

## Chapter 5. Indonesia

Summary .....	131
Key issues .....	131
A rich heritage of biodiversity .....	132
Background .....	133
Box 1. Environmental governance .....	133
Box 2. Biodiversity and marine ecosystems .....	135
The legal framework for biodiversity conservation .....	136
Policy .....	136
Laws .....	136
Box 4. Act No. 24 .....	136
Box 5. Adat law .....	138
Planning for biodiversity management .....	139
Box 3. Scope and objectives of the IBAP .....	140
Preparation and development .....	141
Relationship to development planning .....	141
Lessons learned from the IBAP process .....	142
Limitations of the Action Plan .....	142
A donor-driven process .....	142
Changing context .....	142
Limited information .....	143
Involving local communities .....	143
Threats to protected areas .....	143
Lack of commitment .....	144
A strategy and action plan for the 21st century .....	144
Institutional arrangements for the 2001-02 IBSAP process .....	145
Box 6. Features of the proposed IBSAP .....	146
Constraints to biodiversity plan implementation .....	147
Monitoring and follow-up .....	148
Lessons to guide the IBSAP process .....	149
Positive aspects of the 1991 IBAP .....	149
Shortcomings of the 1991 IBAP .....	149
Biodiversity planning for the future .....	150
Recognizing and addressing forest removal and fragmentation .....	150
Table 1. Forest cover and deforestation 1985–1997 .....	151
A new approach to biodiversity planning .....	152
Recommendations .....	153
Chronology .....	156
Suggested reading .....	157



# Indonesia

*Graham Baines and Mariyanti Hendro*

## SUMMARY

Indonesia was one of the first countries to develop a Biodiversity Action Plan. The plan was adopted in 1991 and published in 1993. Implementing it in the context of an authoritarian regime has meant that stakeholder commitment, understanding and support has been inadequate. The plan itself had shortcomings, not the least being that it focused on protected area and species conservation and made little provision for other vital biodiversity management needs.

The country has recently experienced dramatic economic and political changes. Forest biodiversity has been drastically reduced through uncontrolled logging and widespread forest fires which have severely fragmented forest ecosystems. Coral reefs are being seriously degraded by land-based pollution, destructive fishing practices and periodic coral bleaching. A second plan (the Indonesia Biodiversity Strategy and Action Plan, or IBSAP) is being developed. If it is to be effective, it must recognise lessons learned from the first plan. Dramatic changes in government policy provide opportunities for wider stakeholder participation and greater responsibility for biodiversity management at provincial and community levels. An innovative approach is needed by the architects of the IBSAP to accommodate these new opportunities.

---

## Key issues

These are the key issues in planning for the rational management of biodiversity in Indonesia:

- lack of appreciation of the nature and relevance of biodiversity. Community based tenure and resource management systems, which long served to sustain resources and biodiversity, have been suppressed by state control of land and sea resources;
- a state approach to forest land development based on destroying forests in order to replace them with plantation crops;

- failure on the part of the state to use natural resources in a sustainable manner, leading to major biodiversity losses;
- a rigid, “top-down” approach to governance, which has undermined initiative and made real stakeholder participation impossible;
- limited human resources, thinly stretched over a vast area, although there is a good level of Indonesian scientific and biodiversity management expertise;
- widespread subversion of laws and procedures for several decades through corruption, nepotism and collusion, which has undermined many biodiversity conservation initiatives; and
- an innovative new policy of government decentralisation, which creates both opportunities and problems.

### A rich heritage of biodiversity

With its terrestrial, freshwater and marine domains, Indonesia is biologically the world’s most diverse country. It spans two of the world’s major biogeographic regions, Australasia and Indo-Malaya. Between them is a large transition zone, Wallacea, with a unique complement of animals. Seven major biogeographical regions extend over more than 17,000 islands, two of which — New Guinea and Borneo — are the second and third largest on earth. Globally, Indonesia is vitally significant in terms of its wealth of biodiversity and biological resources. Its incredible richness of species and ecosystems is matched by a diverse range of human societies which have evolved through use of the region’s biological resources.

Occupying only 1.3 per cent of the world’s land surface, Indonesia is fourth in terms of population. It has some 12 per cent of the world’s mammals, 16 per cent of its reptiles and amphibians, 17 per cent of its birds, and 25 per cent of fish species. There are approximately 600 mammal species (280 are endemic), while known species among other groups include 411 reptiles (150 endemic), 270 amphibians (100 endemic) and 1,531 birds (26 per cent endemic). Known species of non-fish vertebrates total 2,906 (927 endemic). Indonesia has a known 30,000 to 35,000 plant species, the fifth highest level in the world (BAPPENAS 1993). Indonesia is host to the world’s richest coral species biodiversity (450 species) and this is matched by an equally rich biodiversity among coral reef associated organisms (Wilkinson 2000).

The economic aspects of Indonesia’s biodiversity have always been significant, especially for plants such as timber trees, black pepper, cloves, nutmeg, sugar cane, citrus and other fruits. Well over 6,000 species of native plants and

animals are used, either from the wild or cultivated, for food, medicines, fuel, building materials or other uses. More than 40 million of Indonesia's 200 million people are estimated to be directly dependent on biodiversity for subsistence. Typically it is the poorest rural people, including many indigenous groups, who are most dependent on biodiversity for their survival and livelihoods. They suffer the most when natural biodiversity is degraded. Ironically, they are often the real custodians of biodiversity, particularly in the case of local crop plant varieties.

## Background

A major thrust of economic development has been the conversion of natural forests to agricultural land. Economic benefits are realized first through timber and, subsequently, through plantation agricultural and forest crops which include oil palm and pulpwood. A parallel approach has prevailed with mangrove forests. Their natural values have been ignored in pursuit of profits from converting them to commercial fish and shrimp ponds. Although conservation policy has been in place a long time, and it is expressed through numerous programs and projects, the conservation focus has been on protected areas, with relatively little attention given to other aspects of biodiversity conservation.

### Box 1. Environmental governance

**A national Ministry of Environment addresses the full range of the country's environmental management needs, including biodiversity. Created as a coordinating ministry, it has never had the strength or status to curb the disastrously wasteful practices of forest logging and land clearance. The Directorate-General of Nature Conservation/Direktorat Perlindungan dan Pelestarian Alam (PPA), a minor agency within the Ministry of Forestry and Estate Crops, is responsible for nature conservation. PPA has large responsibilities, both in land and marine areas, but has never been provided with adequate resources. Although there is a national system of protected areas, with an impressive distribution, management has been inadequate. PPA does not have the resources needed for this important task; further, its job is made even more difficult by the indifference of other agencies to protected area incursions by loggers, agro-plantation developers, and illegal settlers.**

Some 23.3 million ha of forest lands have been designated as national parks and nature reserves. For a long time protected areas have been encroached on

by illegal loggers, farmers and poachers, while parts of some protected areas have been illegally converted by agro-industrial companies to plantation agriculture. Since 1998 encroachment into protected areas has increased dramatically, with the weakening of central authority following the removal of former President Suharto. In Lore Lindu National Park (Central Sulawesi), local farmers have encroached on thousands of hectares to plant cash crops and cut timber. Similar incursions have been reported at Kutai National Park in East Kalimantan, and organized illegal logging over a long period has degraded Leuser National Park (Aceh) and Tanjung Puting National Park (Central Kalimantan).

Park management officials and other government agencies tend not to oppose these destructive incursions. Those people who want to take action are stalled by lack of funds and inhibited by political pressure. One striking exception has been the Leuser Development Program, a large European Union-funded project to conserve Leuser National Park and its surrounding ecosystem in Aceh Province. Through the course of this project there has been active opposition (some of it successful) to illegal park conversions to oil palm, and encroachments by logging concessions, illegal loggers, local government plans to build roads through the park, and planned transmigration sites on its boundary. These development initiatives have created heated local opposition and protest from some quarters.

All aspects of governance in Indonesia are affected as Indonesia undergoes a tumultuous period of radical change. This shift from autocracy to democracy is taking place in the context of the Asian economic crisis and a breakdown in law and order. A new policy of decentralization is, at least initially, also disruptive. The policy calls for more equitable access to natural resources and a shift to increased community involvement in their management. While the policy can ultimately be beneficial for all aspects of biodiversity planning and management, sub-national governments are accustomed to direction from above and are finding it difficult to cope with new responsibilities.

Meanwhile, Indonesian biodiversity is being rapidly degraded as elements of the old authoritarian ways persist: inappropriate resource use practices that produce quick economic returns, and subversion of the government regulatory framework through bribery. The 1990s have seen extensive forest fires with terrible losses to biodiversity. Fires in 1997 and 1998 burned millions of hectares (BAPPENAS 1999). Tropical moist forests do not ordinarily burn, even under severe drought conditions, but the forests in much of Indonesia have been degraded to the point of being fire-prone rather than fire-resistant.

In the euphoria of reformasi (meaning “reformation” and used to describe the process of democratization and anti-corruption) following the 1998 resignation of ex-President Suharto, many felt that fundamental changes could be undertaken to slow deforestation and restore a measure of justice and transparency to resource management. However, the reforms that have been implemented have yet to change – or even to seriously challenge – the structures of economic and political power that lie behind Indonesia’s forest crisis.

## Box 2. Biodiversity and marine ecosystems

Marine ecosystems have also suffered loss of biodiversity — from exploitative fishing methods, including the use of toxic chemicals, from mangrove removal, and from sediment derived from forest soils exposed to and degraded by fires. The health and productivity of coral reef ecosystems is heavily dependent on adequate levels of photosynthesis being maintained by the chloroplasts associated with coral polyp tissue and associated algae. Corals are “keystone” species critical for coral reef ecosystem function. Some Indonesian coral reef ecosystems are already seriously stressed. The results of a reef monitoring program undertaken by the Indonesian Institute of Sciences (LIPI) have shown that about 40 per cent of the coral reefs reviewed are categorised as “poor” (coral cover 25 per cent). Only 29 per cent had cover of more than 50 per cent. Blast fishing and cyanide (used for stunning fish) are significant causes of this deterioration (Wilkinson, 2000), although sedimentation and other forms of land-based pollution are primary factors in some areas. The full range of damaging effects is presented in Tomascik, et al. 1997.

Indonesian coral reefs have not escaped the coral bleaching which has become a disturbing global phenomenon. While some coral larvae have returned to damaged reefs, they do not always include the major reef-building species such as *Acropora* and *Pocillopora*. Many reefs will become dominated by massive slow-growing species that provide poor habitat for fish and less attraction to divers (Wilkinson, 2000). This shift in species composition and reef structure may be an issue for marine biodiversity conservation akin to the problem now faced in fragmented forests.

### The legal framework for biodiversity conservation

#### Policy

Indonesia has a long history of impressive official policy statements on biodiversity conservation consistent with what are seen today as standard national and international commitments. Two factors have frustrated the effective implementation of those policies, however:

- policies which are inconsistent with biodiversity conservation or foster activities degrading protected areas and biodiversity have not been adjusted (forest exploitation policy is a prime example); and
- the agencies responsible for implementing conservation policy have not been provided with adequate funds, and are expected to find donor funds to support their work.

#### Laws

After Independence in 1945, the government adopted some of the old Dutch laws and regulations relating to the protection of natural resources. Since that time much new legislation has been developed. A notable shift, with dramatic consequences for people and biodiversity, was the suppression of adat law relating to the customary ownership of land and resources. Under the 1945 Constitution the state assumed ownership of all land. While this could have fostered enlightened management on behalf of the wider community, it led to transfer of the people's resources to a private elite. An example is a decree issued in the 1980s in the name of the Minister of Interior which gave private companies control over forest resources and land and the right to pass ownership to third parties.

#### Box 4. Act No. 24

Act No. 24 of 1992, "Concerning Spatial Use Management Planning", was an innovation. The act provides for planning at the national, provincial and district levels and for municipalities. It does not designate planning areas, provide guidelines or specify procedures, however; these are dealt with through regulations at national, provincial and district levels. Under the act a rural area is: "an area where the primary activity is agriculture, including the management of natural resources and with settlements which function to provide rural residents with government services, social services and economic activities."

Planning of rural areas is part of district (kabupaten) plans which, according to Article 22, are to contain: “(a) the management of protection areas and cultivated areas; (b) the management of rural areas, urban areas and special areas; (c) system of development activities and system of rural settlement and urban settlement; (d) infrastructure of transportation, telecommunications, energy, irrigation and environmental management system; and (e) land use management, water use management, air use management and other natural resources use management with consideration of integration between human resources and man-made resources.”

Under this legislation there is scope for multiple use planning, including protected areas. A number of land use plans have been prepared. Through an ADB loan project (MREP: Marine Resources Environment and Planning) marine area zoning plans have been prepared for selected areas in about half of Indonesia's provinces.

Over 150 pieces of legislation relate directly or indirectly to protected area management (ICEL 1998). Although one, the *Act on Conserving Biological Diversity and Natural Ecosystems* (No. 5/1990) has been in place for a decade, very few poachers or illegal loggers encroaching into national parks have been punished. The regulations needed to make the *Act* fully effective have not been prepared. Further, some interests opposed to biodiversity conservation have found means for subverting it; for example, the *Act* prohibits mining within national parks and strict nature reserves but a joint Ministerial decree from the Ministries of Forestry and Mining allows it. The decree was developed at the same time as the *Act* and the ministries follow it in direct contravention to the legislation, even though a statute has greater legal standing than a decree. Administrative lawmaking by government officials, the source of most law in Indonesia, is arbitrary and confusing. Many officials admit to not understanding the tangled and contradictory mass of regulations and decrees that they are expected to enforce.

In 1999, several important laws and a number of Presidential decrees relating to management of biodiversity were introduced:

- the Law on Regional Autonomy and Decentralization (1999/No. 22);
- the Law on Income Balance Between Regional and Central Government (1999/No. 25); and
- the Forestry Law (1999/No. 41).

The Law on Regional Autonomy and Decentralisation gives provinces and districts important duties in development planning and implementation and

major responsibilities in natural resource management. The management and conservation of biodiversity now rests largely with this and lower levels of government. Law No. 25 stipulates that 80 percent of state income from resources is to go to the regions. Both laws require regulations for implementation; these have yet to emerge.

The eventual distribution of authority among Jakarta, the provinces and the sub-provincial districts (kabupaten) is not yet known. The trend of devolution may be based less on rational reasoning than on political decisions crafted to quell separatist rebellions.

Overall, the body of legislation available to support biodiversity conservation is adequate, although there is scope for improvement. The important "new" area of bio-prospecting has not been addressed, for instance. Representatives of developed country companies are surveying, collecting and extracting the country's biodiversity in search of potential medicines, foods, and chemicals. Without regulations, Indonesia stands to lose potential revenue.

### Box 5. Adat law

**While national policy now provides for some recognition of adat (customary) law relating to land ownership, use and management, no clear definition of the scope of this policy has emerged. Procedures and mechanisms for customary land and sea rights have not been determined either. Clear and legally supported adat law could greatly improve the prospects for effective community-based management of biodiversity. As with all aspects of reform in Indonesia, however, there are interests that resist any undermining of the old state feudalism.**

This resistance to reform may be a factor in the ambiguity of the 1999 Forestry Law in terms of adat law. The legislation establishes a category of customary forest (hutan adat) but defines it as state forest which happens to be located within the territory of a "customary law community". The definition of such a community is to be elaborated (by the government) in future regulations. The government is obliged under the law to respect the rights of those communities that it chooses to recognise as "customary" but only to the extent that those rights "do not conflict with national interests." The state therefore determines which communities qualify as "customary," and then decides which of the "customary" communities' rights are to be recognised. Indigenous peoples' organizations and NGOs have denounced the Forestry Law as offering inadequate protection of the rights of traditional forest-dwelling peoples.

## Planning for biodiversity management

Planning for conservation is not new in Indonesia. Under traditional (adat) law there have long been provisions for conservation, such as areas set aside for the replenishment of resources, or natural areas maintained for spiritual reasons. The first protected areas were established under formal law during the Dutch occupation. After Independence, these areas were maintained with Dutch support through what was then the World Wildlife Fund, working with PPA. This program was reviewed in 1980 and found to need reorientation to facilitate less donor influence and more Indonesian involvement (Soemarwoto, Furtado and Baines 1981). The first national survey of conservation needs was underway at the same time, and was an important innovation in conservation methodology (MacKinnon and Artha 1981). A major outcome of the survey was a National Conservation Plan, which mapped the country in all its diversity, addressing representativeness and evaluating existing and proposed protected areas against a range of criteria.

A shift away from a dominating foreign interest did take place. This, together with the solid technical basis provided by the National Conservation Plan, facilitated the growing involvement of Indonesians in biodiversity conservation through the 1980s. Efforts were continually frustrated, however, by the weak support given by the government to PPA. By the end of the 1980s concerned NGOs, universities and research institutions had begun to question government policies and programs that promoted the unsustainable extraction of natural resources. They pressed for stricter controls on development using practices which maintained the environment and included an integrated system of protected areas to meet the needs of local communities while conserving biological resources. This lobbying brought results. The Department of Forestry eventually sought and obtained support from UNDP/FAO to formulate conservation plans for several protected areas.

These plans, together with a long list of potential protected areas identified over the years by PPPA, were included in the Indonesian Biodiversity Action Plan (IBAP) developed under the auspices of the National Planning Agency for Indonesia (BAPPENAS) and funded by the World Bank. The IBAP benefited from coordinated input from the Ministry of Forestry, Ministry of Environment, Ministry of Agriculture, Ministry of Interior, National Institute of Science (LIPI), provincial and local government, universities, national professional organizations, the private sector and national and international NGOs. The process of developing the IBAP extended over two years and was intended to create a national consensus on the rationale for action and investment in biodiversity conservation. The IBAP was adopted by government in 1991 as

part of the 25-year Development Strategy (1991-2015) and was published in English in 1993 following its endorsement at a World Bank-supported conference attended by scientists, government officials and NGOs.

### Box 3. Scope and objectives of the Indonesian Biodiversity Action Plan

The IBAP had three general objectives:

- to slow the loss of primary forests, wetlands, coral reefs and other terrestrial and marine habitats of primary importance for biodiversity;
- to expand the data and information available on the nation's biodiversity and make it available to policy-makers and the public; and
- to foster the use of biological resources in ways that are less harmful than current practices.

The IBAP includes a list of Selected Project Profiles which was incorporated in the sixth national long term development plan (REPELITA VI). The list included regional conservation programs, in-situ conservation outside protected areas, marine conservation, information, education and awareness, training and research, ex-situ conservation and sustainable use initiatives. The IBAP also defined a systems plan for parks and protect areas. Terrestrial and wetland sites with the highest conservation value in each of seven major biogeographic regions were identified according to species richness, endemism, habitat range and management viability, and for their socio-economic benefits.

Some of the actions identified as priorities were successfully implemented, including the financing of activities in priority biodiversity conservation sites through government, GEF, USAID, the World Bank and others. Several laws and regulations to strengthen the legal framework for conservation were passed. There was, however, no multi-sectoral strategy for coordinating the many separate plans introduced by government departments in response to these new laws and regulation.

Other initiatives have been prepared, such as the National Conservation Plan, Irian Jaya Conservation Plan, Tropical Forest Action Plan, Wetland and Marine Protection Strategy and a National Mangrove Strategy. Each was consistent with the IBAP, though some did not originate from it.

## Preparation and development

Indonesia is a very large archipelago. Substantial financial resources would be required to prepare a plan that covered the biodiversity of all the islands. Because of its limited resources, the IBAP Steering Committee decided that the greater part of the plan would be prepared through selective consultations with provincial and local governments. The plan was developed under the auspices of BAPPENAS under the direction of a Steering Committee whose members represented various government agencies, national and international NGOs, the private sector and universities. The committee also received valuable inputs from non-member institutions and relevant organizations through several national workshops.

Meetings and national workshops on the IBAP led to the definition of a series of high-priority projects which were included in REPELITA VI for implementation by relevant central and provincial agencies. While these were developed as integral parts of the IBAP they needed to be included in REPELITA VI so as to be identifiable as eligible for funding from both government and donors.

## Relationship to development planning

BAPPENAS provided funds to conduct national workshops and gave final endorsement of the plan. Proposed inputs from provincial governments were prepared by each of the involved government agencies within their approved development budgets. Implementation was to be achieved through international support, supplemented by government budget allocations to relevant central and provincial sector agencies such as forestry, tourism and agriculture, and through the districts (kabupaten). Agencies determined the funds needed to implement aspects of the IBAP and included them in the regular annual development budget for their sectors.

A similar approach was made at the provincial level. The detailed activities and budgets for each project were further developed through several regional coordination meetings led by the national agency responsible for provincial development (BAPPEDA). Participants from relevant sectoral agencies, the private sector, universities and NGOs worked through the proposed projects and defined institutional responsibilities and financial needs.

BAPPENAS also conducted coordination meetings among the relevant sectoral agencies at the central and local level to facilitate a cooperative and integrated approach to implementation for the highest priority projects. It was expected that the IBAP would be implemented according to the priorities and budgets set out in the usual development planning process, including the

allocation of international aid. There was little result from this detailed budgeting, however, for reasons discussed in the next section.

### Lessons learned from the IBAP process

#### Limitations of the Action Plan

Only some aspects of biodiversity were adequately covered through the Action Plan. Biodiversity management involves the use and/or protection of all living plants and animals, including those which are used directly (agricultural crops, medicinal plants, timber trees, etc.) and those which are not used directly, but which support survival and development (regulated flows of water for hydro power, rural communities and for irrigation) and maintain the quality of life. Although reference was made in the 1991 IBAP to aspects of natural resource exploitation, its projects focused on the biodiversity of protected areas, paying little attention to other biodiversity planning needs. A particularly important omission was Indonesia's rich agricultural biodiversity, which is so important for food security and which provides many opportunities for food crop improvement.

#### A donor-driven process

The IBAP was not perceived as being fully Indonesian. At the annual planning meetings to determine sector budgets it was evident that departmental representatives did not fully understand the implications of the IBAP for other activities and programs of their agencies. Although government officials participated in meetings and provided comments on the Action Plan, there was a perception that the IBAP process was donor driven. This is supported by the fact that the IBAP was prepared in English and not translated into Indonesian.

#### Changing context

Economic, political and environmental changes undermined biological resources. The major changes arising from the Asian economic crisis and the subsequent emergence of democratic processes in Indonesia have led to a new uncertainty which further frustrates IBAP implementation. The economic crisis has brought increased pressure on natural resources as declining income-earning opportunities force many people to exploit land and sea resources at even higher levels. In addition, forest fires have badly degraded some of the priority biodiversity conservation areas identified in the IBAP.

### Limited information

The limited data on biodiversity constrain implementation. Government has done little to gather the biodiversity information needed for effective planning for management. Neither the research policy of the Department of Forestry nor its budget makes any provision for the study of forest biodiversity. Most data that is available has been compiled by the Indonesian Institute of Sciences (LIPI), by graduate students and NGOs, and through development assistance projects.

### Involving local communities

Local communities are not benefiting from biodiversity conservation. Illegal activities, such as mining, logging and dynamiting for fish, go unpunished; boundaries are violated in the country's protected area system. A common view held by many communities is that areas set aside for conservation are a deterrent to their economic development. In an attempt to address the issue, some 20 Integrated Community Development Programs have been carried out in areas close to national parks. These have had only limited success in increasing support for conservation from local communities. Economic benefits have not been effectively linked to conservation objectives in and around protected areas and have reached too few people. Without tangible benefits from conservation programs, it is unlikely that communities will participate in the collaborative management and sustainable use of biodiversity resources.

A World Bank analysis of Indonesia's ICAD projects (Wells et al. 1997) revealed, among other things, a lack of coordination between regional development planning and planning for ICDPs. In ranking threats to the 21 protected areas, the study showed that road construction, mining, logging, and sponsored migration were more significant than threats by local communities. It stated that the more significant issues needed to be addressed "through mechanisms such as spatial planning, involving park managers in public investment decisions, and improved development coordination".

### Threats to protected areas

Protected areas are being "invaded". Hostility by both local officials and communities is counteracting conservation efforts; as a consequence most national parks and nature and game reserves are being subject to heavy encroachment. The destruction of protected biodiversity by fires, illegal logging and mining is particularly high in those parks with human populations at their borders, particularly where these are sea-oriented settlers from other parts of Indonesia who fear the forest environment. Fires have affected 90 per

cent of the total area of Kutai National Park in east Kalimantan. Some of them were set by migrant fisher communities. Two other important national parks, Tanjung Puting in Central Kalimantan and Leuser in North Sumatra/Aceh, which harbour endangered species such as the orangutan, have experienced major and widespread forest and species loss.

### Lack of commitment

Consultation during IBAP preparation was intended to develop a stakeholder commitment that would carry over into project implementation. The IBAP built on many Indonesian plans and policies of government institutions, NGOs and the private sector relating to conservation and prepared during the 1980s. Critical conservation and management strategies for natural resource extraction were set out in the IBSAP and earlier policies. Commitment across government and in other key sectors has been weak, however, and important measures to tackle biodiversity loss outside protected areas have not been implemented. Lack of government sector coordination and inadequate understanding of the issues have contributed to this poor performance; the IBAP was, after all, one of the first such plans in the world.

## A strategy and action plan for the 21st century

In 2001, the Government of Indonesia decided to do the following:

- review the success and weaknesses of the 1991 IBAP;
- determine the effectiveness of current national policies, laws and institutional processes for biodiversity conservation;
- identify the obstacles to biodiversity protection and the options for its conservation and wise use; and
- define strategies appropriate to the new social and economic realities facing Indonesia.

The call for more equitable access to resources and a shift in government policy toward increased community involvement in the management of biological resources could have profound implications for biodiversity conservation in Indonesia. The policy shift provides opportunities that can be realized only through a fresh, innovative approach to planning for biodiversity conservation. Following accepted international practice, Action Plan preparation is to be preceded by the development of a strategy for plan preparation and implementation. Preparation of the strategy and the Action Plan are to be financially supported by The World Bank as a GEF enabling activity.

### Institutional arrangements for the 2001-02 IBSAP process

PPA, within the Ministry of Forestry, is responsible for the protection of natural habitats and the conservation of nature. The Ministry of Environment (LH) is responsible for environmental policy and regulations, although in practice this legislation is still being overridden by other laws (forestry, fisheries, and mining). LH has been important in shaping biodiversity strategy in Indonesia, and in linking conservation of biodiversity with economic development.

An inter-departmental Biodiversity Commission has been established under LH, which draws members from all institutions and agencies concerned with conservation and management of biological resources. A Biodiversity Working Group (BWG) of the Commission advises on technical matters and assists in coordination.

The Ministry of Environment has the mandate to coordinate efforts in biodiversity conservation through the IBSAP. Responsibility for biodiversity management and protection rests mainly with the sectoral Ministries of Agriculture, Forestry and Estate Crops and a new Ministry (Ocean Exploration and Fisheries), as well as their counterpart agencies at provincial and district levels. BAPPENAS will coordinate all stakeholders, and has a powerful tool to accomplish: sectoral budget allocations.

At the provincial level, the Division of Nature Conservation and National Parks under the Directorate General of Protection and Nature Conservation within the Ministry of Forestry, the provincial agency responsible for environmental assessment (BAPEDALDA), and forestry, fisheries and other sectoral agencies are responsible for IBSAP implementation.

Preparation of the IBSAP is scheduled to span a period of 15 months, starting with a planning and consultative process facilitated by a number of national and international consultants. A period of three months has been allocated to a stocktaking exercise to document and organize relevant information and to summarize progress and problems. An IBSAP Steering Committee is to be established to oversee the process and prepare a work plan. It will appoint an Organizing Committee, a Secretariat, the required consultants, and various thematic working groups.

These are the project objectives for the development of the proposed IBSAP, as set out in the Republic of Indonesia Enabling Activity Proposal in Biodiversity:

- “undertake a stocktaking of the priority needs and actions identified under the first Biodiversity Action Plan to determine what has been achieved, what is still outstanding, and to offer reasons as to why required funding and/or motivation have not been realized;
- “identify new priority needs and actions and restructure an action plan in accordance with the potential changes in the environmental policy of the new government;
- “determine...the current opportunities and constraints for effective conservation and sustainable use of the country’s rich biological diversity, including gaps in existing knowledge and realistic goals and actions for closing these gaps; and
- “propose a new, clear Strategy with a detailed Action Plan.”

The proposed IBSAP will be written in Indonesian (with an English version produced only after the process is completed).

### Box 6. Features of the proposed IBSAP

**Working groups:** Thematic working groups are to be organized on the basis of geographical regions and will consider key themes of conservation such as sustainable use; benefit sharing; coastal and marine environments; agricultural, forest, freshwater biodiversity; environmental protection; biodiversity financing; and public education and awareness. Working groups are to include government staff, representatives of the private sector, and NGOs.

**Assessment of biodiversity status:** A stocktaking exercise will build on the many and varied biodiversity reports of government, NGOs and donors issued since the 1991 BSAP was published. The causes of biodiversity loss are to be detailed, as are projects, expenditures and lessons learned. Initially, the exercise will concentrate on ascertaining what is readily available rather than conducting a new study, recognizing that improvements and amendments will be emerge during the stakeholder discussion phase.

**Consultative process:** A number of workshops are planned to discuss and report on biodiversity status, problems and necessary actions. The results will provide direction to a drafting group of Indonesian consultants. Locally facilitated regional, provincial and district workshops will be held in addition to national workshops. It is impractical to consult with all communities; representative locations will be chosen to provide guidance on how to achieve biodiversity conservation in the new decentralized governance environment. Dedicated Web sites at regional and national level will assist

consultation. The use of the media to generate discussion and to promote participation will also be discussed. A final IBSAP workshop will summarize and address the comments and suggestions raised during this consultation.

*Regional BSAPs:* Funds are to be made available to consortia of NGOs, local governments and, it is hoped, private sector participants, to produce a regional BSAP. The term “region” can apply to any level of organisation that is practicable. Regional reports may cover a province, a district or a number of districts. In addition, each ministry represented on the Steering Committee is to provide a written commitment detailing how the ministry will work toward conserving Indonesia’s biodiversity.

**Analysis of obstacles:** BAPPENAS is to contract experts from government institutions, the private sector and NGOs to gather and review materials. Gaps and weaknesses in the ability of the Indonesian system to formulate and implement biodiversity-related policies will be identified during the preparation process. Solutions for these problems will be defined by BAPPENAS with support and training from Indonesian and international consultants. Emphasis will be on relevant changes and progress made since the 1991 IBAP was prepared. Representatives from relevant ministries are to address cross-sectoral issues.

### Constraints to biodiversity plan implementation

These are some of the difficulties and uncertainties to be faced in the implementation of the IBSAP:

- The promised reforms have yet to become reality. Those which have been initiated, as in forest management, cannot in themselves change, or even seriously challenge, the political and economic arrangements which underpin forest resource abuse.
- Provincial governments do not fully appreciate the pivotal role of environmental management agencies and the importance of biodiversity management and protection for sustainable development.
- Local governments are weak in status, staff and resources.
- To develop their own policy and regulatory frameworks for natural resource management and environmental protection, local governments require skills and experience that are in short supply.
- A proposed partitioning of coastal seas between Province (to 12 km) and District (to 4 km) introduces a potential impediment to rational marine resource management planning. It will be a major challenge to develop

harmonious marine area management arrangements between national, provincial, and district governments.

- Management of marine species, such as tuna, which range widely across provincial boundaries will require a new form of regional cooperation between groupings of provinces.
- National environmental agencies retain policy and coordinating roles but now have authority only in matters which lie outside of, or cross, provincial boundaries. It will be a challenge to maintain the effectiveness of these agencies under decentralisation.
- The new policy of recognition of customary law and tenure has yet to be translated into procedure, practice and success. It offers new opportunities for community based conservation, but is also likely to be frustrating in practice.
- Curbing biodiversity losses will continue to be difficult where the focus of attention remains on protected areas. Innovative approaches to biodiversity conservation outside protected areas are needed.
- Previously neglected aspects such as agricultural biodiversity (crop cultivars) need attention.
- Biotechnology, bio-prospecting and bio-safety issues have yet to be effectively addressed.
- A long-term problem of soil erosion and land degradation by fire in the eastern region continues.
- Too little effort has gone into curbing illegal logging and other forms of unsustainable exploitation of natural resources.
- The armed forces of Indonesia are active in extraction of natural resources for commercial gain, but have yet to acknowledge and accommodate conservation policy and practice.
- Many local communities, with decades-old grievances against the central government and the private sector forest industry firms allied to it, are not waiting for the policy-makers' reforms. They are taking matters into their own hands through land occupations, strikes, and destruction of logging and plantation facilities.

### Monitoring and follow-up

Results of the 1991 IBAP are to be assessed as a part of the process of developing the IBSAP. No provision was made for monitoring implementation of the IBAP except to the extent that BAPPENAS monitors expenditures. An essential feature for success in implementation of the proposed IBSAP will be an adequate monitoring and evaluation system.

## Lessons to guide the IBSAP process

### Positive aspects of the 1991 IBAP

The IBAP identified and systematically presented biodiversity protection needs on the basis of species and area. It recognised that local community support, and meeting their basic needs, were essential to long-term conservation, and developed a number of integrated conservation and development projects. A powerful central development planning agency (BAPPENAS) backed the IBAP and incorporated its component projects in the context of the national development planning framework. The IBAP also proved to be useful in attracting and focusing donor assistance for protected area conservation.

### Shortcomings of the 1991 IBAP

Although this was consistent with official procedures at the time, it was a top-down plan and not truly participatory. In addition, it was unnecessarily limited in its scope, in that it failed to accommodate the objectives of the Convention on Biological Diversity (CBD). It was ineffective in respect of management of biological resources; while it made reference to the need for action to curb exploitative natural resource use it did not specify actions to be taken and nor did it have real sector involvement (under the autocratic regime of the time this would have been difficult to achieve). The IBAP wasn't well coordinated among stakeholders, particularly government bodies, NGOs and research/university institutions, which meant that it quickly lost its usefulness as a priority setting mechanism. Implementation was isolated and ad hoc.

The IBAP failed to adequately stress the importance of recognizing and reinforcing customary laws which respect and protect the environment and biodiversity. Other limiting factors were centralized government control over management of natural resources, an unregulated private sector and limited local involvement in, and commitment to, biodiversity conservation.

The absence of suitable integrated policies and system of sustainable land and marine use planning caused competition between sectors and, inevitably, overuse of biological resources and an accompanying loss of biodiversity. Inconsistent application of environmental impact assessment requirements to development activities allowed serious environmental degradation to continue and extend.

IBAP implementation did not lead to real capacity development. Foreign technical assistance and institutional support had the effect of substituting

for capacity development instead of producing it (Wells et al. 1997). There are serious local impediments to genuine capacity building and the focus on communities did not produce the results expected

Although Indonesia has gone further than most countries in adopting innovative ICDP approaches, success has been elusive. Four basic problems emerged from an analysis of projects being implemented (Wells, et al. 1997):

- ICDP resources were concentrated on addressing threats from local communities to the target biodiversity, but in most cases threats from large public and private investments were much greater and were not being addressed;
- a strong emphasis on detailed, comprehensive plans, developed by highly skilled, often international technical consultants to be implemented through standard national procedures was inconsistent with a situation where information is scarce, capacity is low, and there is a need for considerable on-site flexibility.
- in nearly all ICDPs the links between conservation and development were very weak, and confined to a small number of stakeholders.
- ICDP designs were based on a level of funding which was unlikely to be sustained.

## Biodiversity planning for the future

### Recognizing and addressing forest removal and fragmentation

An analysis of 1997 satellite imagery led to the conclusion that the average annual deforestation rate for the years 1986-1997 has been about 1.7 million ha (see Table 1). The forests of Sumatra have suffered the greatest damage; 30 percent of the huge island's forest cover was removed during this short period. Indonesia appears to have lost some 20 million ha of forest between 1985 and 1997, and perhaps an additional 4 million ha since then. This gives a deforestation total of 24 million ha — an area roughly equivalent to that of the United Kingdom — over the past 15 years.

**Table 1.** Forest cover and deforestation in Indonesia, 1985–1997

	1985		1997		Deforestation		
	forest 000 ha	% total land area	forest 000 ha	% total land area	decrease 1985-97 000 ha	% loss	ha/year 000 ha
Sumatra	23,324	49%	16,632	35%	6,691	29%	558
Kalimantan	39,986	75%	31,512	60%	8,474	21%	706
Sulawesi	11,269	61%	9,000	49%	2,269	20%	189
Maluku *	6,348	81%	>5,544	n/a	>800	13%	67
Irian Jaya	34,958	84%	33,160	81%	1,798	5%	150
Total	115,885	68.5%	c.95,848	57%	20,505	17%	1,709

\* Data for Maluku are preliminary

Source: World Bank, 2000

The massive loss of lowland rainforest biodiversity is particularly serious in Kalimantan and Sumatra. These lowland rainforests are also poorly represented in the national system of protected areas (less than five percent is included). A June 2000 analysis by the Ministry of Forestry and Estate Crops estimated that if current deforestation trends continue, “non-swampy lowland forest will become extinct in Sumatra before 2005, and in Kalimantan soon after 2010.” In Indonesia, continuing fragmentation of forests has undermined much of the past achievement in forest protection. The rate of fragmentation has been greatly accelerated by the extensive forest fires of 1998 and 1999.

As awareness of the nature and extent of resource degradation and biodiversity loss grows, the question arises of how to regain some of that which was lost. Three approaches are possible (Lamb, 1994):

- restoration aims to put back what was there before degradation took place. This is very ambitious, technically challenging, and costly.
- reclamation of a degraded ecosystem involves achieving a basic level of recovery and productivity and re-establishment of physical stability. Its purpose may be commercial, rather than ecological, as in the case of reclamation through the establishment of plantation tree crops.
- rehabilitation lies between restoration and reclamation. It involves an attempt to replace the most obvious components of the original forest, but not all of the detail of its structure, species and processes.

Approaches to protected area management in Indonesia need to take into account the high degree of ecosystem fragmentation present, which can be expected to increase further. The nature and extent of key protected areas such as the national parks of Kutai, East Kalimantan, and the wildlife for which they once were noted has drastically changed. The majority of the forested portions of these national parks have been subjected to more than one forest fire. Further, since the canopies of these forests are now so open and subject to drying, they will, without doubt, burn again.

All interested parties in Indonesia have accepted that degraded mangrove ecosystems should be rehabilitated, and considerable resources have been devoted to this objective in Sulawesi and Java. A broader approach to ecosystem rehabilitation and/or restoration has become an essential feature of biodiversity management. Guidance can be expected through the emerging WWF-IUCN Forests Reborn initiative in forest landscape restoration, defined as: "A planned process that aims to regain ecological integrity and enhance human well-being in deforested or degraded forest landscapes and beyond."

### **A new approach to biodiversity planning**

It would be a mistake to approach the IBSAP as simply a revision of the 1991 IBAP. The environmental and political circumstances have changed dramatically, and fragmentation is now a feature of the forest landscape. There are opportunities for public participation that were previously lacking. Officially sanctioned village community control of local affairs exists, a dramatic reversal of previous policy. Even a previously unthinkable scenario – the expression of long repressed adat law regarding land use, ownership rights and fishing rights — is possible.

It is important that the process of IBSAP development promote cross-sectoral coordination at the local, regional and national levels. The process should include relevant government agencies whose activities have an impact on biodiversity, such as the Ministries of Mines and Energy, and Civil Works, even if they were not previously involved in biodiversity management planning. It is also important to have public participation in the planning process at national, provincial and district levels. Under the new system of governance provincial and district agencies have important potential roles in environmental management and biodiversity protection. It is, however, in this ideal of cross sectoral coordination and local government participation that the real difficulties lie. In a civil service where initiative has been suppressed for more than 50 years, provincial and district governments are having difficulty in responding effectively to national decentralisation policy.

Provisions to monitor and evaluate implementation of the strategy and plan are particularly important in light of the uncertainties in Indonesia. More uncertainty lies ahead and implementation should be planned with enough flexibility to accommodate new legislation, and new administrative and revenue sharing arrangements between different levels of government.

## Recommendations

Analysis of the 1991 IBAP experience and the changed political, economic and environmental situation point to a number of recommendations in developing the proposed national and regional Biodiversity Strategies and Action Plans.

**Cover all aspects of biodiversity:** Indonesia's interests are best served if the full scope of biodiversity, as encompassed by the CBD, is addressed. This requires more attention than was given in the 1991 IBAP to ex-situ measures, the equitable distribution of benefits from the use of biodiversity, regulated access to genetic resources, Indonesian access to biotechnology, and technical and scientific cooperation within Indonesia and with overseas institutions. The approach adopted in Cambodia, which sets out to develop a national strategy and plan based on sectoral building blocks, might be considered.

**Protected areas still have a critical role:** Protected areas remain a basic component of biodiversity planning and management. Continued effort is needed to establish connections between these areas and others which, although they have lower protection status, harbour biodiversity of significance.

**Fragmented forests:** The restoration, rehabilitation and reclamation of fragmented forests should be promoted. Fragmentation of forest ecosystems by fire and clearance is a reality which demands a fresh approach to the delimitation and management of forest protected areas — many of which are now mosaics of primary and secondary vegetation — paying close attention to biodiversity corridors and to ecological rehabilitation as appropriate tools for biodiversity conservation.

**Greater emphasis on agro-biodiversity:** Agricultural biodiversity, previously neglected, deserves attention. Agro-biodiversity has economic, cultural and biodiversity conservation foundations; what is needed are policy provisions and a legal framework to conserve representative areas of agricultural biodiversity in the context of traditional management systems. A recognition of adat law on agro-biodiversity management should underlie these systems, which afford protection from destructive impacts. The IBSAP should include

surveys of areas believed to be rich in local crop cultivars. Locations needing special protection should be identified, in close consultation with those who maintain them, and measures taken to provide this protection. These agricultural biodiversity protection options could encompass a wide range of rural development activities and projects, thus placing biodiversity conservation directly in the context of sustainable development.

**Greater emphasis to marine biodiversity:** A wide range of marine biodiversity protection and management issues have yet to be effectively addressed. Coral reef ecosystems are seriously stressed and their recovery is not certain. Innovative new thinking is needed not only for management, but to define realistic boundaries for marine protected areas.

**Integrating the social dimension in assessments and surveys:** The IBSAP should incorporate gender sensitive social assessment as an essential complement to biodiversity conservation initiatives. Matters to be assessed include social condition, stakeholder perceptions and awareness, biological resource uses and biodiversity management, and local resource management knowledge. Surveys should be undertaken in ways which encourage community participation in biodiversity assessment and management.

**Giving greater attention to the role of women:** Women play a vital part in the conservation and sustainable use of biodiversity. This matter should be addressed specifically in the IBSAP. The plan must outline ways to recognize and acquire vital traditional knowledge of biodiversity and its uses, and the different perspectives about this knowledge on the part of women and men.

**Linking biodiversity conservation to poverty alleviation:** The IBSAP should recognize that economic and social development, food security and poverty alleviation are priorities in Indonesia. Biodiversity conservation proposals should be placed in this context, developing the basic theme that the conservation and sustainable use of biological diversity is of critical importance for meeting food, health and other needs.

**Defining and involving stakeholders:** An important preliminary step to IBSAP preparation is a rigorous re-examination of stakeholders and the approaches which best suit each stakeholder group. Notable omissions from previous consultations were members of the armed forces who are active in commercial exploitation of biological resources.

**Biodiversity research and surveys:** A fresh approach to biodiversity conservation in Indonesia will require new data and, in some cases, new methods of acquiring this data. The IBSAP could provide for LIPI to organise workshops for relevant scientific organizations, natural resource management agencies and NGOs to discuss biodiversity assessment and rehabilitation research and survey needs, to determine priorities and to recommend a strategy for biodiversity research. Guided by workshop recommendations, the IBSAP should provide for a strengthening of biodiversity research and survey through the formulation of targeted programs, training and the further development of international research relationships.

**Methods of assessing landscape biodiversity:** The IBSAP should consider developing methods of landscape/habitat based biodiversity assessment for national overviews, landscape regions and protected areas. Assessment should be able to detect trends in environmental and biodiversity condition, drawing on the results of investigations of the ecology of fragmented landscapes, and be well-adapted to Indonesian conditions. The state of current assessment methods suggests that action is needed on a national basis; existing methodology tends to be project specific, and emphasizes species and ecosystems, with inadequate reference to ecological processes or context.

**Indicators of change in a monitoring framework:** Indicators of change in environment, ecological processes and biodiversity are needed, with particular reference to monitoring trends in ecosystem fragmentation, habitat and key indicator species. Only standardized, repeatable measurements give the information needed to identify and characterize the information needed for effective management interventions. A separate set of indicators is needed as a basis for monitoring and evaluating IBSAP implementation.

**Communications:** A communications strategy should be prepared for all stages of the IBSAP process so that awareness of its importance and key messages is maintained among government, private sector, NGOs, local communities and other stakeholders.

## Chronology

Early 1900s	Nature conservation activities initiated, and regulations enacted, under the Forestry Service established by the Dutch.
1945	Indonesia gains its independence.
1964	IUCN and WWF jointly initiate a conservation project (survey of Java rhinoceros in Ujung Kulon).
1970	Indonesia, WWF International and WWF Netherlands sign a tripartite agreement, the basis of support for conservation and management of Gunung Leuser reserve.
1974	The Indonesian Nature Conservation Agency (PPA: Direktorat Perlindungan dan Pelestarian Alam) established within the Ministry of Forestry.
1977	A new and expanded five-year Indonesia-WWF agreement signed as the basis for establishment of a Conservation Program.
1980	Mid-term Indonesia-WWF Program review of 36 projects.
1981	National Conservation Plan for Indonesia.
1990	<i>Act on Conserving Biological Diversity and Natural Ecosystems.</i>
1991	Indonesia Biodiversity Action Plan adopted.
1992	<i>Act on Spatial Use Management Planning.</i>
1998	Resignation of President Suharto leads to dramatic changes under <i>reformasi</i> .
1999	Introduction of legal reforms which provide for a shift of power and responsibility for conservation and other matters to provincial and district levels.
2001	Work scheduled to begin on a new national biodiversity strategy and action plan.

## Suggested reading

BAPPENAS (National Development Planning Agency). 1999. *Annex I: Causes, Extent, Impact and Costs of 1997/98 Fires and Drought*. Final Report. Asian Development Bank Technical Assistance Grant TA 2999-INO, Planning for Fire Prevention and Drought Management Project.

BAPPENAS (National Development Planning Agency). 1993. *Biodiversity Action Plan for Indonesia*. Jakarta.

Fox, J., M. Casson and G. Applegate. 2000. *Forest Use Policies and Strategies in Indonesia: A Need for Change*. Prepared for the World Bank.

ICEL. 1998. *Kajian Hukum dan Kebijakan dalam Pengelolaan Kawasan Konservasi menuju Pengembangan desentralisasi dan Peningkatan Peranserta Masyarakat*. Jakarta.

Lamb, D. 1994. "Reforestation of degraded tropical forest lands in the Asia-Pacific region: Past lessons and present uncertainties." *Journal of Tropical Forest Science* 7, 157-170.

MacKinnon, J. and M.B. Artha. 1981. *National Conservation Plan for Indonesia*. Bogor: FAO.

Soemarwoto, O., J. Furtado and G. Baines. 1981. *Mid-term review of the World Wildlife Fund Indonesian Conservation Program*. Mimeo, 67 pp plus 4 appendices.

Supriatna, J. 1999. *The Irian Jaya Biodiversity Conservation Priority-Setting Workshop: Final Report*. Washington, D.C: Conservation International.

Tomascik, T., A.J. Mah, A. Nontji and M.K. Moosa. 1997. *The Ecology of the Indonesian Seas*. Volume I. Hong Kong: Periplus Editions.

Wells, M., A. Khan, W. Wardojo and P. Jepson. 1997. *Investing in Biodiversity: A Review of Indonesia's Integrated Conservation and Development Projects*. Jakarta: The World Bank-Indonesia Country Program.

Wilkinson, C. (ed.). 2000. *Status of Coral Reefs of the World*. Australian Institute of Marine Science.

World Bank, 2000. *Deforestation in Indonesia: A Review of the Situation in 1999*. (Draft). Jakarta

