

Standards of Management

Many notified nature reserves still lack a management plan or management body and have almost no budget. Those reserves that do have management plans and staff, vary considerably in the standards of management exhibited. With a few good exceptions the standards are generally low because of poor levels of staff training and pay, shortages of equipment and operational budget, low morale and poor supervision. Management plans are in fact development plans and not plans of action.

1.14 Evaluation of *Ex Situ* Conservation

Ex-situ conservation is the conservation of plant and animal taxa or their biological materials away from their natural habitat. Sika Deer (*Cervus nippon*) are extinct in the wild in Vietnam but about 7,000 are kept in captive herds in Ha Tinh, Nghe An and Thanh Hoa Provinces, bred for the harvest of young antlers a highly priced medicine. A small experiment to reintroduce the species to the wild will be started in Cuc Phuong National Park if the current attempt to reintroduce sambar (*Cervus unicolor*) there is successful.

The Hanoi Zoological Gardens, together with the Institute of Ecology and Biological Resources, has been successful in captive breeding of two endangered species: Owston's Otter Civet (*Cynogale owstoni*) and Vietnamese pheasant (*Lophura hatinhensis*). However, a captive-breeding station built for kouprey near Buon Me Thuot remains empty.

Efforts to breed examples of Vietnam's rare endemic primates, such as the Tonkin snub-nosed monkey, François' langur (four resident sub-species) and Douc langur, have had little success.

Most breeding success in Vietnam is clearly linked to commercial rather than conservation objectives as can be seen with turtles, frogs, pythons, macaques, deer and civets.

So far, although the capacity to breed rare species in captivity is growing in Vietnam little has been achieved. There have been no successful reintroductions of species and zoos and the few botanic gardens in the country are primarily a drain on natural resources and motivated by commercial objectives rather than conservation.

Improvements need to be made in the fields of animal care, regulations controlling the bringing of rare species into captivity, breeding success and the role of zoos in education.

1.15 Government Policy for Environmental Protection and Biodiversity Conservation

The first national park in Vietnam was established in 1962 and subsequent laws, regulations and directives indicate that the government is committed to biodiversity conservation.

Vietnam's policy towards biodiversity was clarified in the publication of the National Conservation Strategy (NCS) in 1985 which aimed to:

- satisfy the basic material, spiritual and cultural needs the Vietnamese people, both now and in the future, through the wise management of natural resources.
- define and establish policies, organisation and actions where sustainable use of natural resources will be fully integrated into all aspects of Vietnam's social and economic development.

In 1991 the NCS principles were refined in the National Plan for Environment and Sustainable Development, which combined relevant policies of central planning and the ministries concerned. The Chairman of the State Committee for Science and Technology (SCCT) was made responsible for co-ordinating implementation. In 1992 the SCCT became the new Ministry for Science, Technology and the Environment (MOSTE). In 1993, the National Environment Agency was established as one of the Departments in MOSTE.

The following list summarises the main environmental policies of different sectors:

Forestry

The forestry policy was reviewed in the Tropical Forest Action Plan, which has been subsequently revised. Decision number 327 of the Council of Ministers spawned several new directives which prioritised the importance of protecting forest, restoring bare lands to productivity and sedentarisation. A major change came in that the protection and management of forest lands was entrusted to local people.

The targets up to the year 2000 are to establish:

- Six million hectares of protected forests.
- Two million hectares of nature reserves (special use forests) which will be zoned and to develop buffer zones to support local people. Employment preferences will be given to local people.
- 11 million hectares of production planted forests which will include five million hectares of new forest.
- 40% forest cover over the country (this cannot be completed by the year 2000).

Forest use will be sustainable and forestry will become more integrated with agriculture and the fisheries. Local people will have a greater involvement.

Education

The education policy aims to introduce environmental studies at all levels of formal education and school children are encouraged to participate in tree planting programmes.

Population

The target of the population policy is to reduce population growth to 1.8% by the year 2000 and to reach population stability by the year 2050.

Fisheries

The aim of the fisheries policy is to develop sustainable methods for raising and harvesting fish. The creation of marine protected areas is under consideration in order to strengthen protection of estuaries and coastal ecosystems, particularly mangrove forests and coral.

Land-use

Land in Vietnam belongs to the State. Forest and barren land may be licensed to individuals and communes for protection, management and use. Decision 327 allowed forest lands to be parcelled out on long-term land-use licenses to encourage long-term investment for forest restoration and to provide direct forestry benefits to local people, some of whom will be contracted to manage forest land.

There are attempts to prohibit shifting cultivation. A long term programme of sedentarisation is being implemented but this being questioned by many international agencies.

Agricultural land can be handed over for long-term use which enables farmers to make their own investments and decide the most suitable patterns of cropping and raising livestock. This allows farmers to undertake agroforestry and maintain traditional varieties and therefore help conserve the biodiversity of local agro-ecosystems.

Discrimination against **ethnic minority** people is forbidden, and each group has the right to use its own spoken and written (if it has one) language and to observe its own customs and traditions. The government aims to develop the material and spiritual life of these people.

Pollution:

The Ministry of Science, Technology and the Environment is gradually introducing a series of industrial standards to control pollution as well as regulations forcing Environmental Impact Assessments on all major planned developments.

Non-Government Organisations:

Mass organisations such as the Association for Nature and Environmental Conservation of Vietnam, the Farmers Union, the Gardening Association, the Youth Union, the Woman's Union etc. are encouraged to participate in replanting and reforestation in their localities.

1.16 Measures to Control the Use of Biological Resources**Legal Instruments**

Laws and directives to control land use and natural resources include:

- 1988 Land Law, revised in 1993
- 1989 Decree on Mineral Resources
- 1989 Health Protection Law
- 1989 Decree on Protection of Water Resources
- 1989 Legislation on protection of dams and dykes
- 1990 Law on Ocean Shipping
- 1994 Law on Environmental Protection

Measures related to protection of wildlife include:

- 1960 ban on elephant hunting
- 1963 regulations on the hunting of forest wildlife
- 1973 Decree on Forest Protection (including protection for wildlife)

- 1989 Ministry of Forestry Decision 276 banning the hunting of 38 wildlife species
- 1991 Law on Forest Protection and Development
- 1992 Council of Ministers Decision 18 completely banned the logging of 13 species of trees and the hunting of 36 animal species and limited the logging or harvesting of 19 plants species and the hunting of 10 animal species
- 1993 Government instruction on the protection and administration of precious and rare floral and fauna
- In 1994 Vietnam signed the Convention of International Trade in Endangered Species (CITES).
- In 1994 Vietnam ratified the Convention on Biological Diversity.
- Vietnam is a signatory to the 1982 Convention on the Law of the Sea.
- The wide ranging "Ordinance on Fisheries Resources Protection", promulgated in April 1989, covers regulations on fishing seasons and catch size, the prevention of pollution in fishing grounds, research on fish stocks and the encouragement of domestic and international investment in the fisheries sector.

Financial and other Incentives

Law enforcement is one way to control the use of natural resources. The use of economic incentives may be equally or more effective. The following examples from Thailand illustrate how incentives can have a positive result on biodiversity conservation.

- Taxation in Thailand penalised small fishermen in commercial enterprises, a process that led to heavy overfishing. Two measures have greatly reduced overfishing and increased catch. Firstly the introduction of a

closed season using a rotational area by area system. This resulted in a 24% increase in catch in the Gulf of Thailand. The second measure was to increase the mesh size of nets from 1.5 cm to 4 cm thereby reducing the kill of immature fish. The latter measure led to an increase in production value of \$8 per annum.

- Rates of mangrove loss and conversion to shrimp farms is being reduced by intensifying use of existing shrimp farms, setting mangrove rentals that more accurately reflect the benefits and costs incurred by local people and providing incentives for mangrove reforestation and combined mangrove conservation with aquaculture.
- Rates of forest loss due to illegal encroachment are being reduced by applying a range of measures. These include: a minimum requirement of hiring local labour; design of forest roads to supplement local village road requirements; provision of free training in planting techniques; giving local people rights to collect minor forest products at minimal charge, greater rights for private agents to plant and harvest their own tree products; tax breaks for companies that achieve conservation goals in their projects and greater government investment in forestry villages, community woodplots and agroforestry projects.
- Rates of invasion of and poaching in protected areas are being reduced by such measures and incentives as government compensation for crop damage by wild animals; direct subsidies for loss of access to forest areas; increased local participation in reserve planning and management and increasing the rates for foreign visitors. The benefits to local communities from the growth in nature tourism has been greatly increased by restricting the development of visitor complexes inside parks and instead placing such complexes outside or on the boundary of parks where local entrepreneurs can get into the business selling food, providing lodgings or guide services.

There are many similar opportunities in Vietnam where small adjustments in planning regulations, fees, taxes and zonation could provide greater incentives for improved biodiversity conservation at no cost, and often financial benefit to the national economy.

1.17 Institutional Responsibilities

Many Government institutions have responsibilities in managing and use of natural resources. These responsibilities are not always clear, and sometimes overlap. Conflicts also arise between agencies which have a similar mandate but a different objective. It is therefore important to review and re-structure the institutional arrangements (see section 3.1).

The most important authorities with regards to management and conservation of biodiversity are:

- National Environment Agency in the Ministry of Science, Technology and Environment
- Ministry of Forestry
- Ministry of Agriculture and Food Industries
- Ministry of Fisheries
- Ministry of Education
- Law Enforcement Agencies (police and magistrates)
- Ministry of Public Health
- Committee for Ethnic Minorities and Mountainous Areas
- Provincial and District People's Committees
- Many NGO's
- University of Hanoi, affiliated faculties, and the Centre for Natural resources Management and Environmental Studies

1.18 International Co-operation

International aid for the biodiversity sector in Vietnam has been modest during the past decade because of the priority given to other sectors and restrictions imposed by economic embargoes. Details about ongoing and planned external assistance projects can be found in the UNDP Vietnam Development Cooperation report (UNDP, 1993). The following organisations (listed in alphabetical order) have provided specific assistance in biodiversity conservation.

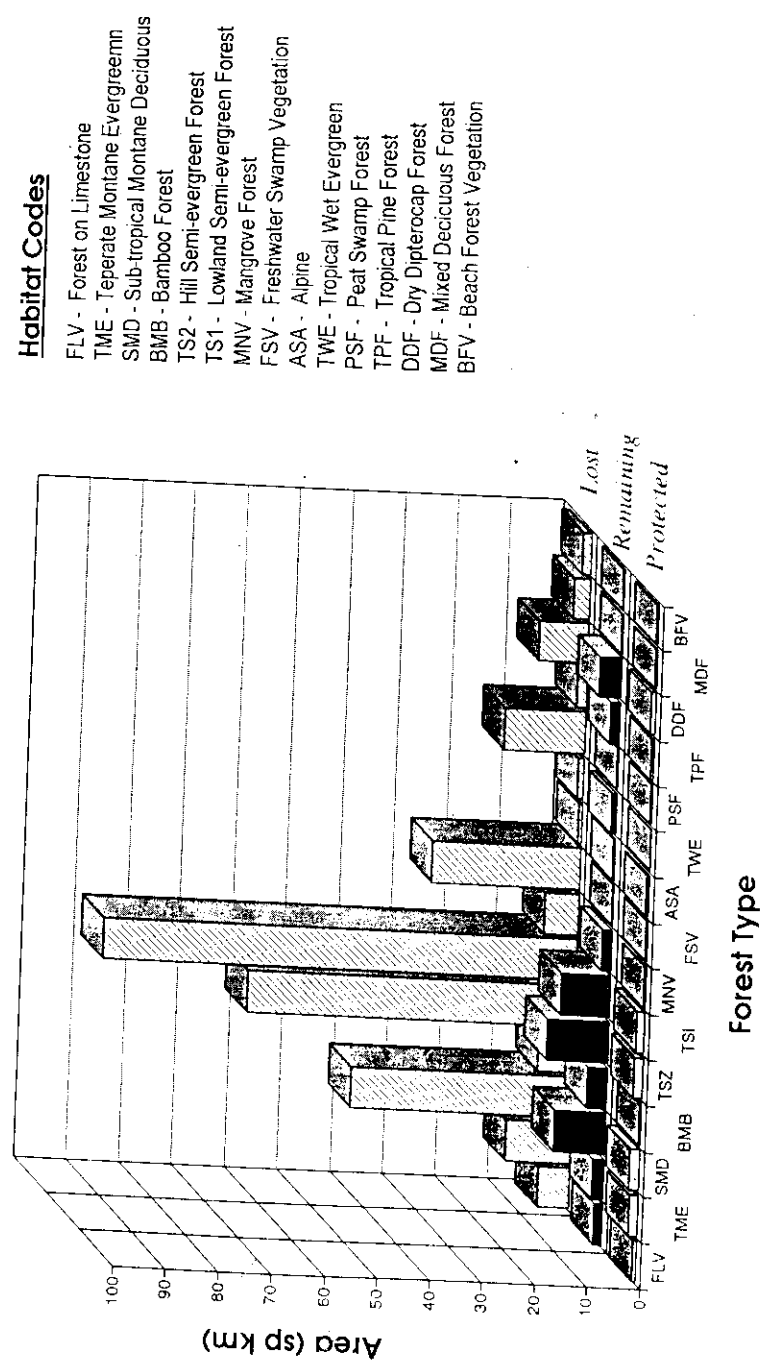
- The Food and Agriculture Organisation (FAO) have assisted the Ministry of Forestry in the development of Cuc Phuong National Park, and led to the publishing of the Forestry Sector Review as part of the International Tropical Forest Action Plan programme. The Review included a section on nature conservation and the FAO have provided assistance to a number of other biodiversity conservation relevant projects on reforestation and watershed management.
- IUCN - The World Conservation Union began technical assistance in 1984 with the production of the SIDA funded National Conservation Strategy for Vietnam and have since maintained a small programme assisting planning and policy. Vietnam is a State Member of IUCN and in 1993 a permanent office was opened in Hanoi.
- The Swedish International Development Authority (SIDA) have assisted the Ministry of Forestry and some provinces in re-greening schemes and establishing forestry plantations.
- A United Nations Development Programme organised conference in Hanoi in 1990 convened to develop the National Plan for Environment and Sustainable Development. UNDP also funded the development of the Tropical Forestry Action Plan, and the preparation of Master Plans for the Mekong Delta and the Red River Delta. UNDP acts as the Secretariat for coordination of donor inputs in Vietnam, and a sub-committee on environmental aid programmes meets from time to time.
- The World Food Programme have had a long and extensive programme of reforestation, especially in the coastal shelter belt regions of Vietnam.
- The World Wide Fund for Nature (WWF) started surveying for kouprey and other wildlife in 1985, began a marine programme in 1992 and have funded surveys of rare primates, bovids, elephants and important ecosystems. WWF helped prepare the UNDP executed Global Environment Facility (GEF) project for Vietnam, which it is now assisting MOF and MOSTE implement. WWF opened a programme office in Hanoi in 1991.

Other specialist agencies have undertaken biodiversity related projects in Vietnam - BirdLife International (formerly ICBP), Frankfurt Zoological Society, International Crane Foundation, Wildlife Conservation Society (WCS)/New York Zoological Society, and the East-West Centre.

Figure 37 on the next page shows the distribution of field programmes directly related to biodiversity conservation. It illustrates how many areas have now been identified as being of high international significance for biodiversity. It also shows that to date only a few of these have been developed as projects by international agencies. Finally, *Figure 37* shows the distribution of reserves adjacent to Vietnam's borders which will require co-operation with neighbouring countries.

Since the international trade embargo against Vietnam was lifted in February 1994, international agencies have increased their aid and assistance to the country, and this should hopefully result in increased support for biodiversity conservation.

Figure 37 Protected, Reimaining and Lost Habitat Area for Vietnam



2. RECOMMENDATIONS FOR BIODIVERSITY CONSERVATION POLICIES AND PROGRAMMES

2.1 Institutional Responsibilities for Biodiversity Conservation

Effective conservation of biodiversity will require changes and clarification of the responsibilities of the various Government and Non-Government institutions which have influence on the environment. A comprehensive study of institutional responsibilities should be carried out before strengthening or restructuring is proposed, and this is one of the projects identified in this plan (see project P1 in Part 5 and Table 16).

During the preparation of BAP, discussions were held with representatives from all levels of Government, with local and international scientists and academics, with planners and managers and with many village people and resource users. Based on these consultations, the following recommended actions have been identified as a first step towards an institutional review:

State Planning Committee:

- Identify responsibilities for new biodiversity programmes.
- Coordinate donor assistance to natural resources sector.
- Help National Environment Agency in the execution of its work.
- Integrate conservation into national planning

Ministry of Science, Technology and Environment:

- Select a responsible leading agency for community buffer zone planning and implementation.
- Establish a division to co-ordinate biodiversity issues.
- Act as a scientific authority for CITES, RAMSAR and other conservation conventions signed by Vietnam.
- Periodically review and revise all legislation relating to environmental protection such as the environment law, EIA provisions, wildlife trade and pollution controls.
- Establish a special committee to supervise ex-situ conservation in Vietnam, including a zoo association and a botanical gardens association.
- Promote the conducting of a comprehensive programme of research into practical issues of biodiversity conservation through the many scientific institutions in the country.
- Establish and co-ordinate a network of data management centres to monitor the state of the country's biodiversity.

- Launch a nationwide awareness and propaganda campaign to heighten the awareness of public and officials to the importance of environmental protection and population stabilisation.
- Review standards of pollution, factory emission standards and sewage disposal standards. Issue appropriate controlling regulations and monitor levels of pollution across the country.

Ministry of Forestry:

- Meet domestic needs of timber, fuel and other forest products on a sustainable basis.
- Restore barren lands within the forestry sector to productivity and environmental protection, noting that the value to the country of protecting water catchment is far greater than the value of wood production on these lands.
- Establish 6 million ha of protection forest and 2 million ha of protected areas (special-use forests).
- Responsible for periodic revision of wildlife regulations including hunting, farming and trading in wildlife species including marine species.
- Act as management authority under CITES and other international conventions signed by Vietnam for wildlife conservation.
- Co-operate closely with the scientific community in assessing the conservation status of wildlife species, identifying conservation action priorities and determining improved techniques for forest restoration, sustainable utilisation and wildlife management.
- Co-operate closely with local communities in developing a high level of people participation in the important task of protecting the forest resource of the nation.
- Monitor the extent and condition of forest and wildlife resources of the country.

Ministry of Agriculture and Food Industries:

- Safeguard native and traditional crops and varieties of domesticated plants and animals to help preserve cultural diversity in Vietnam.
- Continue research into improved and more sustainable techniques of agriculture and agro-forestry.
- Invest in the agricultural upgrading of cultivated lands in community buffer zones adjacent to priority conservation areas.
- Diversify cropping patterns for environmental betterment, reduction of reliance on pesticides and fertilisers and greater ecological stability.

Ministry of Fisheries:

- Monitor the biological resource base of the sea and develop controls to ensure that harvesting levels, sites and methods are sustainable.
- Set aside a system of protected areas or multiple-use control zones to safeguard examples of marine ecosystems and protect vital spawning grounds, coral reef communities and mangroves (possibly under MOSTE).
- Establish a patrol force to enforce regulations.

Ministry of Education:

- Introduce environmental teaching at all levels of formal education.
- Sponsor research into the better protection of the living environment of the country.

Law Enforcement Agencies (police and magistrates):

- Give greater emphasis to the enforcement of environmental protection legislation and regulations, including enforcement of EIA legislation and wildlife trade controls.
- Improve the basic knowledge and understanding of these regulations among the staff at all levels.

Armed Forces:

- Play a more constructive and positive role in the ecological reconstruction of the country such as reforestation, forest protection, fisheries control (especially on destructive illegal fishing methods), construction of irrigation systems, maintenance of dykes and development of community buffer zones.

Ministry of Public Health:

- Strengthen the national birth control programme with the objective to accelerate the reaching of zero population growth at the earliest possible time.
- Undertake an awareness programme in line with MOSTE on the need for population stability and achieving balance with the environment. With the emphasis on community and buffer zones.

Provincial Peoples Committees

- Prepare provincial action plans for the conservation of biodiversity in provinces and across provincial boundaries (see project P5).

Revision of the protected areas system, the proposed marine programme and the proposed wetlands programme may require the establishment of new authorities or the modification of existing ones. The BAP strongly recommends that the question of the most appropriate authority for each of these programmes be addressed by Government.

Improving Inter-Sectoral Co-ordination

Despite the creation of several cross-sectoral committees, Government institutions in Vietnam still operate on a sectoral basis. In some sectors this may not matter, but environment is essentially a cross-sectoral issue and requires almost constant co-ordination between different sectors and interest groups.

Cross-sectoral linkages must work at the national, provincial and district levels. The various sections of the Ministry for Science, Technology and Environment provide a suitable base for such cross-sectoral decision-making at the national level. At the local level, Government has re-structured the Environment Committees as Departments of Science, Technology and Environment. These local Departments will provide the framework for the intersectoral coordination at sub-national level.

MOSTE should establish an authority to co-ordinate biodiversity issues, both at national level and at Provincial and District level.

2.2 Revision of Laws and Regulations and Strengthening Law Enforcement

The Law on Environment Protection was approved in 1994. While this framework law provides overall guidance, many subsidiary regulations need to be revised and also brought into enforcement as soon as possible. These include:

- Provisions for EIA enforcement.
- Wildlife trade regulations including CITES enforcement.
- Hunting regulations and regulations to control the capture and breeding of rare species.
- Mining regulations, dumping regulations and regulations controlling the discharge of oil into the sea.

Law enforcement can be considered weak in Vietnam, and existing regulations are often ignored. Improving law enforcement is vital to the success of the country's healthy development.

The BAP recommends that environmental law enforcement be strengthened (project P2), which will include, in particular, the following measures:

- Streamlining and simplifying regulations.
- Making law enforcement agencies more knowledgeable and aware of the regulations.
- Making the public aware of the regulations
- Ensuring that the police and courts take environmental offenses more seriously.
- Increasing penalties for some offenses.
- Generating more publicity about environmental law cases.
- Increasing enforcement powers of forestry, fishery and customs officers.
- Increasing discipline and improving remuneration for law enforcement officers.

It is common that charges against local people, for what the courts regard as minor offenses such as cutting firewood or causing fires, are dropped on the grounds of poverty. This makes the law ineffective and it is therefore recommended that people unable to pay fines be allowed to put in a period of community service on an environmental project.

The policy of the Ministry of Forestry to give preference in hiring local people for guard work is to be encouraged. Such guards are more familiar with the forest and local conditions, more at home in this work, more understanding of local problems and by providing such employment the nature reserves are providing clear benefits to the local community. There are, however, drawbacks in that local guards are less likely to arrest people they know. It is recommended to have a mix of local and allocated staff.

While the Ministry of Fisheries has the authority to formulate fisheries laws, assess stock and exploitation potential, and control the introduction and breeding of exotic species, the enforcement of these regulations is left to the Fisheries Resource Protection Department and its branches at provincial and district levels. As this department was newly established in 1993, its management capacity is still weak. Not all of the 27 coastal provinces and districts possess patrol boats and guards (*Table 13*). Project P8 aims to strengthen the enforcement of fisheries regulations.

TABLE 13: Management Capacity of the Fisheries Resource Protection Department of selected Coastal Provinces

Province	Patrol Boats	Horse Power	Guard Force (Personnel)
Quang Ninh	1	33	10
Thanh Hoa	1	33	8
Quang Tri	1	33	8
Hue	1	20	6
Quang Nam - Danang	2	45	6
Phu Yen	1	130	10
Khanh Hoa	1	60	12
Binh Thuan	3	130-300	30
Ho Chi Minh City	1	130	10
Minh Hai	4	350	40
Kien Giang	6	200-350	55

As noted in section 1.16 (on pages 85-87), law enforcement is not the only method for controlling the conservation of biodiversity. It is widely accepted that encouraging the participation of local people through the provision of incentives maybe equally if not more effective that enforcing the law.

The Government of Vietnam is therefore encouraged to develop incentives and positive discriminatory actions to promote biodiversity conservation. The development and testing of such measures will be part of project P3 (see section 2.5).

Environmental Impact Assessment

The guiding principles of EIA, outlined in the Environmental Law of 1993, are that no developments are allowed unless they are shown to be environmentally acceptable and sustainable. Those who use natural resources as components of production or who damage the environment must pay compensation and fees for restoration (Polluter Pays Principle).

However, the law does not provide any guidance about the type of projects which require EIA or the scope of the study. These details will have to be developed as a set of specific EIA guidelines and procedures.

The BAP recognises the urgent need to develop EIA procedures and guidelines and the necessity for training in this field. This is already being addressed through a number of projects, and is therefore not included in the BAP.

Pollution Controls and Standards

The 1991 *National Plan for Environment and Sustainable Development* states that "Vietnam should immediately establish standards and measures for evaluation of the environment impact, should set up a pollution control system and standards for controlling the industrial pollution, managing of wastes, etc. The establishment of environmental standards and pollution control system should have an appropriate priority."

Between 1977 and 1993 several standards have been set in Vietnam such as Maximum Permissible Concentrations (MPC)s for toxic chemicals, dust, noise and water pollutants in the workplace and populated areas. Standards have also been adopted for measuring and defining various pollutants.

Standards now need to be adopted for monitoring quality of water, soil and air in the wider environment; controlling maximum effluent levels and establishing standards of penalties liable to polluters. Where no national standards exist it is proposed that Vietnam adopt standards recommended by international agencies (WHO, UNEP etc) as a first step.

The development of general environmental standards is not considered to be a BAP project. However, in view of oil exploration and other off-shore developments, marine pollution is of particular concern in Vietnam. The BAP therefore includes a project specifically aimed at marine pollution control (project P9)

2.3 Review of Forestry Policy and Practice

The revised statement of Forestry Strategies given by the Ministry of Forestry (May, 1993) based on Decision No 327 of the Council of Ministry is a great improvement in terms of biodiversity conservation compared to the previous forestry policy in Vietnam.

For the first time the emphasis is placed on forest protection rather than forest production and the plan to involve local people in a forest conservation programme is expected to be effective.

Some complementary action could have an even greater impact on biodiversity conservation, and it is recommended that the following principles should be adopted gradually prior to the year 2000:

- All logging of natural forests should stop. All timber production should be limited to forestry plantations.
- The reforestation programme should therefore be revised so that less emphasis is placed on the use of monocultures and less emphasis placed on exotic and fire-prone species.

Monoculture plantations of exotic species such as Eucalyptus may have some advantages such as high seedling success rates, ease of planting and after care and speed of growth. However, they are more prone to disease and fire, less effective at soil conservation, sometimes more demanding on soil and water-tables, less effective as wind barriers and support almost no wildlife or biodiversity.

Mixed complex forests of native species provide better wind, soil and water conservation; more useful products for local people (medicinal plants, fruit, fibres, fuelwood, grazing and hunting); support a richer, ecologically more stable biota and are less prone to fire, disease and insect pests. They are more complicated to plant and may produce less timber but the other benefits greatly outweigh these considerations. The idea that there are no fast-growing native trees is untrue.

Nurseries should be developed to grow more native species and programmes of seed collection from natural forests instigated. BAP includes a project which aims to study suitable reforestation species and most appropriate means of propagating them (project C7).

- Roads should not be built around or into forestry blocks to be protected, as the presence of a road promotes timber poaching. Many forest officers think that

a patrol road would make the job of protection and checking on the forest easier. In fact it is repeatedly proven that the opposite is true, as the opening of roads facilitates illegal access.

Encouraging People's Participation in Forest Conservation

Decision 327 of the Council of Minister has clarified several ways in which the people will become more involved in forest protection:

- a) Local people will be employed in forest restoration.
- b) Local people will be given long-term use of forest which they restore.
- c) Local people will be paid to protect existing forest and allowed to extract some products.
- d) Local people will be paid for fire fighting work and rewarded when there are no fires.
- e) Local people will be given sedentarisation help to enable them to subsist on smaller, permanent areas of land over which they will have greater security of tenure.

However there are other ways in which people can be encouraged to play a greater part in biodiversity conservation:

- Forest living villagers could be paid subsidies to continue propagating traditional varieties of crops, fruit and livestock when these are less productive than modern high-yield varieties. Project P6 aims at studying the traditional practices of ethnic minorities, and project P7 contributes to our knowledge of traditional use of medicinal plants.
- NGO's should be permitted and encouraged to play a more active role in organising volunteer work groups to help in the work of forest and nature reserve protection, to work on rural department projects helping villagers develop buffer zones around protected areas; assist in surveys, wildlife counts, fire-fighting, reforestation, boundary marking, watering in summer and many other grass-root level activities. NGO's can also act as a monitor on environment by reporting their concerns to the press and assisting in awareness and in lobbying the Government to take more care of the environment. Project P4 will help to train small NGOs to play a stronger role in the conservation of biodiversity in Vietnam.

- General public participation and support will be improved by introducing more environmental materials in school syllabi, through public awareness campaigns (project C14) and extension programmes and through popular movements like "Tet tree planting", "love bird week" and other events.
- As more national parks are opened to the public, these will also strengthen the public's love of nature and support for conservation.
- More projects should be done at the village level and be designed on a longer timescale than the normal 3-5 year projects and with much greater villager implementation (project C6).

Many of the projects described in the BAP promote the conservation of protected areas through the establishment of community buffer zones, and the management of such zones by local people and NGOs.

Social Forestry Programmes

If people are to respect and protect forest then forest must be felt to be serving the people. Vietnam is making bold experiments with social forestry in several new directions:

- By contracting more of the responsibility of managing and protection forest and planting new forests to local families and communes.
- By allocating blocks of forest land to individuals, families and larger units to use on a long-term basis.
- By encouraging villages to undertake their own forest development and management (woodplots etc.) on their own non-forestry lands.
- By encouraging agro-forestry developments whereby farmers mix certain types of tree crops with their agricultural crops. The shading effect and added nitrogen from nitrogen-fixing species often shows increases in the original crop as well as providing wood as an extra product and better soil protection as an extra service.

An effective programme which has been in operation for many years is the scattered-trees planting programme where trees are planted along dykes, roadsides and any empty spaces around villages.

Vietnam's social forestry programme shows considerable success in getting the rural population more aware of the function and value of forest and more responsible

towards forest protection. By encouraging people to be more self-sufficient on their own woodplots, pressure is taken off the illegal cutting of state forests. By increasing the overall forest cover of the country, the ecology, hydrology and soil fertility of the land has been improved.

Many different agencies are involved in different aspects of the social forestry programme from national programmes of sedentarisation down to village level initiatives. It is important to encourage these efforts and it would be useful to give the programme greater co-ordination and provide a firmer scientific basis.

The BAP recommends that the following actions should be taken:

- Each province and district should prepare a detailed land development plan whereby a range of land-use options is determined for each land unit based on capability study. Farmers, village or government units should then decide which of the suitable options they wish to adopt depending on their own preferences, past experience and local market rates. Project P5 deals with the preparation of Provincial Biodiversity Plans.
- More scientific research is needed (project C7) on:
 - Developing successful agro-forestry systems
 - Improving root stocks, seedling stocks, seed storage and species selections.
 - Testing different species and varieties in different regional conditions
 - Experimenting with improved crop rotation systems.
- New knowledge and techniques developed through the research programme must be passed to the villages and farmers through the agricultural extension services and by pilot demonstration projects.
- Greater NGO involvement at grass roots extension work in villages, development of pilot projects and local project implementation should be encouraged (project P4).
- The value of nitrogen-fixing trees must be emphasised in reforestation and agro-forestry developments. Nurseries should be developed for fast production of suitable species (This will be covered in project C7).
- The ecological risks and short-comings of continued use of such a high proportion of exotic eucalyptus, Acacia and Cunninghamia and the

extensive planting of monoculture pines in lowland areas must be emphasised in extension materials.

- The Government should establish a Social Forestry Committee composed of the various organisations involved in this field to provide general guidelines to the whole programme. The Social Forestry Committee should then hold regular national and regional workshops to review successes and failures and constantly improve the technology and extension advice provided to the people. Existing associations, such as the Vietnam Forestry Association, could assist this process.

2.4 Transfrontier Issues

Biodiversity is not contained within national boundaries. Effective conservation therefore calls for better collaboration and international consultation in the Region. Vietnam will benefit from developing better co-operation with neighbouring countries in at least three respects:

Setting up Transfrontier Reserves

If neighbouring countries agree to establish nature reserves adjacent to one another, the two reserves will support each other and both will benefit from the biological advantages of greater area. Each country will only have to protect a smaller length of reserve boundary. A larger area of continuous wildlife habitat protects a greater range of species and supports larger and ecologically more viable populations. Indeed, some of the larger and more wide-ranging species such as the tiger, leopard, elephant, hornbills and wild cattle can only survive in large areas which may be impossible for any one country to assign for conservation. Project P11 deals with the establishment of trans-border land use plans.

Technical Exchanges and Information Sharing

Neighbouring countries may have technical experts with different skills and levels of expertise. There are advantages to having an arrangement for exchanging this expertise rather than seeking foreign assistance or doing without the expertise.

Wildlife management needs to be based on good information about species' needs and trends. By pooling Regional information, each country has a larger information base on which to make such decisions. Information on the movement of wildlife, forest fire, poaching groups etc. can be invaluable to a neighbouring country in maintaining environmental security. In Project P11, the establishment of a Regional Technical Forum is promoted.

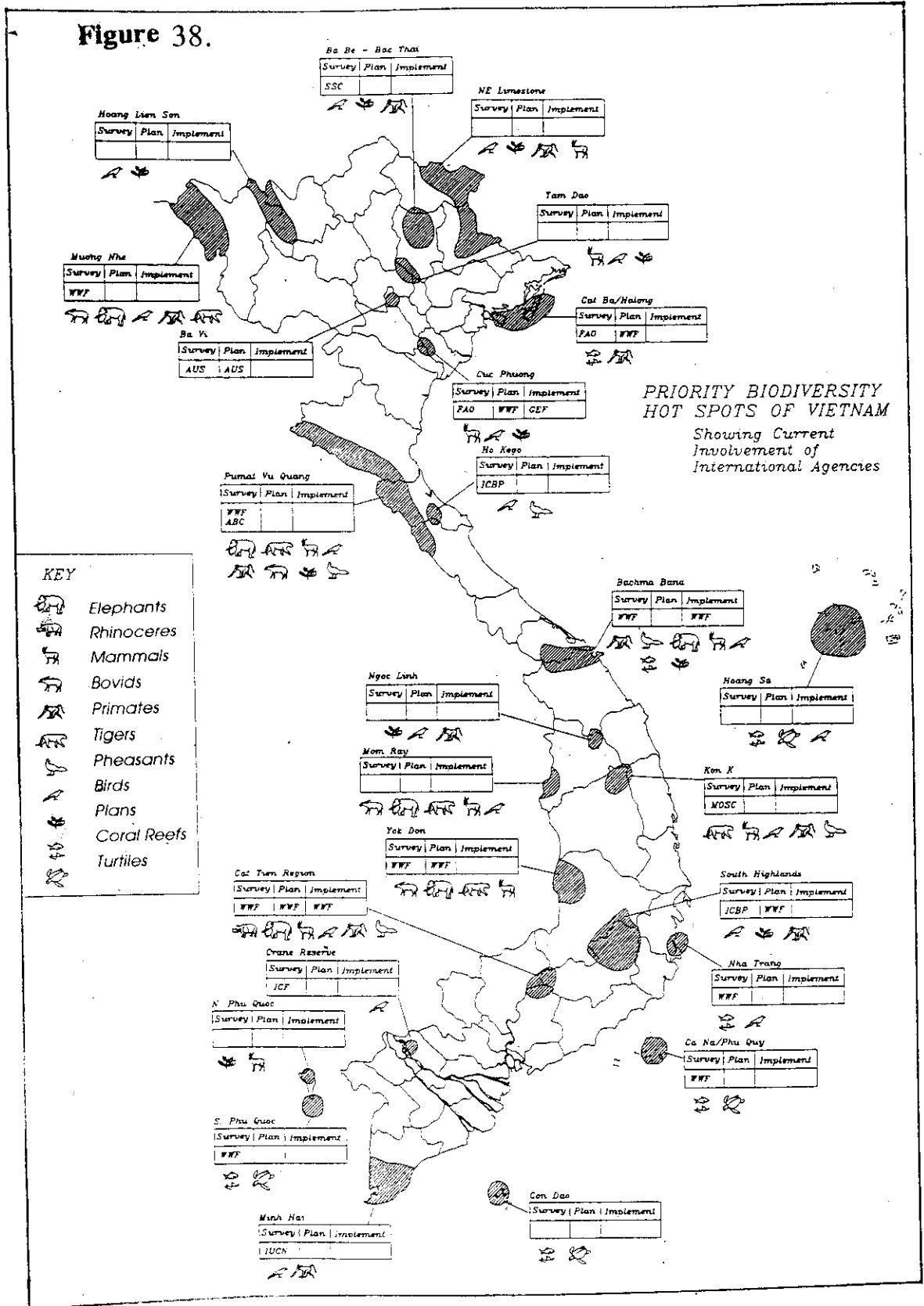
Co-operation in Tackling Shared Problems

Problems such as forest fire, border zone poaching, smuggling and wildlife trade can be more effectively tackled by a concerted approach of two countries rather than each doing its own programme independently. Trans-frontier cooperation is also covered in project P11.

Some of the transfrontier issues can be tackled through Vietnam's participation into several regional and international programmes such as CITES, RAMSAR, IUCN Commissions etc. Already, a specific project has been developed with UNDP funding (RAS/93/102) in which Vietnam will become the focal country for greater co-operation between four SE Asian countries - Vietnam, Laos, Cambodia and Thailand. The project will establish a regional forum to discuss regional biodiversity issues, will hold annual meetings on specific topics, organise study tours in neighbouring countries, share information (biodiversity database network) and exchanges of experts and survey and plan the establishment of transfrontier reserves.

Figure 38 shows the important transfrontier reserve linkages that should be established.

Figure 38.



2.5. Need for Further Policy Research

Biodiversity conservation can only be effective if the resource users are convinced of the need for protection and better management. During the preparation of the BAP, it became apparent that the actions of communities in areas of high biodiversity directly impacted the long-term quality of the biodiversity. Due to the high population densities in all regions of Vietnam, this means that almost every area which harbours significant biodiversity resources is also under some sort of threat.

Working from the assumption that biodiversity resources will be exploited, a primary aim of biodiversity programmes should promote sustainable management and use of the natural resource base.

There is a need to study these and other innovative aspects of biodiversity conservation, and to develop relevant and effective policies and guidelines. The BAP will establish village committees to coordinate biodiversity conservation at local level (Project C6), but there is also a need to develop a national policy on property rights and ownership of biodiversity resources.

For local resource users the issue of conservation is a question of micro-economics. If they see the benefits which arise from better management and protection of rare species and natural habitats, they will take control over their resources. If, however, they only see the costs of the exercise, they will not support the BAP or sustainable resource use and biodiversity conservation. It is therefore important to carry out further studies on the economic values of biodiversity to the local people.

A similar argument holds for the national level. Decision makers will not support the BAP if they do not see what benefits this has to the nation. BAP will therefore also look into the macro-economic aspects of biodiversity conservation, the true value of biodiversity. In fact, most conservationists, although having an appreciation of the economic value of biodiversity, do not know the true value. A system of true natural resource cost accounting is the first step to developing economic tools for the maintenance of biodiversity. Project P3 will address these policy issues.

The BAP must also raise awareness (projects C13 to C15), involve local people directly in the management of protected areas (see especially projects M21-M23), and will study in greater detail how local people are traditionally using the natural resources around them (project P6 and P7).

3. RECOMMENDED CHANGES IN THE MANAGEMENT OF PROTECTED AREAS

3.1 Setting Priorities for Protected Areas

The immediate challenge for Vietnam is to manage scarce resources effectively and prioritise species for conservation to enable maximum biodiversity.

The remaining populations of large carnivores, ungulates and the Asian elephant (*Elephas maximus*) listed in *Appendix 2* may be too fragmented and small to be genetically viable in the long-term. Some isolated populations may be already enveloped in "extinction vortices", and it would be counter-productive to devote conservation resources to them as such programmes stand little chance of success.

The only possible exceptions are the large mammals which still occur in areas bordering Laos and Cambodia. These species, with the exception of the Javan rhinoceros (*Rhinoceros sondaicus*), still have large geographical ranges in Asia and their conservation can be tackled with a higher chance of success in other countries where the habitat is more extensive and less threatened human activity. Project C9 will develop a natural habitat monitoring programme to monitor the extent, condition and status of the wildlife habitats in Vietnam (see section 4.7).

Rarity alone is not a sufficient measure for setting conservation priorities and is inefficient for conserving biodiversity. The number of species per se is not necessarily the most important criterion for determining protected areas priorities. Countries which support high levels of biodiversity could (hypothetically at least) contain identical species complements, which may include large numbers of widespread, highly adaptable species, under no immediate threat and therefore of no immediate conservation concern. An alternative approach would be to prioritise those areas with the greatest number of endemic species, such as those with limited distributions which occur nowhere else on Earth (ICBP 1992).

It is therefore proposed that the government of Vietnam reviews the current system of protected areas as described in the following sections.

3.2 Revision of the Protected Area System

Nature Reserves and National Parks

The Ministry of Forestry has agreed to extend the area of nature reserves and national parks to over 2 million ha by the year 2000. A feasibility study of new proposed areas will be conducted by the Ministry, and this is therefore not included in BAP.

The main priority areas for reserve extensions are indicated in *Table 12* on pages 78-79, and are also shown on *Figures 37* and *24a-32a*. As can be seen in *Figure 37*, these areas differ in how far they have succeeded on the path to gazettelement.

Small areas identified as having little or no biodiversity value should be delisted as nature reserves. These should be transferred from the Forestry Protection Department and be managed as sites of recreation or historical interest by more suitable agencies.

The boundaries of existing, new or enlarged reserves should be stabilised through the development of community buffer zones for local people. It is regarded as futile to declare reserves in inhabited areas unless such community and buffer zone funding can be realised.

Creating priorities is important. *Table 14* lists 32 of the most important forest areas in the country and rates their biodiversity importance into three categories. A denotes sites of global importance (12 sites), B denotes areas of national significance (16 sites) and C areas of only local biodiversity interest.

However, different sites are important for different reasons. Ba Vi, for instance, is only rated as C for biodiversity importance but has a huge potential for educational, demonstrational and tourism development because of its proximity to Hanoi. Other columns of the table indicate the needs for community buffer zone development, potential for tourism, priority for survey and urgency of action. The urgency is dependent on the type and degree of threat faced by the site.

This table should form the basis for the forest reserve development programme for the next few years with priority for survey and gazettelement going to areas not yet declared; priority for tourist development going to areas with high tourism potential and priority for protective development going to areas rated as A on biodiversity importance or facing immediate threats.

TABLE 14: Priorities for Action in Major Forest Reserves of Vietnam

Name	Province	Biodiv value	Mgmt Plan (Year)	Status Year	Infra-structure	Buffer Zone (ha)	Tourism Potential	Survey Priority	Urgency of Action	THREATS	Scale of threat
Muong Nhe	Lai Chau	B	1993	NR 1986	None	100,000	-		x	F H	High
Hoang Lien Son	Yen Bai/Lao Cai	A	Part	NR 1986	None	20,000	-		x	H E	High
Trung Khanh	Cao Bang	B	-	-	None	10,000	-	✓		H F	Medium
Ba Be	Cao Bang	A	1991	NP 1986	Little	2,000	High		x	H	Medium
Nahang	Tuyen Quang	B	-	-	None	10,000	Scientific	✓	x	H	High
Huu Lien	Lang Son	B	1991	NR 1986	None	5,000	-			H L	Low
Cat Ba	Haiphong	A	1991	NP 1986	Yes	4,000	High			H L S	Medium
Tam Dao	Vinh Phu/Bac Thai/Tuyen Quang	B	1993	NP 1986	Yes	10,000	High			H L	High
Ba Vi	Ha Tay	C	1991	NP 1986	Yes	4,000	High			H E F	High
Cuc Phuong	Ninh Binh/Thanh Hoa/Hoa Binh	B	1991	NP 1962	Yes	5,000	High		x	H L C	Medium
Ben En	Thanh Hoa	C	1991	NP 1986	Little	5,000	-			H L C	High
Pu Mat	Nghé An	A	1993	-	None	20,000	Scientific	✓	x	H L M E	High
Vu Quang	Ha Tinh	A	1993	NP 1986	None	15,000	Scientific		x	H C F	Low
Ho Ke Go	Ha Tinh	B	-	-	None	10,000	-	✓	x	H L F	High
Phong Nha	Quang Binh	B	1993	NR 1986	None	5,000	High	✓		F	Low
Bach Ma	Thua Thien-Hue	A	1992	NP 1986	Yes	20,000	High		x	H L M	High
Ngoc Linh	Kon Tum	B	1994	NR 1986	None	5,000	-	✓		E H	Medium
Mom Ray	Kon Tum	A	under prep.	NR 1986	None	25,000	High		x	L H E C	Medium

Name	Province	Biodiv value	Mgmt Plan (Year)	Status Year	Infra-structure	Buffer Zone (ha)	Tourism Potential	Survey Priority	Urgency of Action	THREATS	Scale of threat
Kon Cha Rang	Gia Lai	B	-	NR 1986	None	2,000	-			H	Medium
Kon Ka Kinh	Gia Lai	B	-	NR 1986	None	2,000	-			H	Medium
Nam Ka	Dac Lac	A	1991	-	Little	5,000	-		x	H	High
Yok Don	Dac Lac	A	1992	NP 1986	Yes	5,000	High		x	F H	Low
Chu Yang Sinh	Dac Lac/Lam Dong	A	1994	NR 1986	None	2,000	-	√	x	?	Low
Thuong Dong Mai	Lam Dong	B	-	-	None	5,000	-	√	x	H	High
Bi Dup	Lam Dong/Khanh Hoa	A	1994	-	None	5,000	Medium	√	x	E H	Medium
Cat Tien	Dong Nai/Lam Dong	A	1993	NP 1986	Yes	25,000	High		x	E H L F	High
Bien Lac Nui Ong	Binh Thuan	C	-	NP 1986	None	5,000	-	√		L C H	High
Con Dao	Ba Ria/Vung Tau	C	1991	NP 1986	None	5,000	Medium			E H M	High
Tram Chim	Dong Thap	B	-	-	Yes	-	Scientific			E D	Medium
U Minh	Kien Giang	B	-	NR 1986	Yes	-	-			F	Medium
Phu Quoc	Kien Giang	B	Prov.	NR 1986	None	5,000	-			E	Medium
Minh Hai Mangroves	Minh Hai	B	-	NR 1986	None	-	-	√	x	E H L C D	High

Threats: C Cutting fuel L Logging
D Drainage M Mining
E Encroachment S Sedimentation
F Fishing
H Hunting

Biodiversity value: A = very important
B = important
C = low value

The twelve terrestrial protected areas listed as biodiversity value "A" are listed below, along with the scale of threat and the project profile number.

<u>Name of Reserve</u>	<u>Scale of Threat</u>	<u>Project Profile Number</u>
Cat Tien	High	M2
Bach Ma	High	M3
Ho Ke Go	High	M9
Pu Mat	High	M16
Muong Nhe	High	M20
Ba Be/Nahang	Medium	M4
Hoang Lien Song	Medium	M8
Cat Ba	Medium	M13
Cuc Phuong	Medium	M27
Vu Quang	Low	M1
Chu Yang Sinh	Low	M6
Yok Don	Low	M22

In terms of identifying priorities for international assistance, the analysis of BirdLife International in identifying centres of bird distribution is useful and has been shown to have a high correlation with distribution of other faunal groups. The analysis identifies 10 areas as being of highest importance in Vietnam. Most of these high priority areas are covered in the projects proposed by BAP.

Wetland Sites

Many wetlands are not within forestry boundaries and the criteria for identifying priorities for conservation of wetlands are different from those of forest reserves.

Based on the zoo-geographical division of wetland habitats and the distribution of fish and other aquatic groups, 61 important wetland areas have been identified. Table 15 lists these, giving the type, size and location for each, a description of its special importance, whether the area is already protected and ratings for its biodiversity importance, threats and urgency for survey. The final column of the table lists the recommended actions that are needed to protect these sites.

Many sites which have not protected area status have been surveyed in order to assess their significance and six of these - West Lake, Cuà Day mudflats, Bien Lake, Nam Ka, Tram Chim (project M7) and Ca Mau mangroves (project M24) are identified as being highest priority areas. These should be declared as reserves. In addition, many other sites should be surveyed to determine their suitability to being protected (project M29).