National Report

Review of Protected Areas and Development

Vietnam

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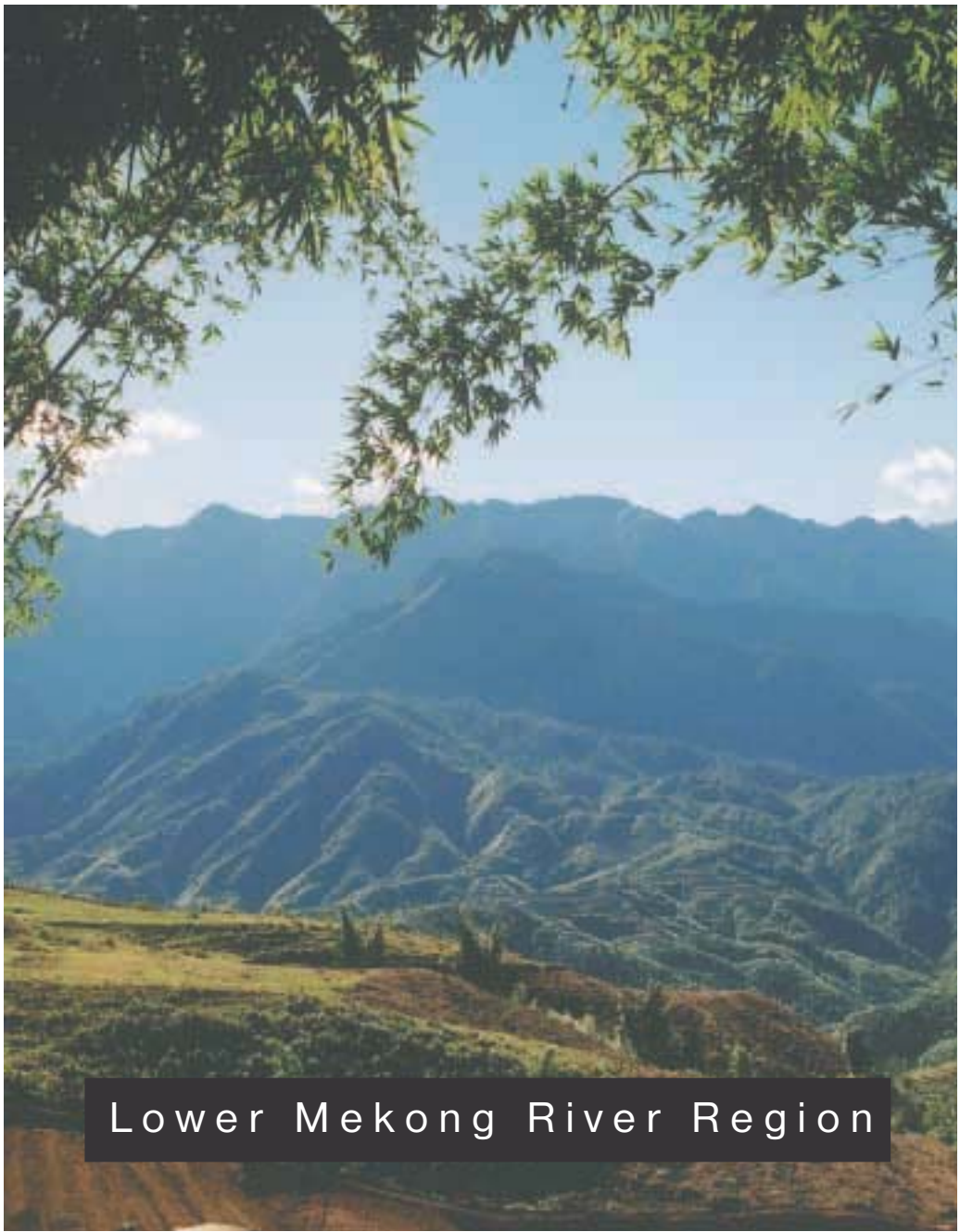

Review of protected areas and development in the four countries
of the Lower Mekong River Region

Vietnam

National Report on Protected Areas and Development

Ministry of
Agriculture and
Rural Development

Ministry of
Fisheries

Ministry of
Natural Resources
and Environment

Published by: ICEM, Indooroopilly, Queensland, Australia

The PAD Review publications have been made possible by funding from Danish International Development Assistance, Swiss Agency for Development Cooperation, Australian Agency for International Development, Asian Development Bank, Royal Netherlands Government and Mekong River Commission.

Citation: ICEM, 2003. *Vietnam National Report on Protected Areas and Development.* Review of Protected Areas and Development in the Lower Mekong River Region, Indooroopilly, Queensland, Australia. 60 pp.

ISBN: 0 975033 24 7

Design and layout: Patricia Halladay, Kimdo Design and Paul Insua-Cao

Cover photo: Iris Uyttersprot
Other photographs by David Hulse (pp. 13), Paul Insua-Cao (pp. 19, 23, 24, 40, 41), Iris Uyttersprot (pp. 28, 31, 32, 35, 38, 49) and WWF/Ben Hayes (pp. 15, 18, 25, 42, 45, 46)

Printed by: Kimdo Design, Hanoi

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National Report on Protected Areas and Development

The PAD Partnership - 2003

The PAD Partnership

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Foreword

In the past decade Vietnam has made remarkable progress developing its economy, with annual growth in GDP averaging more than seven percent. During the same period, literacy has climbed and infant mortality has dropped. The country's achievements in the 1990s were among the best in the developing world. However, this rapid economic growth has revealed its weaknesses. The nation's forests, fisheries, soils and water have sometimes been used unsustainably, and in some regions environmental quality has diminished. Vietnam's extraordinary natural heritage faces considerable challenges of degradation.

Development and conservation of Vietnam's ecosystems and resources are two sides of the same coin. Without conservation and protection, development cannot be sustained. Yet, the socio-economic benefits flowing from conservation are often overlooked and the investment needed to maintain natural services and products — on which all development is based — is inadequate. The Protected Areas and Development (PAD) Review set out to better understand these critical relationships and to promote innovation in policy and management so that Vietnam's expanding protected areas estate could be recognised as a development asset of critical importance.

As part of the regional initiative in lower Mekong countries, the review in Vietnam was undertaken through joint efforts led by the Forest Protection Department of the Ministry of Agriculture and Rural Development and IUCN Vietnam in close partnership with relevant Ministries, i.e. National Environment Agency of the Ministry of Science, Technology and Environment, Ministry of Planning and Investment and Ministry of Fisheries, and other partners: ICEM - International Centre for Environmental Management, the Worldwide Fund for Nature, Birdlife International, the United Nations Development Programme, the Mekong River Commission, the New South Wales National Parks and Wildlife Service and the Tropical Forest Trust. The review was sponsored by Danish International Development Assistance (DANIDA), the Australian Agency for International Development (AusAID), Swiss Agency for Development Cooperation (SDC), the Asian Development Bank, the Royal Netherlands Government and the Mekong River Commission.

The Review has been instrumental in establishing a dialogue between economic and protected area planners from all levels of government and all sectors. Two national round-table meetings, two regional meetings, a final consultative workshop and the national PAD e-mail network have involved more than two hundred people. They have shaped this report on the basis of a decade of lessons. An inter-agency task force undertook field studies in Thua Thien Hue Province to value the development contribution of a cluster of protected areas; the results gave direction to strategies for national application. Concerned government agencies reviewed and commented on the first and second drafts of the report:

- the Ministry of Planning and Investment;
- the Ministry of Fisheries;
- the Ministry of Agriculture and Rural Development's Forest Protection Department, and Forest Inventory and Planning Institute;
- the National Environment Agency; and,
- the Vietnam Administration for Tourism.

A consensus emerged on key recommendations for improving protected areas and their contribution to development and environmental quality.

The national PAD report analyses the achievements and weaknesses of the protected area system and its relationship with community development and economic sectors such as water resources, energy, agriculture, fisheries, tourism, industry and environment. It proposes practical measures and solutions to overcome the weaknesses with a focus on strengthening the relationships between protected areas and local communities and application of the “user pays” principle to all development sectors that receive benefits from protected areas so that payments go to maintaining the resource base. For example, downstream hydropower and industrial users should safeguard the watershed and catchment areas upon which they depend. The hydropower facilities and industries downriver from the Na Hang Nature Reserve, Hoang Lien -Sapa National Park and Muong Nhe Nature Reserve would be good areas for pilot projects to test this approach.

In order to strengthen the role of protected areas in economic development, the National Report has proposed some recommendations on the use of financial and planning tools, the improvement of cooperation and collaboration between related sectors and levels, and on the legal and institutional frameworks relevant to the protected area system.

The productive and effective collaboration between government agencies, the leading international conservation organisations, and bilateral and multilateral development agencies during the implementation of the Review of Protected Areas and Development has led to practical and innovative results. The solutions and recommendations set out in the National Report have been and will be considered for implementation. In the coming time, there is a need to maintain and further develop the collaborative relationship established through the PAD Review in order to strengthen protected area management and protection activities as well as further promote their role in the socio-economic development of the country.

Vice Minister Nguyen Van Dang
Ministry of Agriculture and Rural Development

Acknowledgements

More than 100 people contributed to the Vietnam PAD Review either through interviews, roundtable meetings, group discussions or written comments and materials. Most are government officers representing some 10 agencies at national and local levels. This was truly a cross-sectoral review initiated by government as is reflected in the Vietnam PAD advisory group membership which provided the overall technical guidance for the review. Other review contributors come from NGOs, international development organisations and conservation projects. This report is rich with their ideas, views and experiences. Their involvement and commitment to conservation in Vietnam is deeply appreciated.

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1. Why this national report on protected areas and development?

In 1999 the Ministry of Planning and Investment and the United Nations Development Programme completed a study on official development assistance to the environment sector in Vietnam. This study found that, while there had been a significant increase in the number and size of protected areas, biodiversity had continued to decline. Many people felt that the underlying cause of this decline was the limited awareness of the importance of protected areas in development.

Too often, protected areas are seen as inconsequential for development. There is little understanding of the wide range of values that protected areas contribute to Vietnam's development. Protected areas are overlooked in many sector development plans, and conflicts arise when development plans clash with the objectives of protected area conservation.

Integrating protected areas in sector plans would bring significant development benefits. Sectors such as agriculture, energy and tourism must explicitly recognise the essential goods and services provided by protected areas, and be made aware of the development gains of investing in their maintenance.

Changing people's thinking about protected areas means presenting them as development assets as well as conservation assets. This report aims to strengthen support for protected areas in both the planning and budget process of the country's line ministries by highlighting the many development benefits that sectors receive from protected areas and recommending ways that this contribution can be enhanced.

2. Background

2.1 Biogeographic characteristics

Vietnam enjoys extraordinary biodiversity. It has several of the world's most well-known species, including the tiger (*Panthera tigris*) and the Asian elephant (*Elephas maximus*). The world's rarest large mammal, the Javan Rhinoceros (*Rhinoceros sondaicus*) still survives here, as do five of the world's 25 rarest primates. Since 1992, four mammal species have been discovered that were previously unknown to science. Overall, 109 large mammals and about 850 species of birds are known (Timmins and Duckworth 2001). Between 9,600 and 12,000 plant species are probably found in Vietnam (Vo Quy 1995). This level of diversity is remarkably high for a relatively small country of 33 million hectares. Vietnam is one of the world's ten most biologically diverse countries; it contains about ten percent of the world's species while covering less than one percent of its land area (World Bank 2002a).

The country's flora and fauna combine influences from the Palaearctic realm's Himalayan and Chinese sub-regions with the Indo-Malayan realm's Sundaic sub-region. These overlapping biogeographic realms, along with relatively high variations in climate, soils and topography, give Vietnam its diverse and distinct flora and fauna.

Vietnam extends more than 1,650 km from north to south, from 23°30'N to 8°30'N. Vietnam is approximately 600 km wide at its greatest width; at its narrowest point, in Quang Binh Province, it is a little more than 50 km wide (NEA 2000). Three quarters of the country is hilly or mountainous. The lowland areas include two major river deltas: the Red River in the north and the Mekong River in the south. A narrow coastal plain runs along much of the country's coastline.

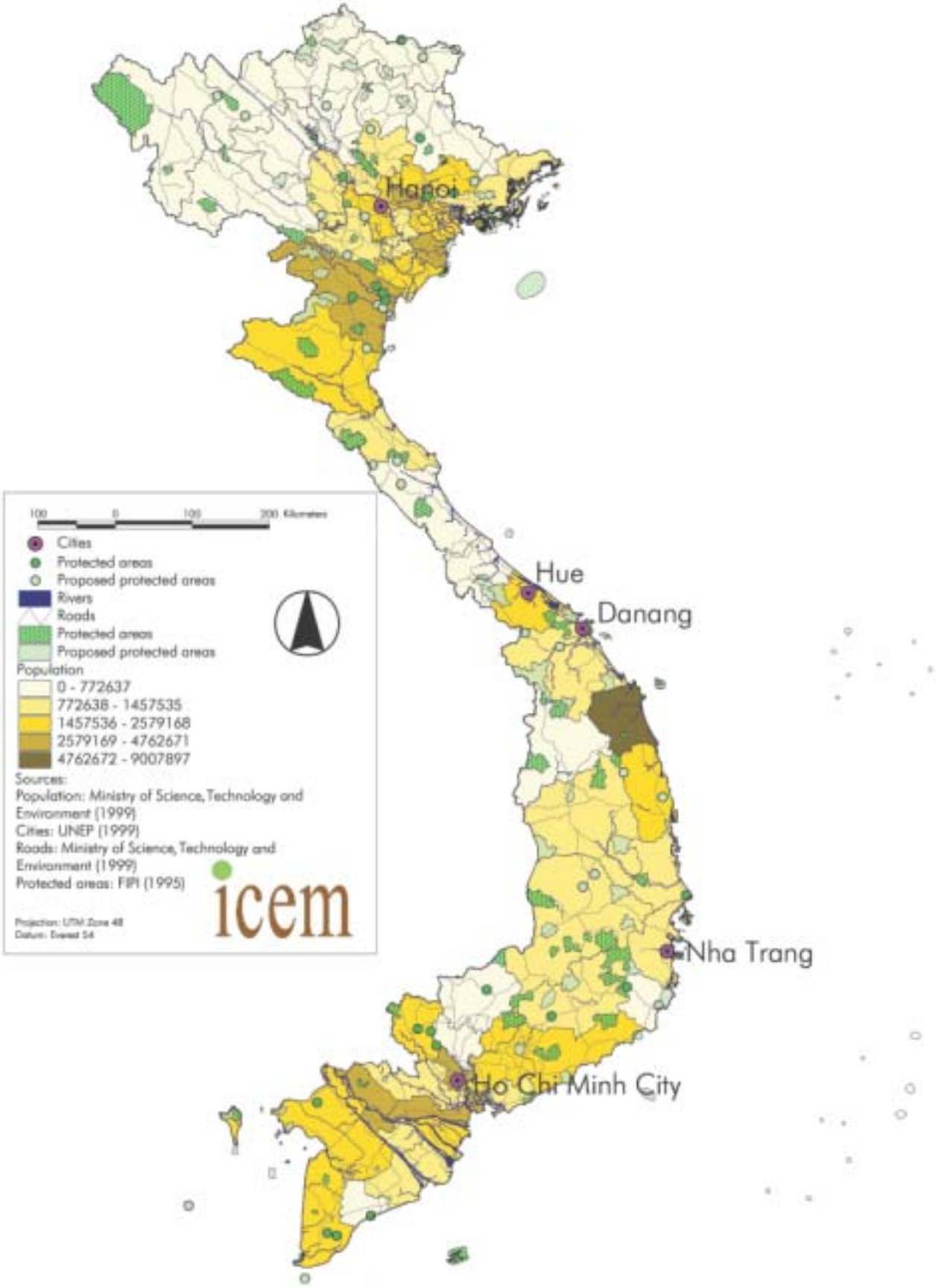
Vietnam's climate is tropical monsoonal, dominated by the south-westerly monsoons from May to October and north-easterly monsoons during the winter months. Annual rainfall averages between 1,300 mm to 3,200 mm but can be as much as 4,800 mm and as little as 400 mm in some areas (Averyanov et al.). Snow occasionally falls in the higher elevations in the north. In the south, temperatures rarely drop below 20°C; in the north, they seldom drop below 10°C.

2.2 Demographic characteristics

Over three quarters of Vietnam's 76 million inhabitants live in rural areas and depend on agriculture for their livelihoods. Vietnam is a densely populated country — 231 people per square km on average — with a population growth rate of 1.7 percent in 1999 (NEA 2000). Rural population density is highest in the irrigated lowlands, especially the deltas of the Red and Mekong Rivers (Map 1). This has important implications for protected areas in Vietnam. In the densely populated regions, land resources are scarce and little natural area remains. There are few protected areas in the irrigated lowlands.

Population movement also has an important effect on Vietnam's protected areas system. In recent years, large numbers of people have moved from the densely populated north of Vietnam to settle in areas rich in natural resources, especially the central highland provinces of Kon Tum, Gia Lai and Dak Lak.

Map 1. Population and protected areas



2.3 Vietnam's governance structure

The Vietnam State and society are under the leadership of the Communist Party of Vietnam. The Party leads the state through resolutions, defining overall directions and policies. The State expresses those policies through a system of legal regulations. The highest leadership body is the Party Congress, which meets every five years to assess the implementation of the resolutions of the last term and decide directions and policies of the Party during the coming term, to elect the Central Party Committee, and to supplement and modify the political programme and rules of the Party if needed. The Central Committee is the Party leadership body during the period between Party Congresses. The Central Committee elects the Politburo and selects the General Secretary from the Politburo members.

The state system of governance has four levels: national, provincial, district and commune. Currently, Vietnam has 61 provinces and cities (under the central government) with approximately 565 districts and 10,000 communes. The system of state agencies include:

- State organisations: The National Assembly is the legislative organisation and People's Councils have state authority at local level;
- State administrative organisations include the Government, ministries, ministerial-level departments, and specialised departments under the People's Committees;
- Judicial organisations; and
- Organisations of investigation.

The National Assembly is the supreme authority with primary legislation and constitutional functions. The Assembly makes decisions on principal domestic and foreign policies, socio-economic issues, national defence and security of the country, major principles concerning the organisation and functions of the state administrative system, and on societal and citizenship relationships. The National Assembly is the highest body which oversees all functions of the state.

The Government is the state supreme administrative organ and has the responsibility to execute and organise the implementation of the Constitution, legislation and the National Assembly's resolutions, as well as to manage the implementation of political, economic, cultural, social, national defence, security and foreign affairs tasks of the state. The Government conducts its affairs centrally through ministries and local authorities in a coordinated and unified manner.

People's Committees are executive organisations of People's Councils and are the state administrative organs with responsibility for steering socio-economic development and administrative processes at local levels under the overall leadership of the Government.

At the provincial and district levels, national line ministries usually have specialised departments. Examples include the Department of Planning and Investment, Department of Agriculture and Rural Development, and Department of Science, Technology and Environment. These departments receive technical instructions from their national line ministries, but are accountable to the Provincial People's Committees.

For protected area policy and management, the key government agencies including the Ministry of Planning and Investment, Ministry of Agriculture and Rural Development, Ministry of Fisheries, Ministry of Natural Resources and Environment, Ministry of Culture and Information, Vietnam National Administration for Tourism, and the Provincial People's Committees.

Their major roles related to protected area management are as follows:

- **The Ministry of Planning and Investment (MPI),** through the annual budgeting process, is responsible for setting funding levels and negotiating budget allocations including budget for protected areas with sectoral ministries and the provinces.
- **The Ministry of Agriculture and Rural Development (MARD)** has overall responsibility for managing the system of Special-use Forests, reviews budget allocations for Special-use Forest management boards, oversees implementation of the 5 Million Hectares Reforestation Programme (661 Programme), which supports Special-use Forest management through protection contracts and reforestation activities. It carries out surveys, plans and develops investment projects for establishing Special-use Forests.
- **The Ministry of Fisheries (MOFI)** is responsible for natural resource management of all seawater, brackish water and freshwater including aquaculture areas. MOFI is also responsible for developing a national system of marine protected areas (MPAs).
- **The Ministry of Natural Resources and Environment (MONRE)** is responsible for the Ramsar Convention, the Convention on Biological Diversity and co-ordinating the implementation of Vietnam's Biodiversity Action Plan[1].
- **The Ministry of Culture and Information** together with MARD has the responsibility for managing "cultural-historic-environmental sites", one of Vietnam's categories of Special-use Forests.
- **The Vietnam National Administration of Tourism (VNAT)** is responsible for developing the country's tourism strategy and promoting tourism in national parks and cultural-historic-environmental sites.
- **Provincial People's Committees** are responsible for managing a number of national parks and all conservation areas.

2.4 Economic development

2.4.1 Economic performance

Economic growth accelerated dramatically after the implementation of *doi moi* (renovation) in the late 1980s. Between 1991 and 2000 the average GDP growth rate was 7.5 percent annually. This kind of economic growth provides both opportunities and challenges for protected areas. Over the last ten years, GDP has more than doubled, and in 2001 was around US$400 per capita. Whilst the downturn in the world economy during 2001 and 2002 has slowed recent economic growth, Vietnam's medium-term development prospects are considerably stronger than at the end of the 1990s (GoV 2002).

For protected areas, economic growth provides both opportunities and challenges. There is more money for protected area operations, but there is also an increased demand for the services and products provided by natural systems. Higher incomes, for example, often increase the demand for wildlife products. Economic growth has to be alloyed with environmental sustainability.

2.4.2 The planning process

The planning process in Vietnam, as is the case in many countries, is done in five-year increments. Each government ministry creates a draft strategy for a ten-year period. These strategies are then widely circulated and comments received are incorporated. The government, via the Ministry of Planning and Investment, also creates a macro-strategy, the current version of which is titled Socio-economic Development

1 The Ministry of Natural Resources and Environment was established in December 2002. The National Environment Agency (NEA) previously belonged to the former Ministry of Science, Technology and Environment (MOSTE), moved to this new ministry and has been split into three units: The National Environmental Protection Agency, Department of Environment, and Department of Appraisal and Environmental Impact Assessment.

Strategy, 2001-2010. Once the ten-year strategies are in place, each ministry develops a five-year master plan which gives practical expression to the strategy. The strategies and master plans have to be formally approved by the government. The recent round of strategy and master plan formulation was completed in 2001. Strategies and plans are almost always sector specific.

The centre retains control over major development projects in the economic planning process but the provinces have an increasing say in significant development decisions affecting protected areas. Provincial Departments of Planning and Investment lead the local planning process under the guidance of Provincial People's Committees.

2.4.3 National budget system

At the macro level, Vietnam has a history of fiscal prudence, with relatively small deficits and low debt as a share of GDP. The Budget Law permits borrowing only for investments, and a National Assembly decision limits the budget deficit to less than five percent of GDP, although this does not include a number of significant off-budget accounts (GOV 2000).

The national budget is centrally planned and follows the system known as "three down, two up" (although this is changing under the government's decentralisation initiative). The system works as follows: MPI assesses the government's overall spending priorities, based on agreements and policies of the National Assembly (e.g. the policy of "no less than 15 percent of expenditure on education," adopted during the most recent session of the National Assembly). MPI provides guidance to the departments and provinces, telling them approximately how much they will get, and how much money should be spent on various priorities. This is "one down". Provinces then submit their budgets to MPI in accordance with the guidance (one up). These budgets are reviewed and the provinces are asked to make any necessary adjustments (two down), which are made and sent back to MPI (two up). MPI then agrees on an approved budget with the provinces (three down).

In recent years, as part of the Public Administration Reform process (detailed below), greater levels of budget management responsibility have been decentralised to the provincial level. Provincial capacity is being increased to match this higher level of responsibilities.

2.4.4 Development priority

The government's development priority is to continue reducing poverty. In the mid-1980s, seven out of every ten Vietnamese were living in poverty (GOV 2002). In little more than a decade, this rate dropped to about one in three. Furthermore, Vietnam is committed to reducing the poverty level of 33 percent in 2000 to 20 percent by 2010. This is very important and should have a positive impact on the protected area system as ethnic minorities of Vietnam comprise 14 percent of the population, but account for 29 percent of the poor (GOV 2002) and most protected areas are in areas where ethnic minorities live.

2.5 Vietnam's reform processes

Vietnam's national reform process (*doi moi*) emphasises developing a socialist-oriented market economy. Much of the recent focus has been on creating the conditions for rapid economic growth ("industrialisation and modernisation"). This has led to remarkable progress in reducing poverty.

Key reform processes under *doi moi* include strengthening the constitutional, legal, judicial, public sector, financial and monetary systems. A key reform for protected areas is the Public Administration Reform (PAR) process, which comprises institutional reform, organisational changes, and human resource development. This process was launched in 1995. The PAR Master Programme, approved by the government in 2001, aims to ensure that the public administration delivers services to the people in a "better and more

effective manner". To date, the PAR process has led to a number of changes, such as new laws, a reduction in the number of government agencies, streamlined administrative procedures, and improvements in budget information. For protected areas, the PAR is important because it offers the government an opportunity to streamline institutional responsibilities and simplify the complex legal and regulatory environment that has constrained effective protected area management.

The Grass Roots Democracy Decree 29 of 1998 could also benefit protected areas. The decree focuses on improving people's participation in local planning, and could provide a mandate to encourage greater public involvement in protected area planning.

Forest policy is another important focus of reforms affecting protected areas. For many years, the emphasis of national forest policy was on developing the production potential of forests. The emphasis is now shifting from production to protection, including the management of forests for conservation, livelihoods and economic development. Since 1998, a dialogue has developed between different actors in Vietnam's forestry sector, under the Forest Sector Support Programme partnership process.

To support the government's economic policy of a market orientation with state-led growth, there has been significant reform of state-owned enterprises, a loosening of government controls in agriculture, and a decentralisation of authority to the lowest appropriate level.

The decentralisation process has important implications for protected area management (Box 1). Responsibilities for all nature reserves and most national parks have been divested to Provincial People's Committees in accordance with Decision 08.

Box 1. Decentralisation of Special-use Forest management[2]

Responsibility for the decentralisation of management for Special-use Forests lies with MARD, as mandated under article 9 of the Prime Ministers's Decision 08/2001/QD-TTg, 11 January 2001 (Decision 08). Though institutional arrangements vary considerably among protected areas, in general, provincial authorities manage nature conservation areas, cultural-historic-environmental sites and a growing number of national parks. Of the 25 national parks, 17 are the responsibility of the provinces. The 8 national parks are the responsibility of MARD. MARD directly manages those national parks that are of "special importance" or that extend across more than one province .

The planned reform of State-Forest Enterprises will have implications for terrestrial protected areas. In 1997, commercial logging was suspended in 300 of the approximately 400 State-Forest Enterprises. State-Forest Enterprises continue to manage around six million hectares of forest land in Vietnam. Most State-Forest Enterprises are not economically viable because of degraded forest resources or because the mature forest stands that have commercial value are located in remote and inaccessible areas. In recent years the land and personnel of a number of State-Forest Enterprises have been incorporated into protected areas (e.g., Phong Dien Nature Reserve, Yok Don National Park, and ongoing efforts to incorporate three State-Forest Enterprises as part of the new proposed Tri An Nature Reserve).

2 As mandated under article 9 of the Prime Minister's Decision 08/2001/QD-TTg, 11 January 2001 (Decision 08).

3. Protected area management

3.1 Context of protected area management

3.1.1. National environmental management strategies and plans

The government's Socio-economic Development Strategy, 2001–2010 advocates the integration of socio-economic development with environmental protection and improvement. The "Directions and Tasks" for the Socio-Economic Development Plan, 2001–2005 emphasises projects for recovering and protecting the environment; building national parks and protected areas; re-greening barren lands; maintaining biodiversity; preserving genetic resources; and constructing environmental protection facilities.

The drafts of the National Strategy for Environmental Protection, 2001–2010 and the National Environmental Action Plan, 2001–2005[3] emphasise the need for an effectively managed network of terrestrial, wetland, coastal and marine protected areas. This will provide a means of conserving biodiversity, maintaining the ecological balance, and supporting sustainable use of natural resources.

The establishment and management of protected areas was a key action identified under the 1995 Biodiversity Action Plan. A review of the Biodiversity Action Plan, in 1998, showed that there had been substantial progress in implementing the recommended measures (IUCN 1999). Greater implementation of the Biodiversity Action Plan will require establishing a comprehensive national protected area system strategy, broadening the system of protected area categories, clarifying the responsibilities for marine and coastal protected areas, preparing management plans for new protected areas, and developing methodologies and approaches for buffer zone management (MOSTE 2000a).

3.1.2 Natural resource management structure

In Vietnam, all land is owned by the people and managed by the state. At present, the Government is implementing the allocation of the land use right to organisations, households and individuals for stable and long-term use (known as red or green books). The certificates are granted for agricultural lands for up to 20 years and for forest lands for up to 50 years. The land-use allocation process, particularly for forest lands, has proceeded slowly.

The Law on Forest Protection and Development (1991) sub-divides forest land into three forest management categories: production, protection and special use. Most land under the production forest category is managed by State-Forest Enterprises. In 1997, the government suspended logging activities in most State-Forest Enterprises and shifted the emphasis from production to protection forestry.

Protection and Special-use Forests are administered by management boards. In most cases, these boards are staffed by officials assigned by the relevant provincial forest department (often the Forest Protection Departments). The current management board structure does not include representatives from other sectors or stakeholders. Management boards have been established for approximately half of Special-use Forests and a smaller proportion of protection forests. With the exception of a few national parks, management boards do not have enough staff or resources.

3 These documents have been pending government approval since December 2000.

Each province prepares land-use plans that include the three categories of forest land (production, protection and special-use). Because there is no integrated planning process for protected areas, land-use plans can propose developments within the boundaries of Special-use Forests; these are either uncoordinated or in conflict with the conservation management objectives of the protected area.

Natural resource management for the marine environment is under the Ministry of Fisheries. This ministry also oversees freshwater fisheries and aquaculture.

3.1.3 Natural resource trends

The government has made significant progress towards the sustainable use of natural resources, and natural resource management capacity has grown considerably in the last decade. This notwithstanding, three decades of war, followed by two decades of rapid economic growth, have resulted in the decline of many natural resources.

Water. Overall, Vietnam is well endowed with surface and groundwater. The problem is managing this water. In recent years the severity of droughts and floods has increased. The country's water resources are diminishing in both quality and accessibility (MPI and UNDP 1999). This translates into greater exposure to disease, higher costs for water users, and greater uncertainty for industry.

Energy. Much of Vietnam's energy comes from renewable resources (hydropower, wood, rice husks and animal dung). The use of micro and mini hydropower facilities has grown dramatically, especially in remote and inaccessible communities. Many urban households have switched to clean-burning natural gas for cooking and heating instead of charcoal or coal, but people have not made this change in most rural areas. Collecting wood for cooking and heating remains a problem. Countrywide, less wood is being cut for fuel,[4] but the evidence from several protected areas suggests that the fuel wood extraction rate still exceeds forest regeneration rates.[5]

Agriculture. The agricultural sector has enjoyed strong growth in recent years. In 2001, the country was among the world's largest exporters of robusta coffee and the second largest exporter of rice. Yet soil erosion, pesticide poisoning, and nitrogen-rich runoff are increasing in agricultural areas. The pressures to expand agriculture to new areas have resulted in wide-scale encroachment into protected areas and the drainage of natural wetlands (Buckton et al. 1999).

Fisheries. The fisheries sector has also experienced strong growth. Aquaculture and seafood exports have increased sharply.[6] Yet rapid increases in coastal populations and the growth in the number of small boats have resulted in the collapse of many near-shore fish stocks. Consequently, the fish-catch per unit of effort is dropping, and the government is seeking ways to reduce the near-shore fishing fleet to more sustainable levels (Nguyen Van Chiem 2002).

Environment. According to official statistics, the decline in forest cover stopped in the mid-1990s and the amount of forest land is increasing rapidly. The number of protected areas has increased, and protected areas now cover about seven percent of the country (more than two million ha). Wildlife trafficking law enforcement has also improved considerably. However, managing these protected areas effectively remains a key issue.

4 In 1990, 32 million cubic meters of fuel wood were cut. In 1998, this had dropped to 26 million (a 19 percent drop), according to the Government Statistics Office's "3.10 Fire wood cutting production by province".
5 The GTZ fuel wood study in Tam Dao National Park in 2000 and the NTFP Research Centre study in Ke Go Nature Reserve in 2001 both found unsustainable levels of fuel wood extraction from the protected area.
6 Cover story, *Vietnam Economic Times*, March 2002.

3.2 Protected area management system

Management of protected areas[7] is divided among several agencies (Map 2). The Ministry of Agriculture and Rural Development and its provincial departments are responsible for all Special-use Forests. Special-use Forests consist of national parks, nature reserves (also known as nature conservation areas), and cultural-historic-environmental sites.[8] The Ministry of Fisheries is responsible for developing a system of marine protected areas in Vietnam. It has not yet been decided who will manage the marine protected area system once it is established (Table 1).

Table 1. Protected area categories in Vietnam

Category	Number (as of 12/2002)	Equivalent IUCN category *
National Park	25[9]	II
Nature Conservation Area (a.k.a. Nature Reserves)	60	I and IV
Cultural-Historic-Environmental Site	37	III
Marine Protected Area	–[10]	–
Total	**122**	

* IUCN. 1994. Guidelines for Protected Areas Management Categories

In addition, some other types of protected areas have recently been established in Vietnam in order to meet both conservation and development needs (Table 2). Ramsar sites, World Heritage Sites, and Man and Biosphere Reserves are not categories of protected areas under the IUCN definition because they are not defined by a management objective but are a designation or title given to an area. Vietnam follows the same approach, so a national park can be both a gazetted national protected area and a Man and Biosphere Reserve, as in the case of Cat Tien National Park.

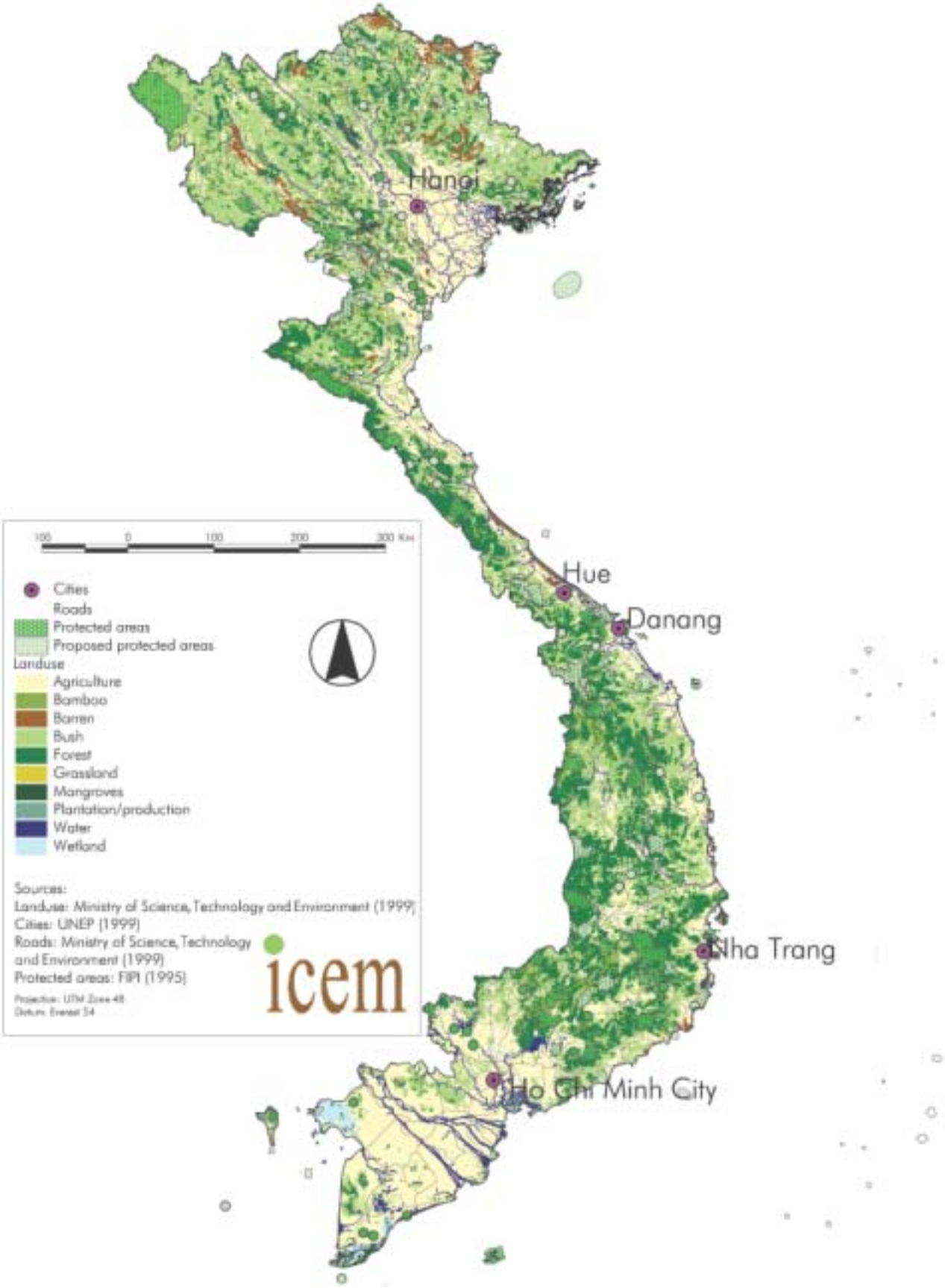
The Vietnam Environment Protection Agency (VEPA) of the Ministry of Natural Resources and Environment is responsible for Ramsar wetlands; a series of proposed wetland sites and Man and Biosphere Reserves. UNESCO World Heritage Sites are the responsibility of the Ministry of Culture and Information and concerned provinces.

Table 2. Other categories of areas that are protected in Vietnam

Category	Number (as of 12/2002)	Equivalent IUCN category
Wetlands (Ramsar)	1	-
World Heritage Site	4[11]	-
Man and Biosphere Reserve	1	-

7 According to the Decision 08, the protected area or Special-use Forest system does not include Ramsar Sites, World Heritage Sites nor Man and Biosphere Areas. However, these sites and areas are also reviewed in this national report with the purpose of assessing all areas protected for biodiversity conservation and their benefits for development.
8 A revision to Special-use Forest categories in early 2002 added “landscape conservation areas”. However the translations into English of the government decision vary.
9 The number of National Parks is as of December 2002 and has grown from 12 in 2000.
10 Hon Mun Marine Protected Area is technically a “demonstration” protected area and has not yet been decreed by government as a marine protected area.
11 Of Vietnam’s four World Heritage sites, three are designated as “cultural” sites by UNESCO. Ha Long Bay is the only one registered as a “natural” World Heritage Site.

Map 2: Land use and protected areas of Vietnam



3.2.1 Special-use Forest protected areas

Most of the national protected areas in Vietnam are Special-use Forests. In general, these comprise terrestrial forest sites, but they also include a small number of wetland sites and marine areas.

The Special-use Forests system originated in 1960, when President Ho Chi Minh announced Ordinance No. 18/LCT: the Law on Organisation of the Government Council of the Democratic Republic of Vietnam. This ordinance included a proposal to establish the General Department of Forestry. In 1962, on the advice of this department, the government established Cuc Phuong Protected Forest (now Cuc Phuong National Park), the first protected area in Vietnam.

Following reunification in 1975, attention focused on identifying and surveying potential protected forests throughout the country. A number of new protected areas were established. On 9 August 1986, the Chairman of the Council of Ministers issued Decision No. 194/CT. This decision decreed the establishment of a further 73 Special-use Forests throughout the country, with a combined area of 769,512 ha. The Special-use Forest system aimed to represent the full range of biogeographic, latitudinal and climatic variation in Vietnam.

In 1994, Vietnam ratified the Convention on Biological Diversity (CBD). To meet its obligations under the convention, Vietnam formulated a Biodiversity Action Plan. The plan recommended strengthening the Special-use Forests system. In the late 1990s, in response to this recommendation, the Vietnamese government and MARD formulated a policy to expand the national system of Special-use Forests to two million ha. In 1997, the Forest Protection Department of MARD prepared a list of 94 Special-use Forests to be established by 2010, comprising 12 national parks, 64 nature reserves, and 18 protected landscapes. Known as the 2010 list, this document proposed a number of new Special-use Forests and suggested removing several Special-use Forests from the national system due to their insignificant biodiversity.[12]

3.2.2 Wetlands

Wetlands have yet to gain official recognition in Vietnam as a distinct land-use or conservation management category. By ratifying the Convention on Biological Diversity and the Ramsar Convention on wetlands of international importance, the government committed itself to establishing a representative network of wetland protected areas. The Biodiversity Action Plan included a list of 61 important wetland areas. More recently 68 wetlands of national importance have been identified, several of which are included within the Special-use Forest system (Box 2).

At present, the institutional arrangements for managing the nationally important wetlands identified by VEPA/MONRE have not been determined. It is unclear whether these sites will be incorporated within the Special-use Forests and/or marine protected areas systems, or whether a separate system of wetland protected areas will be established. A draft national wetlands strategy was prepared by the former NEA/MOSTE but there has been little progress in approving the strategy during the past few years.

12 The list is under review in light of Decision 08. It is expected that the number of national parks will be increased considerably.

Box 2. Vietnam and the Convention on Wetlands

On 20 September 1988, the Ramsar Convention Bureau designated Xuan Thuy as Vietnam's first Ramsar Site. Vietnam acceded to the Convention on Wetlands, commonly known as the Ramsar Convention, on 20 January 1989. Progress in implementing the convention has been slow, and the convention has yet to be integrated into national legislation. Xuan Thuy remains Vietnam's only Ramsar Site. Additional sites have been proposed, including Tram Chim National Park, an area supporting some of the last remaining areas of seasonally inundated grasslands in the Mekong Delta; Thai Thuy proposed nature reserve, which supports inter-tidal flats and mangroves in the Red River Delta; the wetlands of Cat Tien National Park; and Tam Giang-Cau Hai proposed wetland protected area.

3.2.3 Marine Protected Areas

There is no institutional or legislative framework for marine protected areas (MPAs) in Vietnam. There are ongoing initiatives, however, to support the development of a framework. A demonstration MPA, in Hon Mun, Khanh Hoa Province, has been functioning since 2001 and may serve as a model for marine protected area institutional arrangements.[13]

A short-list of 15 proposed marine protected areas to be included in a national MPA system has been compiled.[14]

3.2.4 World Heritage Sites

The objective of the "Convention Concerning the Protection of the World's Cultural and Natural Heritage" (popularly known as the World Heritage Convention) is to conserve cultural and natural sites selected by the statutory body of the convention, the World Heritage Committee. The convention and the committee work to ensure that the outstanding universal values of listed sites are preserved and protected for all humanity.

The Vietnamese National Assembly has ratified the convention. There are four World Heritage Sites in Vietnam: Ha Long Bay; the complex of Hue monuments; Hoi An ancient town; and My Son sanctuary. Only Ha Long Bay was included as a World Heritage Site on "natural" rather than "cultural" grounds. A proposal has been prepared for submission to the World Heritage Committee to inscribe Phong Nha-Ke Bang National Park as a World Heritage sites.

3.2.5 Biosphere Reserves

UNESCO's programme on Man and the Biosphere has designated more than 370 reserves worldwide. The objective of the biosphere reserves is to reconcile biodiversity conservation with sustainable use of resources. The reserves serve as "living laboratories for testing out and demonstrating integrated management of land, water and biodiversity..." (Nguyen Hoang Tri et al. 2000).

13 The Hon Mun marine protected area is managed by the province with technical assistance from the Ministry of Fisheries.
14 North to south, these are: Hai Van-Son Tra (Danang); Cu Lao Cham (Quang Nam Province); Ly Son (Quang Ngai Province); Hon Mun, Truong Sa (Khanh Hoa Province); Phu Quy, Cu Lao Lau (Binh Thuan Province); Dao Tran, Co To (Quang Ninh Province); Bach Long Vi, Cat Ba (extension) (Hai Phong); Hon Me (Thanh Hoa Province); Con Co (Quang Tri Province); Con Dao (Ba Ria-Vung Tau Province); and Phu Quoc (Kien Giang Province).

The mangroves of Can Gio, near Ho Chi Minh City, were designated as Vietnam's first Man and Biosphere Reserve on 21 January 2000. The reserve is the only area that has been protected in Vietnam, which has a multi-sector management board. Cat Tien National Park became Vietnam's second Man and Biosphere Reserve in September 2001. A proposal has been prepared to establish a third reserve, "Cat Ba Biosphere Reserve", which includes Cat Ba National Park and the surrounding area.

3.3 The protected area system

3.3.1 Coverage

In September 2002, the decreed total area of Special-use Forest was about 2.3 million hectares,[15] and the total number of protected areas in this category was 122 (Annex 1).[16] The list of Special-use Forests is currently under review by the Ministry of Agriculture and Rural Development. A number of nature reserves and cultural-historic-environmental sites are expected to be removed from the Special-use Forest list because of their degraded status. At the same time, new Special-use Forests with high biodiversity value will be added to the list.

Some of the new Special-use Forests will address gaps in the current system of protected areas. Evergreen forest, which accounts for 64 per cent of the remaining natural forest in Vietnam, is seriously under-represented, particularly at elevations between 300 and 1,200 m. Semi-deciduous forest is also under-represented, especially at elevations above 300 m. There, less than two percent of the remaining forest is included in the current system.

Perhaps the most significant gap is wetland habitats. The few protected wetland areas in the Mekong and Red River deltas, such as Tram Chim and Xuan Thuy National Parks, do not represent the full range of wetland biodiversity or the ecosystem goods and services that benefit development. Central Vietnam wetlands are not represented at all.

A number of endemic species and/or sub-species are either not represented within the current system or are represented only in one protected area.[17]

3.3.2 Buffer zone management

In 1999, the Forest Protection Department and IUCN reviewed the status of buffer zone management in Vietnam (Gilmour et al. 1999). The review found that the objectives of buffer zone management were ambiguous, and institutional responsibilities for buffer zone management were confusing, overlapping and sometimes contradictory.

Protected area management boards have authority only within a park or reserve. In the buffer zone, management decisions are made by district and commune People's Committees, State-Forest Enterprises,

15 This is decreed area rather than actual area. There are known to be wide variations between decreed areas and actual areas. Some of the variation is due to decreed areas that include resettlement areas within the Special-use Forests. The total actual area of Special-use Forest is estimated by MARD's Forest Protection Department to be between 1.9 and 2.0 million hectares as of September 2002.

16 Besides Special-use Forest, Vietnam also has approximately 5 million hectares of "protection forest" that are largely managed for watershed protection. These protection forests are outside the current protected area system.

17 Examples of these include Western Black Gibbon (*Nomascus concolor concolor*) and Hatinh Langur (*Trachypithecus laotum hatinhensis*).

provincial Departments of Agricultural and Rural Development, and the Department of Land Administration. This leads to confusion, uncertainty and frustration amongst the various participants.

Article 8 of Decision 08 is a significant step forward in clarifying the purpose and management of buffer zones for national parks and nature reserves. It stipulates that the purpose of buffer zones is to support the conservation, management and protection of Special-use Forests. It also notes that although buffer zones are not included in protected areas, buffer zone investment projects should be approved along with those of the Special-use Forests; and that investors in buffer zones must co-ordinate activity planning with the management board of the Special-use Forest.

3.3.3 Protected area classification and administration

Most decreed protected areas in Vietnam are Special-use Forests. Their classification and administration are stipulated in Decision 08/2001/QD according to which protected areas are classified into three categories, national parks, natural conservation areas (also known as nature reserves) and landscape protected areas or historical-cultural-environmental areas. While Vietnam has a number of protected areas in IUCN categories I to IV, there are no protected areas in category V (Protected Landscapes/Seascapes) or VI (Managed Resource Use Areas), both of which would allow sustainable use of protected area resources. However, in practice, people live legally or illegally inside the boundaries of most protected areas in Vietnam.[18] Prohibiting their use of customary and traditional resources inside the protected areas sometimes creates conflicts.

In Vietnam, protected areas were initially understood to be "prohibited forests" and later as Special-use Forests under the provisions of the Forest Protection and Development Law of 1991. Most protected areas in Vietnam are still called "Special-use Forests" even when they don't include any forest, such as cultural and historic sites, grasslands, freshwater lakes, and marine areas.

Although the Forest Protection Department within MARD has responsibility for the overall management of the Special-use Forest protected area system (article 9-1a of Decision 08), only eight national parks (those that are nationally important or that span more than one province) are managed by MARD. The provinces manage the other national parks as well as all nature conservation areas and cultural-historic-environmental sites. The agencies responsible for managing these areas in the provinces are the Departments of Agriculture and Rural Development, the Departments of Science, Technology and Environment, the Forest Protection Departments, the Fisheries Departments and the Departments of Culture and Information.

3.3.4 Protected area financing

Most protected areas have a small core budget that comes from the province or, in the case of a few national parks, from the national government. These funds are seldom enough to cover the protected area's full operations and maintenance costs. Most other funds are allocated annually and depended on the balance of the state and provincial budgets. Thus, sustainable financing for the protected area system is an issue.

The Forest Protection Department has identified three components to this funding problem: an overall lack of funding for protected area management; varying annual budget allocations; and an imbalance in investment priorities for protected areas with a tendency to attach special importance to infrastructure development while giving insufficient investment priority to conservation.

Government funding for Special-use Forests comes from a wide range of sources, and is not integrated into a single budget. Often, funds to "develop" national parks (both provincial and national) are earmarked for capital and infrastructure development.

18 Bai Tu Long National Park in Quang Ninh Province is the only Special-use Forest in which there are no people living legally or illegally as of June 2002.

Funds from the 5 Million Hectares Reforestation Programme are commonly used for forest protection contracts and tree planting in buffer zones and "ecological regeneration" areas within protected area core zones. These funds can have a beneficial impact on conservation, although there are examples of them creating perverse incentives to replace natural forest with non-native species inside protected areas. Funds from other national programmes are also used by protected areas. The 135 Programme,[19] for example, can finance local infrastructure, such as schools and irrigation systems, in buffer zones.[20] The Infrastructure Development Fund (a national fund administered by MPI) is often used to construct buildings and roads inside protected areas. Management boards can also apply to the Department of Science, Technology and Product Quality of MARD for funding to support research, although capacity to prepare proposals to access these funds is limited.

International donors are another source of funds for conservation management. Most donor support is for large, site-specific projects and often used for investment and conservation needs that the government budgets cannot meet.

Protected area financing varies considerably between different Special-use Forests and from province to province (Nguyen Xuan Nguyen 2002 and IUCN 2002). Poorer provinces, where most protected areas are situated, are less able to invest in Special-use Forest management than provinces with stronger economies and local revenue streams. Several poorer provinces are required to manage four or more Special-use Forests,[21] but have a small budget for this purpose.

3.3.5 Integrated planning

Several recent initiatives attempt to better integrate protected areas into local and regional planning processes. These efforts are consistent with the increasing global view of protected areas as part of wider social and biophysical landscapes.

A biosphere reserve, in principle, extends management beyond the core conservation area to wider social and economic landscapes in order to meet both conservation and development objectives. Currently, Vietnam has two Man and Biosphere Reserves and several new Man and Biosphere Reserves have been proposed for establishment.

The integration of protected areas across international boundaries is still a challenge. If an ecosystem can be managed in a way that promotes integration rather than fragmentation, both sides of the boundary will benefit. Unfortunately, initial efforts at transboundary protected area conservation in South East Asia have had little success (Box 3).

Box 3. Transboundary experiences in South East Asia

Some of the most important biodiversity in South East Asia occurs along the north-south borders of Vietnam, Lao PDR and Cambodia. Several protected areas are separated by international borders but share species populations and biological processes. The recent donor-funded Transboundary project and LINC project both sought to build better transboundary cooperation between contiguous protected areas. However, differing threats, management objectives, and resources levels have made cooperation complicated. Therefore transboundary initiatives are challenging in South East Asia, given the variations among countries in the region.

19 The national target program for the poorest communes.
20 A significant proportion of Special-use Forests lie in or adjacent to communes eligible for 135 Programme funding.
21 Dac Lac Province has six Special-use Forests, Nghe An Province has four, and Tuyen Quang Province has four.

4. Protected areas and development

4.1 Protected areas and community development

4.1.1 Context

In Vietnam, there is a strong correlation between protected area locations and poverty (Map 3). This is not to suggest there is a causal relationship between living near a protected area and poverty. Poverty in and around Vietnam's protected areas is more a factor of the remote, mountainous and isolated areas with limited access to markets and minimal arable land.

Many of Vietnam's protected areas are in ethnic minority areas. Ethnic minority groups comprise approximately 14 percent of the population. Their poverty mainly results from living in remote areas and lack of access to markets and arable land. Therefore, ethnic minority communities are often dependent upon natural resources in protected areas for their well being.

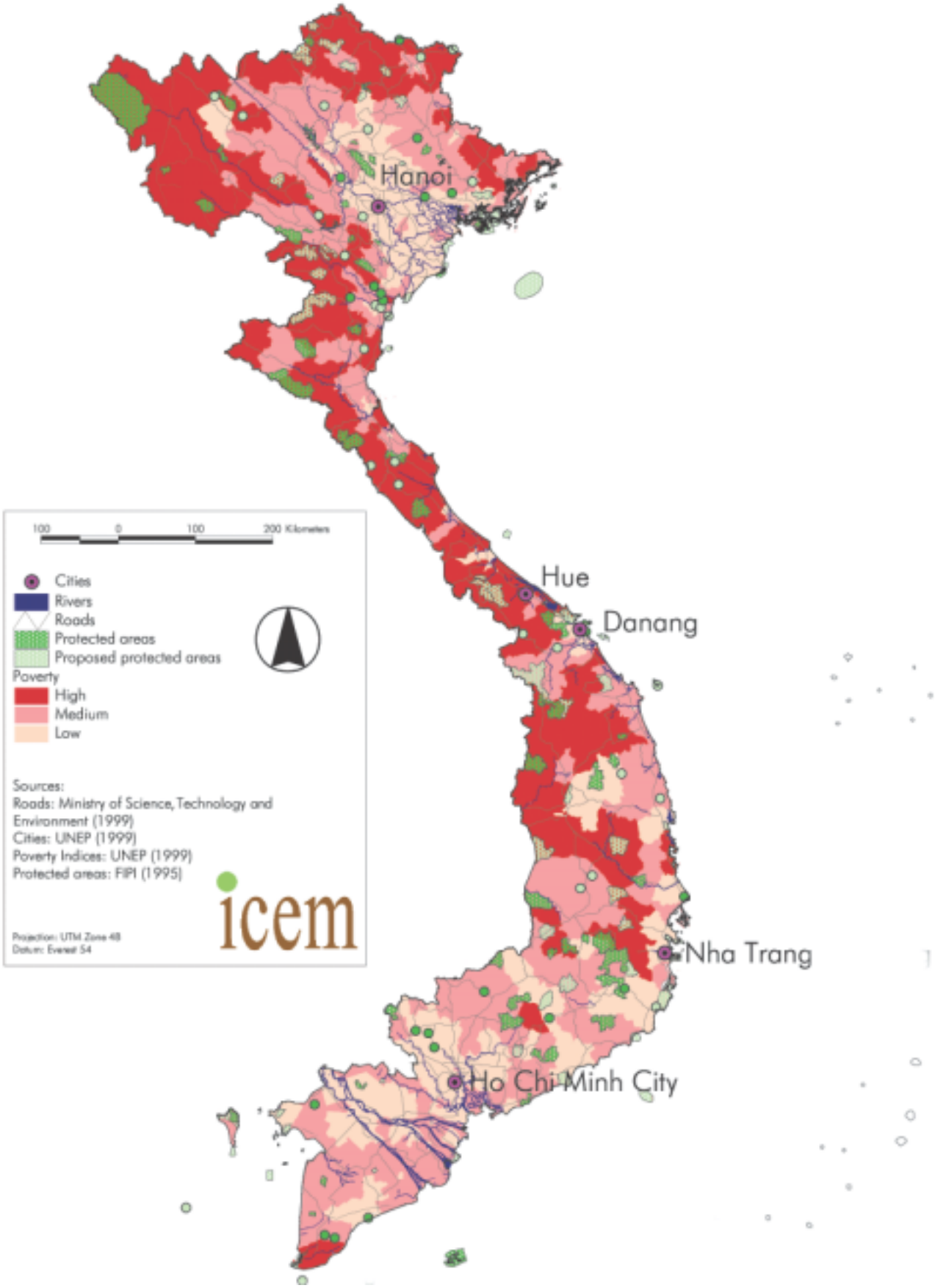
Protected areas provide a number of important benefits that help mitigate the impacts of poverty. In many remote locations, for example, protected areas provide medicinal plants, which are often the only form of medicine available for local use (Box 4). They serve as "food banks" in times of food shortages. They provide clean water to surrounding communities and can help control flooding. Protected areas provide areas for scientific research and educational programmes during school outings. Some protected areas also help conserve ethnic minority culture by protecting religiously important "spirit" or "sacred" forests.[22]

Box 4. Medicinal plant harvesting in Ba Vi National Park

Approximately 2,000 people from the Dao ethnic minority collect medicinal plants in and around Ba Vi National Park in Ha Tay Province. These plants provide medicine for household use and income to supplement the Dao people's subsistence agriculture livelihoods. Dao knowledge of the healing properties of plants is passed down from generation to generation; some of the medicinal plant experts in Ba Vi are third and fourth generation collectors. The Dao in Ba Vi depend upon the sustainable harvesting of medicinal plants to maintain their traditional medicine practices and household incomes (Tran Van On 2000).

22 A "spirit" or "sacred" forest is a forested area that is conserved for religious reasons because it is believed to house the spirits of gods, demons or ancestors.

Map 3: Poverty and protected areas



4.1.2 Issues

Local people often suffer losses when a protected area is established yet receive few of the benefits: When protected areas are established, local people are often restricted from the use of or no longer have access to natural resources inside them. Moreover, local people have no formal voice in a protected area's management, even though it has an important impact on their lives.[23] If local communities do not understand the benefits to their well-being from the protected area, they will have little incentive to ensure its survival. International experience suggests that for protected areas to be sustainable, local communities need to benefit from them and have a say in how they are managed.

For the purpose of biodiversity conservation, communities within and near protected areas are sometimes restricted from carrying out their development activities. For example, the recent World Bank Community-Based Rural Infrastructure Project (World Bank 2002b). This US$123-million-project provides small grants to 540 of the poorest communes in Vietnam for eligible infrastructure projects (roads, bridges, clinics, schools, etc.). However, 86 selected communes have not been included in the project due to the fact that they are located partially or totally inside protected areas to avoid any negative effects on the protected areas from new infrastructure. Yet many of the communes in buffer zones are inhabited by ethnic minorities who are among the poorest of the poor.

The management of protected areas and buffer zones is not well integrated: Decision 08/2001/QD-TTg requests that the investment and development plan for a buffer zone has to be developed at the same time as the investment plan for a protected area in order to enhance conservation. As result, many national parks already have investment projects for buffer zones. However, this policy has not been fully implemented nor integrated with the activities of the protected area management boards for enhancing conservation activities.

4.1.3 Achievements

Land-use rights for buffer zone households: Land-use rights have been allocated to households in the buffer zones of several protected areas. In most cases, these households have received land-use certificates before neighbouring communities — a clear benefit to living near a protected area. Providing land-use certificates helps stabilise land tenure in the buffer zones of protected areas.

Forest protection contracts for buffer zone households: The government's 5 Million Hectares Reforestation Programme provides money to buffer zone households to protect the forest. A number of households have benefited financially from these protection contracts, and forest cover in some areas has increased.

4.1.4 Challenges

Ensuring that communities living in protected areas and buffer zones see and really receive appropriate benefits from protected areas: More needs to be done to ensure that communities living in or near a protected area receive its benefits as a basis for encouraging them to participate in conservation. In practice, in Vietnam as well as in many developing countries, given the fact that many protected areas have people living inside them and many communities are dependent on resources inside PAs, prohibiting the use of all natural resources in protected areas gives people no incentive to use the resources wisely and sustainably. Therefore, they may be inclined to maximise returns as the opportunities arise.

4.1.5 Strategies

Identify appropriate mechanisms for increasing the participation of local stakeholders in conservation work: One option to improve the management of protected areas is to have an appropriate mechanism encouraging participation of all local stakeholders in the conservation and management activities of

23 The current management board regulations for Special-use Forests do not include representatives from the local community.

the protected area. Due consideration should be made to providing opportunities for local communities, representatives from the buffer zone development agencies and other local stakeholders such as adjacent State-Forest Enterprises to participate in these processes.

Pilot co-management of protected areas by local communities: Other countries have found that giving local communities a majority vote on a protected area's management board has been effective in stopping the unsustainable use of local resources. Community leaders on management boards often realise it is in the community's best interest to use protected area resources wisely. The feasibility of co-management in Vietnam could be piloted in a protected area where there is strong pressure from the population in the buffer zone, such as Tam Dao National Park, or in cultural-historic-environmental sites, which tend to be smaller and more easily managed.

Consider sustainable use of resources in some protected areas and expand the categories of protected areas: Sustainable use of natural resources from protected areas can bring benefits to both conservation and development. When appropriate, Vietnam needs to consider allowing the sustainable use of resources for some protected area categories. The underlying principle should be sustainable use of resources. To achieve this, a natural resource management structure, including monitoring, evaluation and enforcement is needed. Therefore, to consider allowing the sustainable use of natural resources in some protected areas would be an important first step. Responsibility for regulating the use of natural resources could be delegated to PA management boards, which are more familiar with the specific conditions in protected areas and associated buffer zones. The next step would be to expand the existing PA categories to include protected areas that allow for various intensities of use by people such as IUCN's Category V and VI.

4.2 Protected areas and water resources management

4.2.1 Context

Vietnam is one of the most disaster-prone countries in the world, and most of its natural disasters are directly or indirectly related to water (UNDP 2002b). Floods, typhoons, droughts, erosion and seawater intrusions are all regular occurrences. With deforestation in watersheds, more people living in flood-prone areas, and the increase in global warming, the economic costs of natural disasters in Vietnam have increased almost tenfold over the past 20 years. The average economic loss due to natural disasters in the 1980s was US$29 million per year; in the 1990s, this increased to US$200 million per year (UNDP 2002b).

Floods in October and November 1999 caused the loss of nearly 600 lives and approximately US$265 million in central provinces. The following year, these same areas suffered from prolonged drought.

For thousands of years, Vietnam has managed its water resources to irrigate rice and prevent flood damage. The uplands, which serve as catchment areas for irrigation water and help protect downstream areas from floods, are key to water resource management (Box 5). Of the current Special-use Forests in Vietnam, about 80 percent are above 500 m in elevation[24]. These protected areas are vitally important in protecting watersheds and mitigating flood damage.[25]

24 Calculated by Mai Ky Vinh, Forest Inventory and Planning Institute, 2002.
25 Watershed protection, however, depends on a number of factors, including seasonal pattern and intensity of rainfall, watershed size and slope, soil compaction and water infiltration, and the moisture retention capacities of soils.

Box 5. Forest cover and flooding in Thua Thien Hue Province

Thua Thien Hue Province provides an example of the benefits provided by watershed protection forests. It illustrates the potential effect of forest clearance. The province's elevation changes from more than 1,000m to sea level in less than 50 km. The Hai Van pass (1,415 m) traps storms and creates heavy rainfall. Because of the short, steep nature of the upland areas, cutting trees and subsequent use of the land for other purposes — even plantation forestry — is likely to increase the severity of floods. Maintaining existing forest cover helps mitigate flood damage in the province.

Some protected areas help maintain dry-season water flows. U Minh Thuong National Park, in Kien Giang Province plays a crucial role in supplying water to surrounding rice fields, especially during the dry season. A system of sluice gates regulates water flow from the park.

The dry season of 2002 was particularly acute. Crop losses caused by water shortages were considerable, and demand for water from U Minh Thuong placed additional pressure on the park's water management regime. The peat swamps became progressively drier during March 2002 and a fire ignited in early April. It spread to much of the park's forests, destroying a large part of them and of the peat that had been so effective in regulating water release.[26]

Farmers benefit from the water supply protection provided by protected areas. Water bottling plants choose watercourses that have clean and reliable water sources, and these often originate in protected areas. Water off-take points for municipal water supply and other water users (e.g. chemical, silk and beer factories) are selected for the same reasons. Disruptions to these supplies, through lower base flows or saltwater intrusion, can result in substantial economic losses.

4.2.2 Issues

Awareness and understanding of the economic contribution of protected areas to water resources management: Villagers commonly point out that dry season water flows have diminished where upstream forests have been cleared. Some development planners may not fully understand that protected areas make a substantive contribution to development by maintaining natural water management processes (Table 3).

Attitudes and policies are changing, especially at the provincial and local levels, where local people and economies are most exposed to the implications of forest loss. The establishment of Ngoc Linh-Quang Nam Nature Reserve, for example, was accelerated when the Quang Nam People's Committee recognised that catchment areas needed to be protected if recurrent flooding problems were to be addressed (Tordoff et al. 2000).

Upstream decisions about water use can have significant downstream impacts: Deforestation upstream in a protected area can increase sediment loads in downstream areas. This in turn increases the costs of downstream water users, who have to remove the sediments or dredge reservoirs to maintain volume. There is a strong need for integrated watershed management.

26 CARE field report on the fire at U Minh Thuong, April 2002.

Protected area goods and services are assumed to be free: Those who benefit from the natural water management services of protected areas usually do not pay for them. When they do pay, revenues are not reinvested to safeguard the continuity of these goods and services. Without cross-sector planning mechanisms that ensure such benefits are recognised and valued in planning, water resource management benefits will erode, resulting in diminished supplies and higher downstream processing costs.

Table 3. Benefits of protected areas for water resource-based development

Part of water cycle	Protected area example	Ecological functions	Economic contribution
Head waters Watershed	Bach Ma National Park	- Catchment protection - Smoothing of peak flows and reduction of downstream flooding - Provision of flows during dry seasons; climate and moisture regulation by evapotranspiration - Prevention of soil erosion by reduction of velocity of precipitation and increased percolation, and maintenance of soil moisture - Water filtration and protection/ improvement of water quality for downstream processes including domestic consumption	- Avoided costs of flood damage - Water available for additional crops (e.g., second rice crop) - Retention of soil fertility, savings from reduced need to apply artificial fertilisers as replacements - Avoided costs of alternative methods of water filtration, and economic benefits to industries dependent on high quality water for processing and production
In-stream	Cat Tien National Park and Biosphere Reserve	- Fisheries, habitats	- Moderation of water temperature and water chemistry for healthy growth of commercially valuable species, free source of food supply for commercial species
Wetlands and flood plains	Tram Chim National Park	- Nursery grounds - Wastewater treatment and nutrient removal - Source of commercial species, e.g., crab, shrimp - Sediment replacement - Source of fibres and plant products	- Supply and maintenance of suitable water quality and other conditions as free input into growth and reproduction of commercially valuable species - Source of commercially valuable raw materials e.g., plants
Estuaries	Xuan Thuy Nature Reserve and Ramsar Site	- Coastal protection against typhoons, storms and tidal surges - Fisheries, mangroves, flushing, and sediment replacement	- Reduce natural disaster losses - Commercial value of fisheries and NTFPs, improved growth performance from farmed/ harvested species from less polluted growth environment

4.2.3 Achievements

Introduction of the Law on Water Resources: The government has adopted a National Strategy for Water Resources and a Law on Water Resources (Box 6). The law addresses water resource management in an integrated way.

The law provides for the creation of a National Committee on Water Resources and River Basin Organisations in major basins, and it harmonises water management and administration. It also provides a mechanism for planning, using and protecting water resources by licensing water uses and granting permits for wastewater discharges. The mechanism also provides the means to monitor, evaluate and enforce the law. There is an opportunity for protected areas to be recognised in national and provincial planning mechanisms within the water sector. The Department for Water Resources Management and Hydraulic Works (under MARD) is charged with implementing the law.

Box 6. Key objectives of the Law on Water Resources

- Establish the basic policies, principles and framework for the planning, development, exploitation, utilisation, conservation, protection, regulation and management of all water resources in Vietnam on a sustainable, optimum and efficient basis with due regard for the land, other related natural resources, the environment, and the laws governing them.
- Prescribe the unified administrative and management authority and responsibility to implement this law based upon the hydrological boundaries of the water resources and the jurisdictional boundaries of the national and provincial governments.
- Promote cooperation, communication and coordination among the various ministries and agencies of government involved with water use, water users, and the public.

Water user permits: The Law on Water Resources requires MARD to issue permits for all users of surface water. This permit system could be used to harness revenue from water resources development for protected areas. Tools such as transfer payments for water-user charges from downstream irrigation systems could support upstream watershed protection activities in protected areas.

4.2.4 Challenges

Translating awareness and policies into implementation: There is growing awareness of the importance of protected areas and other forests in water resources management. Indeed, the value of forests in protecting watersheds is recognised explicitly in Decision 661, which guides the 5 Million Hectares Reforestation Programme. While this is encouraging, much remains to be done to improve awareness among national and provincial watershed planners. A greater challenge will be to translate improved government awareness and policies into practice. This process has been inhibited by the highly sectoral approach to planning at district, provincial and national levels.

4.2.5 Strategies

Implement water user permits: As stipulated in the Law on Water Resources, permits for all users of surface water (both domestic and industrial) would help to ensure that those who use water are those who pay for it. This could benefit protected areas that provide catchment areas for water users, provided that payments are used for that purpose. A levy on water bottling, and/or municipal and industrial water consumption, if reinvested in protected area management (as per the Natural Resource Tax Ordinance), would be a good investment if it contributed to sustaining clean and reliable water supplies. It might also offer businesses an opportunity to link brands (such as bottled water) to good environmental practices.

Pilot water-use levies for hydropower producers downstream of protected areas: Under the Natural Resource Tax Ordinance, levies on downstream hydropower and industrial users could financially support the protected areas that safeguard the watershed and catchment areas on which they depend. The hydropower facilities and industries downriver from the Na Hang Nature Reserve, Hoang Lien-Sapa National Park and Muong Nhe Nature Reserve would be good pilot areas for this levy.

4.3 Protected areas and energy development

4.3.1 Context

Most energy development in Vietnam that relates to protected areas involves hydropower and fuel wood. In 1999, hydropower accounted for roughly 52 percent of electricity generation in Vietnam. The government has plans to increase this percentage; several large dams are being constructed or considered.[27] The largest hydropower facility in Vietnam, the Hoa Binh dam, generates about 20 percent of the nation's electricity. Much of the watershed of the Da River, which feeds the Hoa Binh reservoir, is steeply sloped, with soil that is susceptible to erosion, and agricultural systems that feature cropping on mountainsides. Several protected areas — including Vietnam's largest nature reserve, Muong Nhe — are located in the reservoir's catchment area. Plans to build a larger hydropower facility (the Son La dam) upstream of Hoa Binh, a cornerstone of the ten-year socio-economic plan for Vietnam, have now been approved.

Protected areas can make an important contribution to improved forest management, which in turn can help sustain the longevity and economic life of these dams. Re-investing a proportion of revenues generated by hydropower in protected area establishment and management would be a cost-effective measure.

Hydropower facilities can also have negative impacts, both direct and indirect, on protected areas. In fact, hydropower development threatens several protected areas (Table 4). A recently approved hydropower facility on the Gam River near Na Hang Nature Reserve will inundate a portion of the reserve's biodiversity-rich forests and worsen the fragmentation of the remaining forest.[28] The nature reserve is one of four sites known to support the critically endangered Tonkin snub-nosed monkey (*Pygathrix avunculus*); the largest remaining population of this species lives there. Secondary impacts of the dam, caused by in-migration and ancillary development, would impose significant longer-term pressures on the reserve. Another proposed dam on the Dong Nai River, upstream of Cat Tien National Park, could alter the water regime for the park's Bau Sau wetlands, an integral component of the park's ecology.

Fuel wood is another key issue where protected areas and energy development intersect. In many rural areas of Vietnam, wood is the primary fuel for cooking and heating. Surveys from protected area buffer zones show that many local households depend on wood from the protected area for cooking and heating, even though it is prohibited. This wood is collected in many areas and is considered as the primary benefit from the protected area realised by local households.

27 There are about ten new hydropower facilities under construction or proposed according to Electricity Master Plan No. 5, "List of Power Projects", 22 June 2001, Electricity of Vietnam.
28 Na Hang Nature Reserve protects one of the largest remaining tracts of forest in northern Vietnam.

4.3.2 Issues

Balancing the costs and benefits of hydropower: While Vietnam currently has low per capita electricity use, demand is increasing as the country becomes more urbanised and industrialised and off-farm employment in rural areas is given priority (EVN 2001). Given Vietnam's many mountains and abundant water resources, hydropower is an attractive energy option.

Table 4. Existing and proposed hydropower dams downstream of protected areas

Name of dam	Province	Status	Capacity	Protected areas in watershed
Hoa Binh	Hoa Binh	Operational	1,920 MW	Muong Nhe Nature Reserve, Hoang Lien-Sapa National Park, Phu Canh Nature Reserve, and Xuan Son National Park
Yali	Kon Tum	Operational	900 MW	Chu Mon Ray National Park
Tri An	Dong Nai	Operational	400 MW	Cat Tien National Park
Ham Thuan	Binh Thuan and Lam Dong	Construction began in 1997	300 MW	Nui Ong Nature Reserve
Da Mi	Binh Thuan and Lam Dong	Construction began in 1997	172 MW	Nui Ong Nature Reserve
Son La	Son La	Approved	3,600 MW	Muong Nhe Nature Reserve, Hoang Lien-Sapa National Park, Phu Canh Nature Reserve, and Xuan Son National Park
Na Hang	Tuyen Quang	Approved	342 MW	Na Hang Nature Reserve
Rao Quan	Quang Tri	Feasibility study done	70 MW	Dakrong Nature Reserve
Dong Nai 8	Dong Nai	Proposed	212 MW	Cat Tien National Park
Ea Tung	Dak LaK	Proposed	–	Yok Don National Park
Upper Sre Pok 1	Dak LaK	Proposed	–	Chu Yang Sin National Park
Ba Be	Bac Kan	Proposed	–	Ba Be National Park

Sources: Electricity Master Plan No. 5, "List of Power Projects", 22 June 2001, Electricity Vietnam; Financing Study, Phase II: Synthesis Report, April 2002, the PARC project of Forest Protected Department (FPD); Tri An Nature Reserve proposal, May 2002, FPD's Cat Tien National Park Project.

However the recent report from the World Commission on Dams notes that large hydropower dams frequently incur substantial social and environmental costs. These need to be incorporated into any cost-benefit analysis of alternative designs and energy sources (WCD 2001). The costs and benefits to protected areas from hydropower development should be included in this analysis.

Natural gas is a potential alternative to meet Vietnam future electricity needs. Vietnam has abundant gas reserves and much of the infrastructure for capturing natural gas offshore and transporting it to land already exists. Natural gas-fired thermo-electric plants are among the most cost-effective and cleanest electricity options.

Fuel wood collection from protected areas often exceeds sustainable levels: The forests within protected areas are often cut to meet the local need for fuel wood. Tam Dao National Park, for instance, is a mountain "island" in the north of Vietnam, surrounded by a buffer zone that is home to 140,000 people. According to a study on the use of fuel wood in the area, each year local people collect 60,000–80,000

cubic metres of fuel wood from the park for cooking, brick and tile kilns, and drying tea.[29] This is roughly double the forest's estimated natural regeneration rate (GTZ 2000). Many other protected areas provide fuel wood at little or no cost to local residents. In and around Ke Go Nature Reserve, for example, per capita fuel wood consumption is around 2.3 kg per day (Elwee 2001). In Ba Be National Park's buffer zone, per capita consumption of fuel wood is about 5 kg per day (Vo Dai Hai, cited in Elwee 2001). However these levels are almost certainly unsustainable given the known wood regeneration rates.

4.3.3 Achievements

About half of Vietnam's energy production comes from renewable sources: Vietnam's rural population relies heavily on renewable energy sources such as wood, dung and rice husks, and the majority of the country's electricity comes from hydropower.

4.3.4 Challenges

Stronger environmental assessments: An important challenge is to avoid, minimise or mitigate — in that order — the damaging impacts that hydropower developments can have on the ecological well-being of protected areas and their contribution to local, provincial and national economies. Environmental impact assessments should be carried out during the feasibility study stage of all medium and large-scale hydropower projects. This would help decision-makers better understand the environmental and development costs of a proposed project. Currently, environmental impact assessments are done relatively late in the planning process, if at all, and seldom go beyond the immediate site-specific effects of construction. Once a project has been approved, it is too late for an environmental impact assessment that does more than suggest mitigation measures for the implementation phase.

Stopping fuel wood collection from protected areas would have a negative impact on many households in or near protected areas: Prohibiting fuel wood collection would have social and financial costs for many poor households unless alternatives were provided. Letting fuel wood collection continue at unsustainable levels, however, will lead to much higher costs in the longer term as the resources and benefits from protected areas collapse.

4.3.5 Strategies

Introduce the principle of "user pays" for energy goods and services supplied by protected areas: Ordinance No. 05/1998/PL-UBTVQH10, dated 16 April 1998, allows for a tax on water extraction, including water used for hydropower. A precedent for such a transfer payment exists in the form of a proposal pending approval of the Government for investing about VND 2 billion/year, from the approximately VND 100 billion/year in natural resource tax revenues from the Hoa Binh hydropower facility, into catchment protection works in Son La and Hoa Binh Provinces.

Another example is the 400-MW Tri An hydropower facility, downstream of Cat Tien National Park and the proposed Tri An Nature Reserve. A legal agreement has been signed whereby the hydropower project will provide financial support to the upstream Tri An Nature Reserve for watershed protection. Such agreements between upstream protected areas and hydropower plants are beneficial both for financing protected areas and safeguarding the watershed of the reservoir.

More effective collaborative management is needed to ensure that wood collection is sustainable. A system of permits would help limit collection and could generate revenues for the protected area. Such a system would be best co-managed by local communities and local authorities to engender a sense of stewardship.

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29 To process 1 kg of dried tea, 5 kg of firewood are required for the rotating kilns, according to leaders of Dai Tu District, Thai Nguyen Province, and in 1999 the district produced 16,000 tonnes of tea leaves.

Increasing agro-forestry activities, promoting the use of bottled gas for cooking and introducing more fuel-efficient cooking stoves are three additional strategies for improving the sustainability of fuel wood collection from protected areas.

Link the establishment of new hydropower projects to the establishment of new protected areas: Well-managed protected areas are effective in protecting watersheds upstream of hydropower facilities. Future hydropower projects could maximise this benefit by including the establishment of protected areas in critical upstream watersheds in their development plans.

Use environmental impact assessments to determine the feasibility of proposed investments: Conducting environmental impact assessments of proposed investments early in the feasibility stage will help decision-makers better understand the environmental and economic costs of the investment and choose the least-cost alternative.

4.4 Protected areas and agriculture development

4.4.1 Context

Vietnam is a predominantly rural country. Approximately 80 percent of the population depend on agriculture for their livelihood (Box 7). Agriculture encroaches on many protected areas, however, especially in the uplands, where the relationship between Special-use Forests and traditional land-use practices has yet to be determined.

Vietnam is home to the wild relatives of several commercially cultivated species of rice, green tea, taro root, mung bean, and litchi. This agro-biodiversity is important. The genetic material of wild relatives often has a high value because of the wild species' adaptations to specific threats and conditions, which can be used to strengthen domestic species.[30] Conserving these wild relatives in-situ allows the plants to continue to evolve and adapt to changing conditions in their natural habitats. Protected areas and farmland in protected area buffer zones are often good sites for in-situ conservation of potentially valuable wild plants species because the protected areas and buffer zones provide a measure of protection against land conversion that would eliminate the native habitats of wild species.

Some protected areas already afford protection to genetically important wild relatives of food crops. Ba Vi National Park and the surrounding ecosystem have been identified as the source of two widely cultivated varieties of green tea, and Huu Lien Nature Reserve is home to several species of native wild rice and taro.

Box 7. Bats and agriculture in U Minh Thuong National Park

Villagers in the core zone of U Minh Thuong National Park, Kien Giang Province have developed an innovative way to use bats to support their agricultural practices. By building "bat houses" on the edge of the park, they attract bats to roost in large numbers adjacent to their fields. The bats feed over the agricultural fields from dusk to dawn, eating insect pests. Villagers also harvest the bat guano and use it as fertiliser or sell it to raise income.

30 There are numerous examples of native species developing local genetic coping mechanisms that are valuable for other crops (pest and disease resistance for example).

4.4.2 Issues

Agricultural encroachment into protected areas: Many protected area managers face the challenge of agricultural encroachment. In a few protected areas, encroachment is so severe that little biodiversity of conservation importance remains. Consideration is now being given to de-gazetting or substantially reducing the size of some protected areas.

Economic, demographic and socio-political pressures drive encroachment: Converting forest land to agricultural land is an obvious economic choice for farmers who live in marginal environments around protected areas. Further pressure is exerted by rapidly growing populations, and is compounded by political decisions to relocate people from densely populated rural areas in northern Vietnam to "under-populated" rural areas in the central highlands and the south. Relocating people to the areas around U Minh Thuong National Park, for example, put enormous pressure on the park's water and forest resources.

Macro-economic policies: Government macro-economic policies that promote agricultural production of crops such as coffee, cashew and rice have had a major impact on many protected areas. Government-supported coffee and cashew production has encouraged farmers to expand their agricultural land into areas where fertile soil remains. However, fertile soils often are found in areas close to protected areas.

4.4.3 Achievements

Growth in agricultural production and the protected area network: Vietnam has achieved remarkable success in increasing agricultural production. The country is now the second largest exporter of rice and coffee. This has been achieved alongside the expansion of the protected area network, a considerable achievement in itself.

Piloting efforts to balance traditional agriculture uses with protected areas: Initial efforts to balance protected area maintenance with agriculture have been made. In some parts of Hoang Lien-Sa Pa National Park, for example, the management board now allows ethnic Hmong residents to plant traditional forest crops under the forest canopy.

4.4.4 Challenges

Integrating conservation and development: More needs to be done to balance traditional agricultural practices with protected area conservation goals in the uplands of Vietnam. The restrictive regulatory environment leaves little scope for finding solutions that will enable upland farmers to support protected area management.

Agriculture encroachment: The challenge is to better integrate protected areas into agricultural and land-use planning to avoid or minimise future encroachment. Stabilisation of land uses by allocating agricultural and forest land tenure rights will help fix protected area boundaries and reduce encroachment.

4.4.5 Strategies

Issue land-use certificates to buffer zone households: Issuing land-use certificates to those living around protected areas would help to stabilise agricultural encroachment threats to protected areas by defining boundaries and land use, as well as making it more difficult for unplanned migrants to settle in a buffer zone.

Improve demarcation of protected area borders: Protected areas managers must do more to ensure that planners and local stakeholders are aware of protected area borders, and understand the meaning of protected areas status in terms of land and forest management responsibilities. Improving the demarcation of most protected areas boundaries is a necessary first step for effective enforcement.

4.5 Protected areas and fisheries development

4.5.1 Context

Marine and wetland protected areas are vital to developing sustainable fisheries and conserving aquatic biodiversity in Vietnam. In 2000, fisheries contributed more than twice as much to GDP as did forestry (2.3 percent versus 0.9 percent) (GSO 2000). The fishery sector is one of the fastest growing in Vietnam; revenues increased from US$850 million in 1998 to US$2,020 million in 2002. Inappropriate resource use and a lack of fisheries protection or regeneration plans, however, have led to the over-exploitation of near-shore fisheries.[31] While revenues are up, sector productivity is down, and the fish-catch per unit of effort has dropped sharply in recent years.

Coastal wetlands are important in supporting fisheries. A growing body of data suggests that there is a close relationship between management of coastal wetlands and the size of coastal fish yields. In many countries, efforts to convert coastal wetlands (particularly mangroves) into aquaculture systems have contributed to declines in coastal open water catches and an overall reduction in fish yields.

Mangroves and coral reefs are particularly important in sustaining fishery production. They are nurseries for larval and juvenile fish and shellfish, and mangroves make an important contribution to biomass, which fuels fisheries production.

Wetlands and marine protected areas often have spill over effects on fish resources in surrounding areas. A well-managed MPA usually has higher biodiversity than neighbouring areas, which triggers a higher production rate in the marine ecosystem. Another benefit for fisheries is that over-exploited fish stocks can recover if their nursery and breeding areas are effectively managed within protected areas.

Wetlands and marine protected areas provide a number of other benefits. They support shorebirds and endangered marine animals as well as tourism, scientific research and environmental education.

Freshwater fisheries also benefit from protected areas. Several terrestrial protected areas include freshwater lakes that harbour fisheries. Ba Be Lake and Ke Go Lake, for example, both support important local fisheries.

4.5.2 Issues

Destructive fishing methods: Though they have decreased significantly in Vietnam, destructive fishing practices, such as blast fishing and cyanide fishing, continue to be a problem in coral reef areas. The coral that supports fish is often destroyed by these practices, and can take years to recover.

Aquaculture sustainability: Aquaculture is being heavily promoted in Vietnam as a means of generating additional export earnings (Box 8). Shrimp, lobster and basa catfish production have all increased exponentially over the past five years.[32]

Shrimp aquaculture has not yet proved to be sustainable in Vietnam because of the dependence on wild-caught shrimp eggs and persistent disease.

31 "Vietnam Focus: Fisheries Industry" in *Vietnam Economic Times*, March 2002.
32 Ibid.

Box 8. Sustainable aquaculture within Xuan Thuy National Park

Aquaculture production and biodiversity conservation can be compatible. The shrimp ponds in Xuan Thuy Ramsar National Park provide feeding and resting sites for a number of migrating waterbirds and shorebirds, including the critically endangered Black-face Spoonbill (*Platalea minor*). In the Xuan Thuy National Park, shrimp and crab ponds cover most of the reserve. The high biodiversity areas are located along the inter-tidal mudflats that continually accrete from sediment deposited by the Red River as it flows into the sea. So long as aquaculture ponds are allowed to expand only onto the old mudflats as new mudflats accrete, Xuan Thuy National Park and local aquaculture can be compatible. Moreover, the aquaculture ponds at Xuan Thuy offer an opportunity to develop sustainable financing for the national park, in much the same way as the Mai Po marshes in Hong Kong. There, licence fees levied on fishponds are used for the upkeep of the protected area.

4.5.3 Achievements

One marine protected area has been established on a demonstration basis and there are plans for more: MPAs in Vietnam are a new initiative, and the legal and institutional frameworks to support them are not finalised. One demonstration MPA is in place in Khanh Hoa Province, however, and the province has issued temporary MPA regulations. Many government officials and donors hope these regulations can be a model for future MPAs.

The US$2.1 million Hon Mun MPA project, supported by Danida, the Global Environment Facility, the World Bank and IUCN, was officially approved in June 2001. This MPA is in an area with a large number of national and international tourists (the beach town of Nha Trang) and is home to the country's largest scuba-diving companies. The site offers strong potential for sustainable fishing, diving and coral reef tourism, with benefits for local communities and the national tourism industry.

4.5.4 Challenges

Creating a network of wetlands and MPAs: There are few wetlands and marine protected areas in Vietnam, and many potential fisheries benefits have not yet been realised. The government has set a target of formally establishing 15 MPAs by 2010, but the lack of a legal and institutional framework is a major challenge.

There were considerable delays in the start of the Hon Mun MPA project because of disagreements over who would administer it. It was finally decided that the provincial government is in charge, with technical assistance from the Ministry of Fisheries.

4.5.5 Strategies

Establish the institutional basis and legal framework for wetlands and MPAs: The establishment of a system of wetlands and MPAs is being delayed partly due to the lack of an institutional and legal framework. The Ministry of Fisheries has drafted protected area frameworks that address marine areas; what is needed is a comprehensive protected area strategy[33] and framework that includes all types of protected areas.

33 The FPD-WWF-Danida Strengthening Protected Area Management Project is drafting such a strategy.

Increase the number of wetlands and MPAs: By increasing the number of wetlands and marine protected areas, and managing them effectively, Vietnam can increase the fisheries' sustainable yield. Many productive uses of wetland and marine protected areas are compatible with fisheries support functions (e.g., tourism, research, education, recreation and transport). Vietnam has the opportunity to develop multiple-use wetlands and marine protected areas that can make a substantial contribution to local, provincial and national economies.

When establishing new wetlands and MPAs, the primary criteria should be as follows:

- level of biodiversity (number of species and how well represented);
- the level of threats to biodiversity (the lower the better); and
- the feasibility of implementing conservation activities (land tenure issues, support by the local community and government, and sustainable financing).

Make marine protected areas more sustainable by using targeted policy tools: Establishing a policy that restricts marine protected areas to fishers during fish spawning would help ensure healthy reproductive rates. Reducing the near-shore fishing fleet would take considerable pressure off fish stocks and reduce the legal and illegal fishing pressure on new MPAs.

4.6 Protected areas and tourism development

4.6.1 Context

Vietnam's tourism sector is growing fast. Domestic tourism has risen sharply as incomes and leisure time have increased. In 1995, there were approximately 4.5 million domestic tourists; in 2000 there were about 10.7 million.[34] The number of international visitors[35] is also increasing, but not as fast. In 1995, there were about 1.3 million international visits (Vietnamtourism.com 2002a). In 2001, the Vietnam National Administration of Tourism estimated that 2.3 million people visited Vietnam (more than half from China and Taiwan) (Vietnamtourism.com 2002b).

In many developing countries, protected areas are a primary tourist destination. The national parks of east and southern Africa, and the marine parks of the Philippines and Thailand are examples. Tourism in protected areas has high revenue potential in developing countries with charismatic wildlife species and the necessary tourism facilities.

The legal framework for protected area tourism is contained in Article 16 of Decision 08/2001/QD-TTg. It states that protected area management boards can organise, lease out or contract the provision of ecotourism services and facilities to organisations, households and individuals, in compliance with existing financial management regulations and subject to a majority of earnings being reinvested in managing, protecting and developing the protected area.

34 Master Plan for Tourism Development in Vietnam; Tuan Du Lich (Tourism Weekly), No. 36+37, 7-14 July 2000
35 This includes "business and professional", "friends and relatives", "leisure, recreation and holiday" and "other" visitors.

4.6.2 Issues

Lack of an institutional framework: While there is a legal framework for tourism and ecotourism in protected areas, there is no institutional framework. It is unclear whether the agency responsible for tourism in a protected area should be its management board, Vietnam's National Administration of Tourism or a district/provincial agency. The private sector's involvement in protected area tourism is also not yet clear. Private-sector tourism (particularly tourism concessions) needs to be governed by a regulatory framework to avoid negative impacts on local communities and ensure that benefits are shared equitably with local communities.

Ensuring tourism benefits local communities: Tourism has a bad reputation internationally for "leakage," i.e. much of the profits are not realised at the tourism site. Frequently, tourist operators import experienced staff from outside the area instead of training local people. Transport to and from the tourist site is usually undertaken by outside operators. Retaining more tourism revenues locally is important if local communities are to benefit.

Limited tourism potential: Vietnam does not enjoy bountiful wildlife that international tourists will pay to see, and protected area tourism facilities (e.g. accommodations, information centres, guides and trails) are limited.

About 70 percent of the leisure and tourist destinations of Vietnam are located in coastal areas; they attract 80 percent of tourists each year (VNAT 2001). There are few coastal protected areas and fewer still that service tourism.

Most of the people who visit Vietnam's protected areas are domestic tourists. Tam Dao National Park, two hours north of Hanoi, is one of the most visited protected areas in the country. In 1999, the latest year for which information is available, about 50,000 national tourists and 3,000 international tourists visited the park (GTZ 2000b).

In the near term, domestic tourism has the most potential. Many of the tourists to protected areas are students on school outings, and there is great potential to expand environmental education activities for them. There is a need, however, to balance the potential costs and benefits of mass domestic tourism and the attributes which tourists come to experience.

4.6.3 Achievements

Vietnam has successfully increased tourism even during difficult economic times: Though tourism dropped in much of the world after the events of 11 September 2001, Vietnam still received 7.6 percent more visitors in 2001 than in 2000.

A revised master plan for tourism has been developed that includes explicit references to protected area tourism: In 2001, under a project funded by UNDP and executed by the World Tourism Organisation and Vietnam's National Administration of Tourism, the Tourism Master Plan was revised to make it more sustainable. The revised master plan includes specific guidelines for tourism in national parks and for ecotourism (VNAT 2001). The revised plan is slated for approval in late 2002.

4.6.4 Challenges

Ensuring that local communities benefit from protected area tourism: To make tourism in protected areas more sustainable and more beneficial for local development, people in the surrounding communities need to benefit directly from it. This can be achieved through employment in tourism, home stays, selling handicrafts, providing tourist services, etc. If local communities see only the cost and not the benefits, they are unlikely to support the protected area or tourism.

Limited wildlife that attracts tourists: Hunting, the wildlife trade, and conversion of wildlife habitat to other uses have severely affected Vietnam's wildlife tourism potential. This has limited the potential for attracting large numbers of high-paying international tourists to protected areas.

Few protected areas are near current tourist centres: There are only a handful of national parks that are near major metropolitan areas. Cuc Phuong, Tam Dao, Ba Vi, Cat Ba and Bach Ma National Parks are within a two-hour drive of major urban areas, but Vietnam's other national parks are less accessible. Accessibility of cultural-historic-environmental sites and Man and Biosphere Reserves varies, and the World Heritage Sites are all easily accessible.

4.6.5 Strategies

Use entrance fees to keep protected area tourism at sustainable levels: Entrance fees can be used as a means for both increasing revenues to protected areas and controlling access.

Create sub-attractions within or near protected areas to disperse tourists during busy seasons and increase carrying capacity: The creation of more sub-attractions in the buffer zone or the tourism zone of protected areas can help mitigate the impacts of tourism during peak periods, such as the Tet holiday season. Sub-attractions should be diverse in order to meet the requirements of different groups. These help satisfy tourists' needs and reduce the concentration on a few places within protected areas.

Encourage private-sector participation in ecotourism (investment, marketing and product development): Involving the private sector (e.g. tour operators, travel businesses and hotels) in the development of tourism in protected areas can help maintain and enhance the economic benefits of those areas. Improving the incentives for private-sector ecotourism by offering special concessions should be tested in a range of protected areas. Benefit-sharing agreements will be required to ensure equity in tourism development. Local communities, protected area managers, and private-sector companies must all recognise and support the need for investment in conservation and sensitive development of tourism facilities.

4.7 Protected areas and industrial development

4.7.1 Context

Protected areas provide a range of environmental services to industry:

- supplying raw materials for industrial production, such as water, timber and non-timber forest products;
- protecting watersheds and river catchments that supply water to industries;
- providing bio-prospecting opportunities (Box 9) for technological development[36]; and,
- serving as a sink for by-products of industry (i.e. sequestering carbon in vegetation to offset greenhouse gas emissions).

Box 9. Bio-prospecting in Cuc Phuong National Park

In 2001, a bio-prospecting agreement was signed between Cuc Phuong National Park and the University of Illinois at Chicago, whereby royalties from new compounds discovered from plants in the protected area are put into a trust fund for the park. A new anti-malarial compound has already been isolated from a plant species in Cuc Phuong National Park under this agreement. The benefits to the park, however, are likely to be limited and realised only in the longer term.

36 Bio-prospecting is the search for natural substances that can be used in the development of new products such as pharmaceuticals, cosmetics, genetic material for new crops, and bio-controls.

4.7.2 Issues

Lack of information: The links between industry and protected areas have not been fully explored in Vietnam. The goods and services that protected areas provide to industry are largely free. More research is needed to better understand the contributions that protected areas make to industrial development.

4.7.3 Achievements

Growing awareness that protected areas provide good reservoirs of genetic material that may be useful in the future: The government funds the Institute for Agricultural Genetics, which carries out in-situ and ex-situ conservation of plant genetic material with potential value to agriculture. The institute has an ongoing project to conserve several key native food crops within protected areas.

4.7.4 Challenges

Implementing the "user pays" approach for industrial inputs provided by protected areas: Many protected area resources that are used by industry are provided free or for less than their market value. Inducing industrial beneficiaries to pay for resources and services that they now use freely is good for business. This is already done to a limited extent under the Natural Resource Tax Ordinance, which was introduced in 1990 and supplemented in 2001. The ordinance allows for taxes on commercial and industrial users of natural resources. The challenge is educating industrial leaders about the benefits protected areas provide to industry and helping them to understand that these benefits need to be paid for in order to safeguard them.

4.7.5 Strategies

Pilot levies for protected area goods and services used by industry: Following the Natural Resources Tax Ordinance as amended in 2001, levies on the natural resources provided by protected areas would help industry to safeguard the goods and services they receive. The revenues from this initiative should be reinvested in sustaining the natural resources provided to industry.

4.8 Protected areas and biodiversity conservation

4.8.1 Context

The priority for most protected areas is biodiversity conservation. It comes last in this national review not because it is least important, but because it is the benefit people most often recognise as being provided by with protected areas, and there is less need to raise awareness of it.

Protected areas are the country's reservoir of biodiversity: genetic diversity, species diversity, and ecosystem diversity. Vietnam's biodiversity has a potentially high economic value; the country has more than 9,600 plant species and a wide diversity of ecosystems. The country is also home to domestic strains of rice, taro, and mung bean that could provide important germ plasm sources for developing strains suited to local conditions.

Globally, less than one percent of tropical forest species have been examined for their chemical compounds (Myers 1992). Even from this tiny percentage, however, more than 120 prescription drugs (e.g., quinine, steroids, muscle relaxants and anti-cancer medications) have originated from tropical plants. Vietnam's plants alone constitute a potential wealth of new treatments.

Protected areas also help conserve Vietnam's extraordinary biodiversity so that future generations can appreciate the beauty of the country's flora and fauna. Protected areas act as safe havens for many critically endangered species, such as the Javan rhino *(Rhinoceros sondaicus)*, the Tonkin snub-nosed monkey *(Pygathrix avunculus)*, and the Cat Ba langur *(Trachypithecus poliocephalus)*.

The country's protected areas also allow natural process to continue, so that species can evolve and adapt to changes in their environment. These changes are critical for the long-term survival of species.

4.8.2 Issues

Insufficient funding: Only a few centrally managed national parks receive enough funding to cover their full operation and maintenance costs. The rest suffer from insufficient resource levels. The funds that do exist tend to be concentrated more on infrastructure development and less on operations and maintenance.

Fragmentation of habitats: Protected areas are part of larger ecosystems. With the increasing number of people and need for resources, the country's biodiversity is being squeezed into ever-smaller areas. The result is more and more fragmentation of biological processes. The habitats for large mammals (tiger, elephant and gaur) are being lost, and remaining species populations are becoming isolated. More wildlife corridors and forested links connecting protected areas are ways to offset this increased habitat fragmentation.

Decentralisation but limited capacity at provincial level: The national government's decentralisation of protected areas means that most protected areas are under provincial administration. While the responsibility has devolved, there has not yet been an adequate effort to enhance the capacity of the provinces to manage protected areas.

4.8.3 Achievements

The number of national parks has increased considerably: Within the past two years the number of national parks has more than doubled, from 12 in 2000 to 25 in 2002.

4.8.4 Challenges

Population pressure and macro-economic policies: Vietnam is one of the most densely populated agricultural countries in the world,[37] and pressure on natural resources and protected areas, already intense, is increasing. Macro-economic policies that encourage rapid growth are often promoted at the expense of the environment. Most natural resources, including natural forests, water, soils, fish and gene pools, are still being degraded by overuse and mismanagement.

Short-term decentralisation issues: Although decentralisation is likely to benefit protected area management in the longer term, there are short-term dangers and uncertainties. First, provincial and district capacity to manage protected areas will need to be strengthened considerably if the provinces are to become effective stewards of protected areas. Second, mechanisms will need to be found to eliminate the large discrepancies in funding levels between protected areas located in rich and poor provinces. Nature

37 Vietnam is fifth after India, Bangladesh, Rwanda and Burundi. (*2001 World Development Indicators* for population per hectare and countries that derive more than 30 percent of GDP from agriculture. (World Bank 2001))

reserves in poorer provinces (i.e. those dependent on transfers from the national government) are likely to receive far fewer resources than those in richer provinces (Nguyen Xuan Nguyen 2002).

4.8.5 Strategies

Integrate protected area benefits into development plans: There would be substantial advantages in incorporating specific protected area benefits into sector development strategies and plans, particularly at the provincial level. While the sectoral nature of government and planning makes this challenging, integrated planning can prevent conflict with development plans and ineffective use of resources.

Link more protected areas together: The fragmented nature of the protected areas system causes higher per hectare management costs because there are many smaller protected areas in a province or region. Linking protected areas together would reduce the edge to area ratios and thus the management costs. This would also benefit biodiversity by providing wildlife corridors between protected areas. Linking Kon Ka Kinh and Kon Cha Rang Nature Reserves in Gia Lai province, for example, would potentially reduce the management costs and increase the biodiversity value if they are managed as a single unit.

5. Recommendations

Vietnam's protected areas provide a number of benefits to development that are often overlooked. They provide a "safety net" for the many poor communities that live in and around protected areas. They provide flood protection for downstream areas and water for drinking and irrigation. They protect the watersheds of hydropower dams and provide industry with a number of commodities, from clean water to reliable power. They help conserve important native agro-biodiversity and provide shelter for regenerating fish populations. Protected areas also help to conserve Vietnam's extraordinary genetic, species and landscape diversity for future generations.

While there have been some commendable accomplishments in improving Vietnam's protected areas, much remains to be done. Vietnam's protected areas can generate more development benefits while conserving biodiversity. The recommendations listed here link with existing programmes, projects and strategies, such as the Forest Sector Support Programme, the 5 Million Hectares Reforestation Programme, the Strengthening Protected Area Management Project, and the Comprehensive Poverty Reduction and Growth Strategy.

Better use of economic instruments and planning tools

- Create a stronger flow of funds back to protected areas for their effective management by identifying, appreciating and recognising the benefits of the free or under-priced goods and services. Widely apply the "user pays" principle and ensure that the revenues generated are reinvested in sustaining natural resources. This can be done under the Natural Resource Tax Ordinance or through revenue-sharing agreements between hydropower facilities, water bottling plants, aquaculture facilities, breweries, etc. that are downstream from protected areas. In particular, the Law on Water Resources (which calls for all surface water users to pay for water used) could be linked to the Natural Resource Tax Ordinance (which calls for reinvesting natural resource taxes in protection measures for natural resources). Such revenue-sharing arrangements can be modelled on the agreement for the Tri An hydropower facility. Another source of funds is a system of user permits for forest products, such as fuel wood or medicinal plants, collected from protected areas. Those paying have to be assured that funds will support the sustainable management of the resources in question.

- Make better use of environmental impact assessments before a project is approved, so that decision-makers can determine the least-cost option (in terms of financial, social and environmental costs). If a project is already approved, environmental impact assessments can help determine any potential negative impacts in order to avoid, minimise or mitigate them.

Strengthen cooperation and co-ordination

- Consider and review the current structure of protected area management boards or identify and establish appropriate mechanisms which encourage the participation of different stakeholders, particularly buffer zone officials, community representatives, and protected area beneficiaries in the decision making process and management of protected areas. Such action would help resolve conflicts over the use of resources early in the planning stage.

- Carry out co-management of protected areas with local communities on an experimental basis in protected areas where the pressure on the buffer zone is high.

- Increase the consideration of protected areas when developing provincial and national-level economic plans by fully reflecting their development benefits and ways to maintain and enhance them.

- Increase local government and community awareness of protected area benefits by strengthening environmental education in Vietnam's schools and universities.
- Develop and establish a protected area classification system that is scientifically comprehensive, integrated and reflects traditions appropriate to Vietnam's socio-economic conditions and management level. Consider and design new categories of protected areas that allow for various intensities of use by people (e.g. IUCN Category V and VI).
- Expand the protected area system to include more wetlands and marine protected areas. This would benefit both poor communities who are dependent upon sustainable fishing for their livelihoods and biodiversity conservation.
- Reduce the fragmented nature of the protected area system, which makes it difficult to conserve biodiversity and results in high per-hectare management costs. Make a greater effort to link protected areas with natural corridors and reduce the boundary-to-area ratios.

Strengthen protected area policy and the institutional framework

- Develop and establish institutional arrangements and policies that govern protected area management by: improving the policy, legal and institutional framework for protected areas by finalising the draft national protected area strategy[38]; clearly identifying the roles and responsibilities of concerned management agencies; and designating national management authorities for wetlands and marine protected areas.
- Develop and issue clear buffer zone management regulations.
- Develop and issue ecotourism management regulations.
- Identify more effective priorities for government investment in protected areas. In most protected areas, strengthening protected area staff capacities by providing training and basic equipment would return more development and conservation benefits than building new infrastructure. Almost all protected areas in Vietnam need their boundaries demarcated. This does not need to involve concrete pillars but can be done by planting trees or bamboo. Well-marked protected area boundaries would benefit protected area managers and guards and making the limits of the protected area clear to local communities. The process of demarcating boundaries should be done in consultation with local communities.

38 This strategy has been developed under the FPD-WWF-Danida Strengthening Protected Area Management Project.

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Abbreviations and acronyms

FPD	Forest Protection Department (under MARD)
GDP	Gross Domestic Product
GTZ	German Technical Assistance
HCMC	Ho Chi Minh City
ICEM	International Centre for Environmental Management
IUCN	The World Conservation Union
MARD	Ministry of Agriculture and Rural Development
MOFI	Ministry of Fisheries
MOSTE	Ministry of Science, Technology and Environment
MONRE	Ministry of Natural Resources and Environment
MPA	Marine protected area
MPI	Ministry of Planning and Investment
MW	Megawatt
NEA	National Environment Agency (formerly under MOSTE, since August 2002 under Ministry of Natural Resources and the Environment)
NGO	Non-governmental organisation
NTFP	Non-timber forest products
PA	Protected area
PAD Review	Review of Protected Areas and Development in the four countries of the Lower Mekong River region
PAR	Public Administration Reform
TEV	Total Economic Value
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
VEPA	Vietnam Environment Protection Agency
VND	Vietnamese Dong
VNAT	Vietnam National Administration of Tourism
WWF	World Wide Fund for Nature, Indochina Program

Annex 1: List of national protected areas in Vietnam

(as of December 2002)

No	Name	Location	Year Decreed	Area (ha)
I. National Parks				**851,361**
1	Hoang Lien-Sa Pa	Lao Cai	2002	29,845
2	Ba Be	Bac Kan	1992	7,610
3	Bai Tu Long	Quang Ninh	2001	15,738
4	Xuan Son	Phu Tho	2002	15,048
5	Tam Dao*	Vinh Phuc, Thai Nguyen, Tuyen Quang	1996	36,883
6	Ba Vi*	Ha Tay	1991	6,786
7	Cat Ba*	Hai Phong	1991	15,200
8	Cuc Phuong*	Ninh Binh, Thanh Hoa, Hoa Binh	1988	22,200
9	Xuan Thuy	Nam Dinh	2002	7,680
10	Ben En*	Thanh Hoa	1992	16,634
11	Pu Mat	Nghe An	2001	91,113
12	Vu Quang	Ha Tinh	1993	55,950
13	Phong Nha Ke Bang	Quang Binh	2001	86,200
14	Bach Ma*	Thua Thien Hue	1991	22,031
15	Chu Mom Ray	Kon Tum	1995	48,658
16	Kon Ka Kinh	Gia Lai	2002	41,710
17	Yok Don*	Dak Lak	2002	115,545
18	Chu Yang Sin	Dak Lak	1994	54,227
19	Cat Tien	Dong Nai, Lam Dong, Binh Phuoc	1992	66,000
20	Bu Gia Map	Binh Phuoc	2002	26,032
21	Con Dao	Ba Ria Vung Tau	1993	5,998
22	Lo Go Sa Mat	Tay Ninh	2002	16,754
23	Tram Chim	Dong Thap	2001	7,588
24	U Minh Thuong	Kien Giang	2001	8,509
25	Phu Quoc	Kien Giang	2001	31,422
*** under MARD/FPD management**				
II. Nature Conservation Areas				**1,351,106**
IIa. Nature Reserves				**1,259,353**
1	Muong Nhe	Lai Chau	1996	182,000
2	Nam Don	Son La	194/CT - 1986	18,000
3	Sop Cop	Son La	194/CT - 1986	27,886
4	Xuan Nha	Son La	1990	38,069
5	Phu Canh	Hoa Binh	254/UBND HSB	5,647
6	Pa Co - Hang Kia	Hoa Binh	194/CT - 1986	7,091

7	Thuong Tien	Hoa Binh	194/CT - 1986	7,308
8	Bac Me	Ha Giang	1994	27,800
9	Du Gia	Ha Giang	1994	24,293
10	Phong Quang	Ha Giang	194/CT - 1986	18,397
11	Tay Con Linh	Ha Giang	1995	40,344
12	Cham Chu	Tuyen Quang	2001	58,187
13	Nui Pia Oac	Cao Bang	194/CT - 1986	10,000
14	Trung Khanh	Cao Bang	194/CT - 1986	3,000
15	Kim Hy	Bac Kan	1997	18,555
16	Huu Lien	Lang Son	1992	10,640
17	Khe Ro	Bac Giang	1995	5,675
18	Tay Yen Tu	Bac Giang	2002	16,466
19	Ky Thuong	Quang Ninh	1994	17,640
20	Yen Tu	Quang Ninh	1995	3,040
21	Hon Me	Thanh Hoa	194/CT - 1986	500
22	Pu Hu	Thanh Hoa	-	35,089
23	Pu Luong	Thanh Hoa	-	17,662
24	Xuan Lien	Thanh Hoa	1999	23,610
25	Pu Hoat	Nghe An	1999	67,934
26	Pu Huong	Nghe An	1995	50,075
27	Ke Go	Ha Tinh	1995	24,801
28	Dakrong	Quang Tri	2000	40,526
29	Phong Dien	Thua Thien Hue	2000	41,548
30	Cu Lao Cham	Quang Nam	1994	1,535
31	Song Thanh	Quang Nam	2001	93,249
32	Ba Na - Nui Chua	Da Nang	2001	8,838
33	Ban Dao Son Tra	Da Nang	1992	4,370
34	Krong Trai	Phu Yen	1990	22,290
35	Ngoc Linh Kon Tum	Kon Tum	1993	41,424
36	Kon Cha Rang	Gia Lai	194/CT - 1986	24,000
37	Easo	Dak Lak	1999	22,000
38	Nam Ca	Dak Lak	1991	24,555
39	Nam Nung	Dak Lak	1995	10,849
40	Ta Dung	Dak Lak	-	18,893
41	Bidoup - Nui Ba	Lam Dong	1993	72,573
42	Nui Dai Binh	Lam Dong	194/CT - 1986	5,000
43	Nui Ong	Binh Thuan	2001	25,468
44	Ta Kou	Binh Thuan	1988	17,823

45	Phuoc Binh	Ninh Thuan	2002	7,400
46	Binh Chau Phuoc Buu	Ba Ria Vung Tau	194/CT - 1986	11,293
47	Thanh Phu	Ben Tre	1998	4,510
48	Nui Cam	An Giang	194/CT - 1986	1,500
IIb. Habitat/Species Conservation Areas				**91,753**
1	Na Hang	Tuyen Quang	1994	41,930
2	Mo Re - Bac Son	Lang Son	41/TTg-1977	2,416
3	Tien Hai	Thai Binh	1995	12,500
4	Van Long	Ninh Binh	2001	3,500
5	Tam Quy	Thanh Hoa	194/CT - 1986	500
6	Trap Kso	Dak Lak	1994	100
7	Ea Ral	Dak Lak	1994	50
8	Rung Kho Nui Chua	Ninh Thuan	1994	16,775
9	San Chim Bac Lieu	Bac Lieu	1997	127
10	Lung Ngoc Hoang	Can Tho	2000	6,000
11	Dat Mui - Bai Boi		1992	4,461
12	Vo Doi	Ca Mau	-	3,394
III. Cultural-Historical-Environmental Sites				**187,668**
1	Muong Phang	Lai Chau	1995	1,000
2	Dao ho song Da	Hoa Binh	194/CT - 1986	3,000
3	Kim Binh	Tuyen Quang	1994	1,937
4	Tan Trao	Tuyen Quang	1992	6,633
5	Pac Bo	Cao Bang	41/TTg-1977	2,784
6	All islands of Thac Ba	Yen Bai	194/CT - 1986	5,000
7	Ai Chi Lang	Lang Son	194/CT - 1986	1,000
8	Hang Phuong Hoang	Thai Nguyen	3211/QDVH-BVH-1991	6,000
9	Nui Coc Lake	Thai Nguyen	194/CT - 1986	6,000
10	Cam Son Lake	Bac Giang	194/CT - 1986	15,000
11	Yen The	Bac Giang	1993	1,883
12	Bai Chay	Quang Ninh	194/CT - 1986	562
13	All islands of Ha Long Bay	Quang Ninh	194/CT - 1986	1,000
14	Den Hung	Phu Tho	1994	285
15	Huong Son	Ha Tay	1993	4,355
16	Con Son Kiep Bac	Hai Duong	1992	1,477
17	Do Son	Hai Phong	1997	267
18	Hoa Lu	Ninh Binh	1995	5,624
19	Den Ba Trieu	Thanh Hoa	194/CT - 1986	300
20	Lam Son	Thanh Hoa	194/CT - 1986	300

21	Ngoc Trao	Thanh Hoa	194/CT - 1986	300
22	Nui Chung	Nghe An	1989	600
23	Vuc Mau	Nghe An	1999	24,842
24	Bac Hai Van	Thua Thien Hue	1994	14,547
25	Ngu Hanh Son	Quang Nam	194/CT - 1986	400
26	Nui Thanh	Quang Nam	194/CT - 1986	1,500
27	Nam Hai Van	Da Nang	1992	10,850
28	Ba To	Binh Dinh	194/CT - 1986	500
29	Ghenh Rang	Binh Dinh	2009/QDVH - 1991	2,616
30	Deo Ca Hon Nua	Phu Yen	194/CT - 1986	8,876
31	Ho Lac	Dak Lak	194/CT - 1986	12,744
32	Rung Thong DaLat	Lam Dong	1993	32,051
33	Chien khu Boi Loi	Tay Ninh	194/CT - 1986	2,000
34	Duong Minh Chau	Tay Ninh	194/CT - 1986	5,000
35	Nui Ba Den	Tay Ninh	194/CT - 1986	2,000
36	Nui Ba Ra	Phuoc Long	194/CT - 1986	940
37	Hon Chong	Kien Giang	194/CT - 1986	3,495

Source: Forest Protection Department, December 2002.

Notes: There are a number of provincial and a few district protected areas that have been established locally but are formally outside the national protected area system. These are not listed here.

The above list is under review by MARD. As a result of the review process, a number of the nature reserves and cultural-historic-environmental sites are expected to be removed from the list because of their degraded status or management by another ministry.

Total Special-use Forests

25	National Parks	851,361 ha
60	Nature Conservation Area	1,351,106 ha
37	Cultural-Historic-Environmental Sites	187,668 ha
122	**Special-use Forests**	**2,390,135 ha**
	Percentage of country area	**7.4%**

Wetlands Sites (Ramsar)

No.	Name	Location	Year Established	Area (ha)
1	Xuan Thuy	Nam Dinh, Thai Binh	1995	12,000

Note: This site includes more than the Xuan Thuy Nature Reserve which is in Giao Thuy (a.k.a. Xuan Thuy) district of Nam Dinh Province. The Ramsar site covers Tien Hai and Giao Thuy districts in Thai Binh and Nam Dinh Provinces respectively. The area given is from the Ramsar website (www.ramsar.org/profiles_vietnam.htm).

Marine Protected Areas

None. Hon Mun Marine Protected Area in Khanh Hoa Province is technically a "demonstration" MPA, though it has been operational since June 2001. Hon Mon covers an area of 105,000 ha.

World Heritage Sites

No.	Name	Location	Year Established	Area (ha)
1	Ha Long Bay	Quang Ninh	1994	43,400
2	Hoi An Ancient Town	Quang Nam	1999	–
3	Complex of Hue Monuments	Thua Thien Hue	1993	–
4	My Son Sanctuary	Quang Nam	1999	–

Note: Ha Long Bay is listed as a "natural" site. The other three are "cultural" sites. The Ha Long Bay site does not include Cat Ba National Park or any other area of the bay that is in Hai Phong Province. The two provinces did not agree on the application for listing Ha Long Bay and thus Quang Ninh went ahead with the UNESCO application alone. In 2001, Ha Long Bay was re-designated as a natural World Heritage site under criterion (i) in addition to the existing natural site criterion (iii).

Man and Biosphere Reserves

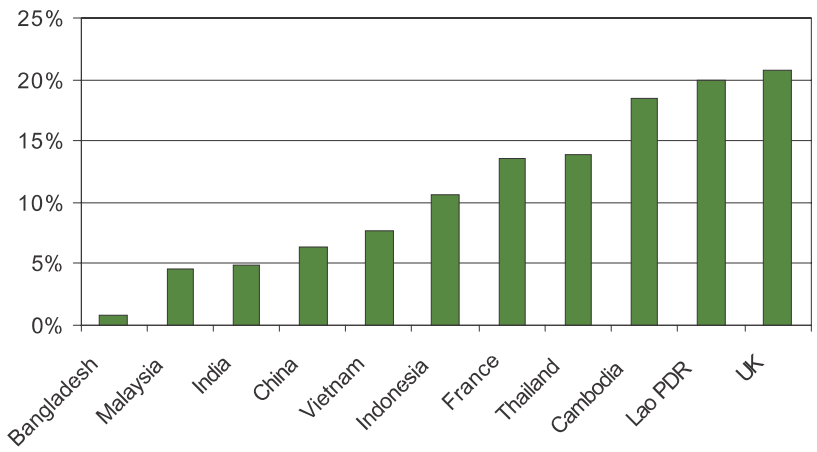
No.	Name	Location	Year Established	Area (ha)
1	Can Gio	Ho Chi Minh City	2000	73,360
2	Cat Tien	Dong Nai, Lam Dong, Binh Phuoc	2001	37,900

Annex 2: How much is enough protected area coverage?

Vietnam has little arable land and a lot of people. If the country's 9.3 million ha of arable land (about 28 percent) is divided between 78 million inhabitants, the result is approximately 0.1 ha of arable land per person. For countries with agriculturally based economies, this is one of the lowest ratios of arable land to people in the world. A balance has to be created between conserving Vietnam's biodiversity and providing land for agriculture.

IUCN has recommended that each country aim to protect ten percent of its area. Worldwide, the average country has 6.5 percent of its total land area within protected areas. Vietnam currently has a little more than this. Regionally, protected area coverage is somewhat higher (Figure 1).

Figure 1. International examples of protected area coverage as percentage of country area



Sources: Lao PDR: ICEM 2003c. Other countries: World Bank 2001.

Protected area coverage should be based on a scientific appraisal of the country's biodiversity and ecological processes. In 1999, a detailed study was conducted of the existing Special-use Forest system. It determined what areas should be added and which were not needed to conserve all of Vietnam's known terrestrial ecologically distinct regions and threatened species (Wege 1999). The study recommended adding 25 new terrestrial Special-use Forests and deleting 20 Special-use Forests that had less than 25 percent natural forest cover. If this were done, the total area of Special-use Forest would be approximately 2.1 million ha and would cover all the terrestrial habitat types and threatened species currently known.

This area does not include wetlands, marine protected areas, World Heritage Sites or Man and Biosphere reserves. Adding these types of protected areas would increase the total area but does not address important conservation needs in arable land.

Based on what is known about Vietnam's biodiversity and ecological processes, around seven per cent of total area (2.1 million ha) may be sufficient to conserve the country's terrestrial biodiversity. As more information becomes available about ecological processes and the benefits of protected areas are better understood, this amount could change.

Annex 3: The Total Economic Value approach

The conventional wisdom among many government decision-makers in developing countries is that protected areas drain scarce financial resources and have no impact on economic development. Most national agencies responsible for development planning fail to recognise the value of protected areas as productive units within the national economy (ICEM 2003a). Article 11 of Decision 08/2001/QD-TTg, however, requires Special-use Forest management boards to "operate according to the mechanism of revenue-generating economic public-service units".

Decision-makers rely on a range of economic tools, such as cost-benefit analysis and least-cost alternative, to help them determine the most cost-effective investments. Although these tools work well for sectors such as transport and energy, they are less effective in terms of the environment and protected areas.

Where market prices exist, the costs and benefits of an investment can be quantified. Many benefits (and some costs) associated with protected areas are not traded in markets, however, and thus have no market value. If an economic analysis includes only those values for which there are market prices, it provides a distorted measure of costs and benefits. In the mid-1980s, economists developed a more comprehensive concept of economic value to address this problem: Total Economic Value (TEV). It is now widely used to identify the costs and benefits associated with protected areas (ICEM 2003b).

TEV encompasses direct commercial values, non-market values, ecological functions, and non-use benefits associated with protected areas. It is the sum of the tangible and intangible cost and benefits of a protected area.

Any thorough economic analysis of the costs and benefits of protected areas will involve estimates of a wide range of goods, services and attributes, some of which will inevitably be wrong. While TEV provides a comprehensive conceptual framework, it can be difficult to correctly assess all these values. In practice, however, it is not necessary to measure all the benefits of a protected area but rather to show that the benefits outweigh the costs.

An important caveat is that economic benefits have to be sustainable. Many protected areas can provide economic benefits only at the expense of rapidly depleting natural resources.

While it is the development benefits of protected areas that are the crux of this review, the costs of protected areas are also important. Governments generally pay the direct costs of establishing protected areas, but nearby communities frequently pay the indirect costs. Many decision-makers are familiar with the running costs of a protected area, such as staff, operation and maintenance expenses, but the indirect costs of a protected area are borne by nearby communities. People may be deprived of traditional sources of livelihoods when a protected area is established, or resettled outside of an area that has traditionally been their home. Protected areas often bring changes to resource use patterns, and there are inevitably winners and losers from such changes. These are all "costs" of establishing protected areas.

When using Total Economic Value, a multi-sector approach is necessary to identify development benefits accurately. In Vietnam, however, the various economic sectors are managed by separate agencies; line ministries, such as transport, industry, and energy, are single-purpose organisations. The challenge is to get these ministries to better understand the goods and services provided by protected areas, realise how their actions affect protected areas, and see how better co-ordination among ministries can magnify development benefits. Reviewing protected area contributions to a number of key sectors helps to illustrate the many benefits of protected areas, some of which are often overlooked (Table 5).

Table 5. Total Economic Value of protected areas in Thua Thien Hue Province

Contribution of protected areas	Examples (protected area and affected infrastructure)	Sectors	Scale
Direct Use Values			
Timber	Limited to production forests	Forestry	Local and district
Non-timber forest products	Phong Dien and Watershed Protection Forests are being exploited	Community issues	Local
Tourism	All protected areas have potential Currently only Bach Ma is likely to be underway	Tourism	All levels
Provision of land for: Electricity transmission	Bach Ma	Energy	National
Irrigation reservoirs	Bach Ma	Agriculture	District
Roads	Bach Ma	Transport	National
Transport	Tam Giang Lagoon Cau Hai Lagoon	Transport	Local
Education, science	All have potential Bach Ma only one currently	Education Science	Provincial
Indirect Use Values			
Nursery function	Tam Giang and Cau Hai Lagoons and coastal in-shore fishery Tam Giang and Cau Hai Lagoons mobile fishery Tam Giang and Cau Hai Lagoons and aquaculture	Fisheries	Local
Prevention of sedimentation	Bach Ma and Truoi Reservoir	Agriculture	District
Landslides	Cau Hai near Highway 1 and railroad	Transport	Provincial and national
Water quality	Huong River water supply, brewery, fish processing, etc. Phong Dien and Bo River water bottling for Cau Hai and other towns - water supply	Industry Industry Industry/Water	Provincial Provincial Districts
Flood protection	Protection forests and Huong River Phong Dien, Bo and O Lau River	Public Works	Provincial
Dry season flow	Bach Ma and Truoi Reservoir Bo, O Lau and Huong Rivers and Tam Giang Lagoon saline levels	Agriculture Energy Public Works Fishery	Districts
Ground water	Bach Ma and wells Protection forests and wells Phong Dien and wells	Public Works/ Water and Communities	Local to district
Coastal protection	Tam Giang Lagoon	Public Works	
Carbon sequestration	Bach Ma, Phong Dien, Watershed Protection Forest	Environment	Global
Option and Existence Values			
Protection of tiger, Edwards Pheasant and other species of international importance	Phong Dien, Tam Giang and Bach Ma	Environment (international)	Global
Agro-biodiversity and Option Values	Bach Ma and Phong Dien	Rural livelihoods	Local to global

MONRE MARD MOFI

The Review of Protected Areas and Development (PAD Review) examines the growing tensions between economic and conservation objectives in the four countries of the lower Mekong River region: Cambodia, Lao PDR, Thailand and Vietnam. It identifies the many development benefits flowing from protected areas and the need to reflect them in the plans and budgets of forestry, agriculture, energy, tourism, fisheries and other key economic sectors. The lessons of more than a decade of protected area management experience in the region are related to new and innovative approaches elsewhere in the world.

The PAD Review was undertaken by key government ministries in Cambodia, Lao PDR, Thailand and Vietnam through a partnership with the International Centre for Environmental Management, IUCN – the World Conservation Union, the Worldwide Fund for Nature, Birdlife International, the United Nations Development Programme, the Mekong River Commission, the New South Wales National Parks and Wildlife Service and the Tropical Forest Trust. The review was sponsored by Danish International Development Assistance, the Australian Agency for International Development, the Swiss Agency for Development Cooperation, the Asian Development Bank, the Royal Netherlands Government and the Mekong River Commission.

This volume is one in a series of eight publications resulting from the PAD Review (which also includes a CD-ROM):

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