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The World Bank Group

2010 Environment Strategy

Analytical Background Papers

The Role of Biodiversity and Ecosystems in Sustainable Development

Task Managers: Claudia Sobrevila (ENV) and Valerie Hickey (ENV)

Contributions from: John Reid (consultant), Marjorie-Anne Bromhead (ARD), Dipti Thapa (ARD), Junu Shrestra (ENV), Christina Ariane Wartenberg (LAC)

Peer reviewers: George Ledec, Agi Kiss, Adriana Moreira

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Executive Summary

Biologically diverse ecosystems in countries served by the World Bank provide an array of valuable economic services. While the benefits of conserving ecosystems frequently outweigh the costs, conversion of these ecosystems to other uses occurs anyway, because many ecosystem benefits are of a public good nature, without markets that would reflect their real value. With appropriate policy frameworks, some public goods can be brought to market and others sustained through regulatory action. Many ecosystems and the biodiversity that they contain are unique to the world.

The World Bank Group (WBG) is preparing the Environment Strategy, which is expected to be completed and approved by December 2010. As a central mandate, the WBG has an enduring commitment to ensure that its support to client countries leads to sustainable outcomes, promising development results that are economically, socially and environmentally sustainable. On May 18, 2009, the Concept Note for the Environment Strategy was approved by the Board. The Concept Note framed the elements to be considered in developing the new Strategy and identified a series of analytical background papers, one of which addresses biodiversity and natural resources management.

The analytical paper on the role of biodiversity and ecosystems protection and management in sustainable development was initiated in December 2009. The main purpose of the paper is to increase the understanding on how biodiversity is incorporated in a development agency such as the WBG and how the WBG can enhance its role in biodiversity and ecosystems protection and management as a key ingredient to reach development sustainability.

The main findings to date indicated that the World Bank's biodiversity funding peaked nearly 20 years ago, just as the Global Environment Facility (GEF) (designed to promote recognition of global public goods) was being implemented (recognition of global public goods). The GEF has been the mainstay of Bank-implemented grants, and has leveraged co-financing from IBRD and IDA loans as well as other co-financiers. The Bank has become the largest biodiversity funder in the world. Between 1988 and 2009, the Bank committed almost $2 billion in loans and over $1.4 billion in GEF resources and leveraged $2.9 billion in co-financing, resulting in a total investment portfolio exceeding $6.3 billion. The WBG has worked directly with 122 developing countries, as well as through a range of regional and global partnerships, to protect and manage biodiversity.

The WBG portfolio includes local activities to protect small but critical habitats with communities and indigenous peoples, and to establish and manage national protected areas, as well as national environmental and protected areas trust funds. The portfolio is increasingly focusing on improving natural resource management and mainstreaming biodiversity into forestry, coastal zone management, and agriculture. The Bank also supports regional and global initiatives to increase awareness and the capacity of stakeholders to join forces in conserving natural resources.

The 2010 Biodiversity Target of the Convention on Biological Diversity (CBD) is to reduce significantly the current rate of biodiversity loss. World Bank client countries have doubled terrestrial protected areas in the last 20 years; they now cover about 14 percent of the earth's land surface. The Bank's biodiversity funding has made a substantial contribution toward this improved global indicator (60 percent of Bank funding has gone to protected areas).

World Bank-GEF funding peaked at $165 million in 2002 and was over $150 million as recently as 2006. Since 2006, overall World Bank biodiversity funding has declined by 80 percent. This decline is also observed in the IBRD and IDA loans. There has been substantially lower use of GEF biodiversity funds during the GEF-4 replenishment period compared to previous replenishment periods. Since the GEF-4 replenishment, GEF funding managed by the Bank has fallen sharply, to a total of $30 million in the 2009 fiscal year.

There are a number of possible reasons for this decline, with a combination of internal and external factors:

- The GEF Resource Allocation Framework (RAF): The availability of funds per country and complex implementation rules led to fragmentation of resources and limitations in developing larger-scale GEF projects that are favored by the Bank.

- Shift in roles and responsibilities among partners, with more centralized decision-making in the GEF Secretariat as well as stronger influence of the GEF national Focal Points in selection of projects. This disrupted the way in which the Bank has traditionally conducted business through its own dialogue with specific sectors and national planning authorities linked to CAS, PRSP, CEAs or other dialogues. Availability of Bank staff and expertise to engage and support portfolio development also played a role.

- Shifts in client country demand, both for WB loans and for GEF support. The general lack of priority for biodiversity among client countries limits the Bank portfolio which in turn influences the GEF grant demand. Some countries used their allocation to share smaller projects among several Agencies, which crowded out agencies needing larger interventions. The IFC focus on private sector support does not fit under current government priorities.

The recent decline in biodiversity funding at the Bank, as well as the growing threats to biodiversity in developing countries, have prompted the Environment department of the Bank to request this analytical paper to provide recommendations on a re-engagement in biodiversity activities at the Bank.

With over two decades of multi-faceted engagement on biodiversity issues, the WBG can continue to play a major ongoing role in conserving biodiversity. It can now deploy a wider array of tools, including grants, traditional loans, development policy loans, model safeguard policies, research and development, and convening power. The Bank has both the experience and the global reach to deploy these tools effectively. However, the bulk of Bank sector loans are in rural development and infrastructure development; these activities dwarf biodiversity, which

accounts for just a fraction of one percent of Bank operations. Lessons from the rich biodiversity portfolio have not yet permeated these other sectors. This report calls for close attention to biodiversity in the multiple sectors where the Bank has a strong influence. The main recommendations are:

- Measure Ecosystems as Assets in the National Accounting Framework
- Address the decline in GEF Biodiversity funding
- Improve the Link between Biodiversity and the Livelihoods of Indigenous and Local Communities
- Continue Support to Global and Regional Partnerships
- Mainstream Biodiversity and Ecosystem Services in the Bank's Core Business

Most importantly, the above issues will only be addressed with a few changes or improvement in some key internal bank processes that include:

- Increase staff with technical capacity in biodiversity and ecosystem services to support the implementation of the strategy.
- Establish a Global Expert Team (GET) on Biodiversity and Ecosystems to provide on-time advice to task teams preparing lending operations, as an incentive to add value to project design by incorporating win-win solutions, and to apply the Bank safeguard policies as part of best-practice project design. This team could explicitly manage, among other things, a budget to allocate team members across the regions to projects with great potential. Through this GET on Biodiversity and Ecosystems, opportunities to mainstream biodiversity in rural development and infrastructure operations would increase and GEF funding would also be accessed more effectively.
- Contribute timely and high-quality input to forthcoming sectoral strategy reviews and the further conceptualization and piloting of biodiversity valuation in economic development and ecosystem-based adaptation approaches in climate change.
- Streamline the process for accessing GEF funding and avoid making GEF grants more difficult to access than loans.

1. Background

The World Bank Group (WBG) is preparing the Environment Strategy, which is expected to be completed and approved by December 2010. As a central mandate, the WBG has an enduring commitment to ensure that its support to client countries leads to sustainable outcomes, promising development results that are economically, socially and environmentally sustainable. The new Environment Strategy will articulate a set of principles and propose an approach for achieving this environmental sustainability of the WBG's portfolio. On May 18, 2009, the Concept Note for the Environment Strategy was approved by the Board. The Concept Note framed the elements to be considered in developing the new Strategy and identified a series of analytical background papers, one of which addresses biodiversity and natural resources management.

The objective of this paper was defined at a Concept review meeting held on December 2009 and is to increase the understanding on how biodiversity is incorporated in a development agency such as the WBG and how the WBG can enhance its role in biodiversity and ecosystems protection and management as a key ingredient to reach development sustainability.

In order to define a reasonable strategy to prepare this paper, two approaches were used: the first was to carry out background and analytical studies, and the second was to consult with a wide range of stakeholders including Bank staff, NGOs, and indigenous groups.

The present background paper is based on the following studies:

a. A paper that informs the World Bank's new environment strategy with an economic perspective on biodiversity conservation, and attempts to define the role of biologically diverse ecosystems in poverty alleviation. *Justification*: Some Sector Management Units (SMUs) and Country Management Units (CMUs) have failed to view biodiversity conservation (or even biodiversity management issues such as invasive species) as a development issue, in part because their client countries do not consider it a priority. This paper presents the key justifications for a development organization such as the World Bank engaging in biodiversity conservation, and presents the advantages that the Bank has over other organizations in this pursuit.

b. A review of past trends in the Bank's biodiversity activities, and an assessment of which entry points are most commonly used to engage in biodiversity, particularly in terms of mainstreaming conservation efforts in Bank sectors that have not historically dealt with biodiversity. *Justification*: This analysis was necessary in order to document the recent portfolio decline in biodiversity at the Bank, the reasons for this decline, and the best approach for engaging these issues in the future.

c. A study of how the Bank can best incorporate biodiversity considerations in the Agriculture and Rural Development (ARD) portfolio. *Justification*: Seventy-five percent of the world's poor are rural, and most are involved in farming. Biodiversity can benefit agriculture in many ways: genetic diversity improves agricultural productivity; ecosystem resiliency

sustains land and water productivity; biodiversity increases the capacity of agricultural production to adapt to stresses; and biodiversity sustains essential functions such as pollination, pest and disease regulation, and nutrient recycling. With the need to increase food production in the world, natural resources use and management will be at risk unless win-win solutions involving ecosystems and biodiversity are incorporated into new and on-going rural development operations. A collaboration with the ARD department resulted in both an analysis of how biodiversity is currently incorporated into the portfolio and recommendations on how to incorporate biodiversity in the future. Within the biodiversity portfolio, support for protected area (PA) creation and management through GEF funding dwarfs other areas. Agriculture/natural resource management (NRM), forestry, and watershed management are the next three areas in which biodiversity is most commonly incorporated. These are also the focus themes for ARD, which prompted us to request ARD to collaborate with us on a paper exploring how the Bank can best incorporate biodiversity considerations into the ARD portfolio.

d. A study of how the Bank can best incorporate biodiversity considerations into climate-change framework and funds. *Justification*: The climate change agenda is now the environmental issue attracting by far the greatest attention from international and national governments and institutions. This affords an opportunity to increase development of co-benefit mechanisms to address climate change, biodiversity and ecosystems, and social issues. An analysis was carried out to assess how biodiversity is incorporated in the newest climate change operations in the Bank. Interventions to conserve biodiversity, such as appropriate forest management and protection efforts, can mitigate the impacts of climate change by improving a forest's ability to store CO2; they can also strengthen a community's resilience to the effects of climate change, and secure their livelihood resources. Ecosystem-based approaches are increasingly proving their worth in addressing climate change, strengthening local livelihoods for the world's poorest, and protecting biodiversity. This paper is forthcoming.

e. A short note presenting the opportunities and recommended tools for the Bank to engage in biodiversity conservation. *Justification*: The Bank's current conditions regarding increased lending in infrastructure and food security, the increased actions on the climate change front, and the Bank's new instruments (DPLs, PRSCs, SILs, etc) to engage client countries require a detailed look at how biodiversity considerations can be incorporated under these new conditions. These recommendations are presented in this first draft and will be subject to consultations.

2. Link to the Environment Strategy

Decades of research have established that biodiversity and the intact ecosystems that it supports have economic value, and that species are being lost at a pace as much as 1,000 times greater than rates in recent geological time (Millennium Ecosystem Assessment 2005). Biological resources provide the raw materials for livelihoods, sustenance, medicines, trade, tourism, and industry. Genetic diversity provides the basis for new breeding programs, improved crops, enhanced agricultural production, and food security. Forests, grasslands, freshwater, marine, and other natural ecosystems provide a range of services, often not recognized in national economic accounts but nevertheless vital to human welfare including regulating water flows, flood control, pollination, decontamination, carbon sequestration, biodiversity conservation, and nutrient and hydrological cycling. Terrestrial and oceanic ecosystems play a significant role in the global carbon cycle. Protection and sound management of natural ecosystems maintain carbon sinks and provide natural solutions and services that enable societies to adapt to climate change.

However, the world's biodiversity continues to be threatened by deforestation, over-exploitation of natural resources, environmental pollution, invasive alien species, and climate change. A global assessment of the state of biodiversity in the world (Global Biodiversity Outlook 3, 2010) concluded that "the target agreed by the world's Governments in 2002, 'to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to the benefit of all life on Earth', has not been met." The IUCN Red List (2009) indicates that one in four mammals, one in eight birds, and one in every three amphibians and corals face extinction. The May 2010 issue of *Science* states that "most indicators on the state of biodiversity (i.e. species' population trends, extinction risk, habitat extent and condition) showed declines, whereas indicators of pressures on biodiversity (i.e. over-exploitation, resource consumption, invasive alien species) showed increases." It is clear that despite national and international efforts invested since 1992, the world's biodiversity continues to be threatened.

The sustainable use and conservation of biodiversity is essential for poverty reduction and economic growth. The world's poorest communities are increasingly being affected by biodiversity loss. Their sources of food and fuel, along with the other services and products that biodiversity affords, are in decline. This decline is compounded by the effects of climate change, which make communities even more vulnerable, while at the same time decimating the biodiversity and ecosystem services that foster community resilience. Biodiversity is critical for maintaining ecosystems and the services they provide. One of the most important challenges of sustainable development will therefore be to reverse the current loss of biodiversity and its attendant ecosystem services.

Biodiversity provides many instrumental benefits, from food and fuel to recreation. But even where biodiversity is not immediately instrumental, it represents global public goods that must be protected, if only for their potential value in the future (Box 1). Many economists in developed and developing countries have questions about the economic potential of these ecosystems: they want to know if ecosystems generate more economic benefits intact than converted; if they do,

economists want to know whether these benefits are public goods, requiring a mechanism to reward people for producing them. These questions should not be the sole determinants of conservation decisions; economics has serious limitations in measuring and weighing natural values. But they are a key element in designing an effective biodiversity strategy that advances economic wellbeing.

The most comprehensive review on this topic, "The Economics of Ecosystems and Biodiversity" (TEEB) (UNEP, 2010) evaluated the costs of the loss of biodiversity and the associated decline in ecosystem services worldwide, and compared them with the costs of effective conservation and sustainable use. The results indicated that human well-being is dependent upon ecosystem services provided by nature for free, such as the stability provided to our hydrological and climate systems, nutrient cycling, water and air purification, food (e.g., fisheries), shelter (e.g., timber), medication, and psychological and spiritual wellbeing. These are predominantly public goods with no markets and no prices, so their loss often is not detected by our current economic incentive system, and therefore continues unchecked. Many factors, including population growth, changing diets, urbanization, and climate change, are causing biodiversity to decline, and ecosystems are continually being degraded. The world's poor are most at risk from this continuing loss of biodiversity, as they are the ones most reliant on the ecosystem services that are being degraded.

Box 1: Value of Biodiversity

There are two types of Biodiversity values. One type is associated with the value of actual species and genetic variability in a given place, and applies in particular to pharmaceutical and agricultural innovation. All of our foods, and about 25 percent of drugs, are derived from wild organisms. The greater the variety of chemical compounds and genetic material, the greater the resource of information from which scientists can develop new medicines and crops with advantageous growing habits or nutritional properties. Simpson et al. (1996) estimated the maximum possible value of high-biodiversity ecosystems for pharmaceutical research and came up with figures between twenty US cents and US$20 per hectare per year for Myers' (1988 and 1990) biodiversity "Hot Spots." The places with the highest values were those with the largest arrays of endemic species (life forms not found in other ecosystems).

The second type of biodiversity value is functional. The most basic, easily understood ecosystem value is food. In 2006, fishers hauled $91 billion in fish from intact ecosystems (FAO 2008) and created an array of processing and marketing jobs. While that is not a very big chunk of world GDP, it is a living for 35 million often economically vulnerable fishers, as well as a protein source for billions of people. On land, wild food is scarcer, but it is a routine source of nutrition for many traditional cultures and is also an "insurance" resource, filling in when cultivated and purchased foods aren't available.

Intact ecosystems also provide building materials, protection from tsunamis, carbon dioxide absorption, clean water, safaris, and other values that rely on the biological variation underpinning ecosystem function. Values range from the direct and tangible (even edible) to the least tangible, but often passionately held "existence" values, which refer to people's affinity for special things they never experience firsthand.

Natural ecosystems are also a place where indigenous cultures and languages persist. Cultural integrity is often closely tied to a specific place, with its resources, natural features, and specific flora and fauna. Another key element in cultural survival for some peoples is physical isolation, behind the barrier of a roadless forest, for example. This same remoteness permits non-human species to survive.

Much of the world's biodiversity is located in developing countries where the poorest communities depend on it for their survival and livelihood. One of the key reasons for rapid biodiversity and ecosystem erosion is a lack of government commitment and capacity to recognize biodiversity and ecosystem conservation as a good development practice. Developing country are forced to make difficult decisions about the use of natural resources. One of the critical shortcomings that inhibit fully informed decision-making is the lack of information about the short-term vs. long-term values of local ecosystems and their services.

Because government policies and markets fail to secure biodiversity, international agreements such as the Convention on Biological Diversity have played a significant role in ensuring that nations around the world conserve and manage biodiversity. Since the Rio summit in 1992, the World Bank has engaged in biodiversity issues through both loans and grants, and has over the past 20 years built up a rich portfolio of biodiversity projects worth more than $6.3 billion. A substantial amount of that investment has been dedicated to protected areas, but there is an increasing focus on improving natural-resource management and on mainstreaming biodiversity into forestry, coastal-zone management, and agriculture.

During this International Year of Biodiversity, and the 10th meeting of the Conference of the Parties in Nagoya, the world's biodiversity continues to be critically endangered, and governments around the globe are renewing their commitments to the Convention on Biological Diversity. At this critical time, the Bank is in a unique position to step up its leadership role to integrate biodiversity and ecosystem services into the development process.

First, the Bank has accumulated a vast amount of experience in biodiversity programs around the globe, clearly demonstrating that biodiversity is good for development. This experience puts the Bank in a position to increase financing of ecosystem and biodiversity services through regular operations (i.e., infrastructure, agriculture, energy, and policy lending operations) by finding win-win solutions to development issues, and by showing that biodiversity conservation and ecosystem-based approaches can spur and sustain development, while at the same time addressing climate change challenges. This has not yet been done systematically across the portfolio, and incorporating this experience into the new WBG Environment Strategy would improve the overall performance and quality of the Bank's development process; at the same time, it would contribute to the reduction of biodiversity loss in the world, which is a commitment made by most of its government clients who have subscribed to the CBD convention.

Second, the Bank can increase the capacity of governments to integrate the value of natural capital (biodiversity and ecosystem services) into sub-national and national development planning and accounting systems. If the world continues with its current development paradigm, which does not value biodiversity and ecosystem services, more and more areas with immense richness in biological diversity, water quality, soil richness, and carbon storage could be categorized as critically endangered if governments do not value them appropriately and take actions to incorporate them into their development planning. The Bank has the opportunity to

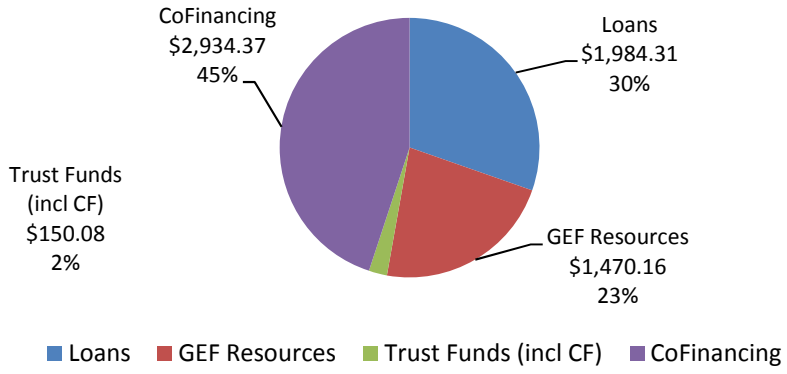
step up its role and demonstrate to all its government clients that biodiversity and ecosystems are part of sustainable growth.

Despite the Bank's commitment to biodiversity and natural resources management, the portfolio has declined in the past two years, raising serious concerns among senior management and environmental staff. The Environment Strategy Concept Note requested a background paper to study the factors contributing to this declining portfolio in biodiversity and natural resources management and to assess whether new approaches are needed to reverse this decline. The purpose of this paper is to inform the WBG's new Environment Strategy with an assessment of Bank engagement in biodiversity-related activities, to draw lessons from this previous experience, and to propose recommendations for enhancing the bank's role in biodiversity and ecosystem protection and management, which have proven to be key ingredients of development sustainability.

3. Learning from Past Experience

The Global Environment Facility (GEF) has been the mainstay of grants implemented by the Bank ($1.4 billion) for biodiversity conservation and management, but the Bank has itself committed $2 billion in loans and has leveraged $2.9 billion in co-financing (Fig. 1). The World Bank has worked directly with 122 developing countries, as well as through a range of regional and global partnerships, to save threatened ecosystems and species. The Bank portfolio includes local activities, working with communities and indigenous peoples to protect small but critical habitats; it has also included work to establish and manage national protected areas, as well as national environment and protected areas trust funds. To a lesser extent, the portfolio focuses on improving natural resource management and mainstreaming biodiversity into forestry, coastal zone management, and agriculture. More recently, the Bank has supported regional and global initiatives to increase the awareness of stakeholders, and to improve their capacity to join forces in conserving natural resources. The main lessons learned from this vast investment are summarized in the following sections.

Figure 1: Total biodiversity investments by funding source (FY 1988-2009, $ millions)

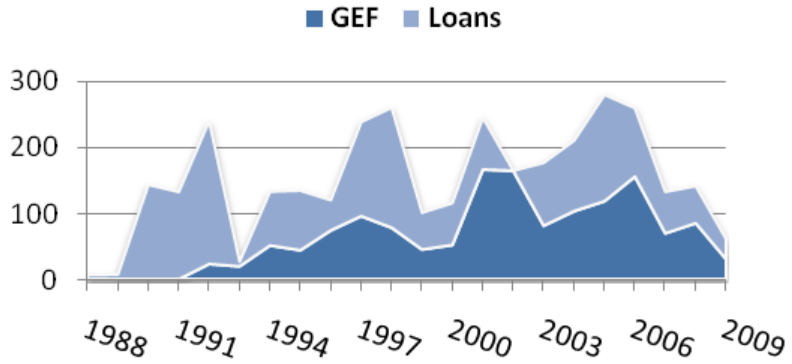


4.1 Borrowing for Biodiversity as an Economic Investment

In the late 1980s, credits went to Malaysia, Indonesia, and Brazil, with more or less token biodiversity spending in much larger (+/-$150 million) IBRD loans. In 1990 the first major biodiversity commitment, of $117 million, was made to Brazil (in a National Environmental Management loan), followed by an $80 million IBRD biodiversity loan to the Philippines. In the early 90's, the Amazonian states of Mato Grosso and Rondônia and Madagascar, West and Central Africa and Sri Lanka borrowed for protected areas activities. In 1995, a $55 million biodiversity loan was made to Venezuela for its protected areas. After 1995, we do not see loans dedicated to biodiversity conservation. Once the GEF funding became available, most of the loans for biodiversity conservation have been partially blended with GEF funding or have been rural development projects (i.e. land, water, fisheries, forestry) with a small portion of biodiversity conservation GEF funding or they have been (Fig. 2).

A review of biodiversity loan documents indicated that while very few projects present a reasonable cost-benefit analysis, they do present their clients' economic reasons for borrowing for biodiversity. These reasons included: (1) the project added value to a hydroelectric dam, municipal water, irrigation, or tourism activities; (2) investment would decrease the high cost of replacement investments and investment losses such as soil erosion; (3) added value of forgone goods (e.g., fish stock losses); (4) biodiversity activity would generate income from non extractive economic activities within protected areas; and (5) activities would improve livelihoods for local communities.

Figure 2: Annual investment in biodiversity projects approved by the WBG for GEF projects only and for Loans only ($ millions)



Lesson Learned: Developing country partners are largely aware that biodiversity underpins every aspect of human life and is critical for sustainable development, but borrowing for biodiversity is not a priority for most countries. One of the critical shortcomings that inhibit fully informed decision-making is the lack of information on the short-term vs. long-term values of biodiversity and local ecosystems and their services. Developing country partners need help increasing their capacity to measure biodiversity and ecosystems as assets in the national

accounting framework, so that decision-makers can balance short-term gains from unsustainable exploitation against long-term benefits from ecosystem services. This increased capacity would strategically lead to increased financing of ecosystem and biodiversity services through the Bank's regular operations, including infrastructure, agriculture, energy, and policy lending operations.

4.2 Trends in GEF Biodiversity Funding at the Bank

Biodiversity activities at the Bank have been driven by an imperative to manage global public goods associated with biologically rich ecosystems. The 1992 emergence of the Convention on Biological Diversity at Rio de Janeiro exemplified this global goal and, as a treaty, suggested that international cooperation would be needed to accomplish it. Biodiversity is disproportionately concentrated in countries less able to pay for its conservation, a fact that gave rise to the creation of the Global Environment Facility (GEF), which tackles a suite of global issues, among them biodiversity. The GEF has been the mainstay of Bank-implemented grants. GEF funding has leveraged Bank lending toward biodiversity-related activities. It has also attracted large amounts of co-financing from the international community and national governments. World Bank-GEF funding peaked at $165 million in 2002 and was over $150 million as recently as 2006. Since 2005, overall World Bank biodiversity funding has declined by 80 percent (Fig. 2). There has been substantially lower use of GEF biodiversity funds during the GEF-4 replenishment period compared to previous replenishment periods. Since the GEF-4 replenishment, GEF funding managed by the Bank has fallen sharply, to a total of $30 million in the 2009 fiscal year.

There are a number of possible reasons for this decline, with a combination of internal and external factors:

- The GEF Resource Allocation Framework (RAF): The availability of funds per country and complex implementation rules led to fragmentation of resources and limitations in developing larger-scale GEF projects that are favored by the Bank.

- Shift in roles and responsibilities among partners, with more centralized decision-making in the GEF Secretariat as well as stronger influence of the GEF national Focal Points in selection of projects. This disrupted the way in which the Bank has traditionally conducted business through its own dialogue with specific sectors and national planning authorities linked to CAS, PRSP, CEAs or other dialogues. Availability of Bank staff and expertise to engage and support portfolio development also played a role.

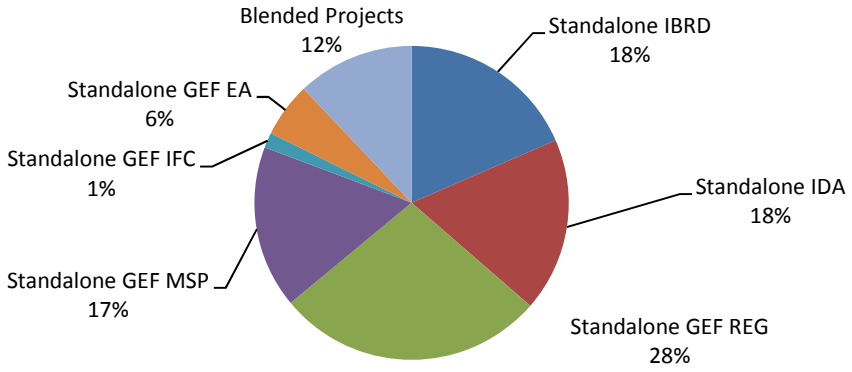
- Shifts in client country demand, both for WB loans and for GEF support. The general lack of priority for biodiversity among client countries limits the Bank portfolio which in turn influences the GEF grant demand. Some countries used their allocation to share smaller projects among several Agencies, which crowded out agencies needing larger interventions. The IFC focus on private sector support does not fit under current government priorities.

Lesson Learned: The World Bank has twenty years of experience with the GEF and has accumulated a unique wealth of experience from the early piloting work done with the facility and through years of full implementation of grants of various sizes. The recent decrease in GEF biodiversity operations poses great risks to development, poverty alleviation, and climate change, as well as to biodiversity and ecosystem loss.

4.3 Complementary Grants and Loans

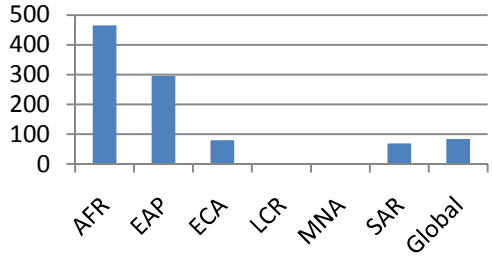
Approximately 64 percent of biodiversity operations to date have been supported through GEF funding, while lending operations without association to GEF represent about 36 percent (IDA and IBRD) (Fig. 3).

Figure 3: Percentage of type of operations supporting biodiversity objectives



In GEF blended operations, GEF resources support global incremental benefits, and are attached to IBRD or IDA loans that support national and local benefits. Approximately 12 percent of biodiversity projects are blended operations. There has been a perception that the Bank has used GEF resources to leverage loans, but the proportion of GEF blended operations is not as high as this perception would suggest. The Bank's GEF blended operations follow similar highs and lows to the trends in the stand-alone GEF operations, except for a recent higher peak in 2006 when the Africa region had a policy to encourage blended operations. The Africa region has most frequently tied Bank lending to GEF grants, followed by the LAC and EAP regions (Fig. 4).

Figure 4: Investment volume of GEF blended projects by region



Lesson Learned: Unfortunately, given the weak stature of many environment ministries, and particularly given the strength of their production counterparts (e.g. the ministries of agriculture, natural resources, fisheries, etc.), as well as the inability of governments to capture easily the value of natural capital and ecosystem services in traditional economic models, few governments lend money for ecosystem and biodiversity conservation. The World Bank is one of the only institutions able to mobilize both biodiversity grants and loans on a large scale. Grants can produce public goods in conjunction commercial development funded by loans. Within the Bank's loan portfolio interest-free long-term IDA loans, which enable environmental investments with broad social benefit but limited or no monetary return, are available to poor countries.

4.4 Indigenous and Community Development

A few biodiversity projects have promoted more sustainable livelihoods and poverty alleviation, seeking to reconcile the legitimate needs of both biodiversity and local communities. An analysis of 141 biodiversity projects shows that more than half (72 projects) included the participation of local communities, and the design and implementation of community-based development activities. Such projects include payments for ecosystem services (Costa Rica), assistance to indigenous peoples to strengthen conservation and management of their territories, and improved management of freshwater, coastal, and marine resources. Another study "The role of indigenous peoples in biodiversity conservation" (World Bank, 2008) reveals that 109 projects out of the 596 studied have supported or are supporting Indigenous Peoples (IP) programs and needs (only 18.3 percent of the Bank biodiversity portfolio). However, of the 109 projects analyzed, only 32 percent have full engagement (stand-alone IP projects or biodiversity projects that support in their totality the IP programs and needs). This number is extremely low considering that a large number of IPs inhabit areas rich in biodiversity and forests.

Lesson Learned: As the international community makes decisions relating to the use of forests and other natural areas as part of a global climate pact and as part of strong biodiversity engagement, the Bank needs to find ways to secure co-benefits from improved management of natural resources. The Bank should be more effective at learning from and working with indigenous communities while respecting and supporting their rights. Much of the world's remaining natural areas are inhabited by indigenous peoples who have served as stewards for some of our most biodiversity-rich ecosystems. The Bank also needs to address the impacts that biodiversity losses have on the livelihood of local communities that depend on these resources for survival and strengthen its portfolio to this end.

4.5 Protected Areas as the Cornerstone for Biodiversity Conservation

In line with national priorities, many Bank projects (59 percent) are supporting the establishment and more effective management of protected areas. More than half of GEF investments have gone toward protected-area projects, including support for activities in park buffer zones. Many of these parks have protected important watersheds or provided other critical ecosystem services

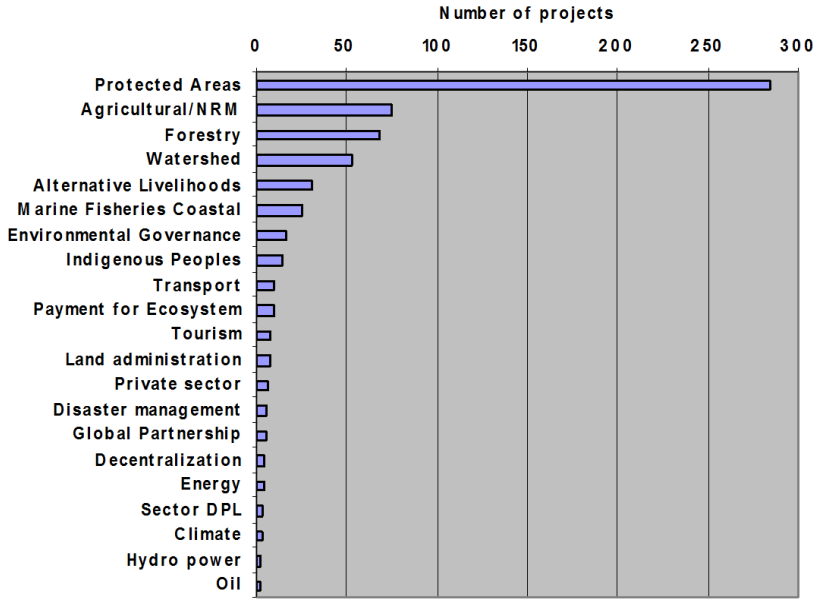
such as coastal protection for flood control. To ensure sustainability of financing, the Bank has supported the establishment of numerous conservation trust funds to support park operations and provide livelihood opportunities for the local and indigenous communities that live in and around these conservation areas. This investment has made a substantial contribution toward one of the Convention of Biological Diversity 2010 targets: terrestrial protected areas have doubled over the past 20 years, and now cover almost 14 percent of the earth's land surface.

Lesson Learned: Protected areas are the main pillars of biodiversity conservation. They can protect watersheds and regulate water flow; prevent soil erosion; influence rainfall regimes and local climate; conserve renewable harvestable resources and genetic reservoirs; and protect breeding stocks, natural pollinators, and seed dispersers, which maintain ecosystem health. With the vast experience that the Bank has gained in protected areas management, and given the value that these protected areas have to local and national economies, the Bank should continue its engagement either through GEF stand-alone projects or through blended operations.

4.6 Mainstreaming Biodiversity in Bank sectors

Through blended operations, biodiversity has been mainstreamed into the following sectors: agriculture, forestry, watershed management, land management, coastal zone management, and fisheries. To a lesser degree, biodiversity-related activities have also been incorporated into tourism, transport, the private sector (business and private reserves), land tenure, disaster management, energy, climate, hydro power, and the oil industry (Fig. 5).

Figure 5: Mainstreaming Biodiversity in World Bank sectors



Examples of how biodiversity has been mainstreamed within broader development projects may help shape future interventions and provide guidance for the environment strategy. This discussion focuses on rural development, infrastructure development, and climate change.

Rural Development: There are some examples of recent and ongoing rural development operations, supported through IBRD lending and IDA credits, that aid in the restoration of land and water ecosystem functions, providing the base for the recovery of wetlands, grasslands, forests and watersheds, and revival of a wide variety of fauna and flora. A recent review of 30 rural development projects indicates that the operations that have supported ecosystem restoration have mostly addressed integrated watershed management, improved management of coastal and marine ecosystems, irrigated land restoration, and forestry. Most projects do not include ecosystem restoration as an explicit goal, in part because (especially when they are IDA/IBRD-only funded) the common practice is to have a single objective, with indicators clearly linked to the goal. This is especially true of IDA/IBRD only funded operations as opposed to those with GEF co-financing, which might also have a global objective. This means that in certain cases, operational work may be subject to under-reporting, and results limited to specific 'sectoral boxes.' Along the same lines, co-financing from the GEF has largely helped to pilot the incorporation of biodiversity into agricultural and rural development projects, recently through a generation of projects that have focused on payments for ecosystem services. Most, however, are at a small scale, and modest in scope. They also tend to increasingly favor climate change, and not biodiversity, as the main driver of decision-making. Only one project, a pilot project in Colombia focusing on silvopastoral cattle farming in Mesoamerica has been scaled up (Box 2).

Box 2: Mainstreaming Biodiversity in Cattle Ranching in Colombia

The Integrated Silvopastoral Approaches to Ecosystem Management in Colombia, Costa Rica, and Nicaragua demonstrated that silvopastoral practices can play an important role in rural development while providing global environmental benefits. It illustrated that tree species that are drought-tolerant and retain their foliage in the dry season provide high-quality fodder. This helps provide more stable milk and beef production, maintain livestock condition (through reduced heat stress from increased shade), reduce methane emissions, and secure farmers' assets through increased farm productivity. Improved silvopastoral systems (SPSs) were also associated with a significant reduction in the use of fire as a pasture management tool, as well as with significant carbon sequestration in the soil and in the standing tree biomass. This success prompted the Colombian Cattle Ranching Federation to scale up the initiative in Colombia. A full-scale project will promote the adoption of environment-friendly SPSs in Colombian cattle farms nationwide, improving natural resource management, enhancing the provision of environmental services (biodiversity, carbon, and water), and raising livestock productivity in participating farms. Four criteria are employed to assess the positive environmental impacts of a cattle-ranching production system: (1) an increase in vegetative cover, including trees; (2) a decrease in use of agrochemicals of fossil origin (pesticides and fertilizers); (3) decreased soil erosion; and (4) improved quality of the landscape. Greater tree cover on farms will increase habitat connectivity and link conservation of protected areas (PAs) and their buffer zones, improving biodiversity conservation as well as fostering more sustainable production systems.

There are opportunities to scale up existing examples of these pilot interventions in subsequent phases. Forestry operations, in particular, have mostly included biodiversity conservation as an explicit objective, in recognition of the multiple services that forests provide. However, overall IBRD/IDA support for improved forest management is limited. Fisheries projects are another subsector of ARD projects that have explicitly addressed biodiversity concerns. However, despite the importance of coastal and marine ecosystem support to marine fisheries, overall resource management has been limited. Marine resources provide food, fuel, and livelihoods for many

developing countries, and with only 1 percent of the ocean's surface protected, these resources are at increasing risk.

Lesson Learned: There are as yet very few forestry and fisheries operations that incorporate multiple benefits such as biodiversity and ecosystem services and climate change mitigation and adaptation. Potential for mainstreaming biodiversity within broader development projects has only been partially realized. Stove-piping of project preparation and limited budgets and technical assistance reduce the incentives and capacity for projects to incorporate co-benefits.

While some sectors have begun to identify the role of biodiversity and ecosystem services in securing development outcomes, and grant funding is often used to mainstream conservation objectives into lending operations, there are no formal platforms for integrating these services into development policy lending, which represents an ever increasing proportion of Bank operations. An analysis of some Bank sectors provides examples of how mainstreaming has been incorporated in Bank operations and how this process could be expanded in the future.

Biodiversity and Infrastructure Development: There are some examples of infrastructure development projects incorporating biodiversity conservation through the Natural Habitat OP 4.04, one of the World Bank operational policies. The 2008 report "Mainstreaming Conservation in Infrastructure Projects: Experiences from Latin America" (World Bank, 2007) presents 8 case studies from Latin America that show how integrating natural habitat considerations into the design, construction, and operation of infrastructure projects can both substantially reduce the associated environmental costs, and create win-win results for conservation and development. The five main approaches to natural habitat conservation and protection in infrastructure projects identified in the Latin America and the Caribbean region (LAC) were: (1) creation of new protected areas and strengthening of existing ones; (2) restoration of degraded/affected ecosystems; (3) environmentally sound design, construction, and operation; (4) special programs for endangered species; and (5) support of knowledge and research about natural habitats and environmental awareness.

Two additional initiatives are underway. One is a report from the East Asia and Pacific region (EAP) that looks at approaches and tools for "green" infrastructure development projects. This report is along the line of the LAC report presented above but has more practical guides for developing partners and has a special emphasis on mitigating the impact on endangered species and their habitats.

A cornerstone of mainstreaming biodiversity within infrastructure and other development projects is the use of conservation offsets, such as support for compensatory protected areas. This approach is strongly promoted by the Bank's safeguard policies, specifically Natural Habitats OP 4.04 and Forests OP 4.36. One interesting variation of this approach would be to define the conservation offset for an infrastructure or extractive industry project (that inevitably damages some non-critical natural habitats) to be a financial payment into a Protected Areas Fund or similar secure, well-managed conservation funding mechanism (if one exists). The Africa region

(AFTEN) is working on a paper addressing the issue of conservation offsets that will propose the piloting of this type of conservation funding mechanism within certain African countries.

Lesson Learned: The opportunities, risks and links associated with infrastructure projects, biodiversity, and forests have not been systematically looked at and followed up in all Bank regions. The win-win design solutions are few, and there is no learning mechanism functioning to deliver high-quality advice to clients.

Biodiversity and Climate Change: The global community on climate change, through the leadership of the World Bank has focused its efforts on developing co-benefit mechanisms to address climate change. Ecosystem-based approaches are increasingly proving their worth in addressing climate change. The Bank has completed a publication "Convenient Solutions to an Inconvenient Truth" (World Bank, 2009) that presents a number of Bank projects that are making explicit linkages between conservation and sustainable use of natural ecosystems, carbon sequestration and watershed values associated with erosion control, clean water supplies, and flood control. The key issues that are coming up in this sector are:

Adaptation Strategies: Many countries are likely to invest in even more infrastructure for coastal defenses and flood control to reduce the vulnerability of human settlements to climate change. Increased water shortages will increase demand for new irrigation facilities and new reservoirs. Natural ecosystems can often complement, or substitute for, more expensive infrastructure investments to protect coastal and riverine settlements. Floodplain forests and coastal mangroves provide storm protection, coastal defenses, and water recharge, and act as safety barriers against natural hazards such as floods, hurricanes, and tsunamis, while wetlands filter pollutants and serve as water recharge areas and nurseries for local fisheries. Better management of key habitats and natural resources benefits poor, marginalized, and indigenous communities by protecting ecosystem services and access to resources during difficult times, including drought and disaster associated to climate change.

Deforestation and Carbon Emissions: Worldwide, deforestation contributes more greenhouse gases (GHG) to the atmosphere than the entire transportation sector. Even some non-forest ecosystems (such as natural grasslands) maintain important carbon sinks within their (untilled) soils. Efforts to conserve large tracts of these natural habitats for carbon storage, through the Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (REDD+), the Forest Carbon Partnership Fund (FCPF), and similar mechanisms, offer great promise for substantially enhancing biodiversity conservation. The challenge for the Bank's biodiversity conservation efforts is to make full use of this win-win relationship, by helping to (i) develop the "rules of the game" and initial projects that would enable REDD and similar mechanisms to succeed and be scaled-up and (ii) ensure that efforts to conserve forests or other carbon-rich ecosystems do not divert conservation efforts away from other areas of high biodiversity importance, and that there is full additionality (in terms of funding as well as the areas conserved).

Managing the Trade-offs. An important class of trade-offs between climate change mitigation and biodiversity conservation involves renewable power generation, particularly hydro, wind, solar, and geothermal. These technologies are now being aggressively promoted for climate change mitigation, since they generate minimal Greenhouse Gas (GHG) (except those hydro reservoirs that flood extensive forests). However, renewable energy projects can harm ecosystems and species of conservation concern when they are located in sensitive areas or (in the case of hydro and wind) operated in ways that ignore biodiversity considerations. Special attention must be given to biodiversity issues, in terms of where the projects are located and how they are operated when designing new renewable energy operations.

Discouraging the Lose-Loses. The Environment Strategy should also appropriately discourage those development approaches that are simultaneously detrimental to both climate change mitigation and biodiversity conservation (along with environmental services). A case in point are those biofuels (ethanol and biodiesel) that are obtained from expanded agricultural crop production, which often both (i) harms biodiversity conservation and (ii) leads to a net increase in GHG emissions, through the (direct or indirect) clearing of forests and other natural habitats. Although large-scale biofuels production might conceivably be justified on the grounds of increased net agricultural employment or perhaps domestic energy security, it should not be erroneously promoted as being climate-friendly.

Lesson Learned: Climate change is likely to accelerate the ongoing impoverishment of global biodiversity and degradation of ecosystems caused by unsustainable use of natural capital and other environmental stresses. At the same time, this is a tremendous opportunity for the Bank to add to its traditional leadership in the climate change community by adding an ecosystem-based approach that incorporates biodiversity into the policy and piloting of the climate change agenda. Existing Bank projects that integrate natural habitats and "green" infrastructure into watershed management, flood control, and coastal defense demonstrate the cost-effectiveness and long term success of such ecosystem-based approaches. In cases where trade-offs are necessary, the Bank must ensure that its safeguard policies are fully applied, and that biodiversity considerations are mainstreamed within project design and operation to the maximum feasible extent.

4.7 Global and Regional Partnerships to Save Endangered Species and Ecosystems

The enormous scale of habitat destruction and wildlife trade, much of it illegal, has robbed almost all the world's forests and other habitats of their vertebrate seed dispersers, pollinators, and the prey for those large predators that have managed to avoid snares and hunters; these combined factors have brought many species to the verge of extinction. The Bank has started to focus on endangered species through several global partnerships with international and local non-governmental conservation organizations on critical issues such as the loss of species and ecosystems. These partnerships include, among others:

- *The Global Tiger Initiative (GTI)* was launched in June 9, 2008, and is now entering its implementation stage and leading to stronger political ownership by the 13 Tiger countries (see Box 3).

- *The Critical Ecosystems Partnership Fund* with *Conservation International* (CI) awarded grants to more than 1,500 civil society organizations to reduce threats to 18 critically endangered ecosystems (hotspots).

- *The Amazon Region Protected Areas Project* in Brazil completed its first phase successfully and is preparing a second phase (with the Betty and Gordon Moore Foundation and World Wildlife Fund (WWF).

- *The Save our Species* program seeks to leverage private sector and multi-stakeholder engagement for dramatically expanded funding for threatened species.

- *The International Consortium on Combating Wildlife Crime (ICCWC*) is a collaborative effort of five inter-governmental organizations to bring coordinated support to the national wildlife law enforcement agencies and sub-regional networks that, on a daily basis, act in defense of the world's natural resources.

These global and regional partnerships have succeeded in strengthening local capacity, in building bridges among these organizations and with local and national governments, and in protecting threatened ecosystems and endangered species.

Box 3: Global Tiger Initiative

Tigers are icons of global biodiversity. As apex predators, they are indicators of the health of the ecosystems they inhabit. Their plight epitomizes a profound biodiversity crisis across Asia. Despite decades of conservation efforts, habitat destruction, poaching, and illegal trade have led this species to a range collapse, with only 3,200 animals remaining in the wild, down from about 100,000 a hundred years ago. Without urgent action, wild tigers could disappear during the next decade.

The Global Tiger Initiative (GTI) was launched in June 2008 by World Bank President Robert Zoellick, together with the Smithsonian Institution, Global Environment Facility, and International Tiger Coalition. The GTI is an alliance of the 13 Tiger Range Countries (TRCs)—Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Laos, Malaysia, Myanmar, Nepal, Russia, Thailand, and Vietnam—and their global partners toward the ambitious goal of reversing the decline of wild tigers and doubling their numbers—to at least 7,000—by 2022. The Bank and its GTI partners are working to create some political space for decision makers to launch the necessary programs and ensure their effective implementation, backed by the coherent support of the international community. Such actions would have a multiplier effect on tiger landscapes, as well as supporting broader biodiversity values.

GTI activities are timed to "ride the wave" of global public interest related to 2010 as the Year of the Tiger and the International Year of Biodiversity. According to Bank President Zoellick, "2010 is the most important year ever for the tiger—it MUST be the year we take decisive steps to save this majestic species." For the World Bank, GTI represents a signature instrument to move from the "do no harm" approach to the "do measurable good" approach by placing climate change, biodiversity, and ecosystems within the mainstream of the development paradigm. According to James Adams, Vice President for East Asia and Pacific Region: "How well the GTI is internalized into the World Bank's everyday business in Asia—its work on infrastructure, its investments, its role in urbanization, and its own ecological footprint—will be the real test of our seriousness."

Lesson Learned: Global partnerships to reverse the trend of endangered species and habitats are breaking fresh ground for the Bank, changing the methods and the partnerships it employs for

biodiversity conservation, including innovative financing. The Bank is serving as a catalyst, bringing together a wide range of parties interested in biodiversity conservation – governments, scientific groups, business, NGOs and civil society groups, law enforcement, and other international organizations.

4.8 Engaging the Private Sector

The Bank, most notably through the International Finance Corporation (IFC), already works with the private sector to foster conservation outcomes. The IFC approach to biodiversity conservation and sustainable use is to invest in innovative business models that protect nature and are socially and economically beneficial. In order to meet this challenge, IFC partners with industry, NGOs, and other financial institutions, and is developing four categories of tools: metrics to measure the impact and value of biodiversity; customized services blending investment and technical assistance targeting nature-based business; methodology and trading rules for biodiversity offsets; and specific financial products that conform to the reality of longer-term returns. The Bank has also partnered with the GEF and International Union for Conservation of Nature (IUCN) in a partnership, Save Our Species, to attract private sector financing for species of corporate interest—because of a biodiversity label (such as Exxon's tiger or Lacrosse's crocodile) or a link to their product.

There are two and complementary ways that the private sector can address biodiversity issues. The first—and the way most companies have traditionally viewed biodiversity—is as a series of business risks that need to be managed and mitigated to reduce costs, enhance reputation, and ensure smooth operations. The second way is to create value for a business by maintaining biodiversity in its natural state, for which there is a market demand. The most familiar way that companies do this is by sourcing and marketing sustainably produced products–such as timber, food, and fiber–that are grown or harvested in such a way as to minimize impacts on natural ecosystems. Beyond these markets for biodiversity-friendly goods are new and expanding markets that put a financial value on ecosystem services, such as carbon sequestration, watershed protection, or natural disaster mitigation. The IFC has produced a guide that is designed to help companies operating in emerging markets better understand their relationship to biodiversity issues, including how they can effectively manage those issues to improve business performance and thus benefit from biodiversity.

Lesson Learned: The Bank can build on experiences from the IFC to engage the private sector and explore new methods for evaluating ecologically comparable biodiversity offsets that could apply to private and public sector development projects.

4.9 Monitoring and Evaluation

The results of biodiversity-conservation interventions are difficult to assess, because many external factors can influence species and their natural variation. Given the difficulty of using species as indicators of success, the Bank is using tools to evaluate and monitor trends in

management of protected areas and the success of interventions. However, use of these tools is sporadic and largely confined to protected areas.

Lesson Learned: The Bank has provided leadership in developing simple tools to measure success of interventions in protected areas. However, they need to be more systematically applied, and tools with greater precision and measuring power must be identified and adopted to improve the Bank's assessment of the impact of its interventions.

4. World Bank Comparative Advantage

Conserving biologically diverse ecosystems looks like a good investment. They produce substantial benefits at generally modest costs, beneficiaries span the economic spectrum, and their protection avoids irreversible losses of species and associated values. But is the World Bank the right institution to tackle the job? There are other organizations working in this arena, including governments, bilateral donors, the United Nations, private foundations, and international non-governmental organizations (NGOs) (Box 4). Relative to these other institutions, the Bank has both strengths and weaknesses as a contributor to ecosystem conservation.

Strengths

Complementary grants and loans. The World Bank is the only institution able to mobilize both biodiversity grants and loans on a large scale (over $100 million per year of each). Grants can produce public goods in conjunction with commercial development funded by loans. The present value of payments of the typical $12 million IDA loan paid interest-free over thirty years is only $6.1 million. That means that half of the loan is in effect a grant.

Experience with the GEF. The World Bank has twenty years of experience with the GEF, and has accumulated a unique wealth of experience from the early piloting work done with the facility, as well as through years of full implementation of grants of various sizes.

The Bank's leadership in climate change: The global community on climate change, through the leadership of the World Bank, has focused its efforts on developing co-benefit mechanisms to address climate change. Ecosystem-based approaches are increasingly proving their worth in addressing climate change, strengthening local livelihoods for the world's poorest, and protecting the biodiversity that secures ecosystem services that are essential to local and national development. There is a tremendous opportunity for the Bank to increase this leadership by increasing the biodiversity dimension of the climate change agenda.

Scientific and technical expertise. The bank has a corps of experts on a variety of environmental subjects in both natural and social sciences, giving biodiversity projects a strong technical

underpinning. For example, the Bank has provided funding to research and develop Payments for Ecosystem Services (PES) schemes.

Relations with governments. The World Bank has strong, longstanding relationships with governments. The Bank has more stature than conservation NGOs or non-banking development organizations and is free of some of the diplomatic baggage that can periodically hinder bilateral cooperation efforts. It has the ear of governments to a greater extent than most other players, and can therefore communicate conservation ideas with more force.

Relations with NGOs. The World Bank has strong relations with all the major international non-governmental conservation organizations, and with many national organizations in high-biodiversity countries. A good example is the Critical Ecosystems Partnership Fund (CEPF), a global biodiversity grants window that grew out of discussions between the Bank and Conservation International in the mid-1990s and has funded hundreds of non-governmental organizations in high-biodiversity ecosystems worldwide. CEPF is administered by CI, and overseen by the Bank and other donors.

Safeguard policies. While the Bank's safeguard policies have served as references for other lending institutions, none has the comprehensive set of rules and technical staff to keep them up-to-date. The policies with the most immediate relevance are Natural Habitats, Environmental Assessment, Forests, and Indigenous Peoples. The Natural Habitats policy in particular supports biodiversity conservation, with a precautionary approach to altering intact nature and a clear rule against supporting conversion of "critical" natural habitats.

Box 4: Comparison of other funders in the ecosystems conservation arena

- United Nations Development Program: More but smaller country offices, no lending-granting synergies, tighter focus on social and environmental problems (as opposed to industry and commerce), no blending/matching requirement of its own resources to access GEF.
- Bilateral aid agencies: More money/less money (depends which country), less lending-granting synergies, diplomatic impediments and biases, tradeoffs with domestic spending. Less in-country technical expertise.
- Foundations: More focus/less funding at cross-purposes, less/no lending, usually less grant money. Regional restrictions/none truly global. Few with Africa environmental focus. Less legitimacy. Less technical staff.
- Companies: Higher return-on-investment requirements, no synergies between operations, policy lending and grants. More money, less legitimacy but, if large domestic companies, more political clout (e.g., Petrobras, Vale).
- Governments/state banks: More money/less money (depends). More/less technical expertise. More legitimacy.
- NGOs: Less money, more focus, less funding at cross-purposes, more technical staff, less sector expertise.

Global reach. The Bank has 186 member countries and offices in over 100 of them. It can serve biodiversity clients in their own countries with local staff and cultural sensitivity. Furthermore, the Bank has a global overview of conservation priorities and therefore can avoid the pitfalls of parochialism, investing where the greatest opportunities lie. As an apolitical global actor, the

Bank can represent the demand for public goods and channel the resources to pay for them in locally sensitive ways.

The Ability to pursue public goods: The Bank is not required to maximize returns the way other companies are. It has both the resources and the mandate to tolerate low returns (especially to the IDA), high risk, and long payback times as it pursues social goals, including the production of public goods. At the same time, the Bank has the backing of governments, which allows issuing of AAA bonds to raise money for the IBRD.

Limitations

Biodiversity as a secondary concern for the Bank: Biodiversity protection makes up less than a tenth of one percent of lending—so it can be undermined by more central pursuits with neutral or negative impacts on ecosystems. International NGOs and several private foundations have ecosystem conservation as their core mission, while disbursing grants on a similar scale as the Bank.

Incentives: Staff has little incentive to work on "small" biodiversity projects when greater rewards come from working on the much bigger loans for agriculture, industry, or infrastructure. The time, energy, and approval steps required to complete large and small projects are similar.

Mainstreaming: The integration of ecosystem conservation concerns into non-environmental lending—often called mainstreaming—is constrained by competition from less scrupulous lenders. Sometimes Bank-driven mainstreaming will create win-win situations with money-saving measures that clients will happily embrace. Other times it will involve both private costs and added bureaucracy, and may encourage borrowers to look elsewhere for financing. In the Americas alone, the World Bank competes (and collaborates) with the Inter-American Development Bank (IDB), the Andean Development Corporation (CAF), and formidable national development banks such as Brazil's BNDES, not to mention private and state-run banks from other parts of the world. Elsewhere, the Bank competes with the Asian Development Bank and the African Development Bank, and deep-pocket governments like China's. The Bank has been subjected to more public scrutiny than any other development lender and has led its competitors in conservation lending grants and policies. To the extent that other banks are perceived to have easier environmental terms, the World Bank Group may lose business in trying to mainstream biodiversity.

5. Implications for the New Environment Strategy

The World Bank's scale, expertise, grant-loan synergies, experience, environmental policies, and global reach confer a comparative advantage in the biodiversity arena. The following section presents the key elements for the Bank's renewed engagement in biodiversity. It takes into account the lessons learned after two decades of engagement on biodiversity issues, and the

need, revealed by consultations with the international and national community, for the Bank to step up its commitment and actions to help developing countries conserve biodiversity.

a. Measure Ecosystems as Assets in the National Accounting Framework

The Bank should undertake, with other partner programs, to strengthen the ability of governments to measure the economic value of ecosystems and biodiversity and their contribution to sustainable development. These programs will help to measure ecosystems as assets in the national accounting framework, so that decision-makers can balance short-term gains from unsustainable exploitation against long-term benefits from ecosystem services. In considering investments in valuation, the World Bank should prioritize data collection and capacity building. These are the major impediments to the strategic deployment of valuation. To date, information and skill gaps have led to wildly speculative exercises in extrapolating tiny bits of data to huge areas, and to the production of unreliable estimates of ecosystem values. More specifically, this area of work should:

- Undertake ambitious fundraising with a view to enabling the piloting of ecosystem valuation and building strong partnerships with targeted country programs and donors.

- Capture the value of ecosystem and biodiversity services in strategic economic and environment planning tools (e.g., country environment assessments, strategic environment assessments, country assistance/partnership strategies).

- Provide intellectual leadership and convening services, through AAA and pilot investment loans, to catalyze economic indicators and technical protocols and to target the value of ecosystem and biodiversity services to economic growth.

- Establish a best practitioner's network to identify and monitor biodiversity and ecosystem indicators that contribute to economic development.

- Prioritize regular data collection of key monetary and non-monetary indicators of ecosystem-linked wellbeing.

- Invest in capacity building to increase the pool of analytical talent and public understanding of the economic values of ecosystems.

b. Address the decline in GEF Biodiversity funding

The Bank welcomes the recent, highly successful GEF replenishment, which should enable the World Bank and other agencies to scale up biodiversity conservation actions in developing countries. There will be a short- and long-term economic cost and high reputational risk if the WBG biodiversity projects come to an end as is suggested by the trends in GEF funding. Protected areas, a tested and cost-effective approach to conservation, should continue to be an integral strategy for conserving biodiversity. The Bank has the expertise and high-level vision to

help countries approach biodiversity conservation at a national level based on biological, social and economic considerations. The Bank can play a key role in channeling grants (through GEF and other trust funds) and low-cost loans for protected areas whose values include a significant proportion of global public goods. In addition to protected areas support, the Bank should also engage with the GEF in mainstreaming biodiversity in other sectors (see Section 5 in this section for details).

More specifically, the Bank should:

- Strengthen Bank partnership with the GEF to help countries meet CBD goals and help generate global climate benefits. This will be fundamental for increasing global public goods and local incomes.

- Carry out joint GEF planning with country focal areas and the GEF secretariat to ensure that the Bank takes advantage of the new GEF-5 replenishment to increase its operations with GEF funding.

- Carry out a series of seminars with the GEF anchor to the regions to discuss the options and the support needed to increase GEF operations in the regions.

- Develop annual global public goods targets that the Bank commits to meeting, and monitor outcomes on a regular basis.

- Expand investments in terrestrial, fresh water, and marine protected area systems as a foundation for ecosystem services and sustainable development in developing countries.

- Develop business strategies for protected areas with the potential to bring use values such as tourism, climate, and water services to market.

- Strengthen protected area trust funds and other innovative financing mechanisms as a vehicle for public goods compensation and perpetual financing.

- Help plan and support the role of protected areas in portfolios of land uses and coastal development at the country-level.

- Assist countries with designing projects to unleash financial flows where protected areas hold potential for tourism, carbon payments or compensation for hydrological services.

- Incorporate biodiversity conservation in the design of projects that address multiple GEF focal areas to maximize the intervention benefits (see below section on mainstreaming)

c. Improve the Link between Biodiversity and the Livelihoods of Indigenous and Local Communities

As the international community makes decisions relating to the use of forests and other natural areas as part of a global climate pact, new ways will be found to secure co-benefits from improved management of natural resources. Indigenous lands are among the most cost-effective and easily implemented climate change mitigation strategies. Indigenous lands provide climate stability, among other ecosystem services, while also safeguarding biodiversity. The Bank should be more effective at learning from and working with indigenous communities, while respecting and supporting their rights. Much of the world's remaining natural areas are inhabited by indigenous peoples who have served as stewards for some of our most biodiversity-rich ecosystems, and the Bank has not been very active in this area during the past 20 years. To increase support in this area, the Bank should:

- Establish a global partnership with indigenous peoples to support the links between biodiversity and indigenous lands.

- Strengthen partnership with indigenous peoples to develop new operations to engage them in successful biodiversity conservation in their territories.

- Develop pilot programs to work more effectively with indigenous communities in support of sustainable livelihood, education, health, and other indigenous-led initiatives, while respecting and supporting their rights.

d. Continue Support to Global and Regional Partnerships

Global partnerships are breaking fresh ground for the Bank by changing the methods and the partnerships it employs for biodiversity conservation and introducing innovative financing for environmental protection. The Bank is serving as a catalyst, bringing together a wide range of parties interested in biodiversity conservation including governments, scientific groups, business, NGOs and civil society groups, law enforcement, and other international organizations. The WBG Environment Strategy calls for continuing support to raise awareness and protection of endangered species. Critically endangered biodiversity warrants societies' respect and protection, regardless of the economic calculations that we might apply to it. That is why it is critical that the Bank assist in the recovery of endangered species and ecosystems. It has a moral and ethical obligation to future generations to do so. The Bank should continue to ensure the success of the Global Tiger Initiative, the Save Our Species initiative, and the Critical Ecosystems Partnership Fund, which is providing grants to 18 critically endangered ecosystems that harbor a large number of endangered species. The Bank should also strengthen partnerships with NGOs to ensure that globally threatened species and ecosystems are protected, as well as with the private sector and the IFC to explore new methods of evaluating ecologically comparable biodiversity offsets that could apply to private and public sector development projects.

e. Mainstream Biodiversity and Ecosystem Services in the Bank's Core Business

The Bank has not taken sufficient advantage of its regular core business to incorporate financing of ecosystem and biodiversity services. The Bank should complement economic growth mechanisms with ecosystem-based approaches to development and focus on integrating ecosystems and biodiversity conservation into rural development, infrastructure operations, climate change mitigation and adaptation, and policy lending. The Bank should not regard protected areas as a substitute for mainstreaming biodiversity in traditional economic sectors. To sustain progress in mainstreaming biodiversity in the Bank's operations should focus on:

Rural Development and Biodiversity: Seventy five percent of the world's poor are rural, and most are involved in farming. Biodiversity can benefit agriculture in many ways: genetic diversity improves agricultural productivity; ecosystem resilience sustains land and water productivity; biodiversity increases the capacity of agricultural production to adapt to stresses; and biodiversity sustains essential functions such as pollination, pest and disease regulation, and nutrient recycling. With the need to increase food production in the world, the Bank should incorporate biodiversity more systematically into its rural development programs by:

- Increasing the number of agriculture, forestry, and fisheries operations that incorporate multiple benefits such as biodiversity and ecosystem services and climate change mitigation and adaptation.

- Promoting landscape-level planning in targeted sectors (e.g., agriculture and rural development, infrastructure, and energy) to integrate ecosystem management and biodiversity conservation best practices into project design.

- Conducting socio-environmental cost-benefit analyses in development projects that include ecosystem goods and services. Economic analysis can help steer financial resources toward investments with clear economic growth contributions and few counterproductive impacts on natural capital.

Environmentally Harmful Subsidies (EHS): Governments spend hundreds of billions of dollars annually on growth-inhibiting EHS. Subsidy-driven overfishing empties the seas, while farming and transportation subsidies accelerate deforestation. EHS raise the opportunity cost of conservation, requiring that any effective payments for ecosystem services be higher than they would otherwise need to be, and increasing pressure on (and costs of) protected areas. As the Bank engages in traditional production sectors, it should:

- Provide research and policy expertise to support reductions in EHS.

- Use its convening power and global reach to replicate emerging models that counteract EHS.

- Assist countries to shift agricultural support measures toward smart subsidies, which provide incentives for investment in longer-term productivity, landscape restoration, and protection, and away from commodity or input subsidies, which may distort the pattern of production.

- Assist countries to replace these subsidies with government-sponsored payments for ecosystem services, i.e., subsidies for public goods.

Payment for Ecosystem Services (PES): PES can be used to protect water sources, biodiversity, and carbon storage. Often these overlap, and payments are structured as biodiversity offsets, where businesses and governments whose projects cause harm to one ecosystem pay to conserve another. The Bank should:

- Pilot payments for hydrological services where intact, biologically diverse ecosystems are needed to produce the hydrological services, and where the start-up costs are the key impediment to a system which otherwise has an identifiable market willing and able to pay.

- Continue to expand its activities in the context of the United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (REDD+) efforts (see section on climate change for more details).

Infrastructure Development and Biodiversity: Infrastructure projects will be increasing in the Bank portfolio. These projects can provide or leverage important resources that might not be available for strictly "green" projects, resulting in a significant conservation gain. Good design and innovative engineering, construction, and operational techniques can be devised to avoid destroying natural habitats and can support the establishment of new protected areas and/or strengthening existing ones; they can also provide management plans, co-management agreements, recurrent-costs financing, personnel training, and initial funds. In many cases these actions could be embedded in project design, but this has not been done systematically in the Bank portfolio. The Bank should:

- Continue developing best practices studies on win-win solutions to infrastructure development and biodiversity conservation and disseminate these across the Bank's regions.

- Use existing tools across Bank regions to quickly screen investment sites for biodiversity impacts, and complement the Bank-required environmental assessment process. These tools might include existing databases and publications, or improved versions of such; for example, the Integrated Biodiversity Assessment Tool (IBAT) is very promising).

- Identify specific responses and actions to be taken when OP 4.04, Natural Habitats, is triggered.

- Complement the safeguard tools with economic assessments during project design.

- Promote hydroelectric best-practice projects through online ranking of economic and environmental performance of approaches and technologies as outlined by previous Bank analytical work. Adding economic indicators is necessary for these assessments to take into consideration development and conservation imperatives.

Biodiversity and Climate Change: The global community on climate change, through the leadership of the World Bank, has focused its efforts on developing co-benefit mechanisms to address climate change. Ecosystem-based approaches are increasingly proving their worth in addressing climate change, strengthening local livelihoods for the world's poorest people, and protecting the biodiversity that secures ecosystem services so essential to local and national development. The Bank should promote more projects along those lines, and should support:

- Pilot investments to refine REDD+ contracts, monitoring, measurement, multiple benefit generation, and revenue distribution.

- Strengthened a structured dialogue, and high-quality incorporation of biodiversity considerations into the design and piloting processes of evolving forest carbon initiatives led by the Bank, such as the FCPF, FCP; as well as in initiatives in which the Bank is a partner, including the FIP and the UNREDD. The consolidation of REDD+ mechanisms is forthcoming and provides important opportunities to internalize biodiversity requirements.

- Strengthened a structured dialogue between task managers and staff with skills in biodiversity and ecosystems management for the evolving renewable energy policies for the Bank, and in particular for The Program on Scaling-Up Renewable Energy in Low Income Countries (SREP), targeted program of the Strategic Climate Fund (SCF), which is specifically intended to address co-benefits with the adaptation agenda in low-income countries.

f. Changes in Internal Bank Processes

To increase the opportunities for incorporating biodiversity into Bank operations and policies, the Bank should:

- Increase staff with technical capacity in biodiversity and ecosystem services to support the implementation of the strategy.

- Establish a Global Expert Team (GET) on Biodiversity and Ecosystems to provide on-time advice to task teams preparing lending operations, as an incentive to add value to project design by incorporating win-win solutions, and to apply the Bank safeguard policies as part of best-practice project design. This team could explicitly manage, among other things, a budget to allocate team members across the regions to projects with great potential.

- Contribute timely and high-quality input to forthcoming sectoral strategy reviews and the further conceptualization and piloting of biodiversity valuation in economic development and ecosystem-based adaptation approaches in climate change.

- Streamline the process for accessing GEF funding and avoid making GEF grants more difficult to access than loans.

6. Conclusions

The World Bank can play a major ongoing role in conserving biodiversity, because it can deploy a wider array of tools than any other single institution: grants, traditional loans, development policy loans, model safeguard policies, research and development, and convening power. The Bank has both the experience and the global reach to apply these tools effectively. Biodiversity loss continues at an accelerated rate; as stewards of our planet and its resources, the Bank bears a responsibility to protect the planet's natural heritage. The Bank's biodiversity strategy needs to ensure that the value of sensitive ecosystems and endangered species is factored into the equation of development. It is critical that the Bank show by example how to mainstream these values into its own work. The International Year of Biodiversity and the new Environment Strategy provide an occasion to celebrate successes and partnerships, as well as an opportunity to develop creative approaches and expand our networks to maintain a healthy, thriving world for a sustainable future.

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