales. Control and reduce the present unsustainable levels of harvesting of adult turtles and collection of turtle eggs. Provide better protection for feeding and nesting grounds of marine species.

3.14. Monitor the extent and sustainability of harvesting of marine resources such as giant

clams *Tridacna*, *Trochus*, edible and ornamental molluscs, trepang, mother-of pearl shells, ornamental fish and semi-precious black coral.

4. *Ex-situ* conservation

Objectives:

- to strengthen *ex-situ* collections in botanic

gardens, gene banks, germ plasm collections and plant breeding centres, and

- to implement the national policy for germplasm conservation.

4.1. Strengthen *ex-situ* conservation initiatives in botanic gardens, gene banks, germ plasm collections, plant breeding centres and zoologi-



Shirmpfish or Razorfish *Aeoliscus* sp. and black coral of Bunaken Island

cal gardens by providing increased training, manpower and funding resources.

4.2. Survey and collect local fruit trees and other useful plants and extend arboreta and germplasm collections.

4.3. Monitor and support local community efforts to establish seed banks.

4.4. Establish captive propagation/horticulture programmes for traded non-protected wildlife/plants that are easily bred in captivity, to reduce the drain on wild populations e.g. rattan plantations, ranching of long-tailed macaques, deer, crocodiles.

4.5. Promote collection of genetic resources and development of appropriate biotechnology for improving food production, pharmaceutical products and industrial crops.

Other actions:

4.6. Monitor and evaluate on-going captive breeding and reintroduction schemes for rare Indonesian animals such as rhinos, birds of paradise, parrots, Bali starling.

4.7. Evaluate all projects to capture or collect rare or endangered species to determine that capture operations do not threaten the survival of the wild population e.g. by removal of most of the breeding stock. Encourage zoos to support scientific studies in the wild on demography of endangered animals to assess rates of recruitment and natural mortality.

4.8. Ensure that institutions involved in captive breeding of rare species set aside resources for reintroduction schemes and for protection of natural habitats of those species.

5. Community participation in conserving biodiversity

5.1. Conservation programmes cannot succeed without strong public support at all levels from

national decision makers to local government officials and particularly local communities. Local communities often have traditional rights, harvesting systems and knowledge that is relevant to conservation of biodiversity in terrestrial, wetland and marine habitats both within and outside reserves.

5.2. Approximately 40 million people live in, or are dependent on, resources in the public forest estate. These people are the *de facto* forest managers and this must be recognized. This means recognizing their rights to land and resources and working with them to develop sustainable systems of forest management, land restoration and agrosilvicultural production for both local and national needs - Appendix 14.

5.3. If forest-dwelling and forest-dependent communities are to play an active role in biodiversity conservation and management they must have a decisive voice about resource use in their area. NGOs can be an important vehicle for advocacy of their positions and for mediation between the government and the community.

5.4. The integrity of conservation areas cannot be maintained without providing alternative resources and income-generating opportunities to local people who are directly dependent upon resources from those areas. Buffer zone development and community participation are important mechanisms for providing such alternatives, thereby relieving pressure on conservation areas.

Recommended Actions

5.5. Review and revise national legislation to give full recognition of common property rights for land tenure and utilization of forest and marine resources - section V.

5.6. Use traditional land tenure arrangements as a basis for planning and executing conservation projects and those concerned with sustainable utilization of biological resources.

5.7. Evaluate traditional land and sea management systems. Disseminate information on management systems which are productive and allow sustainable harvesting of biological resources.

5.8. Design projects which benefit local peoples and maintain sustainable resource practices. Incorporate traditional knowledge into project designs, especially buffer zone and forest and marine management projects.

5.9. Provide employment/income-generating opportunities and/or other benefits to local communities living adjacent to protected areas to relieve pressure on these areas and to preserve their biodiversity.

5.10. Develop model pilot projects for active community participation in management of protected areas, buffer zones, resource forests and wetland ecosystems. Recognize that different prescriptions will be needed for different groups, e.g. indigenous peoples, transmigrants or pioneer settlers with different land and resource use practices.

5.11. Use rapid appraisal planning methods at village community level in buffer zones bordering conservation areas, forests and in wetlands to improve the participation of local communities in the planning and management of natural resources and the conservation of biodiversity.

Other actions:

5.12. Document traditional knowledge on utilization of plant and animal resources.

5.13. Investigate the feasibility of a royalty system payable for exploitation and development of traditional knowledge, e.g. ethnobotanical knowledge utilized by the pharmaceutical industry.

5.14. Encourage local communities to form community organizations, appropriate to their

cultures, practices and needs, to participate in development decisions on resource use.

6. Research and development needs

Priority Actions:

6.1. Continue to inventory biodiversity throughout the archipelago. Accurate data needs to be collected in a systematic and scientific manner. Update and maintain national collections.

6.2. Monitor habitat loss and its effects on plant species diversity and wildlife. Monitor plant/animal interactions and the effects of habitat loss on pollination and seed dispersal patterns.

6.3. Initiate long term research projects on the ecology and natural regeneration of forest, wetland and marine ecosystems to determine sustainable levels of resource use.

6.4. Document traditional, local and ethnobotanical information, including oral histories of natural resource use and management.

6.5. Enhance the capacity to apply science to resource management. NGOs working with local communities can identify research needs to assist sustainable utilization

6.6. Encourage more research on conservation and sustainable use of native species, especially non-timber forest products, and the value of these resources to local and national economies.

6.7. Develop research programmes and auditing systems for assessing the costs and benefits of conserving natural resources.

Other actions:

6.8. Develop management-orientated research in parks and protected areas e.g. resource use by wildlife.

6.9. Develop appropriate biotechnology for exploitation of biodiversity e.g. identification and duplication of chemically active and pharmaceutical substances from native plants.

6.10. Develop techniques/mechanisms to encourage sustainable-use harvesting of wild species such as wildlife ranching (deer, monkeys, monitor lizards, crocodiles) horticultural propagation, e.g. dipterocarps, orchids.

7. Information use and management

Priority actions:

7.1. Collect and collate information on biodiversity, species richness, endemism and distribution throughout Indonesia. Participate in the Flora Malesiana and Fauna Malesiana projects.

7.2. Enter available data (from species lists, plant collections) on species distributions and utilization into computerised databases. These databases will need regular upgrading, also training for local people to maintain and update the databases.

7.3. Promote standardization of data collection and storage to ensure the comparability and transferability of information between databases. Provide support for local initiatives in database establishment and networking.

7.4. Relevant management and scientific authorities (PHPA, LIPI) should collect and collate data on status, abundance and population trends of traded species. This information is required for active participation in CITES.

7.5. Provide free access to information on planned development projects. Full data, in bahasa Indonesia, should be made available to local communities and NGOs concerning planned development projects impacting on biotic resources in their areas so that they may

play an active and informed role in their own development.

7.6. Improve access and use of general information on biodiversity issues by providing relevant information in easily comprehensible form to the public through general textbooks, the news media and tourism information.

7.7. Improve collaboration and information exchange between agencies. Numerous government agencies at both national and provincial levels collect information relevant to conservation of biodiversity e.g. sectoral agencies, Bureau of Statistics etc.

8. Education, training and extension programmes

Priority actions:

8.1. Assess training needs for conservation professionals and extension staff in all relevant agencies to produce a cadre of well-trained, informed and committed conservationists. Design in-country and on-the-job training courses, relevant to staff and local needs.

8.2. Strengthen training, education and extension programmes on biodiversity issues for conservation professionals, NGOs and the private sector. Design projects for demonstration training courses, including content and approach. Use local knowledge and non-formal teaching methods.

8.3. Specifically provide training to increase and improve the numbers of trained marine biologists and natural resource managers in Indonesia. Establish a marine conservation school to provide training for agencies concerned with conservation of marine resources: LON, PHPA, local universities, NGOs.

8.4. Produce field guides, tree flora and identification keys to enable identification and stimulate interest in key groups of plants and animals.



Interactions of men, environment and development also depend on culture

8.5. Develop and promote information on biodiversity as part of the new national school and university curriculum to be introduced in 1994.

8.6. Develop a national awareness campaign to gain public support for the National Biodiversity Action Plan.

8.7. Involve NGOs, the private sector and local communities in the development and implementation of a people-based action plan to conserve biodiversity as outlined by SKEPHI (1991) - Appendix 14.

Other actions:

8.8. Build a database on training opportunities and resources.

8.9. Identify research training needs: how to conduct simple management-related research using simple field techniques - short courses and workshops to be run for students and field staff. Similarly for monitoring in parks, use universities, students and PSLs, PHPA park staff, Forestry staff.

8.10. Promote travelling seminars as a means of training parks staff, NGOs and other personnel in park management in terrestrial and marine areas.

8.11. Develop information materials for ecotourism.