

Crouching Tiger



Hidden Langsur

World Bank Support to
Biodiversity Conservation
in East Asia and the Pacific

Cover photo: Kho Muong Village, Pu Luong Nature Reserve, Vietnam
(photo by Frank Momberg)

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A Portfolio Review

Crouching Tiger, Hidden Langur:

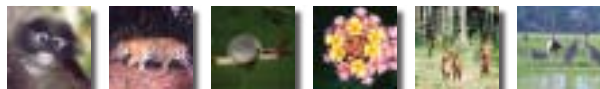
World Bank Support to
Biodiversity Conservation
in East Asia and the Pacific

This report was prepared for the World Conservation Congress in Bangkok in November 2004 to provide a review of World Bank Group support for biodiversity conservation in East Asia and the Pacific Region from 1999-2004. It was prepared by Valerie Hickey, Priya Mathur, Andrew Murray, and Tony Whitten with generous input and helpful comments from Robin Broadfield, Phillip Brylski and Sirinun Maitrawattana (EASEN), Susan Shen (EASRD), Kathy MacKinnon and David Bonnardeaux (ENV), Sam Keller, Richard Caines and Jeffrey Liebert (IFC), under the guidance of Teresa Serra and Magda Lovei. This paper is a contribution to the ongoing review of the biodiversity portfolio of the World Bank Group. It is a work in progress and has not been formally cleared by World Bank management. This publication is available online at www.worldbank.org/biodiversity

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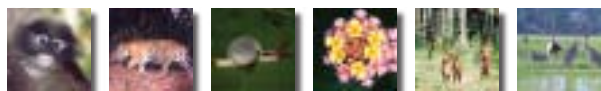
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Foreword



The East Asia and the Pacific Region covers a remarkable proportion of the world's biodiversity. Spanning as it does the Palearctic, Oriental, and Australasian bio-geographical regions, it has a richness and diversity of species that are found in few other regions of the world. It encompasses the centers of origin for many important and widespread crops including rice, sugar cane, citrus and soybean, to name but a few. People rely on biodiversity for food, shelter and other inputs to their livelihoods. Biodiversity also boosts economic growth by contributing to trade and foreign exchange earnings. The region's charismatic fauna, its stunning forests, coral reefs, and rich coastal areas offer recreation and inspiration for a large number of people.

Since 1988 the World Bank has supported numerous activities to promote biodiversity conservation, including the preparation of biodiversity strategies, action plans, and studies. Since 1999, the World Bank has managed an active portfolio of \$300 million in grants and loans to support conservation in the region. The portfolio focuses on conserving wildlife and wild lands in protected areas, mainstreaming biodiversity conservation in the production landscape, and using biodiversity conservation as a tool to al-

leviate poverty at the rural frontier. These efforts are generating many promising results, but also highlight significant challenges. Investments in biodiversity conservation and the control of ever expanding agricultural frontiers, illegal logging and wildlife trade are often hampered by weak governance structures – institutional weaknesses, a poorly informed civil society and oftentimes a lack of political will.

Though many and varied, the threats facing biodiversity in the region are not insurmountable. A strategic approach is required to find long term solutions. Raising awareness, supporting alliances with civil society, and working with governments on policy and institutional reform are important ways the World Bank is supporting efforts to stem the tide of biodiversity loss. This report reviews this experience and is meant to stimulate discussion, share knowledge, and contribute to learning from experience. As governments and civil society alike become more aware of the importance of biodiversity for economic growth and poverty alleviation, there is hope that the rich forests, fauna and flora of East Asia and the Pacific will remain a major asset for improving the quality of people's lives and opportunities for future generations.

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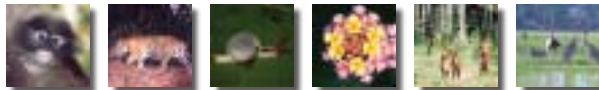
ABBREVIATIONS AND ACRONYMS

ARC	Alliance for Religions and Conservation
BNPP	Bank Netherlands Partnership Programme
BSAP	Biodiversity Strategy and Action Plan
CEPF	Critical Ecosystems Partnership Fund
CI	Conservation International
COREMAP	Coral Reef Rehabilitation and Management Program
DGF	Development Grant Facility
EA	Environmental Assessment
EAP	East Asia and Pacific Region
ENSO	El Nino Southern Oscillation
FFI	Fauna and Flora International
FLEG	Forest Law and Governance Project
FLUPAM	Forest and Land Use Planning, Allocation and Management
GEF	Global Environment Facility
GoL	Government of Lao
GISP	Global Invasive Species Programme
IBRD	International Bank for Reconstruction and Development
ICDP	Integrated Conservation and Development Project
IDA	International Development Association
IFC	International Finance Corporation
INFORM	Indonesia Forest and Media Project
IUCN	World Conservation Union
JV	Joint Venture
KCMI	Komodo National Park Collaborative Management Initiative
MDG	Millennium Development Goal
MHA	Millions of Hectares
MPA	Marine Protected Area
MSP	Medium Sized Project
NGO	Non-Governmental Organization
NNT	Nakai Nam Theun
NPA	National Protected Area
OED	Operations Evaluation Department
PA	Protected Area
PHKA	Indonesian Conservation Department
SEMFOF	Social and Environmental Management Framework and Operational Plan
TNC	The Nature Conservancy
UNESCO	United Nations Educational, Scientific and Cultural Organization
WBCSD	World Business Council for Sustainable Development
WBG	World Bank Group
WCPA	World Commission on Protected Areas
WCS	Wildlife Conservation Society
WSSD	World Summit on Sustainable Development
WWF	World Wide Fund for Nature
YEP	Yunnan Environment Project



Section I:
Biodiversity in East Asia and the Pacific

Biodiversity In East Asia And The Pacific



The East Asia and Pacific (EAP) region includes three of the world's eight biogeographic areas— the Indomalayan, Oceanian and Palearctic realms. It is home to part of the world's highest mountain range, its second largest rainforest complex and more than half of its coral reefs. The habitats in the region are among the most diverse in the world (Box 1), ranging from tropical forests and grasslands to desert steppes and remarkable caves, together with coastal and marine environments and other wetlands of international importance.

However, the rich biodiversity of the region is under serious threat. Since people have occupied virtually the entire land surface for thousands of years, the region's biodiversity is the result of a long history of interaction between mankind and nature. Similarly, the threats to the region's biodiversity are largely anthropogenic. As the region's population exploded in the twentieth century, agricultural expansion converted forests and grasslands into cultivated land; deforestation and forest fires reduced the forest area, and have made remaining forests more fragmented and degraded; pollution, overfishing and draining of wetlands irrevocably altered the freshwater and marine landscapes; and unsustainable resource use coupled with illegal demand for wildlife products have emptied the forests and seas of their riches.

As a result, the region has lost 95 percent of its primary forests; individual countries have lost 70-90 percent of their original wilderness; and deforestation continues to accelerate the seemingly inexorable fragmentation and loss of ter-

restrial and aquatic habitats. Degradation of water, air and land at the rural frontier is putting at risk resource-dependent economies and local livelihoods. Resource degradation is also exacerbating local poverty and intensifying local and cross-border conflicts.

Protected areas have been one key element of the approach to conserve biodiversity in EAP. The history of their establishment differs between countries, with some now having well established systems, and others with systems which are relatively new. However, while protected areas exist in most countries, many of them are not effectively conserving biodiversity on the ground.



Monitoring coastal wetlands in the Berbak National Park, South Sumatra, Indonesia (photo by Wetlands International, Indonesia)

Box 1. The Region's foremost and most threatened center of biodiversity

Indonesia is the world's most biologically diverse country. Although it covers only 1.3 percent of the earth's land surface, it includes: 10 percent of the world's flowering plant species; 12 percent of the world's mammal species; 16 percent of all reptile and amphibian species; 17 percent of the world's bird species; and, 25 percent or more of the world's fish species. In fact, Indonesia ranks first in the world for species richness for mammals (515 species, 36 percent endemic); first for swallowtail butterflies (121 species, 44 percent endemic); third for reptiles (600+ species); fourth for birds (1519 species, 28 percent endemic); fifth for amphibians (270 species); and, seventh for flowering plants. Indonesia's great expanse of territorial waters and the richness of the Indo-West Pacific seas further add to the country's biodiversity. The extensive reef systems in the deep clear seas off Sulawesi, Maluku and Papua are among the world's richest in species of corals, fishes and other reef organisms. An estimated 40 million people are directly dependent on biodiversity for livelihood and food security in Indonesia. Twelve million people live in and around its forests and many more are dependent on its coastal resources.

Since the mid-1990s, there has been a dramatic increase in attention to biodiversity at the national level as well as among donors. Many of the actions identified as priorities in the first national Biodiversity Strategy and Action Plan (BSAP) have been implemented, and the government has recently completed the second BSAP after an extensive series of consultations. However, one to two million hectares of forest are still being lost annually to illegal logging and encroachment, and the many and varied attempts to stem this hemorrhage to any significant extent have so far failed.

Economic Growth and Impacts on Biodiversity

Recent economic performance in EAP has been strong, with regional growth in GDP exceeding six percent over the last 12 months; growth prospects continue to look good for the future. The region's dynamism is creating more personal wealth and higher standards of living than ever before; but economic growth has, as elsewhere, brought environmental degradation. As a result, the region is failing to strike a balance between economic growth and environmental protection.

Economic growth has increased demand for natural resources such as land and non-timber forest resources. For example, EAP is now a center for consumption of wildlife derivatives, ranging

from tiger bone medicines to shark fin cuisine. The region is also a key supplier to the international wildlife market, both legal and illegal. Much of the demand arises from the practice of Traditional Chinese Medicine (TCM), which uses natural plant, mineral and animal-based ingredients. TCM dates back at least 3,000 years and is an indispensable part of Chinese cultural heritage. For many centuries, tiger bone was a preferred treatment for joint ailments like arthritis, while rhino horn has been used to treat fever, convulsions and delirium. Bile from bear gall bladders is used to treat a variety of ailments, from inflammation to bacterial infections. Although alternatives are available, and many species used in TCM are now protected by national and international laws, illegal trade and poaching have increased to crisis levels as TCM's popularity has expanded, supported by the rise in personal wealth, and the status gained by con-

suming rare and exotic species.

In addition to their purported curative properties, wildlife derivatives are in demand for exotic cuisine, clothing, trophies and accessories. This has led to unsustainable levels of exploitation for many of the region's most charismatic, and endangered species. The result is the phenomenon of increasingly silent forests across the region, empty of the wildlife that makes them unique.

The Disappearing Tide of Marine Biodiversity

Several years have passed since the Conference of the Parties of the Convention on Biological Diversity met in Jakarta in 1995 and adopted the Jakarta Mandate, which reaffirmed the critical need for the immediate conservation of endan-

gered marine biodiversity. In EAP, marine and coastal biodiversity is rapidly disappearing. For example, Indonesia has the most biologically rich coral reefs in the world, with the greatest diversity of reef fish (around 1,650 species) and 60 percent of the world's hard coral species (480 species). According to conservative estimates, not only are these reefs diverse, they are also incredibly productive and the fisheries they support provide livelihoods for 67,500 coastal villages throughout the country. However, despite having over 50 percent of the reefs in East Asia (not including unmapped reefs in remote areas, and subsurface reefs), with a total area of 5,100,000 hectares, the last decade has seen this resource become increasingly degraded through overexploitation and poor management. Many of the reefs have been exposed to unsustainable levels of fishing pressure and inappropriate harvesting techniques (including bombs and cyanide) for some time. Consequently catch rates

Box 2. Marine Biodiversity

The Pacific is the world's largest ocean and one of the global centers of marine biological diversity. Coral reefs, mangroves, seagrass beds and other coastal ecosystems are vital to biological diversity and productivity but are being degraded by the impacts of coastal development, overexploitation and pollution. Furthermore, the WSSD targets, agreed in Johannesburg in 2002 and reaffirmed during the fifth World Parks' Congress (2003), set out the need for the establishment and improved management of networks of marine protected areas by 2012 to address problems such as the declines in marine harvests, wildlife and habitats-based management and protection of marine biodiversity.

Samoa exemplifies this situation with severe pressures on coastal marine biodiversity and complex economic and social issues underlying these pressures. A large component of Samoa's coastal marine biological diversity is critically threatened. The goal of the Samoa Marine Biodiversity Protection and Management project was to provide for the protection and sustainable use of threatened coastal marine biodiversity in Samoa by empowering local communities in the Aleipata and Safata Districts of Upolu Island to effectively protect and manage coastal marine biological diversity and help them achieve sustainable use of marine resources. The project protected critical sites for marine biological diversity, including coral reefs, mangroves and seagrass areas, within the core zones of large multiple-use marine protected areas (MPAs) in the Aleipata and Safata Districts. It demonstrated a model and innovative district-level approach to community- conservation of marine biodiversity that has wider application in Samoa, the Pacific Islands region, and globally by developing a solid foundation of local decision-making, management planning, monitoring and review, capacity building and partnerships with Government and the private sector.

are now much lower than they once were.

The only way to recover coral reef productivity, and secure coastal livelihoods, is to protect critical habitats and improve fisheries management. There is a growing body of empirical evidence suggesting that marine reserves can provide a workable system to rejuvenate depleted fish stocks; such an approach can be particularly effective when the resource is managed collaboratively with different resource users to form a multi-purpose Marine Protected Area (Box 2).

Working in Freshwater Ecosystems

EAP was the first region within the World Bank to highlight the plight of freshwater biodiversity (Kottelat and Whitten 1996); since then there has been a steady improvement in the attention that it has received in environmental assessments (Box 3). Lakes, rivers, cave waters, and areas of swamps and peatland are all threatened by dams, irrigation works, and non-point sources of pollutants that change ecosystem structure and quality. While there is a lack of reliable data on the extent of wetland loss worldwide, experts estimate that in 1985 alone, wetland drainage for intensive agriculture caused a 50 percent loss of wetlands throughout Asia.

Box 3. Freshwater Biodiversity

Fish are a good proxy for freshwater biodiversity in general, but in many parts of the region the freshwater fish are poorly known. For example, until about five years ago, only 203 native fish species were known to exist in northern Vietnam. However, a few World Bank-financed surveys raised this to 268, an increase of over 30 percent (Kottelat, 2001). Similarly, in 1986 the total number of fishes known from Lao PDR was 211. However between 1995 and 2001, as a result of a series of surveys undertaken, mainly for the environmental assessments of proposed hydroelectric dams, this number was more than doubled to 456. Many of the additions were of species already known from neighboring countries, but about 100 of them were new to science. Some are now generating considerable economic benefits at the local level. Despite these advances, other species such as crabs, clams, snails, and turtles which are of considerable importance to poor riparian people are very poorly known, although it is almost certain that many are severely threatened.

The Lake Dianchi basin, which lies just south of Kunming in southern China. It is home to 24 indigenous fish species, at least 11 of which are endemic, and dozens of endemic mollusc and crustacean species. However, since the 1950s some 31 fish and a variety of plant species have been introduced into the water body. These alien species now compete with indigenous species for food and living space. Other problems include declining water quality (due to high phosphorus and nitrogen resulting in eutrophication) and the loss of natural habitats.

The Kunming Institute of Zoology in cooperation with the provincial government is seeking to restore and manage habitats around the lake in order to secure the conservation of the remaining endemic species of Lake Dianchi and its lower tributaries. This will be achieved by providing suitable breeding habitat for indigenous species, comprehensively surveying the biological environment of the Lake and its immediate tributaries, establishing a program to monitor lake quality improvements, and improving public awareness of the Lake region's unique biological environment.

It is now clear that multiple habitat changes can have a cumulative impact on freshwater species, and there is evidence of widespread and often severe decline in freshwater biodiversity. External factors affecting freshwater biodiversity include: habitat loss resulting from withdrawal of water for human use (e.g. drainage, sediment quarrying, impoundment, flood control); changes in habitat condition as a direct or indirect effect of human activities, including competition or predation by introduced non-native species; direct exploitation (including drainage for forestry and agriculture, and mosquito control, dredging and stream channelization for navigation and flood protection; filling for solid waste disposal, roads; conversion for aquaculture/mariculture; discharges of pesticides, herbicides, nutrients from domestic sewage and agricultural runoff and sediment; groundwater extraction); and, natural causes such as subsidence, sea-level rise, drought, erosion, hurricanes and other natural phenomena.

Logging the Trees and Losing the Forests

EAP's forest biodiversity faces grave threats. Unsustainable and often illegal logging, forest fires, poor management and poorer planning have created an anarchic forestry sector that has largely emphasized production and extraction over protection (Box 4). With the notable exception of China, whose forest areas are growing through reforestation, countries in EAP are losing at least 0.6 percent of their forest cover per year, almost 3 times the global rate (World Bank 2004b).

In Indonesia for example, over 1-2 million hectares of forest were lost annually over the last 20 years¹. High rates of deforestation were exacerbated during 1997 and 1998 when many parts of Indonesia were engulfed by drought and fire. Nearly ten million hectares of land were burned, exposing around 20 million people across Southeast Asia to a shroud of air pollution. While a prolonged dry season caused by the El Niño Southern Oscillation (ENSO) climatic condition



Burnt out forest areas, Indonesia (photo by The World Bank)

contributed to the spread of the fires, they were mainly caused by human activity. In particular, plantation companies and big businesses lit many fires to clear land as cheaply and quickly as possible. Only one percent of the fires were attributed to natural causes. Economic losses from these fires were estimated at \$9 - \$10 billion. Moreover, many environmental costs were never included in this estimate, most especially the deaths of a large number of endangered species (e.g. orangutans and proboscis monkeys), and the destruction of the last intact lowland forests in Indonesia.

One cause of declining forest cover regionally is as a result of increased demand from China. China has been a forest-deficit country for over 50 years. Consequently, Chinese per capita consumption of forest products has been among the

¹ CIFOR, 2004

world's smallest and, until recently, was supplied primarily from domestic sources. Over the last 10 years, China's rapid economic development, increased integration in the world economy (particularly, world wood economy), and, at least arguably, tighter controls on domestic forest exploitation has catapulted the country from being the seventh ranking importer of wood to the second and the top importer of logs. Because of the management vacuum in the forestry sector outside of China, and the consequent pervasiveness of illegal logging in supplying countries, virtually any increase in international trade volumes becomes controversial. Already a net wood

importer, China is turning increasingly to international sources of raw material, a process that continues, and one which threatens the integrity of forests through EAP (World Bank 2004b).

Finding New Avenues of Engagement

While burgeoning economic and population pressures threaten the biodiversity in EAP, its value, and the importance of the ecosystem services it supports, is increasingly being realized. As a result, public demand for a better quality of life is forcing governments to re-evaluate na-

Box 4. Disappearing Forests

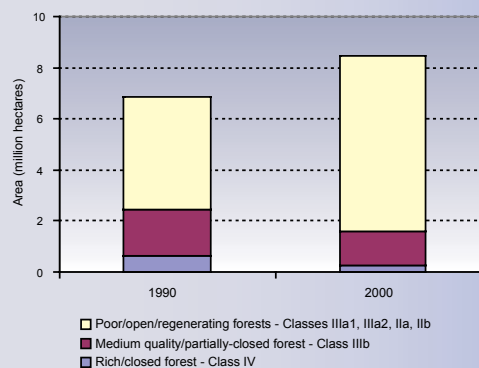
In Vietnam, about 19 million hectares – 58 percent of the country's land area – is classified as 'forest land' although much of this has no forests. Only 9.7 million hectares comprises natural forests and regenerating bush land. Plantations – almost all of exotic species – contribute an additional 1.6 million hectares, while the remaining 11.3 million hectares consists of scattered trees, bamboo groves, shrubs and grasses.

The quality of Vietnam's forest is a major cause for concern, with rich and closed-canopy forest rapidly disappearing, and medium-quality forests steadily diminishing. Currently, closed canopy forests make up only 13 percent of the total forested area, while poor and regenerating forests make up 55 percent. The chances of full regeneration are rapidly decreasing with the increasing isolation of the rich natural forest patches. Plantation forests, on the other hand, have almost doubled from 0.7 million ha in 1990 to 1.6 million ha in 2000.

Forest Area

Year	1976	1985	1990	1995	2000
Forest cover (%)	33.8	30.0	27.6	28.3	34.4
Forest area (mha)	11.2	9.9	9.2	9.3	11.3
of which:					
Mature and regenerating natural forests and bamboo groves (mha)	11.1	9.3	8.4	8.3	9.7
Plantation (mha)	0.1	0.6	0.7	1.1	1.6

Figure 1. Composition Changes of Natural Forests in Vietnam



tional environmental policies and priorities. For example, as nature tourism is becoming an important source of foreign exchange for many of the region's countries, the importance assigned to biodiversity in national dialogues has increased. One result of these changes has been the increased involvement of local communities in conservation. Biodiversity is increasingly seen to provide tangible benefits for local and national stakeholders. As local communities become stewards of the resources upon which they depend, a new generation of champions is born.

In addition to the growing importance of biodiversity resources locally, the region has become a frontier for working in previously ignored habitats (Box 5), and in the search for species new to science. Over the last decade four large mammals have been newly described from the

region; one, an entirely new and enigmatic genus – the Saola (Hardcastle et al. 2004). In the aquatic realm over 20 new species of freshwater fish were discovered during just one month of surveys in Lao PDR (Kottelat 2000, 2001b). During just two weeks of surveying some 80 new species of land snail were uncovered. There is no doubt that there are many more species waiting to be discovered, but capacity and bureaucratic constraints limit the number of surveys that can be undertaken. The possibility of new species continues to draw experts from within the region and around the world, and as new discoveries are made, support is being generated to combat the loss of the existing wildlife and wilderness. There is still hope that species will not become extinct before they can be documented, understood and assessed.



Garra cyrano is one of nearly 100 new species of fishes discovered in the last few years in Lao PDR. The function of the peculiar snout is unknown but its mouth below the snout is a modified sucking disk which allows it to maintain position in the fast flowing rivers in which it lives (photo by Maurice Kottelat)

Box 5. Working in Karst Biodiversity

Karst biodiversity, found in limestone ecosystems, is not well understood. In 1999 the World Bank published a book highlighting the status and threats to limestone ecosystems throughout EAP (Vermeulen and Whitten 1999). Karst landscapes in EAP have exceptional biological and geological diversity with high ecological and cultural value, yet are rarely appreciated and are under-represented in both national protected area networks and the Bank's conservation investment portfolio. Biodiversity in the region's limestone ecosystems is amongst the most restricted in terms of habitat space – the crabs, fish and snails that live in or on limestone appear to have a total global range of less than 100 square meters.

Limestone biodiversity comprises both species outside the limestone hills that survive due to the abundance of calcium carbonate, enduring dry soil conditions, and species that have adapted to the dark, still world of caves and fissures. Apart from the results of work done by a few specialists in the more accessible cave systems in Vietnam and China, very little is known about these species. Extinctions of limestone-restricted species have been recorded through careless exploitation of limestone, and the status of other species, some with significant economic value (especially pollinating bats), is perilous.

This publication has been used to generate and consolidate interest in limestone ecosystems; for example, there is now a limestone karst landscape conservation project in Vietnam and one under preparation in China, dialogue with the World Business Council's Sustainable Cement Initiative (see www.wbcd.org/cement and www.ifc.org/ifcext/enviro.nsf/Content/cement1) and leading cement companies, and the IFC has been discussing issues that revolve around their increased concern over threats to limestone biodiversity.



Remarkable karst topography of Phou Hin Poun, a protected area in Lao PDR supported by the FOMACOP project. Such limestone areas harbor a wealth of range-restricted species (photo by Tony Whitten)

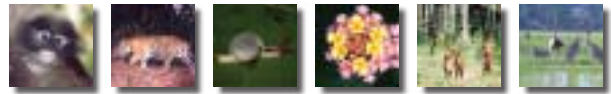


Panda in forest, Wolong, China (photo by J & K MacKinnon)

Section II: Portfolio Overview



Portfolio Overview



The EAP Biodiversity Portfolio

Biodiversity protection is an important element of the Bank's mission and Environment Strategy (Box 6). The World Bank Group is the largest single international funding source for biodiversity projects globally. Since 1988 the total World Bank Group financing for biodiversity-related initiatives globally has reached \$2.5 billion, leveraging a similar amount of co-financing. World Bank Group financing include loans, credits, and grants through the International Bank for

Reconstruction and Development (IBRD); the International Development Association (IDA); the Global Environment Facility (GEF); and the International Finance Corporation (IFC).

The total Bank lending for biodiversity conservation in EAP amounts to \$450 million since 1988. Another \$200 million has been leveraged in co-financing. The scale of this investment shows the World Bank's ongoing commitment to biodiversity conservation, which is a significant part of its sustainable development agenda.

Box 6. Biodiversity in the Bank's Environment Strategy

The conservation and sustainable use of natural ecosystems and biodiversity are critical condition for the World Bank's mission to help alleviate poverty and support sustainable development in the East Asia and the Pacific Region (EAP). They are, therefore, important elements of the Bank's Environment Strategy, which calls for:

- *Improving the quality of life* – health, livelihood and security of people – by enhancing environmental conditions.
- *Enhancing the quality of growth* by strengthening the policy, institutional and regulatory framework for sustainable environmental management.
- *Protecting the quality of the regional and global commons* by addressing cross-boundary, regional, and global environmental issues.

The Strategy, which builds on Bank experience in environmental assistance from the past sixteen years, also proposes a number of biodiversity-related initiatives. Important among these is the emphasis on mainstreaming biodiversity conservation into planning processes, and working across national boundaries to scale up results at the level of the ecosystem and counteract cross-border threats. This is especially important for illegal wildlife trade, which is increasingly seen as undermining investments in biodiversity throughout the region.

Analyzing the Portfolio

This review focuses on the period 1999 - 2004, during which the World Bank's active portfolio in EAP amounted to \$300 million, with another \$120 leveraged through co-financing². Projects are classified in the portfolio by financial year of approval. All projects that were approved as of June 30, 2004 are included in this review. The source of funding, whether World Bank (loans, credits or grants) or co-financing from non-World Bank sources, was noted for each project. Where there was more than one source of World Bank financing in a project these were assessed separately to avoid double counting (Annex). Co-financing amounts include contributions from borrower governments, local beneficiaries, non-governmental organizations (NGOs), bilateral donors, regional development banks and United Nations agencies. As in previous reviews, biodiversity costs were determined by itemizing each activity component (World Bank 2000). For each project, figures have been estimated for total project cost, total biodiversity costs (World Bank financing plus associated co-funding), and World Bank biodiversity funding.

The World Bank has supported biodiversity through the establishment and strengthening of protected areas and the provision of support to activities such as taxonomy that establish a scientific basis for doing conservation. The World Bank's investments have also targeted mainstreaming biodiversity conservation in local production landscapes and in other World Bank investments, and reducing illegal activities that are undermining conservation success. Finally, investments have been used strategically to build constituencies for conservation both at the local and regional level, by raising awareness among the general public, working with partners and finding non-traditional allies whose message and ours coincide. Annex 1 provides a listing, by country, of all biodiversity projects in EAP that have been active in the period 1999-2004, with a breakdown of their funding.

² In order to capture information on efforts to mainstream biodiversity in other projects and sectors, this analysis includes projects where the main objective was to support biodiversity, as well as projects where biodiversity was protected as a mitigation measure and an offset for environmental impacts resulting from other Bank-financed projects.

³ Includes loans, credits, and grants.

Portfolio Analysis

Lending Trends³

Over the 1999–2004 period, the World Bank approved 48 projects in full or partial support of biodiversity conservation in EAP, ranging from GEF-supported projects to IBRD and IDA projects (Figure 2), committing a total of \$300 million new funds to biodiversity (Figure 3). Of this investment 82 percent has been used to support projects focusing exclusively on biodiversity conservation, while 18 percent of these funds have been spent mainstreaming biodiversity objectives into projects with different primary objectives. These projects benefit nine countries, and one is a regional initiative.

Figure 2. Total WBG biodiversity commitments in EAP (1999 – 2004)

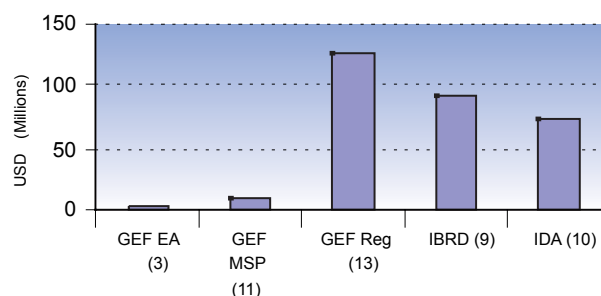
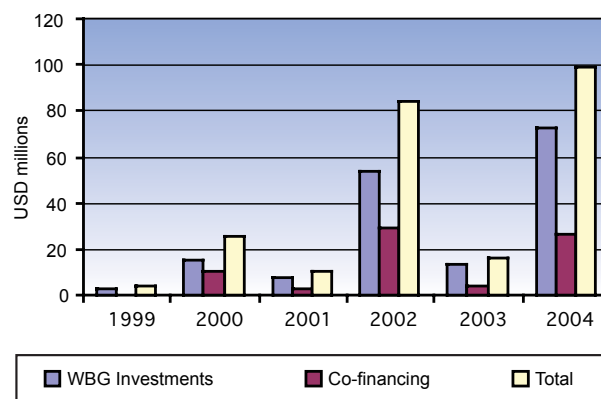


Figure 3. World Bank and co-financing commitments for biodiversity in EAP, 1999 – 2004



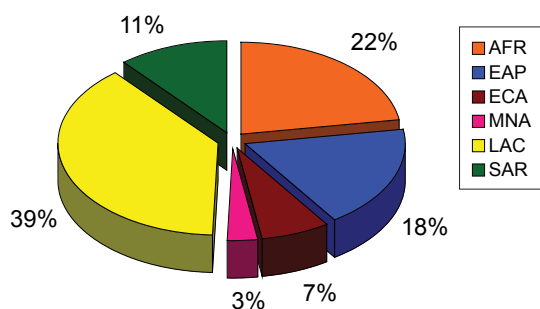
If we look at funds actually spent during the period 1999-2004, both as part of projects which

had been approved prior to the review period, and from newly committed funds, the total amount of funds spent in the region since 1999 amounts to \$135 million⁴.

Cross-Regional Comparisons

Lending for biodiversity in EAP is a significant part of the World Bank's overall biodiversity portfolio, representing 18 percent of the Bank's total biodiversity investments. Only in the Africa and Latin America and Caribbean Regions is this figure higher (Figure 4).

Figure 4. WBG Biodiversity Investments Globally



Co-financing

The leveraging effect of biodiversity investments in EAP has not been as significant as in other regions. Africa, the region most successful at leveraging funds, achieves a ratio of 1:1, while the ratio for EAP is less than 1:0.5, the lowest for all World Bank regions (Figure 5). This is a reflection of the low baseline funding available for biodiversity from governments in the region, the shortage of donor funds, the scarcity of effective international, regional and local non-government organizations, as well as the limited capacity of governments and civil society to apply for, manage and monitor sources of funds. GEF projects have been the least successful at leveraging

co-financing (Figure 6), while IBRD-financed projects have had more notable success, due in large part to the greater availability of government funds and capacity to manage and monitor these monies in IBRD countries.

Figure 5. Total Biodiversity Investment by Region (1988 – 2004)

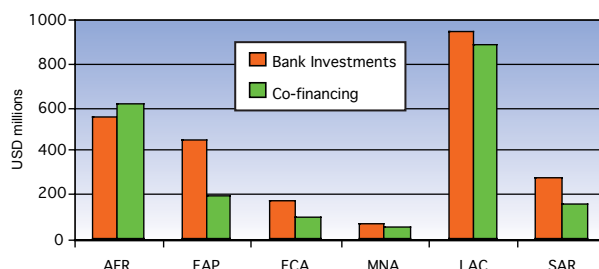
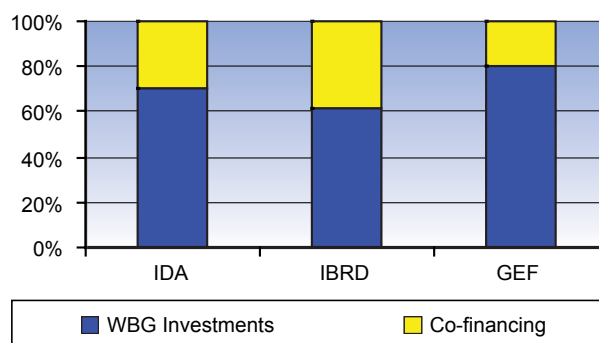


Figure 6. Percentage of Co-financing in the EAP biodiversity portfolio (1999 – 2004)

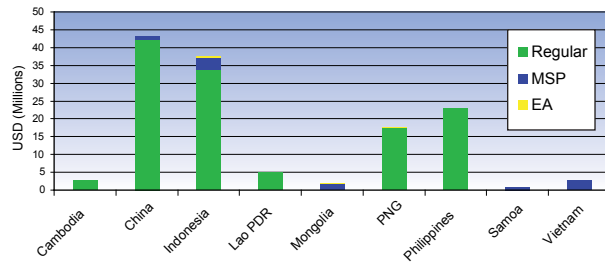


The GEF portfolio

As a major Implementing Agency for the GEF, the World Bank administers GEF grants for biodiversity conservation through 'Enabling Activities' (such as capacity assessments, action planning), Medium Sized Projects (MSPs) and Full Sized Projects. Since 1999, EAP's GEF portfolio amounts to \$180 million, of which GEF provides \$138 million in grants (and the remainder comes from co-financing). This investment supports 27 projects in nine countries and one regional initiative, including three enabling activities, 11 Medium Sized Projects and 13 Full Size Projects.

⁴This analysis assumes that funding commitments were spent evenly on an annual basis during the life of each project. These funds have leveraged significant co-financing of \$120 million, resulting in a total investment portfolio that exceeds \$440 million since 1999 (when one includes funds being spent and funds committed). This figure includes funding specifically for biodiversity and additional funding spent on other activities that also support the long-term conservation of biodiversity.

Figure 7. GEF Funding (1999-2004)

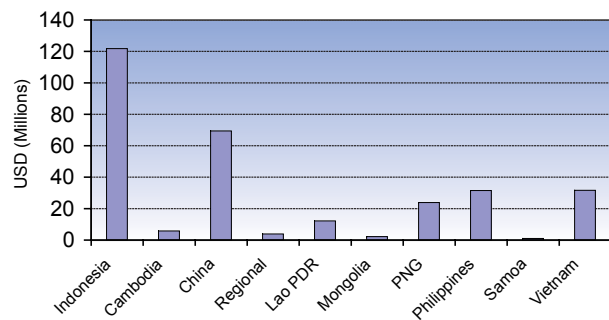


The GEF Full Sized projects represent the largest single source of funding for biodiversity in the region, accounting for 92 percent of the GEF biodiversity portfolio. In addition, MSPs and Enabling Activities are very important in IDA countries in terms of relative amount of funding, especially Mongolia, Samoa and Vietnam (Figure 7). MSPs, which are grants of up to \$1 million, may be executed by agencies other than a government; in the EAP region these agencies are primarily international conservation NGOs. The MSP portfolio has been used to help capacity-constrained countries tackle threats, take advantage of singular opportunities and expedite the delivery of management interventions where government capacity is weak. This portfolio contains some of the most innovative projects. In Indonesia, where systemic difficulties have constrained the number of GEF regular grants, MSPs have been used opportunistically to bridge the gap.

Distribution of Portfolio

The EAP biodiversity portfolio covers all the major ecosystem types. The World Bank is supporting biodiversity projects in all of the region's hotspots identified by Conservation International (CI), and in most of the *Global 200* ecoregions highlighted as conservation priorities in EAP by the World Wide Fund for Nature (WWF). Indonesia and China received the majority of the World Bank's investments from all sources of financing (Figure 8), totaling almost \$200 million, reflecting the diverse nature of the former, the absorptive capacity in the latter, and the scale and urgency of threats in both.

Figure 8. Total WBG Investments by Country (1999-2004)

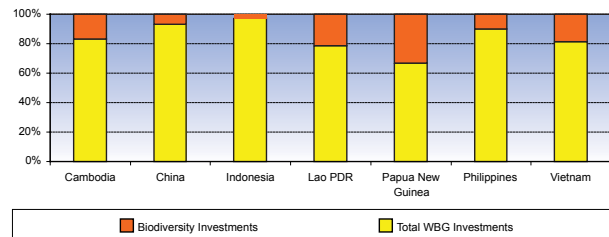


Mainstreaming Biodiversity

Projects that seek to mainstream biodiversity into other World Bank projects and programs have received only a small percentage of the total funding for biodiversity. However, biodiversity funding has been strategically used to leverage results in infrastructure projects.

Identifying projects in which to mainstream biodiversity has largely been opportunistic, and often depends on whether the project is supporting activities close to any critical natural habitats. Only in PNG has mainstreaming resulted in more than 25 percent of the total World Bank investment in projects with biodiversity activities (Figure 9). Elsewhere in the region, projects that attempted to mainstream biodiversity allocated less than 10 percent of total World Bank funding on the biodiversity component of the project.

Figure 9. Mainstreaming Biodiversity in EAP



Since 1988, China, Lao PDR and the Philippines have identified more than one project where a biodiversity component was added to mainstream conservation. This does not necessarily indicate a failure in identifying opportunities,

but rather (a) a reluctance by the governments to borrow for biodiversity needs, and (b) the bulk of the project sites located away from natural habitats where biodiversity investments are most effective.

Non-Lending Services

In addition to the portfolio of projects described above, the World Bank has been able to mobilize trust funds endowed by donor governments for supporting research and other non-lending services for biodiversity conservation in EAP. During the period under review, several million

dollars have been allocated for analysis and research. This has led to a number of pioneering reports, for example, on limestone and freshwater biodiversity, the use of biological indicators in the monitoring of water in Shanghai, the assessment of competition between wild and domestic grazers in the Gobi desert, and reviews of illegal wildlife trade. Trust funds have also helped to underwrite a series of local language field guides, and to support the World Bank-WWF Forest Alliance. A list of all non-lending services in EAP supported by the World Bank since 1999 is given in Annex 2.

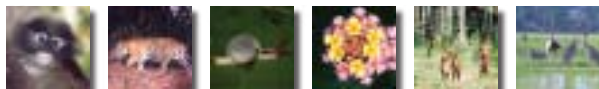


The Corpse flower or *Amorphophallus titanum* is found in central Sumatra and the world's tallest flowering structure. Its tuber grows for a decade or more and then flowers once with the flower lasting just two days. It is pollinated by small beetles (photo by Tony Whitten)



Section III: Key Themes

Key Themes



The World Bank is supporting biodiversity projects in all of the region's *Hotspots* as identified by Conservation International and in most of the *Global 200* eco-regions highlighted as conservation priorities by the World Wide Fund for Nature (WWF). The World Bank biodiversity portfolio in EAP includes a range of initiatives promoting the conservation and sustainable use of natural resources and more equitable sharing of the benefits derived from biodiversity. Since 1999 the majority of projects have included components that build capacity and support the establishment of a scientific basis for conservation in the country.

The World Bank's support for biodiversity conservation projects in EAP has three major threads: (i) supporting protected areas as key refuges for the region's wildlife and wilderness; (ii) mainstreaming biodiversity conservation in productive landscapes; and (iii) building coalitions of support to scale-up results. A common feature across all is the effort made to achieve conservation success through participatory processes that balance the needs of biodiversity with the development needs of local communities.

Bolstering the building blocks of biodiversity

Building on the stated objectives of the Bank's corporate Environment Strategy and its Environment Strategy for EAP, the World Bank continues to seek new ways to help protect important ecosystems as refuges for biodiversity, and to strengthen protected areas as cornerstones for



Lantana camara, a pretty but pernicious invasive alien (photo by Tony Whitten)

conservation. In order to better achieve this, the World Bank has nuanced its approach to protected areas in EAP by focusing on how to balance conservation with development needs.

Establishing new protected areas. The World Bank has supported the establishment of new PAs throughout EAP, the upgrading of provincial protected areas to national level, and the strengthening and extension of existing protected area systems in a number of countries, including Cambodia, Indonesia, Lao PDR and Vietnam. In Vietnam, the World Bank is working to gazette the limestone forests of Ngoc Son which lie between Vietnam's oldest national park, Cuc Phuong, and Pu Luong Nature Reserve, all three of which are located in the largest and best limestone range in northern Vietnam. The critically endangered primate Delacour's Langur is just one of the threatened species that will benefit

from this new protected area. In Indonesia, the Greater Berbak-Sembilang Integrated Wetlands Conservation Project was set up to gazette the new Sembilang National Park (205,750 hectares), which adjoins Berbak National Park. This park includes the largest tracts of swamp forest and some of the most important mangroves in western Indonesia.

To identify suitable areas for support, the World Bank has sought to improve its methodologies over the last few years, with improved data gathering and analytical tools and increasing empha-

sis on participatory processes that include key stakeholders. To achieve this, the World Bank is supporting: (i) a detailed participatory planning process that takes customary rights into account; (ii) adaptive management; and, (iii) the creation of incentives for the inhabitants and neighbors of protected areas to participate in their conservation. This broad partnership with local stakeholders is enabling the World Bank to strengthen the management of protected areas, and reduce pressures on them (see Box 7).



Dusky Langur, Sam Roi Yot National Park, Thailand (photo by David Bonnardeaux)

Box 7. Strengthening China's Protected Area Systems

The World Bank's Nature Reserves Management Project was the country's first large scale conservation initiative. It was created to support biodiversity conservation and improve the condition of a number of reserves. It achieved considerable success, being rated 'Highly Satisfactory' by the Bank's independent evaluation office, and paved the way for further (ongoing) biodiversity work in China. The project incorporated international experience and best practice to prepare and implement nature reserve management plans, improve field level site protection, improve capacity of staff and introduce co-management activities. In addition, a competitive small research grant was established to support applied research linked to management interventions throughout the nature reserve system nationally.

The project also piloted the establishment of a wildlife corridor to link two core zones of a nature reserve in order to enhance its biodiversity. This corridor helped to actualize the concept, and set an important precedent by becoming the first formally recognized biodiversity corridor in China. In addition, it supported the restructuring of a forest-logging enterprise into a nature reserve, by providing alternative employment for a significant number of forestry workers outside of the forest enterprise, and reorienting the management objectives for the site towards biodiversity conservation. This turned out to be a key aspect of the project as it provided valuable experience for the Chinese government on how to handle the substantial nationwide forestry unemployment following the 1998 natural forest logging ban. By its close in 2002, all nine participatory nature reserve management plans had been approved by the responsible provincial governments and were under implementation. Changqing Nature Reserve had been established, timber harvesting has been scaled back and workers redeployed to more environmentally sustainable employment. The process serves still as a land-use conflict resolution model for other parts of China. At Wuyishan Nature Reserve, a wildlife corridor was established to link its three core zones, and a tourism plan was prepared. Three other reserves will use this as a model. Eight communities in or near the nature reserves were developing community co-management plans to test the new, more participatory approach to nature reserve management. In-service staff training of nature reserve staff was well underway and the management information system was fully operational.

The World Bank's on-going Sustainable Forestry Development Project has a major component on nature reserves (GEF grant \$16.3 million), which sequenced from the project above, and is applying lessons learned from it. It is allowing similar activities to occur in seven more high-priority, globally-significant forested nature reserves.

The latest initiative to strengthen nature reserves in China is occurring at the provincial level, in Guangxi Autonomous Region - an innovative approach. This project is focused on a landscape approach to conservation, working in clusters of sites rather than in single nature reserves. In addition, the project is mainstreaming biodiversity conservation in the production landscape by integrating with forestry plantation and watershed management components in a larger World Bank project in order to enhance the conservation of areas of global biodiversity significance that lie outside of nature reserves and improve local livelihoods in areas adjacent to the reserves in order to reduce pressures on them.

Strengthening the management of existing protected areas. In addition to gazetting new protected areas, the World Bank is also focusing on the need to strengthen the management of existing protected areas and 'paper parks'. The EAP portfolio already includes a number of projects designed to strengthen parks in tropical and monsoon forests (Cambodia, Indonesia); coastal forests and mangroves; montane habitats (China) and threatened coastal wetlands and freshwater habitats (China, Mongolia, Vietnam). In Cambodia for example, the Biodiversity and Protected Areas Management Project (BPAMP) aims to strengthen the management of Virachey National Park and use this experience as a demonstration site to build new capacity in the Ministry of Environment. The World Bank / WWF Alliance for Forest Conservation and Sustainable Use is working to complement this project by strengthening the legal systems that govern Cambodia's protected areas. A draft protected areas law has been produced and discussed at a series of consultation workshops. This document is now the subject of discussion at the ministerial level and

has already served to raise the profile of protected areas at local, provincial and national levels. In many countries, including Cambodia and Lao PDR, such protected area programs are explicitly linked to sustainable livelihoods and improved resource management for local communities.

As part of this effort, the World Bank-WWF Forest Alliance together with IUCN have produced a Management Effectiveness Tracking Tool (Stolton et al. 2003) which features a scorecard by which the effectiveness of protected area management can be measured and monitored. This has been translated into a number of the region's languages and is being used consistently in World Bank projects and across some national PA networks. The Tool covers planning, budgets, relationships with local government and surrounding communities, facilities and equipment, staffing, visitor facilities, and monitoring.

Supporting taxonomy. Taxonomy has a foundational role in the scientific underpinning of biodiversity conservation and protected area



Forest dependent children, Cambodia (photo by Valerie Hickey)

management (see Box 8). However, the science is in crisis, in developed and developing countries alike, with many of the world's specialists retiring before their ranks are refilled by young scientists. Supporting taxonomic work has proven to be a challenge, but nonetheless the World Bank has found opportunities to do so. The World Bank's *Global Overlays* project focused on freshwater biodiversity in the context of the Vietnamese National Hydropower Study. There was a perception that because two books had already been published on the fishes of northern Vietnam, a fair knowledge of this fauna was already available. Unfortunately, this was far from true, and the fish fauna of Vietnam was one of the most poorly known in the world. Fish tax-

onomy in the country is still in its infancy and the number of published books and papers on this fauna is roughly the same as what had been published on European fishes several hundreds of years ago. Fieldwork in northern Vietnam led to a generously illustrated report (Kottelat, 2001a), which provides a basis for identification. The numerous nomenclatural and taxonomic problems that were identified on the basis of the work is an indication of the desperate need for critical analysis of this fauna by trained specialists with transnational experience. The report has shown itself to be an essential reference for those undertaking surveys, especially as part of environmental assessments for any project affecting water in the area.

Box 8. Building the Scientific Foundation for Conservation.

A \$7 million GEF grant, disbursed over six years enabled the unique and priceless collections of the Bogor Herbarium and Zoology Museum outside Jakarta to benefit from a much needed upgrade. Under this project, implemented by the Biology Research and Development Centre of the Indonesian Institute of Sciences, the condition of specimens was stabilized, storage conditions were improved, a database was established, and the skills and experience of the staff were upgraded.

Transformations at the Bogor Zoology Museum included:

- All specimens were rehabilitated, moved and re-housed in a large purpose-built museum, donated by the Government of Japan – a dramatic contrast to the dark, dank rooms of the old museum. The new collection halls have state-of-the-art environmental control systems, with air conditioning system, dehumidifiers, hygroscopic wall panels, and state of the art storage systems.
- The use of toxic chemicals for preservation has been replaced with drying and freezing technology, which has made preservation work much safer.
- Eight staff and two 'new blood' recruits took higher degrees (two PhDs and eight Masters) in taxonomy.
- Collection Managers have received tailored management training on short-term courses in various leading museums around the world.
- Eight specialists from different countries developed a mentoring relationship with the museum to help organize parts of the collection and impart their experience.

Interns from university herbaria across the country have been hosted in the Herbarium and Museum from three-six months. This has stimulated interest in, and attention to, the roles of collections in biodiversity conservation and established firm relationships among national specialists. The project also facilitated an innovative and exciting publication program, mainly of Indonesian-language field-guides to promote biodiversity awareness.



Sumatran tiger, *Panthera tigris*, 'Lemon' caught by an infrared camera trap in Kerinci-Seblat National Park, October 2004. (photo by Matt Linkie)

Mainstreaming biodiversity conservation

Notwithstanding the focus on protected areas, the World Bank recognises the interdependencies that connect conservation with development that go beyond the boundaries of gazetted protected areas. As a result, the World Bank is increasingly focusing on mainstreaming biodiversity conservation in its development projects and priorities, to leverage biodiversity results in the broader landscape.

Safeguarding biodiversity and natural habitats. All World Bank projects are subjected to a review of the manner in which the project activities might trigger any of the World Bank's ten safeguard policies. These Operational Policies provide a key tool for integrating environmental considerations into the planning, development, and implementation of World Bank projects and programs. These policies are important because the impacts of development programs and economic adjustment measures must be carefully formulated to avoid negative impacts on the environment. The safeguards review process occurs at key stages in project development and is used to ensure that environmental and social considerations are integrated into project design, and risks are appropriately managed. The environmental review process can lead to significant de-

sign improvements, better environmental outcomes, and more sustainable projects. Examples include ensuring adequate attention was being paid to management of a World Heritage Site; seeking protection and management of an interesting coastal wetland; and, proper protection and monitoring of a wetland in Inner Mongolia.

The policy that directly relates to biodiversity is policy on Natural Habitats (OP4.04) (see Box 9). OP4.04 states that, "the World Bank does not support projects involving the significant conversion of natural habitats unless there are no feasible alternatives for the project, and comprehensive analysis demonstrates that overall benefits from the project outweigh the environmental costs". Furthermore, "The World Bank supports, and expects borrowers to apply, a precautionary approach to natural resource management to ensure opportunities for environmentally sustainable development". In this policy, natural habitats are understood as assemblages of native species not unduly modified by human activities, but the World Bank gives special attention to 'critical natural habitats', or areas of natural habitat which are either existing, officially proposed or traditionally-recognized protected areas, or sites identified on 'supplemental lists'. These lists are based on consensus-based authoritative assessments of conservation needs in peer-reviewed literature, and gray literature

written by NGO publications, such as the country-by-country sourcebooks on protected areas and the compilations of Important Bird Areas produced by BirdLife International. Indeed the World Bank is assisting the completion of these books in East Asia, including supporting their translations into local and national languages.

The manner in which biodiversity is handled in environmental assessments completed for World Bank projects has sometimes been disappointing; as a result, a *Biodiversity and Environmental Assessment Toolkit* was prepared to address this problem and to save time in the review process. This web-based toolkit has been translated into several of the region's languages to better enable local consultants to improve the quality of their work.

The policy on natural habitats has recently been complemented by the revised Operational Policy on Forestry, which places increased emphasis on managing forest ecosystems, certifying sustainable management, supporting dependent peoples, and on issues of governance and participation.



Juvenile Kloss Gibbon one of the four primate species endemic to the Mentawai Islands, West Sumatra (photo by Tony Whitten)

Integrating conservation and development. Many EAP countries have to cope with severe competition for space because of high population densities, notably the Philippines (260 people/sq km), Vietnam (240 people/sq km) and China (132 people/sq km). These levels of population density exacerbate the rate of habitat conversion for agriculture and make it harder to set areas aside for conservation purposes. Given these

Box 9. World Bank Group's Safeguard Policies

Operational Policy on Natural Habitats seeks to ensure that World Bank-supported infrastructure and other development projects take into account the conservation of biodiversity, as well as the numerous environmental services and products which natural habitats provide to human society. The policy strictly limits the circumstances under which any Bank-supported project can damage natural habitats (land and water areas where most of the native plant and animal species are still present).

Specifically, the policy prohibits Bank support for projects which would lead to the significant loss or degradation of any Critical Natural Habitats, whose definition includes those natural habitats which are either:

- legally protected,
- officially proposed for protection, or
- unprotected but of known high conservation value

In other (non-critical) natural habitats, Bank supported projects can cause significant loss or degradation only when (i) there are no feasible alternatives to achieve the project's substantial overall net benefits; and (ii) acceptable mitigation measures, such as compensatory protected areas, are included within the project.

constraints, the conservation community is focusing on opportunities to extend conservation practices beyond the borders of protected areas, by promoting sustainable use in the broader landscape, and by integrating local communities into conservation initiatives. Projects using the latter approach have been called Integrated Conservation and Development Projects (ICDP).

Within an ICDP, participation and equity issues are important elements affecting the way communities interact with protected areas. Notwithstanding, it is often especially difficult to be fair and effective in targeting communities and individuals for development activities. Should one target the main offenders responsible for biodiversity loss (*buy cooperation*), provide benefits to those who are protecting the forest (*reward good behavior*), or target the poorest of the poor (*poverty alleviation*). Many projects try to do all three. If successful, local communities will become owners of the conservation project and facilitate its success; if not, conservation outcomes can be delayed, made more difficult and even gainsaid



Lilium pumillum, a flower from the Mongolian steppe (photo by Tony Whitten)

by local communities (MacKinnon, 2001).

A key challenge for the World Bank is to help find ways to promote development that facilitates both biodiversity conservation and poverty alleviation, linking environmental protection to sustainable livelihoods. However, there is a need for clear conservation goals and objectives. Merging conservation and social objectives often leads to loosely defined objectives, with different, and sometimes conflicting, expectations among stakeholders. Improving livelihoods is a key development objective and may foster support for conservation initiatives, but it will do little to ensure the viability of a protected area if the primary threat comes from new roads, agricultural policies or poor law enforcement.

Development opportunities associated with key conservation areas are enabling local communities to break out of the poverty trap and develop alternative livelihoods consistent with conservation objectives. Finding and exploiting such linkages across the World Bank investment portfolio will provide opportunities for mainstreaming biodiversity into national and regional sustainable development agendas.

Is the ICDP approach an effective or appropriate model for protected area management (see Box 10)? Experience suggests that ICDP is an effective tool “only sometimes” and “under some circumstances”. Often conservation and development are conflicting agendas and projects have unrealistic and contradictory goals, with different stakeholders having very different expectations. Development assistance must be linked to conservation behavior in order to achieve the conservation objectives.

Combating illegal activities. The EAP region has a significant problem with illegal trade in timber products and wildlife, most notably endangered species. Detailed statistics on the scale of these activities are not generally available but there is evidence, especially in particular locations, that this trade is having serious negative consequences for the region’s environment and development prospects (World Bank 2004b). In-

Box 10. The Use of Integrated Conservation Development Projects

The World Bank and many other organizations have been learning lessons about the strengths and weaknesses of ICDPs and how to implement these projects. While there are some examples of successful ICDP initiatives, there are other cases that highlight the potential pitfalls. While most ICDPs in the region have been local efforts to relieve pressure on reserves the urgency of the situation makes “scaling up” an important question. However, some of the problems associated with scale were encountered with the Kerinci-Seblat National Park project, which was an attempt to apply the ICDP approach to one of the largest protected areas in East Asia. One lesson that has been demonstrated by recent experience is the need to start at a small scale with modest (achievable) commitments.

The World Bank supported Kerinci-Seblat project set out an ambitious program of activities. Yet, in spite of the use of state of the art techniques, the project has not been able to achieve its goals. Initiatives included detailed spatial planning, work with logging concessions, strengthened park management, development of alternative livelihood opportunities for local communities, establishment of an inter-provincial steering committee, and the application of the ecosystem approach to park management. However, it became clear that it was not the small-scale illegal activities of local communities that were the greatest threat to the protected area, and that the perfectly legal government development activities (such as road, logging and mining concessions, and land conversion) were a much greater threat.

In the Kerinci-Seblat case, regional development strategies continue to threaten park integrity, with proposed road developments and mining concessions, which will lead to problems with poaching, agriculture and access to loggers. The required political commitment requires an awareness among policy makers of the values derived from protected areas, including ecosystem services such as watershed protection, and protection against natural disasters such as floods and landslides.

deed, in many cases illegal activities are ongoing within high profile protected areas with a mandate to conserve these resources.

Animal and plant species threatened by illegal trade include bears, tortoises, turtles, pangolins (scaly anteaters), deer, large cats, and orchids (see Box 11). For example, it is estimated that 10 million live turtles are supplied annually to southern China, decimating populations in the Mekong region. In Thailand alone, the last three years have seen the confiscation of 22,000 pangolins; if one includes the number traded that were not confiscated, this represents a very significant proportion of the remaining population. However, when effective procedures – focusing on a combination of enforcement and alternatives – are put in place, wildlife populations can

be effectively monitored and managed, and supply to this illegal industry can be cut off.

Identifying the social and economic drivers of illegal trade has many complex causes rooted in social, economic, cultural and political structures; similarly, the solution needs to be nuanced to address these different factors. Therefore the region has adopted a broad strategy, including a focus on (i) strengthening law enforcement, (ii) designing economic incentives, (iii) increasing public infrastructure investment, (iv) providing research and technical assistance, and (v) improving education.

Box 11. Combating the Illegal Trade in Wildlife

Mongolia is home to the world's largest mountain sheep, the argali (*Ovis ammon*). These animals are greatly sought by foreign hunters because of their impressive size and long, spiraling horns. Yet, argali are declining in Mongolia primarily due to an increase in poaching for meat and horns (to trade with China), predation by domestic guard dogs, and competition with domestic livestock. Government figures estimated 50,000 argali in Mongolia in 1975 and 60,000 animals in 1985, but only 13-15,000 in 2001. Despite being listed as a threatened species both in Mongolia and internationally, argali trophy hunting remains legal in Mongolia and the number of licenses has been increasing, with 80 licenses offered in 2004. A lucrative business, trophy hunting companies offer hunts for \$25-50,000. Controversy surrounds this program, as manifested by growing local opposition, accusations of corruption by the media, and a U.S. lawsuit.

To be sustainable, hunting programs must be well managed and have the support of local communities. Neither currently occurs in Mongolia. Although legally required, no management plan for argali presently exists. Population surveys are too infrequent and localized to inform managers about specific areas in a timely manner. Critically undermining management capacity are legal mandates that rely heavily upon local governments without providing the necessary funding, tools, or training. Finally, despite laws for investment of trophy hunting fees in conservation of the resource, current practices deny local communities and conservation efforts the benefit of revenues. As a result, some local officials are working to eliminate trophy hunting from their territories. Still, trophy hunting licenses are increasing even as poaching also continues to increase. Redressing these problems requires reforming argali trophy hunting and population management to ensure: (i) openness and transparency, including external review and oversight; (ii) a mix of top-down and bottom-up authority that enjoys local support; and, (iii) active and adaptive argali conservation and management, including anti-poaching enforcement, using funds generated by trophy hunters.

Source. Reading et al. 2004.

Building public awareness and public support

Attempts to protect biodiversity are often undermined by a general lack of political and public commitment to conservation, reflected in the weakness of many conservation agencies and the lack of adequate financing for protected area management. This weakness makes it difficult for protected area managers to challenge other government agencies over actions and regional development plans that may affect protected areas. Political upheaval, decentralization and the breakdown of law and order exacerbate the problems.

The World Bank understands that an informed constituency and a wider appreciation for the value of biodiversity are necessary conditions in order to garner support for its conservation. The World Bank has therefore taken an active role in raising awareness and disseminating best practice on environment education and biodiversity conservation. Indeed many World Bank publications (World Bank, 1998a, 1998b, 2001a, 2001b, and Wells 1999) have helped governments, NGOs and the academic community to think more strategically about conservation. For example the *Environment Monitor* series and associated activities have become popular awareness-raising tools in EAP, and provide environmental analysis for many countries in an



Illegally cut timber still forms a large proportion of the timber used in the wood industry in Indonesia (photo by The World Bank)

accessible, reader-friendly format.

To complement its bid to raise awareness, many World Bank projects are working with key partners in the EAP region to provide support to environment activities (see Box 12). Many of these activities are designed to strengthen environmental management skills and enable governments and civil society to better identify, implement, and manage protected areas, and to mainstream biodiversity conservation in the wider landscape.

Raising broad public awareness. At the grassroots level, education and social marketing are key components of many World Bank biodiversity projects. These initiatives are most effective when based on an understanding of people's environmental attitudes and often require culturally adapted and creative solutions. While developing a basis of support for biodiversity issues, it is important to recognize the need for a mechanism to translate sentiment into action. The World Bank promotes the use of Biodiversity Strategies and Action Plans (BSAPs) to make this link between awareness and action. The World Bank has helped with these official plans, written to comply with the CBD, in China and Indonesia. The first Indonesian BSAP

was written in 1993 and many of its proposed actions were financed. The second Indonesian BSAP was recently developed by Indonesians, and was driven by a broad consultation process including many stakeholder discussions.

An example of Bank initiatives to raise awareness of forest issues is given in Box 10. Other Bank projects addressing awareness issues include a GEF project executed by BirdLife International-Indonesia, in the Sangihe-Talaud islands, which has created strong support for a rare endemic bird and its habitats through colorful campaigns, church sermons and local radio shows designed to build pride in local biodiversity. Another campaign, released during the first phase of COREMAP, used a cartoon coral polyp and other characters to discuss the importance of coral reefs to Indonesia. It is however, rather difficult to measure the conservation benefit of such campaigns. A study was undertaken in Lao PDR to analyze the relationships between personal experiences and environmental perception. The findings showed that environmental attitudes were predominantly determined by gender, early experience, and upbringing, while factors such as education level, religion and employment seemed to have much less of an influence (World Bank 2004a).

Box 12. Creating a Constituency for Conservation.

Indonesia is experiencing massive forest losses; it is estimated that some 18 million hectares of Indonesia's forest were lost between 1985-1997, and deforestation has recently been occurring at a rate of some 2.5 million hectares a year. Forest loss has been most significant in the accessible lowland forests, which are the most biodiverse, and has even occurred in well-known protected areas. A major constraint that has continually undermined efforts to stimulate political action to protect Indonesia's forests is the lack of popular support for these actions.

The 18 month Indonesia Forest and Media Project (INFORM), was developed by a consortium of the largest conservation NGOs with Conservation International taking the lead in execution. The project was designed to address this constraint and enhance the long-term social and political foundations for forest conservation.

The INFORM project was both foundational and complementary to other activities designed to address the overall Indonesian forestry crisis (e.g., policy dialogue, programs and projects), and to address locality-specific interventions. The INFORM campaign worked to create a local and regional enabling environment in which these other activities were more likely to succeed. It worked closely with a USAID-financed project executed by GreenCOM, which focused over the same period on illegal logging. This project will work to impart upon Indonesian stakeholders an appreciation of: (i) the significance and urgency of forest loss in Indonesia and its implication, (ii) how it will affect them personally (e.g., reduced quality of life, diminished option and existence values, etc.), and (iii) how they can actively participate in a process to stop forest destruction and move toward more equitable and sustainable forest management.

Surveys undertaken early in the project found that the general public was fairly aware of the existence of forest loss – but they had little idea of its scale and seriousness or its economic implications. The campaign materials, which included radio talk shows, press briefings, journalist training, and public service advertisements, therefore focused on informing the public about these issues. The project was implemented in part during the run-up to the parliamentary and presidential elections and TV, radio, magazine and newspaper advertisements were used to try to give forest issues a higher profile.

Working in local languages. It has been said that “people will only protect what they love and can love only what they know”. Recognizing the truth of this statement the World Bank has been providing support to NGOs, academics and government agencies for the production and dissemination of local-language field guides. These guides make biodiversity information easily accessible to students, environmental assessment professionals and to the broader public and help to build a constituency for conservation. Indeed the World Bank is looking for ways to enable NGOs and academic institutions to create and disseminate these tools on a regional basis. It

worked with the Indonesian Institute of Sciences through the Indonesia Biodiversity Collections project, to produce 15 such field guides covering a wide range of fauna and flora. Additional grants through the World Bank-Netherlands Partnership Program have resulted in a total of 60 titles in Asia and Africa with the majority being in East Asia, covering taxa from snails to mammals, and orchids to mangrove trees.

Engaging new partners. The World Bank has sought out new partners to improve conservation outcomes, ranging from the private sector to mainstream religions (see Box 13). Until re-

cently the major religions have played a relatively low key role in the environmental debate, however recent work is showing that they have the potential to be a powerful advocate for the environment. Environmental stewardship can be taught from the scriptures, and faiths can easily justify taking leadership in the initiation of practical conservation projects. Furthermore faiths can communicate with their members about individual responsibilities to preserve natural systems. There may be many opportunities to engage sector or civil society leaders in order to encourage sustainable practices within their spheres of influence.

The EAP Faiths and Forests Initiative has sought to engage religions in six countries across the region by: (i) encouraging people of faith to engage in direct conservation action as an expression of their teachings; (ii) giving religious leaders the opportunity to participate in stakeholder discussions and, through this, to improve the design and sustainability of investment projects and the content of policy documents; (iii) undertaking theological investigations of environmental issues and their practical implications; (iv) publishing appropriate materials; and, (v) facilitating faith-based public advocacy on conservation and interfaith dialogues. The approaches are described in a book produced under the Initiative (Palmer and Finlay, 2003).

The Faiths and Forests Initiative has supported a conference on Buddhism and the Environment for monks and NGOs from Cambodia, Lao PDR, Thailand and Myanmar, practical field- and temple-based projects in Thailand and Cambodia, agro-forestry in two Catholic parishes in Timor Leste and in Protestant areas of Sulawesi and Sumatra, a Declaration on the Environment by the major faiths in Indonesia, and the production of a handbook on theology and ecology in Papua New Guinea. This handbook is among the first books to be written entirely by Papuans in *pidgin* and attracted a high media profile, which in turn increased the profile of the environment in PNG.

Building partnerships. The World Bank is by no means the only institutional agency concerned with biodiversity issues in the region, and it is committed to working cooperatively with diverse partners to realize the objectives of better conservation and biodiversity management. By increasing its engagement with stakeholder groups the World Bank and its projects will benefit from a wider range of experiences. By increasing the level of inclusion in the decision making process the World Bank will be able to increase the success of its operations. Strategic long-term partnerships play a key role in conservation of biodiversity in the EAP region. For example there is extensive collaboration between the World Bank and a host of international NGOs through the GEF MSP portfolio. These activities include work by BirdLife International (Indonesia and Vietnam), Conservation International (Indonesia), IUCN (Samoa and Vietnam), TNC (Indonesia), FFI (Indonesia and Vietnam), Wetlands International (Indonesia), WWF (Vietnam and Indonesia), and WCS (Lao PDR). In addition to partnering with international civil society, the World Bank continues to establish partnerships with national and local institutions, both public, private and non-governmental.

To complement site-based partnerships, the World Bank also supports strategic partnerships designed to tackle specific threats throughout the region. The World Bank-World Wildlife Fund Alliance was established to respond to the continued depletion of the world's forest biodiversity, the loss of forest-based goods and services essential for sustainable development, and the resulting severe impacts on the livelihoods of the rural poor. The Alliance is working with governments, the private sector, and civil society to help create new protected areas and is seeking to promote the use of independently certified management systems. The Alliance has also supported the development of two protected area tools: (i) the Rapid Assessment and Prioritization Methodology, which analyzes the status of a PA system, and (ii) the Management Effectiveness Tracking Tool, which measures the effectiveness of protected areas using a range of indicators (see Box 14).

Box 13. Engaging the Private Sector

The Ha Tien Plain is situated in Kien Giang province, in the southwest corner of Viet Nam. The seasonally inundated grasslands, which cover much of the area, are of high conservation value particularly for large water bird species including the globally endangered Sarus crane. Over the past decade, the grasslands have been the victim of blanket land use designations and the resulting monocultures have destroyed 98% of the Plain's natural habitat. It has also made the population over-reliant on single agricultural commodities that have routinely failed to provide adequate economic returns to the majority. A much more 'balanced portfolio' is required ó a multi-use model based on sustainable management principles and which improves income security for all, including the minority groups such as the Khmer.



Sarus cranes, Ha Tien Plain, Vietnam (photo by International Crane Foundation)

Using in part a grant from the World Bank's 2003 Development Marketplace, and in partnership with Holcim Vietnam (an IFC portfolio company which operates a cement plant in the region) and the International Crane Foundation, the IFC aims to develop and subsequently demonstrate the benefits of multi-use land management. The initiative was a pioneer for Vietnam: the first instance of drawing together the private, financial and NGO sectors with local government representatives in order to find solutions to the perceived conflict between economic and conservation priorities.

The project has produced a land use and ecosystem composition survey for the Ha Tien Plain, and two plans for detailed feasibility studies at the priority conservation sites of Hon Chong and Phu My, the latter proposal incorporating a poverty alleviation strategy for the predominantly Khmer community which inhabit the area and this has become the main focus because of its 'triple bottom line', namely to (1) double household income in the Phu My commune, (2) benefit the Khmer minority in the area and (3) to safeguard the last remaining habitat of its kind in the Mekong Delta.

Leveraging support. The World Bank assisted Conservation International with the establishment of the Critical Ecosystems Partnership Fund (CEPF), an international funding partnership between Conservation International, the World Bank, the GEF, the John D. and Catherine T. MacArthur Foundation and the Japanese Government, which together are providing \$125 million in grant funding and technical assistance to conservation efforts in biodiversity hotspots. The

fund's grants are awarded to civil society groups and are relatively small (\$100,000-300,000), but they have enabled a range of important activities to be undertaken. Grants are awarded only after an Ecosystem Profile has been written, discussed among stakeholders and specialists, and approved by the CEPF Board. Three ecosystem profiles have so far been approved for EAP, SW China (Hengduan Mountains), the Philippines, and the Sumatra portion of the Sundaland 'hot-

spot', while approvals for Indo-Burma and Polynesia are imminent. A list of grants and grantees over \$25,000 is given in Annex 3.

Box 14. Working in Strategic Partnerships

The World Bank – WWF Alliance supports the following activities in EAP:

Strengthening the protected area network in China. An Alliance project is being implemented to apply an adapted version of the Management Effectiveness Tracking Tool to around 120 national level reserves.

Supporting sustainable forestry in Lao PDR. The Alliance is assisting Village Forestry Associations achieve group certification, by helping identify and address weaknesses before assessment. Where common management plans can be implemented group certification is the most efficient option.

Drafting a protected areas law for Cambodia. In 1993 the Cambodian government set aside 18 percent of the nation's forestlands as protected areas, but the country lacks sufficient legislation to effectively manage these areas. The alliance has been supporting efforts to address this group and has created expert groups who have helped draft a proposed Protected Areas Law.

Surveying Cambodia's Biodiversity. A survey, in the Siem Pang district, has documented the rich biodiversity of the area and the ecology of a number of globally threatened species. These included the White Shouldered Ibis, Giant Ibis, Black-necked stork, Sarus Crane, Lesser Adjunct, and mammals such as Bateng and Eld's deer. It is hoped that the results will enable the government to identify habitats of importance and account for them in plans for teak plantations.

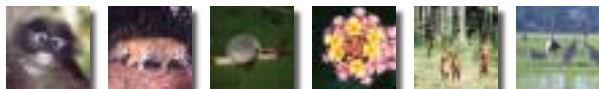
Supporting FLEG. The alliance is providing technical support to the Forests, Law, and Environmental Governance process. This has included the production of a report on Technologies for wood tracking, which looks at systems and technologies that can be used to trace wood from its source to its final use. The alliance is also working in Indonesia to help prioritize options to strengthen forest law enforcement.

Source: World Bank WWF Alliance, Annual Report 2003.



Section IV: Remaining Challenges

Remaining Challenges



Despite a wide range of models and conservation initiatives, and a large and expanding biodiversity portfolio supported by the World Bank and other development partners in EAP, biodiversity in the region still faces many threats. Efforts by the conservation community and major development agencies will not be sufficient, on their own, to address all of these threats. A major challenge for the future is thus to mainstream biodiversity concerns and actions into government policies, regular development assistance and poverty alleviation programs by promoting positive synergies, while minimizing the negative impacts to biodiversity of potentially harmful investments.

Throughout the region, despite some progress, key challenges remain. Priority areas of focus are the following:

1. Confirm and demonstrate political will – Governments in EAP have made commitments on biodiversity issues through their ratification of the Convention on Biological Diversity and the passing of legislation, but a major test of their commitment to address conservation issues will be whether the central and regional governments are willing or able to take strong actions against, for example illegal loggers, especially in protected areas. This is an essential step to make area-based conservation efforts effective. In some countries such illegal activities have links to powerful interest groups and unless and until these can be reined in, many of the donor investments will be comprised. In this respect it is important that the international community continues to provide technical assistance

and policy dialogue to leverage change in this situation.

2. Increase public awareness and knowledge of biodiversity facts and issues - Stemming current unsustainable forest management and biodiversity loss will require a change in attitudes and behavior at all levels of society. Changing the behavior of policy and decision makers will require a stronger and better informed civil society, fully aware of the environmental and social costs of biodiversity loss. This will require:

- Targeted awareness programs aimed at different audiences and stakeholders to expand understanding of the multiple benefits of biodiversity and PAs, including watershed values and other ecosystem services;
- Capacity building of local NGOs/civil society, local universities to monitor the status of PAs and other biodiversity and disseminate information;
- Development of national/local school and university curricula, promoting biodiversity and environmental economics;
- Development of materials to be used by faith groups linking their scriptures to biodiversity conservation;
- Dissemination of information informally, through multiple media, to develop a conservation constituency e.g. field guides, theatre, newspapers, building on current successful conservation campaigns at individual PAs.

3. Bring biodiversity into project and sectoral planning - Article 6b of the Convention on Bio-



Macrochlamys sp.n., a newly discovered snail seemingly endemic to the Sangkulirang Peninsula, East Kalimantan (photo by Jaap Vermeulen)

logical Diversity emphasizes the need to integrate, as far as possible, and appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programs and policies. This involves developing sustainable land use strategies, adopting appropriate policies and programs, and removing perverse economic incentives that fail to recognize that biodiversity conservation is a vital aspect of sustainable development. At national, provincial and district levels, the countries will need to:

- Integrate PAs and protected forests into agreed provincial and district spatial plans
- Encourage land use and agricultural policies that promote maintenance and regeneration of forests with plantations restricted to already cleared and critical lands.
- Increase capacity of the agencies charged with controlling environmental impacts to address green issues both nationally and locally and emphasize impacts on PAs and biodiversity.
- Develop programs to determine the economic benefits of environmental services and widespread dissemination of this information at the local level.

- Link block grants for local development to environmental performance at the district and provincial level.

It is increasingly recognized that where countries have the institutional capacity to assess and manage environmental risks across all sectors, projects are more sustainable and achieve greater development outcomes. Therefore, the World Bank has been supporting efforts to develop country capacity in areas such as environmental screening, risk assessment, strategic environmental assessment, monitoring, and evaluation. It has also helped government agencies at various administrative levels to mainstream considerations into sectoral decision-making processes.

4. Strengthen the protected area network - There is a need to consolidate and further strengthen the national PA network through:

- Strengthening protection and management of existing PAs
- Rationalizing PA systems that are too large to be financially sustainable
- Establishing additional PAs of high biodiversity value to improve representative-

ness of the PA systems, focusing on identified proposed priority areas and especially threatened lowland forests

- Testing new management models for PAs and buffer areas, involving local communities, NGO partnerships, private sector and local government
- Identifying new and additional financing mechanisms for recurrent costs of priority PAs within the national system (e.g. carbon funds, environmental taxes for ecosystem services, visitor fees)
- Encouraging provinces to provide support for reserves of local importance to supplement the national parks and other nationally important areas
- Training on conservation laws and enforcement issues to members of the judiciary and local police forces to ensure better enforcement and prosecution of illegal activities

5. Build a strong local constituency for PA and forest management - Ultimately biodiversity and protected areas will survive only if there is strong local ownership. With devolution of many resource management decisions there is an increasing need to:

- Support block grant incentive schemes linked to environmental performance indicators to encourage local government support for high biodiversity areas, especially in those areas with large national parks within their boundaries;
- Support adoption of downstream user fees or 'green taxes' to generate revenues from PAs for ecosystem services provided e.g. downstream fees for water use;
- Build local, provincial and national capacity to monitor and evaluate status of PAs and biodiversity and to feed information back into management decisions;
- Improve consultative forest boundary demarcation processes and involve local communities in demarcating boundaries and assuming responsibility for protecting forests.

6. Account for the long-term costs of conservation interventions - Most protected areas and many biodiversity conservation programs do not have adequate funding to achieve their stated goals. There are many reasons for this situation, but one major obstacle can be seen in the tendency of conservation professionals to focus on their traditional strengths of park protection and biological sciences and avoid the critical role of financial management and planning. To offset this imbalance, more focus must be put on:

- Mainstreaming funding for biodiversity into government budgets;
- Accurately estimating the full and long term cost of designing, implementing and monitoring biodiversity interventions prior to beginning a project and agreeing on a suite of activities;
- Assessing the available resources to fund activities over the long term and prioritizing interventions accordingly;
- Finding innovative ways to generate long term and stable sources of revenue that do not require a large amount of up-front investment;
- Diversifying revenue generation to reduce risks;
- Using financial mechanisms as a programmatic tool to transform the unsustainable exploitation of natural resources into sustainable livelihood activities; and
- Maintaining back-office administrative and financial operations to effectively manage and monitor expenditures and revenues.

Notwithstanding, the World Bank has an ever growing portfolio of investments, tools and partners aimed to conserve biodiversity in East Asia and the Pacific region. Hopefully, they will change the outcome for wildlife, wilderness and the people who depend on the goods and services biodiversity provides.

USEFUL WEBSITES

Organization	Website address
Alliance for Religions and Conservation (ARC)	www.arcworld.org
ASEAN Regional Center for Biodiversity Conservation	www.arbc.org
ASEAN Review of Biodiversity & Environmental Conservation	www.arbec.com.my
Bibliography on Conservation of Biodiversity	www.apec.umn.edu/faculty/spolasky/
Biodiversity and Conservation: A Hypertext Book by Peter J. Bryant, 2001	darwin.bio.uci.edu/~sustain/bio65/Titlepage.htm
Biodiversity Conservation Information System (BCIS)	www.biodiversity.org/
Biodiversity Conservation Network	www.bcnet.org
Biodiversity Information Network	life.csu.edu.au/bin21/
BirdLife Indochina	www.birdlifeindochina.org
BirdLife Indonesia	www.birdlife-indonesia.org
BirdLife International – Asia	www.birdlife.net/worldwide/regional/asia/index.html
Center for International Earth Science Information Network	www.ciesin.org/
China Biodiversity Database	www.chinabiodiversity.com
Conservation International	www.conservation.org
Conservation International – Indonesia	www.conservation.or.id
Critical Ecosystems Partnership Fund	www.cepf.net
Ecology, Biodiversity and the Environment - Virtual Library	conbio.net/v1/
FFI Asia-Pacific	www.fauna-flora.org/around/asia_pacific/asia_pacific.html
Food and Agriculture Organization	www.fao.org/biodiversity
Global Biodiversity Forum	www.wri.org/biodiv/gbf
Global Environment Facility	www.gefweb.org
IUCN – Asia Biodiversity Program	www.rbp-iucn.lk/bpsp
Kerinci National Park	www.kerinci.org
Plant Resources of South East Asia	www.proseanet.org
Synopsis of the Mammalian Fauna of the Philippine Islands	www.fmnh.org/philippine_mammals
The Nature Conservancy	www.tnc.org
The World Conservation Union	www.iucn.org
TNC Asia Pacific	www.nature.org/wherework/asiapacific
UNEP-World Conservation Monitoring Centre	www.unep-wcmc.org
United Nations Environment Programme (UNEP)	www.unep.ch
WCS Asia	wcs.org/sw-around_the_globe/Asia
World Bank Biodiversity site	www.worldbank.org/biodiversity
World Bank Faiths and Environment site	www.worldbank.org/faithsandenvironment
World Resources Institute	www.wri.org
World Wildlife Fund (WWF)	www.wwf.org or www.panda.org
WWF China	www.wwfchina.org
WWF Indochina	www.wwfindochina.org
WWF Indonesia	www.wwf.or.id

BIBLIOGRAPHY

- BirdLife International. 2001. Sourcebook of Existing and Proposed Protected Areas in Vietnam. BirdLife International and Forestry Institute of Planning and Investment, Hanoi.
- Center for International Forestry research (CIFOR). 2004. Generating Economic Growth, Rural Livelihoods, and Environmental Benefits from Indonesia's Forests. CIFOR, Bogor.
- FAO statistics: <http://www.fao.org/forestry/foris/webview/forestry2/index.jsp?siteId=5621&sitetreeId=22027&langId=1&geoId=38>
- Hardcastle, J., Cox S., Nguyen Thi Dao, and Grieser Johns, A. 2004. *Rediscovering the Saola*. WWF, Hanoi.
- Kottelat, M. and T. Whitten 1996. *Freshwater Biodiversity in Asia with Special Reference to Fish*. World Bank Technical Paper No. 343, The World Bank, Washington D.C.
- Kottelat, M. 2000. Diagnoses of the a new genus and 64 new species of fishes from Laos. *J. Sth Asian Natural History*, 5: 37-82.
- _____. 2001a. *A Preliminary Checklist of the Fishes Known or Expected to Occur in Northern Vietnam with Comments on Systematics and Nomenclature*. The World Bank, Washington D.C.
- _____. 2001b. *The Fishes of Laos*. Wildlife Heritage Trust, Colombo.
- MacKinnon, K. 2001. ICDPs: Working with parks and people. *Parks*, 11.
- Palmer, M. and Finlay, V. 2003. *Faith in Conservation: New Approaches to Religions and the Environment*. The World Bank., Washington D.C.
- Reading, R. P, Wingard, J. R. and Amgalanbaatar, S. In press. Trophy Hunting of Argali Sheep (*Ovis ammon*) in Mongolia: An Example of Unsustainable Legal and Illegal Hunting and Trade
- Stolton, S., Hockings, M., Dudley, N., MacKinnon, K, and Whitten, T. 2003. *Reporting Progress in Protected Areas: A Site-Level Management Effectiveness Tracking Tool*. World Bank-WWF Forest Alliance, Washington, D.C.
- Vermeulen, J. and Whitten, T. 1999. *Biodiversity and Cultural Heritage in the Management of Limestone Resources: Lessons from East Asia*. The World Bank, Washington D.C.
- Wells, M. et al. 1999. *Investing in Biodiversity: A review of Indonesia's Integrated Conservation and Development Projects*. The World Bank, Washington D.C
- World Bank. 1998a. *Community-managed Programs in Forestry: A Synthesis of Good Practices*. World Bank, Washington, D.C.
- _____. 2000. *Supporting the Web of Life: The World Bank and Biodiversity. A Portfolio Update*. World Bank, Washington, D.C.

- _____. 2001a. *Indonesia: Environment and natural resource management in a time of transition*. World Bank, Washington, D.C.
- _____. 2001b. *Making Sustainable Commitments. An Environment Strategy for the World Bank*. World Bank, Washington, D.C.
- _____. 2001b. *Vietnam Environment Monitor*. World Bank, Washington, D.C.
- _____. 2004a. *Lao PDR Environment Monitor*. World Bank, Washington, D. C.
- _____. 2004b. *East Asia Region Forestry Strategy: Confronting the Management Vacuum*. World Bank, Washington, D.C.

Annex 1. World Bank Biodiversity Projects in EAP that had begun or have been under implementation since 1999

Country	Project Name	FY	Source of money	Total (\$ mil-lions)	Total Bio-di-versity (\$ mil-lions)	World Bank Bio-di-versity (\$ mil-lions)
Cambodia	Forest Concession Management and Control Project	2000	IDA	5.42	1.10	0.98
Cambodia	Biodiversity and Protected Areas Management Project	2001	GEF REG	3	3.00	2.75
Cambodia	Biodiversity and Protected Areas Management Project	2001	IDA LIL	1.91	1.91	1.91
China	Sustainable Forestry Development (Natural Forest Protection)	2002	GEF REG	16	16.00	16.00
China	Lake Dianchi Freshwater Biodiver-sity Restoration Project	2002	GEF MSP	1.86	1.86	1.00
China	Sustainable Forestry Development I	2002	IBRD	214.58	26.85	11.75
China	Gansu and Xinjiang Pastoral Devel-opment	2003	GEF REG	10.5	8.30	8.30
China	Gansu and Xinjiang Pastoral Devel-opment	2003	IBRD	98.72	3.00	1.99
EAP	Mekong River Commission Water Utilization Project	2000	GEF REG	16.3	5.50	3.71
Indonesia	Biodiversity Collections	1994	GEF REG	11.4	11.4	7.2
Indonesia	Kerinci Seblat ICDP	1996	GEF REG	15	15.00	15.00
Indonesia	Kerinci Seblat ICDP	1996	IBRD	32.2	32.20	19.20
Indonesia	Coral Reef Rehabilitation and Man-agement Project (COREMAP)	1998	GEF REG	4.1	4.10	4.10
Indonesia	Coral Reef Management and Reha-bilitation Project (COREMAP)	1998	IBRD	8.7	8.70	6.90
Indonesia	Conservation of Elephant Land-scape in Aceh Province, Sumatra	2000	GEF MSP	0.742	0.74	0.74
Indonesia	Biodiversity Strategy and Action Plan - IBSAP	2000	GEF EA	0.44	0.44	0.44
Indonesia	The Greater Berbak-Sembilang Inte-grated Coastal Wetlands Conserva-tion Project	2001	GEF MSP	1.5992	1.60	0.73
Indonesia	Sangihe-Talaud Forest Conservation	2002	GEF MSP	1.14	1.14	0.82
Indonesia	Indonesia Forests and Media Project (INFORM)	2002	GEF MSP	1.23	1.23	0.94

Indonesia	Coral Reef Management and Rehabilitation Project (COREMAP II)	2004	IBRD/IDA	74.6	74.60	56.20
Indonesia	Coral Reef Management and Rehabilitation Project (COREMAP II)	2004	GEF REG	7.5	7.50	7.50
Lao PDR	Wildlife and Protected Areas Conservation	1994	GEF REG	5	5.00	5.00
Lao PDR	Forest Management and Conservation	1994	IDA	15.3	7.75	4.35
Lao PDR	District Upland Development and Conservation	1999	IDA LIL	2.25	2.25	2.00
Lao PDR	Sustainable Forestry for Rural Development Project	2003	IDA	16.45	1.10	0.66
Mongolia	Assessment of Capacity Building Needs and Country Specific Priorities in Biodiversity	2000	GEF EA	0.23	0.22	0.2
Mongolia	Biodiversity Loss and Permafrost Melt in Lake Hovsgol National Park Project	2001	GEF MSP	0.829	0.41	0.41
Mongolia	Conservation of the Eg-Uur Watershed	2003	GEF MSP	2.03	0.50	0.50
Papua New Guinea	National Biodiversity Strategy, Action Plan and Report	1999	GEF EA	0.182	0.18	0.18
Papua New Guinea	Forestry and Conservation	2002	GEF REG	17.3	17.30	17.30
Papua New Guinea	Forestry and Conservation	2002	IBRD	38.5	19.25	6.25
Philippines	Conservation of Priority Protected Areas	1994	GEF REG	22.86	22.86	20.00
Philippines	Community Based Resource Management	1998	IBRD	67.5	33.75	25.00
Philippines	Mindanao Rural Development/Coastal Resource Conservation	2000	GEF REG	1.3	1.30	1.30
Philippines	Mindanao Rural Development	2000	IBRD	39.7	0.99	0.68
Philippines	Land Administration and Management	2001	IBRD LIL	10.35	2.54	1.18
Philippines	Asian Conservation Foundation	2004	GEF REG	16.9	1.90	1.60
Samoa	Marine Biodiversity Protection and Management	1999	GEF MSP	1.1	1.10	0.90
Vietnam	Forest Protection and Rural Development	1998	IDA	32.39	32.39	21.51

Vietnam	Coastal Wetlands Protection and Development	2000	IDA	65.6	15.00	7.27
Vietnam	Hon Mun Marine Protected Area Pilot Project	2001	GEF MSP	2.17	2.17	1.00
Vietnam	Conservation of Pu Luong-Cuc Phuong Limestone Landscape	2001	GEF MSP	1.306	1.31	0.75
Vietnam	Hai Van Range Green Corridor	2003	GEF MSP	2	2.00	1.00

Annex 2. World Bank Non-Lending Activities in EAP Since 1999

Country	FY	Name
Cambodia	2003	ENVIRONMENT MONITOR
Cambodia	2004	FOREST SECTOR NOTE
Cambodia	2004	POVERTY AND SOCIAL IMPACT ANALYSIS OF LAND
China	2001	WATER STRATEGY STUDY
China	2001	ENVIRONMENTAL SECTOR UPDATE
China	2002	PPIAF: CHINA--REGULATORY FRAMEWORK
China	2002	WEST-EAST ENERGY TRANSFERS
China	2002	COUNTRY WATER RESOURCES ASSISTANCE STRATEGY
China	2003	CHINA PUBLIC DISCLOSURE
China	2003	ENVIRONMENTAL ASSISTANCE
China	2003	ENVIRONMENT COUNCIL - TASK FORCE
China	2003	LIVESTOCK NOTE
China	2004	AIR POLLUTION/ACID RAIN CONTROL
China	2004	FOREIGN DIRECT INVESTMENT AND POLLUTION
China	2004	REFORM OF FORESTRY ADMINISTRATION SYSTEM
China	2004	POP ENHANCEMENT CAPACITY FOR PCB MANAGEMENT
China	2004	ESTABLISHING LONG TERM ENERGY SECURITY
China	2004	ROADMAP TOWARDS A LAND POLICY REFORM
China	2004	LESSONS FROM THE TFESSD
China	2004	STRATEGIC ENVIRONMENTAL ASSESSMENT
China	2004	CLEAN DEVELOPMENT MECHANISM
China	2004	GRASSLAND NOTE
Indonesia	2000	FORESTRY POLICY DIALOGUE
Indonesia	2002	FOREST POLICY DEVELOPMENT & SOCIAL OUTREACH
Indonesia	2002	DECENTRALIZED ENVIRONMENT MANAGEMENT AND ENFORCEMENT
Indonesia	2002	CLEAN AIR PROGRAM
Indonesia	2002	PPIAF INDONESIA WATER SUPPLY
Indonesia	2003	ENVIRONMENT MONITOR
Indonesia	2003	FOREST POLICY DIALOGUE AND STRATEGY

Indonesia	2003	NSS-FORESTRY COMPONENT
Indonesia	2003	BIODIVERSITY STRATEGY & ACTION PLAN
Indonesia	2003	CGI (INDONESIA)
Indonesia	2003	INDONESIA-MINING
Indonesia	2004	CGI
Indonesia	2004	INTERIM CGI
Indonesia	2004	LOCAL ENVIRONMENT MONITORING
Indonesia	2004	WATER RESOURCE PROTECTION
Indonesia	2004	CONSULTATION: PRIVATE POWER INVESTORS
Indonesia	2004	DECENTRALIZATION AND ENVIRONMENT
Indonesia	2004	FOREST POLICY STRATEGY
Indonesia	2005	WATER RESOURCES AND IRRIGATION
Indonesia	2005	POVERTY AND THE ENVIRONMENT
Indonesia	2005	FOREST AND FLEG INITIATIVES
Indonesia	2005	WATER USER RIGHTS ANALYSIS
Indonesia	2005	REGIONAL DEVELOPMENT PLAN YOGYAKARTA
Indonesia	2005	SUPPORT TO PRSP
Lao PDR	2001	LAO FOREST POLICY NOTE
Lao PDR	2002	LAO CPAR FY02
Lao PDR	2004	SSR/CEM
Lao PDR	2005	RURAL STRATEGY
Lao PDR	2005	ENVIRONMENT MONITOR
Mongolia	2002	MONGOLIA ENERGY STRATEGY
Mongolia	2003	BIODIVERSITY CAPACITY BUILDING
Mongolia	2003	ENVIRONMENT MINE MONITORING
Mongolia	2003	MONGOLIA FY03 CG MEETING
Mongolia	2003	FORESTRY SECTOR POLICY NOTE
Mongolia	2004	ENERGY STUDY
Mongolia	2004	ENVIRONMENT MONITOR 2004
Mongolia	2004	MINING
Mongolia	2005	REVIEW OF ENVIRONMENT AND SOCIAL POLICIES IN MINING
Pacific Islands	2002	CODE OF ENVIRONMENTAL PRACTICE
Pacific Islands	2003	PACIFIC ISLANDS ADAPTATION PROGRAM
Pacific Islands	2005	CLEAN DEVELOPMENT MECHANISM
Pacific Islands	2005	PACIFIC RISK MANAGEMENT AND ADAPTATION
Palau	2004	EL NINO RISK MANAGEMENT

Philippines	2000	RENEWABLE ENERGY
Philippines	2002	CAPACITY BUILDING IN SOCIAL & ENVIRONMENTAL ASSESSMENT
Philippines	2002	ENVIRONMENT MONITOR ON AIR QUALITY
Philippines	2003	COUNTRY WATER RESOURCES ASSISTANCE STRATEGY
Philippines	2003	STRENGTHENING ENVIRONMENT ENFORCEMENT
Philippines	2003	ENVIRONMENT MONITOR
Philippines	2004	SUSTAINABLE DEVELOPMENT OF MINING
Philippines	2005	PEM 05
Philippines	2005	POPS MANAGEMENT
Philippines	2005	SEMI-ANNUAL SAFEGUARDS FORUM
Philippines	2005	ENVIRONMENTAL MANAGEMENT(WATERSHED)
Philippines	2005	ENVIRONMENT MONITOR '04
PNG	2002	BIODIVERSITY STRATEGY AND ACTION PLAN
PNG	2002	ENVIRONMENTAL STRATEGY
PNG	2003	PNG ENVIRONMENT MONITOR - DISSEMINATION
Regional	1999	ENVIRONMENT COMPONENTS PROJECTS
Regional	2000	REGIONAL STUDY FOR NATURAL GAS
Regional	2002	REGIONAL GAS STUDY
Regional	2002	POVERTY-ENVIRONMENT NEXUS
Regional	2002	MAINSTREAMING ENV IN PRSP AND PER
Regional	2003	REGIONAL CLEAN AIR INITIATIVE
Regional	2004	CLEAN AIR (AIR QUALITY) INITIATIVE
Regional	2004	LAND POLICY AND ADMINISTRATION
Regional	2004	FAITHS AND ENVIRONMENT
Regional	2004	INCORPORATION OF RELIGIONS IN BIODIVERSITY
Regional	2004	WB/WWF/ALLIANCE
Regional	2005	REG ENVIRONMENT STRATEGY
Regional	2005	MEKONG REGION WATER ASSISTANCE STRATEGY
Thailand	2000	LAND-USE
Thailand	2004	ENVIRONMENT MONITOR
Thailand	2004	COUNTRY DEVELOPMENT PARTNERSHIP-ENVIRONMENT
Thailand	2005	ENVIRONMENT MONITOR '04
Vietnam	2002	NATIONAL SECTOR STRATEGY FOR CDM
Vietnam	2002	METROPOLITAN ENVIRONMENTAL IMPR.PROG.
Vietnam	2003	REVIEW OF ENVIRONMENTAL, SOCIAL FRAMEWORK
Vietnam	2003	ENVIRONMENT SECTOR SUPPORT
Vietnam	2004	VIETNAM POVERTY ASSESSMENT
Vietnam	2004	IMPLEMENTING THE LAW ON WATER RESOURCES
Vietnam	2004	PPIAF:VIETNAM GAS LEGAL FRAMEWORK
Vietnam	2005	ENVIRONMENT MONITOR

Annex 3. Grants (over US\$25,000) disbursed by the Critical Ecosystem Partnership Fund in EAP.

Hotspot	Project	Grantee	Grant
China	Building Best Biodiversity Conservation Strategies	Conservation International	651,863
China	Establishing Partnerships for Lasting Conservation	Conservation International	350,117
China	Refining Conservation Outcomes for the Southwest China Hotspot	Conservation International	323,478
China	Asian Conservation Awareness Program- China	WildAid	250,295
China	Capacity Building for Newly Established Nature Reserves	Conservation International	202,867
China	Establishing Database on Mammals and Birds of Sichuan and Chongqing	Sichuan Academy of Forestry	47,269
Indonesia	Anti-Poaching Patrols in Sumatra's Bukit Barisan Selatan National Park	International Rhino Foundation	690,585
Indonesia	Conserving the Northern Sumatra Conservation Corridor (NSC)	Conservation International	589,783
Indonesia	Facilitate the Establishment of the Tesso Nilo Conservation Forest	Conservation Management	319,318
Indonesia	Conservation of the Bukit Barisan Selatan Landscape in Sumatra	WCS	301,902
Indonesia	Strategy for Protecting Resources in the Gunung Leuser Ecosystem	WildAid	260,440
Indonesia	Conservation of the Orangutan in the Northern Sumatra Corridor	Conservation International	250,000
Indonesia	Conservation of Sumatra Tiger in Tesso Nilo/ Bukit Tigapuluh Landscape	WWF	233,874
Indonesia	Strengthen Community Forest Management in the Seulawah Ecosystem	Yayasan Rumpun Bambu	227,180
Indonesia	Nanggroe Aceh Darussaleam (NAD) Policy Initiative Planning Grant	Conservation International	222,220
Indonesia	CEPF Support of Local Partners in Sumatra	Conservation International	215,729
Indonesia	Building the Capacity of NGOs in Sumatra's Tesso Nilo	WWF Indonesia	186,674
Indonesia	Secure the Tesso Nilo Conservation Landscape	Conservation Management	165,050
Indonesia	CEPF Conservation Strategy Preparatory Work in Sumatra	Conservation International	142,891
Indonesia	Red List Assessment and Management of Reptiles and Freshwater Fish	Conservation International	101,198
Indonesia	Conservation Concession Approach on Sumatra's Siberut Island	Conservation International	92,841
Indonesia	A Strategy for Management at Bukit Barisan Selatan National Park	WCS	65,970

Indonesia	Investigations into Three Forest Concessions in the Seulawah Ecosystem	Yayasan Ekowisata Aceh	58,420
Indonesia	Use of Forest Resources in Riau: A Look at Legal & Illegal Employment	WWF	49,432
Indonesia	Incorporating Conservation into Riau's Provincial Spatial Planning Process	Yayasan Kaliptra	46,274
Indonesia	Economic Analysis of Forest Concessions in Tesso Nilo, Sumatra	Conservation International	32,085
Philippines	Emergency Action for Threatened Species	Haribon Foundation	1,000,000
Philippines	Protected Area Management of the Sierra Madre Biodiversity Corridor	Conservation International	480,227
Philippines	Palawan Strategy Development Project	Conservation International	458,385
Philippines	Community Enforcement Initiative to Stop Poaching in Palawan	Env Legal Assistance Center	311,564
Philippines	Strengthening Corporate Support for Biodiversity Conservation	First Philippine Conservation	162,500
Philippines	CEPF Conservation Strategy Preparatory Work	Conservation International	122,976
Philippines	CEPF Grant Facilitation in the Philippines	Conservation International	101,775
Philippines	Creating a New PA for the Palawan Mantalingahan Range Forests	Conservation International	68,803
Philippines	Launch of the PBCPP and the National Geographic July 2002 Issue	Conservation International	64,532
Philippines	Linkages Between Biodiversity, Ecosystem Health and Human Health	University of Western Ontario	27,200
Philippines	Finalization of the Implementing Rules of the Wildlife Act	Conservation International	25,565

