



# IEG Review of 20 World Bank–Funded Projects in Tiger Landscapes



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Richard Carlos Worden and Colin Rees

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Communications, Learning, and Strategy  
The World Bank  
1818 H Street, NW  
Washington, DC 20433  
Email: [ieg@worldbank.org](mailto:ieg@worldbank.org)  
Telephone: 202-458-4487  
Fax: 202-522-3125  
<http://www.worldbank.org/ieg>

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# Abbreviations

CEPF	Critical Ecosystem Partnership Fund
GTI	Global Tiger Initiative
ICDP	Integrated Conservation and Development Project
ICR	Implementation Completion and Results Report
IEG	Independent Evaluation Group
ISR	Implementation Supervision Report
IUCN	International Union for Conservation of Nature
NGO	Nongovernmental organization
OD	Operational Directive
OP	Operational Policy
OPN	Operational Policy Note
RMP1	Lao PDR Road Maintenance Project (first)
RMP2	Lao PDR Road Maintenance Project (second)
SOS	Save Our Species Program
WBG	World Bank Group





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# Acknowledgments

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# Executive Summary

**B**iodiversity is critical to maintaining the integrity of ecosystems and the ecological processes that support species and human well-being. The world is facing an unprecedented rate of species extinction: one in eight bird species, one in four mammals, and one in three amphibians are threatened. Species can recover with concerted conservation.

As a charismatic endangered species, tigers have become a powerful symbol of biodiversity loss globally, as their numbers have dropped from 100,000 at the turn of the 20th century to an estimated 3,000–3,500 tigers in the wild today. The need to protect tigers has taken on great urgency, and international efforts are attempting to pull them back from the edge of extinction. From November 21 to 24, 2010, the Russian Federation hosted leaders from 13 tiger range countries at a conference in St. Petersburg. The goal was inter alia to eliminate illegal trade in tiger parts while protecting tiger habitats—and to double the tiger population by 2022. The World Bank has provided strong leadership and support for the initiative.

Biodiversity interventions can have potentially large cobenefits: biodiversity conservation, climate change stabilization, food and water security, and poverty reduction. The World Bank has been the largest financier for biodiversity, with commitments of more than \$2 billion over the last two decades and substantial leveraging of cofinancing. However, the number of new projects approved that contain biodiversity activities has dropped considerably since the mid-2000s. The Evaluation Cooperation Group notes “...numbers of projects directly targeting biodiversity issues have declined in the World Bank and some other IFIs...perhaps due to

competing demands and an increased emphasis on climate change” (ECG 2010).

At present, the Bank is according importance to biodiversity by taking a leading role in strategic partnerships, such as the Global Tiger Initiative (GTI), the Critical Ecosystems Partnership Fund (CEPF), and the Save Our Species (SOS) program. By prioritizing such initiatives, the Bank aims to bring crucial attention and funding to ecosystem and biodiversity conservation. It is also crucial at the same time to integrate conservation in development projects in sectors such as infrastructure and rural development, which can have negative effects on biodiversity without adequate mitigating actions.

There is growing awareness that, in addition to targeted conservation efforts, the design and implementation of development projects need to ensure that biodiversity conservation and poverty reduction reinforce each other (for example, see ECG 2010). Prompted by the interest expressed by the GTI and the World Bank President, IEG reviewed a sample of 20 closed World Bank-supported development projects in or near tiger habitats in Asia that had the potential to cause significant degradation or conversion of protected natural habitats and the plant and animal species living within them. This work complements earlier evaluations of

targeted biodiversity conservation projects and seeks to provide key lessons going forward.

These 20 projects, which had closed in the past decade,<sup>1</sup> covered rural transportation, watershed management, forestry, and integrated development. They were assessed to see—

1. Whether they had identified potential threats to tiger populations and their habitats in particular, as well as those of other protected species and natural habitats more generally
2. The extent to which they had incorporated mitigation measures to protect tigers and other protected species and natural habitats into project preparation and implementation
3. The effectiveness of mitigation measures employed during project implementation.

In terms of identifying threats to biodiversity, the evaluation found the following:

- Almost all projects satisfactorily identified potential direct, indirect, and cumulative impacts and risks to natural habitats and protected species such as tigers, and most gathered adequate baseline data on sensitive species and habitats.
- There were lapses in the application of the Bank's Natural Habitats safeguard policy and a lack of clarity regarding its analytical requirements, apart from those required under the Environmental Assessment safeguard policy.

In terms of preparing adequate mitigation plans and measures, the analysis revealed that—

- Roughly three-quarters of the projects evaluated used appropriate assessment tools and prepared adequate mitigation plans to prevent and minimize **direct impacts** to protected natural habitats and species, and considered the need to strengthen local

clients' and stakeholders' safeguard implementation capabilities.

- One-third of the projects did not take adequate steps to address the **indirect impacts** of projects on protected habitats and species within a project's area of influence, and about one-third did not incorporate mitigation measures recommended in project preparation documents to address such impacts and risks during implementation.

Finally, in assessing the effectiveness of mitigation measures, this review revealed gaps in documented information about impacts and outcomes:

- Fewer than half of the projects demonstrated adequate supervision of clients' implementation of mitigation measures and monitoring and evaluation programs or adequately supervised safeguard policy compliance.
- Most monitoring data were used to verify procedural compliance or to measure inputs rather than environmental outcomes, nor was it apparent whether serious or imminent threats had triggered corrective actions to address them.
- In terms of direct project impacts on protected habitats and species, only three projects provided evidence of having implemented mitigation measures effectively, and none could demonstrate successful mitigation of the more serious indirect threats to protected habitats and species.

A number of key lessons emerge from the experience of the 20 closed<sup>2</sup> projects reviewed. First, there was a pattern of solid due diligence assessment work conducted early during project preparation and appraisal process. However, that was not followed up by adequate environmental supervision and monitoring of impacts and outcomes, as only a few projects reported on the effectiveness of mitigation measures. This is

1. Of the 20 projects closed in 1999, the original 2009 closing date of one was extended, and the project was thus still active at the time of the evaluation. The remainder of the projects closed between 2000 and 2010. Details are provided in Appendix A.

2. Due to extension of closing date, one of the projects reviewed was still active.

consistent with a main finding of the IEG evaluation of the safeguard and sustainability policies, which recommended that the WBG, countries, and partners put more emphasis on supervision, better monitoring of implementation of applicable safeguard policies, increased transparency through public access to periodic progress reports, greater use of local partnerships, and independent verification of implementation activities and outcomes. In response, the WBG has committed to a program to strengthen the supervision of safeguards implementation.

Second, there was inconsistent application of the safeguard policy for Natural Habitats and little apparent difference between those projects that applied it and those that did not. There were no notable differences in the analyses undertaken by projects that triggered the Natural Habitat policy and those that addressed biodiversity concerns under the Environmental Assessment policy. Nor were the outcomes achieved by the two groups of projects much different from each other. This suggests a need to further clarify the appropriate application and distinct analytical requirements of the Natural Habitat safeguard policy.

Third, a fundamental question arises regarding how far the Bank's responsibility extends to ensure that clients address indirect impacts that extend beyond the project's area of influence and are driven by forces of a regional or even global nature, such as the poaching crisis and unsustainable extraction of natural resources. Although the Bank's operational policies require attention to indirect impacts within a project's area of influence, it is beyond the reach of safeguards of individual projects to address underlying causes or drivers of impact, such as organized networks illegally trafficking in wildlife. Addressing these

issues requires policies and programs at national and transnational levels.

To address the global challenge of biodiversity loss, the Bank is taking a leading role in joint actions and strategic partnerships with donors, governments, the private sector, and civil society, such as the SOS microgrant financing program, the GTI, and the CEPF. The SOS program, under preparation for Board approval, aims to address the funding gap for biodiversity conservation by mobilizing innovative grant financing and private sector engagement in partnership with the World Conservation Union.

The GTI has spearheaded an international framework to curb illegal networks trafficking in wildlife, such as tiger parts, and has supported the International Consortium on Combating Wildlife Crime to strengthen regional cooperation, improve wildlife crime reporting, establish tiger trade data, and enhance law enforcement under the Convention on International Trade in Endangered Species of Wild Fauna and Flora. The GTI is working with partners on innovative funding schemes, such as a Wildlife Premium piggy-backing onto the Reduced Emissions from Deforestation and Degradation+ carbon market and the Global Tiger Recovery Program. The CEPF has awarded over \$100 million to more than 1,500 nongovernmental organizations and private sector organizations in the biodiversity hotspots.

This review has shown that as important as these targeted biodiversity efforts is the need for the Bank, countries, and partners to strengthen efforts to integrate biodiversity conservation into projects in sectors where they can have negative biodiversity impacts without mitigating actions, such as rural transport, watershed management, or integrated rural development.



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# Management Comments

**M**anagement welcomes the Bank's Independent Evaluation Group (IEG) review of 20 World Bank-supported projects in selected tiger range countries.

At the launch of the Global Tiger Initiative (GTI) in June 2008, World Bank president Robert B. Zoellick requested such an independent review to help the Bank in learning lessons from the past to inform future engagement in the context of habitat conservation and wildlife protection. The reviewed projects were approved by the Board of Executive Directors as far back as 1994, and all projects have since closed. None of these 20 projects was a stand-alone biodiversity project, and 11 were in the transport sector.

**Bank management welcomes the timing of the evaluation, as it feeds into the Bank's updated Environment Strategy to be finalized in the spring of 2011.** As a vanishing icon of historical, ecological, and cultural importance, the tiger has become a powerful symbol of the threat to biodiversity globally and of the urgent need to protect the species as part of the broader agenda of biodiversity conservation. The Bank is committed to biodiversity conservation and has been the largest financier for biodiversity conservation since the 1980s. More recently, the Bank has launched a series of initiatives to promote policy changes to address biodiversity and environmental concerns, including the GTI, the Critical Ecosystems Partnership Fund, and the Save Our Species program. The GTI is a corporate initiative launched by the World Bank President in June 2008, aimed at mainstreaming conservation into the development agenda and reversing the decline in wild tiger populations. In this context, one key element of the updated Environment

Strategy is to further enhance the Bank's work in natural resource management and biodiversity, and how best to link global public goods like biodiversity and ecosystem services into Bank country-level policy and program- and project-level support.

**Management acknowledges the lessons derived from the IEG review and is committed to continue improving the results effectiveness of Bank-financed projects while supporting its clients in their efforts to ensure environmental and social sustainability of their projects.** The IEG review complements its July 2010 evaluation of environmental and social safeguard policies, and many of the broader issues raised in the review are being addressed in the context of the Board-endorsed Management Action Plan. In this context, management appreciates the opportunity to elaborate and provide clarification on some of the more specific issues identified in this review.

**Management notes that the median year of concept review of the 20 reviewed projects is 1997.** Some of the design issues noted in the IEG review have been previously identified in other reviews and subsequently addressed—such as monitoring and evaluation, for example, requiring adequate baseline data by the time of the first Implementation Status and Results Report (ISR) and the need for an increased focus on project impact design, supervision, and evaluation.

**Management is pleased that IEG has noted the up-front due diligence undertaken by the Bank and its borrowers**, including assessment work undertaken in terms of identification of potential threats to natural habitats and endangered species, including the collection of key baseline data. In particular, management notes that the review states, “Almost all projects satisfactorily identified potential direct, indirect, and cumulative impacts and risks to natural habitats and protected species such as tigers, and most gathered adequate baseline data on sensitive species and habitats.” Management intends to continue to take appropriate action to ensure that infrastructure projects, including roads, take effective measures to mitigate potential impacts and risks to sensitive ecosystems and habitats.

At the same time, **management recognizes that there is scope for improvement in the monitoring and reporting on environmental impacts and outcomes during project implementation** and has therefore increased its focus on improved reporting of mitigation plans and outcomes through ISRs and Implementation Completion and Results Reports. Management is also taking measures to strengthen supervision of the implementation of safeguard policies as part of its response to the IEG safeguards evaluation. These include, at the project level, expanded training on the application of the policy for Natural Habitats (Operational Policy 4.04) and initiating a program for accreditation of staff working on the implementation of environmental and social safeguard policies.

**Management recognizes the need to shift from an emphasis on projects to also include a broader focus on supporting countries in the context of national policies, legislation, and programs on habitat conservation** and the protection of endangered species such as the tiger. It is clear from the IEG review and operational experience that the drivers of threats to natural habitats and

biodiversity are extremely complex and diverse. In most cases, the primary drivers of threats to biodiversity are best dealt with at a broader policy level, through environmental impact assessment policies, incentives, and their enforcement; specific programs; and last but not least at the level of protected area management. This includes the need to support strengthening of governance to address activities such as illegal logging and other forms of illicit habitat destruction, poaching of threatened and endangered species, and wildlife trade in contravention of international conventions and national laws.

**Management concurs with the IEG review that there are distinct limits to the degree to which the Bank and borrower can be held responsible for “indirect impacts.”**

Both the Bank and most implementing organizations at the national and subnational levels have well-defined mandates and authority that do not extend into addressing the wide range of “drivers” behind many forms of habitat destruction and loss of species. Because of the Bank’s role in supporting specific projects (for instance, a road project implemented by a ministry of transport), it is important that far-reaching potential “indirect impacts”—if outside the scope of the particular project—are addressed through policy and programmatic efforts. Management is encouraging governments and their development partners to use strategic environmental assessments to address issues up front at the macro level to support development of policy-, strategy- and program-level interventions. Individual projects are seldom the primary cause for nor can they provide the complete solution to natural habitat and biodiversity threats. Similarly, some of the more far-reaching indirect impacts concerning habitat and conservation of tigers or other endangered species (which are often outside the boundaries of sector investment projects and beyond the scope of the Bank’s safeguard policies) are best addressed through complementary legal measures to control poaching and trafficking in animals in collaboration with regional and



national governments and their partners in both development and law enforcement.

**Management appreciates the advice that the Bank should further mainstream biodiversity into sectors** that can have significant effects on biodiversity, such as infrastructure and rural development. Management agrees that

mainstreaming biodiversity considerations into the design and implementation of Bank-supported projects to complement focused stand-alone biodiversity conservation efforts is key to achieve results in this area. Management intends to continue advancing this agenda through proactive support to improve environmental aspects of Bank-supported projects.



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# 1. Background and Purpose

**B**iological diversity is critical to maintaining the functional and structural integrity of ecosystems and the ecological processes that support life and well-being. The earth's biodiversity has been declining over the past several decades at an increasingly rapid rate, with steep declines in habitat and species numbers including extinction (Butchart and others 2010).

One in eight bird species, one in four mammals, and one in three amphibians are threatened. But species can and do recover with concerted conservation efforts. Tiger populations have dropped from more than 100,000 at the turn of the 20th century to an estimated 3,000–3,500 tigers in the wild today (Smithsonian National Zoological Park and World Bank 2008; WWF and others 2010). Three of the nine subspecies of tigers have become extinct during that time (GTI No date–a), and the remaining populations inhabit only seven percent of their traditional range (WWF and others 2008; Sanderson and others 2006; Dinerstein and others 2007).

As a vanishing icon of historical, ecological, and cultural importance, the tiger has become a powerful symbol of the threat to biodiversity. International efforts are under way to attempt to pull tigers back from the edge of extinction. From November 21 to 24, 2010, the Russian Federation hosted leaders from 13 tiger range countries at a conference in St. Petersburg. The goal was *inter alia* to eliminate illegal trade in tiger parts while protecting tiger habitats—and double the tiger population by 2022.

The conservation of biodiversity has thus emerged as an environmental issue of global

importance and concern, with the “primary goal [of] maintaining the long-term potential of world biological resources to meet the needs and aspirations of future generations—a fundamental principle of sustainable development” (World Bank 1991, p. 69). Although the World Bank supports this goal through initiatives such as the Global Tiger Initiative (GTI), the Critical Ecosystem Partnership Fund (CEPF), and the Save Our Species (SOS) innovative grant-making partnership and country level biodiversity conservation projects, its main focus and mission is to alleviate poverty, increase economic growth, and improve the quality of life. It therefore has to integrate efforts to improve the quality of people's lives with efforts to conserve biodiversity. These are mutually reinforcing goals, but there are often short-term trade-offs, winners, and losers—and hence hard choices.

The World Bank and other agencies have supported efforts to conserve biodiversity through targeted interventions. Historically, the Bank has been the largest financier for biodiversity conservation, with commitments of more than \$2 billion over the last two decades and substantial leveraging of cofinancing. But the number of new projects approved that contain biodiversity activities has dropped considerably

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1. The number of projects coded as containing biodiversity peaked at 39 in fiscal 2005 and has since then dropped to around 20 per year. Total commitments (including Global Environment Facility funding) coded to biodiversity have witnessed substantial year-to-year fluctuations over the last five years, reaching almost \$175 million in fiscal 2005, \$43 million in 2007, \$262 million in 2009, and \$84 million in 2010.

since the mid-2000s.<sup>1</sup> The Evaluation Cooperation Group notes: "...numbers of projects directly targeting biodiversity issues have declined in the World Bank and some other IFIs... perhaps due to competing demands and an increased emphasis on climate change" (ECG 2010).

Also important to biodiversity conservation is the integration of conservation and other environmental protection measures in the planning and implementation of development projects in sectors (for example, infrastructure, energy, and rural development), which can have considerable negative effects on biodiversity if mitigating actions are not made an integral part of project design and implementation.

Prompted by the interest expressed by the GTI and the World Bank President, the Independent Evaluation Group (IEG) conducted a desk review of 20 World Bank-supported rural development, rural transportation, and integrated conservation and development projects that posed significant potential adverse impacts and risks to tiger populations and habitats (as well as other protected species and natural habitats) in Asian countries. As a basis for lessons going forward, it

tried to see to what extent the projects took into consideration the need to mitigate potential impacts to protected natural habitats and species while supporting investments to meet human development needs. The review approached this question along three thematic lines of evaluative questions:

- Determine the extent to which threats to tiger populations and habitats (as well as those of other protected species and natural habitats) had been identified.
- Ascertain whether mitigation measures and programs had been adequately designed and prepared to address those threats.
- Assess the effectiveness of mitigation measures addressing threats and adverse effects on tiger populations and habitats (as well as other protected species and natural habitats).

This work complements earlier evaluation work focused more directly on the effectiveness of specific biodiversity conservation projects and initiatives which are not the subject of this evaluation. (See the Bibliography for a listing of other relevant IEG evaluations and other relevant Bank publications.)

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## 2. Method and Scope of Work

An electronic search of World Bank projects located in tiger range countries that were classified as Category A (significant potential adverse effects) or Category B (limited environmental impacts) projects and were either nearly closed (that is, with project activities substantially completed, but the project not officially closed) or had closed within the past 10 years was undertaken by GTI staff. It resulted in a list of 115 projects. However, the project location was only specified at the “administrative unit 1” level, equivalent to an entire state or province.

As a result, when these projects were manually overlaid at a higher level of resolution with tiger conservation landscape maps developed by the GTI’s partner organizations (WWF and others), many were found to be located far from tiger habitats, with little or no potential to cause adverse impacts.

Therefore, a second screening process was utilized to eliminate those projects not overlapping with or within close proximity to tiger habitats; those not considered likely to generate significant adverse impacts, such as projects in the health, education, water supply and sanitation, and urban and social development sectors; and those in countries where the Bank had negligible lending, such as Malaysia and Thailand. China was dropped because few loans were made in the area containing the last remaining tiger populations in the northeastern border with Russia. This process reduced the list to 49 projects.

At this point, IEG convened a group of biodiversity conservation experts from the World Bank and nongovernmental organizations (NGOs) to prioritize the projects against the jointly agreed-upon selection criteria listed below and to

comment on the standardized assessment template containing the evaluation questions IEG had developed for the assessment. For the final selection of 20 projects for evaluation, the following criteria were used:

- Minimum area of at least 1,000 square kilometers of project overlap with tiger conservation landscapes at time of project preparation
- Projects with higher degrees of connectivity inter alia to other nearby sensitive habitats, such as protected areas, wildlife reserves or wilderness, national parks, or other managed natural areas (that is, World Conservation Union [IUCN] Categories I–VI)
- Projects with significant *potential* to cause adverse impacts on tigers and their habitats, as well as to other protected species and natural habitats
- A well-balanced mix of well-known and well-studied projects (for example, the Ecodevelopment Project in India), along with less visible but more typical Bank projects, such as dispersed road rehabilitation projects.

On this basis, IEG selected 20 closed<sup>1</sup> projects to assess, which is reflected in the breakdown of

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1. Due to extension of closing date, one project was still active.

**Table 1: Breakdown of Selected Projects**

Sector or topic	Number of projects	Region		Environmental Assessment category	
		SAR	EAP	A	B
Rural transportation	11	7	4	5	6
Rural development	2		2	0	2
Integrated conservation and development	3	1	2	1	2
Watershed and natural resources management, including forestry	4	1	3	2	2
Total	20	9	11	8	12

Source: IEG.  
Note: EAP = East Asia and Pacific Region; SAR = South Asia Region.

projects according to topic, region, and category (see Table 1). Given the small sample size and purposeful selection of projects for review, the sample is not statistically representative of all Bank-supported projects that potentially affected tiger populations or habitats (or other broader biodiversity indices), but it does present an illustrative cross-section and is similar in size to that of several other studies undertaken recently to address the issue of threats to biodiversity posed by Bank-supported projects, including threats to tigers and their habitats.<sup>2</sup> A list of the projects reviewed is presented in Appendix A.

IEG developed a standardized assessment template of 15 evaluative questions to apply to all 20 projects, based on the Bank's operational policies for environmental assessment and natural habitats (see Tables 3, 4, and 5). The template was discussed with the group of Bank and NGO biodiversity experts convened by IEG (see page 3). A biodiversity conservation expert reviewed all available project documents generated during project preparation and appraisal (that is, Staff Appraisal Reports, Project Assessment Documents, and Environmental Assessments) as well as during the supervision and post-supervision phases of the project cycle

(for example, Implementation Status and Results Reports, Implementation Completion Reports [ICRs] and ICR Reviews).

Each project was assessed using a six-point rating scale, with 1 representing highly satisfactory and 6 highly unsatisfactory (Appendix B presents definitions for each value). This six-point scoring system was then collapsed into two groups: satisfactory, with scores from 1 to 3, and unsatisfactory, with scores from 4 to 6. Questions that could not be assessed due to a lack of information were classified as not evaluable. Another evaluator then validated the assessments to ensure internal consistency and credible comparisons across projects. Follow-up interviews with Bank staff were then conducted in an attempt to fill in the remaining information gaps and to deepen the understanding of key issues not apparent from reviewing project documents.

The evaluative questions were clustered around three themes: (a) identification of potential threats, (b) mitigation plans and measures to minimize such threats, and (c) the effectiveness or performance of those measures to minimize negative impacts on tiger populations and habitats (as well as on other sensitive species or

2. A Smithsonian report (Smithsonian National Zoological Park and World Bank 2008) examined 30 World Bank projects; the GTI-SGI Working Group Paper (No date–b) examined 16 World Bank projects as case studies; and a joint UNDP–World Bank study (UNDP and World Bank 2007) reviewed 10 case study projects.

habitats). These themes are directly related to and anchored in the Bank's operational policies on environmental assessment and natural habitats, which have been developed over the past three decades to guide the application of environmental assessments and other environmental safeguard policies, such as natural habitats, forests, and pest management.

Specifically, the review assessed the degree to which the conversion or degradation by Bank-supported projects posed significant impacts and risks to protected natural habitats and species (including tigers) in a project's area of influence. If threats were identified, the review assessed whether mitigation measures were planned and implemented, as required by the Bank's environmental safeguards policies. Finally, if mitigation measures were taken, the review assessed the results or effectiveness of them to address potential impacts.

Relevant operational policies have their origins in the mid-1980s and include Operational Manual Statement (OMS) 2.36 for Environmental Assessment and Operational Policy Note (OPN) 11.02 for Wildlands. These and their subsequent updates are listed in Table 2.

OMS 2.36 was issued in May 1984 and stated that the Bank "will not finance projects that cause severe or irreversible environmental degradation" or that would "significantly modify natural areas." This was replaced in 1989 by Operational Directive (OD) 4.00, Appendix A and OD 4.01 in 1991; these outlined Bank policy and procedures for conducting environmental assessments for lending operations. These were in turn replaced by the current Operational Policy and Bank Procedure for Environmental Assessment (OP and BP 4.01) in January 1999 and last updated in March 2007.

OP 4.01 on Environmental Assessment (OD 4.00, Annex A, which preceded and was replaced by OP 4.01) requires that environmental baseline

**Table 2: Operational Manual Statements and Policy Notes**

Policy	Date(s)
<b>Environmental Assessment</b>	
OMS 2.36	1984
OD 4.00 (Annex A)	1989
OD 4.01	1991
OP/BP 4.01	1999, 2004, 2007
<b>Natural Habitat</b>	
OPN 11.02	1986
OD 4.00 (Annex D)	1989
OP 4.04	1995, 2001, 2004
<i>Source: World Bank.</i>	
<i>Note: OD = Operational Directive; OMS = Operational Manual Statement; OP/BP = Operation Policy; OPN = Operational Policy Note.</i>	

conditions be assessed and potentially significant direct and indirect impacts on critical natural habitats and other natural habitats predicted within the project's area of influence, including "all its ancillary aspects, such as power transmission corridors, pipelines, canals, tunnels, relocation and access roads, borrow and disposal areas, and construction camps, as well as unplanned development induced by the project."<sup>3</sup> The evolution of these policies over the years has not substantively changed in terms of their purpose or requirements. Their central purpose has consistently remained to help ensure that projects under consideration for Bank financing are "environmentally sound and sustainable, and thus improve decision making."<sup>4</sup>

OPN 11.02 for Wildlands was issued in June 1986 and spelled out the justification and policy guidance when Bank projects and lending operations affected natural habitats. It described the various types of wildland management plans and design considerations and highlighted the need for adequate supervision and long-term monitoring as a "key aspect of conservation of biological diversity in Bank projects" (World Bank 1991). OP 4.04 superseded OPN 11.02 in September 1995, was updated in June 2001, and was revised slightly in 2004 to its current form.

3. OP 4.0, Environmental Assessment, Annex A – Definitions, January 1999, p. 1.

4. OP 4.01, Environmental Assessment, January 1999, p. 1.

OP 4.04 (Natural Habitats) strictly prohibits Bank support for projects that would lead to the significant conversion or degradation of any critical natural habitat and explicitly allows such impacts in “other” natural habitats only when there is no feasible alternative and acceptable mitigation measures are included in the project design, implementation, and funding.

“Significant conversion” is defined by the Natural Habitat policy (OP 4.04, Appendix A) as the “elimination or severe diminution of the integrity of a critical or other natural habitat caused by a major, long-term change in land or water use,” whereas “degradation” is defined as any modification that “substantially reduces the habitat’s ability to maintain viable populations of its native species.”<sup>5</sup> Those impacts can “result directly from the action of a project or through an indirect mechanism (for example, through induced settlement along a road).”<sup>6</sup>

Bank policy requires that the potential for such impacts be identified early in the project preparation phase so that appropriate conservation and mitigation measures can be defined and their estimated costs included in the project’s financing. An important distinction is made between “critical natural habitats”<sup>7</sup> and other (noncritical) natural habitats in terms of the conditions under which such impacts may occur in noncritical natural habitats. Similar to the evolution of the operational policy on environmental assessment, the purpose and requirements of the operational policy on natural habitats have not substantially changed over time. The evaluation criteria applied to the 20 projects reviewed in this assessment are thus anchored in these requirements.

There is considerable overlap in the intent, methods, and procedures of these two safeguard policies, but they have several important differences. These differences include a specific reference in Natural Habitat policy (OP 4.04) to take the “precautionary approach” when appraising and supervising Bank-supported projects to ensure environmentally sustainable development outcomes; clear definitions of “critical natural habitats” and “other natural habitats,” including the specific conditions under which projects may proceed if they are likely to cause significant degradation or conversion of noncritical natural habitats, and the identification of credible, recognized lists of protected animal and plant species, such as rare, threatened, endangered, vulnerable, and migratory species.<sup>8</sup>

Essentially, the Natural Habitat safeguard policy is a specialized application of the environmental assessment process that contains standards by which decisions can be made regarding the adequate identification of threats, specific forms of mitigation measures, and acceptable levels of “residual impact” (those impacts remaining after mitigation measures have been applied) in instances where Bank-supported operations are located in or near natural areas or habitats of protected species that might be adversely affected by changes in ecological conditions vital to their continued existence and viability. In contrast, OP 4.01 (Environmental Assessment) is procedurally prescriptive and does not establish standards of acceptable residual impact. Finally, interviews with regional safeguard advisors revealed the powerful signaling effect that triggering safeguard policies has on stakeholders.

5. OP 4.04, Annex A – Definitions, June 2001, p. 1.

6. OP 4.04, Annex A – Definitions, June 2001, p. 1.

7. Critical natural habitats are defined in OP 4.04as legally protected areas, areas proposed for protection, unprotected but of known high conservation value, or that maintain conditions vital for the viability of rare, vulnerable, migratory, or endangered species in these areas.

8. OP 4.04, Annex A – Definitions, June 2001, p. 1.



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## 3. Findings

### Identification of Potential Threats

The vast majority of evaluated projects adequately identified the spatial overlap with or proximity of the project’s area of influence to tiger habitats as well as to other protected animal and plant species and natural habitats.

*Almost all projects identified the potential impacts of indirect or cumulative threats to tiger habitats as well as to other natural habitats and protected species to the extent that they were present. Three-quarters of the projects gathered relevant baseline data. Eleven projects were found to have satisfactorily applied the appropriate Bank environmental safeguard policies; five did not, and four others provided insufficient information about the environmental context to determine if the appropriate safeguard policies requirements had been taken into account. Overall, the majority of unsatisfactory or non-evaluatable ratings were found in just three projects.*

The first set of five evaluation questions addressed the identification of threats to protected natural habitats and animal and plant species—including tiger populations and habitats<sup>1</sup>—that could cause significant degradation or conversion of those areas and populations. Tigers were the focus of this study in part because of the public concern and attention being paid to their rapidly declining

numbers and habitat. The symbolic visibility of tigers and their role as a top predator make them excellent proxies of much broader indices of biological health and diversity and overall ecological services. Therefore, though they were singled out in this report, other indicators of biodiversity were also considered because the Bank’s relevant safeguard policies address these broader concerns.

Thus, the first set of evaluation questions addressed different aspects of potential risks posed to natural habitats and protected species (including tigers), as required by the Bank’s safeguard policies: (a) the extent to which the potential threats posed by project-related activities overlapping with, or in close proximity to, protected natural habitats were identified; (b) the extent to which potential threats to protected species, including tiger populations, posed by the project were identified; (c) whether indirect or cumulative impacts caused by external activities or processes induced by the Bank-supported project were identified; (d) whether studies of

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1. The term “protected areas and species” is used throughout this report as a form of shorthand to indicate both natural habitats and species that are recognized as having special status or importance by the Bank or other authoritative sources determined by Regional environment sector units. This includes internationally accepted IUCN Natural Habitat Categories I–VI or the IUCN Red Lists for either Threatened Animals or Threatened Plants, as well as areas recognized by traditional local communities, areas with known high suitability for biodiversity conservation, that maintain conditions vital for the viability of these protected areas, or that are critical for rare, vulnerable, migratory, or endangered species. Definitions can be found in OP 4.04, Annex A – Definitions.

baseline ecological conditions, demographic trends, social pressures, or land-use patterns that could potentially affect tiger habitats or populations had been conducted in preparing the projects; and (e) whether the relevant Bank safeguard policy requirements had been applied.

Some plant and animal species are highly adaptive “pioneers” in terms of filling new ecological niches or vacuums created by changing conditions. Tigers, however, are extremely territorial and poor “dispersers.” They often will not cross a new or upgraded road of more than a certain width or one that is travelled frequently. This can effectively cut them off from former habitat and prevent them from maintaining viable reproducing populations. Consequently, to know whether protected areas or species are at risk from direct or indirect threats associated with a Bank-supported project, it is necessary to analyze the ecological context of the project and baseline conditions.

Identification of potential threats to protected natural areas (as defined by the IUCN’s six categories of protected areas and cited in OP 4.04) was satisfactorily identified in 17 of the 20 projects assessed. The only projects where potential threats to protected natural habitats were not adequately identified were the Indonesia Bengkulu Regional Development, which recognized the benefit of reducing human pressures on the nearby national park of Kerinci Seblat, but did not identify protected natural habitats within its own area of influence, and the Lao PDR Road Maintenance (RMP1) and Vietnam Rural Transport projects, which did not adequately identify threats to protected natural habitats because impacts were considered “minor and localized.”

However, it appears that the cumulative effects of a multitude of small road works and the indirect impacts of improved access created by maintaining the road networks near natural areas were not adequately considered under these three projects. In the case of Lao PDR, the Second Road Maintenance Project did much better at identifying protected habitats and species by conducting a Strategic Environmental

Assessment, which revealed high levels of wildlife trafficking along the border with China.

Proximity to or overlap with populations of protected species (such as tiger populations) was satisfactorily identified in 18 of the 20 projects assessed. The Bengkulu Regional Development Project was the only project that acknowledged the presence of tiger populations in the nearby national park of Kerinci Seblat, but it did not adequately conduct surveys to detect their presence within the project’s area of influence. It was not possible to determine whether tigers or other protected species were identified in the Vietnam Rural Transport Project.

Analysis of the third question, regarding whether cumulative or indirect impacts (in addition to direct impacts) on natural habitats and protected species within a project’s area of influence were adequately identified, revealed that 18 projects satisfactorily identified all types of threats. One project (RMP1) did not provide adequate site-specific information about indirect and cumulative impacts to protected species or natural habitats and relied too heavily on overly generic and vague government guidelines. Another project (Vietnam Rural Transport) did not prepare an environmental assessment or provide any information about such impacts because of the project’s sequential approach and “small environmental impacts.” Consequently, as far as could be determined, environmental management needs were not incorporated in its implementation.

Nearly three-quarters (14) of the projects gathered adequate baseline data during the preparatory phase. Typically, these data were gathered during the preparation of the project environmental assessments or a comprehensive environmental assessment (either regional or sectoral). In three cases it was not clear from the project documentation to what extent adequate baseline data had been collected. In another three cases, the information gathered through baseline studies and biosurveys or inventories was judged inadequate and of poor quality. Documentation of local community and NGO

involvement as well as ample opportunities for public consultations in nearly all 20 projects proved satisfactory. These are important positive findings, as sound environmental assessments, along with client implementation, local involvement, and project supervision, are the foundations of environmental management.

For 11 of the 20 projects there was evidence that relevant Bank safeguards policy requirements were adequately applied, taking into account the project's potential to cause "significant degradation or conversion" of natural habitats and protected species either by applying the requirements under the Natural Habitats safeguard policy (OP 4.04) or under the Environmental Assessment policy (OP 4.01). Six projects satisfactorily considered impacts to protected habitats and species under the umbrella environmental safeguard policy (OP 4.01) without apparently triggering the Natural Habitat policy (OP 4.04).

Five other projects neither triggered the Natural Habitats safeguard nor adequately addressed potential significant impacts to protected areas or species under the Environmental Assessment

policy when that appeared to be warranted. One of these projects was found to be in violation of both OP 4.01 and OP 4.04 by an Inspection Panel investigation (the Cambodia Forest Concession Management Project). Two of the four assessed projects in Indonesia fell into this category, but only one of six assessed projects in India did so. Finally, four projects could not be evaluated because the information provided in project documents was insufficient to ascertain whether significant degradation or conversion of natural habitats or protected species occurred.

Only 2 of 11 rural transport projects (Tamil Nadu and Grand Trunk projects in India) applied the Natural Habitats policy. The other nine rural transport projects, also located in or near critical natural habitats or populations of protected species, addressed the issues under the Environmental Assessment policy, but only four of these nine projects did so satisfactorily. The two projects that applied the Natural Habitat policy did not notably differ in the nature or scale of impacts from the other projects, making it unclear why they applied the Bank's Natural Habitats policy when the others did not. Nor were the assessment methods or mitigation

**Table 3: Identification of Potential Impacts**

Evaluative questions	Satisfactory	Unsatisfactory	Not evaluable
To what extent was project overlap with, or proximity to, protected areas (such as national parks and reserves or IUCN Categories I – VI of Protected Areas) identified as a potential threat of significant degradation or conversion?	17	3	0
To what extent was project overlap with, or proximity to, protected species (such as tiger populations and/or habitats) identified as a potential threat of significant impact?	18	1	1
To what extent were indirect threats or cumulative impacts associated with other activities in the project area of influence identified as posing significant risks to protected species and/or habitats?	18	1	1
To what extent were relevant data gathered (for example, biodiversity baseline studies or bio-inventories), identifying and assessing potential significant adverse impacts on protected species and/or habitats?	14	3	3
Were relevant safeguard policy requirements identified and applied?	11	5	4
Average identification ratings (%)	78	13	9

Source: IEG.

Note: A six-point rating scale was used: 1 = highly satisfactory, 2 = satisfactory, 3 = moderately satisfactory, 4 = moderately unsatisfactory, 5 = unsatisfactory, 6 = highly unsatisfactory. Ratings from 1 to 3 were grouped into a "satisfactory" category; ratings from 4 to 6 were grouped into an "unsatisfactory" category. "Not evaluable" means insufficient information was available to answer the evaluation questions.

measures they proposed substantively different from the other road projects, as far as could be determined. This raises concerns about the lack of clarity in consistently applying the Natural Habitats operational policy and its additional analytical requirements compared to the Environmental Assessment policy. These concerns have been confirmed in interviews with Regional safeguard and biodiversity staff in the East Asia and Pacific and South Asia Regions.

### Mitigation of Identified Threats

*For most of the projects reviewed, adequate mitigation plans were prepared to address direct impacts, appropriate assessment methods were used, project activities to strengthen the capabilities of local clients and partners were developed, and sufficient resources were budgeted to implement efforts to mitigate the negative impacts of identified threats. In terms of addressing indirect threats to protected species and natural habitats, such as encroachment and settlement into natural areas and poaching of wildlife, less than half of the projects prepared adequate measures to address those threats; a third chose not to address them even though they were identified in project preparation documents.*

The Environmental Assessment operational policy (like OD 4.01 before it) requires that mitigation measures be adequately designed and implemented “by preventing, minimizing, mitigating, or compensating for adverse environmental impacts and enhancing positive impacts; and includes the process of mitigating and managing adverse environmental impacts throughout project implementation.”<sup>2</sup> This applies to both direct impacts of the project as well as indirect impacts from other activities unrelated to but induced by and within a project’s area of influence.

Direct impacts are those associated with the actual effects of the project itself having to do,

for example, with the maintenance, improvement, or rehabilitation of existing roads or the construction of new roads or highways. Potential impacts include fragmentation or loss of natural habitats, changes in water drainage patterns, land slumping or landslides, soil erosion and leaching of toxic minerals, contamination or sedimentation of nearby water bodies, pollution and disturbance from road work crews, and wildlife road kills.

Mitigation measures are typically well understood and straightforward to implement, such as realigning roads to avoid or minimize contact with sensitive areas or species, engineered water drainage and land stabilization structures, and non-engineered solutions to problems such as minimizing impacts from worker camps and land moving operations in the first place, controlling wind and water erosion through immediate re-vegetation and replanting of hedges or trees to act as physical barriers, restoring borrow pits and quarries, and vigilant environmental monitoring, reporting, and verification as part of adaptive management and project supervision.

Indirect impacts are those associated with a project but that are not a direct result of an activity of the project itself. They are typically induced by the project, such as human colonization and settlement attracted to an area by improved access to natural resources, less government oversight and control, or by those seeking greater security from persecution or cheaper land prices. The impacts that may ensue include the illegal poaching or capture of wildlife, logging of trees, and extraction of natural resources from the area.

Mitigation measures are typically more difficult to implement but tend to follow the same mitigation hierarchy as for addressing direct impacts, which is avoidance first, then minimization of unavoidable impacts through better management or government controls. The last type of

2. OP 4.01, Environmental Assessment, January 1999, paragraph 2, p. 1.

mitigation is to compensate for residual impacts through offsets of similar existing or new protected areas. The residual impacts remaining after prevention and minimization options have been exhausted must be compensated for under the Natural Habitat policy (like OPN 11.02 before it), which states that such “mitigation measures include, as appropriate, minimizing habitat loss and establishing and maintaining an ecologically similar protected area.”<sup>3</sup>

When projects or a program are likely to have significant sectoral or regional impacts, the Bank supports sectoral or regional environmental assessments. Such assessments must “indicate the present location of natural habitats in the region or sector involved, analyze the ecological functions and relative importance of such natural habitats, and describe the associated management issues.”<sup>4</sup> The Bank’s operational policies also require it to “take into account the borrower’s ability to implement the appropriate conservation and mitigation measures. If there are potential institutional capacity problems, the project includes components that develop the capacity of national and local institutions for effective environmental planning and management.”<sup>5</sup> Finally, the policies require projects to ensure that adequate financial resources are included in project budgets to implement planned conservation measures and environmental management programs.

Thus, the second thematic set includes five questions responding to these requirements of the Bank’s environmental safeguard policies, encompassing the following issues: (a) adequate design of conservation programs and mitigation measures to address significant project-related direct threats and impacts to protected species and habitats; (b) the degree to which conservation and mitigation activities had fully complied with the Bank’s environmental safeguard policies to also address broader indirect threats; (c) use of “upstream” diagnostic tools, such as strategic,

sectoral, or regional environmental assessments in cases of potential large-scale, cumulative sectoral or regional effects; (d) whether project activities had been prepared to strengthen the capabilities of local stakeholders and counterparts (for example, improving protected areas management or community patrols); and (e) whether resources to support mitigation programs had been included in project implementation budgets.

Three-quarters of the projects reviewed did a satisfactory job of preparing adequate mitigation measures and conservation plans to prevent, minimize, or compensate for significant adverse direct impacts on natural habitats or protected species (including tigers). Nine projects attempted to address indirect threats to protected species and habitats (including tigers and tiger ranges). One-third did not include any actions in their mitigation plans, even when they were identified in project appraisal documents and environmental assessments as among the most serious threats, for example, poaching. These decisions were made because, in many cases, the threats were viewed as beyond the scope and resources of the project to realistically address.

From a review of ex post documents and follow-up interviews with former project staff members, client commitment to address these threats was also quite low, often in spite of strong pressure from civil society organizations to take stronger mitigation measures. Many staff members interviewed stated that they did not act on the findings of environmental assessments to address indirect threats because many clients considered such action as going beyond the scope and mandate of the project and a misallocation of project resources. Although addressing the root causes or drivers of impact would clearly be beyond the intended requirement of OP 4.04, Bank safeguard policies require projects to address indirect threats affecting the project within their

3. OP 4.04, Natural Habitats, June 2001, paragraph 5, p. 1.

4. BP 4.04, Natural Habitats, June 2001, paragraph 7, p. 2.

5. OP 4.04, Natural Habitats, June 2001, paragraph 6, p. 1.

area of influence. Therefore, a distinction was made in the analysis between indirect impacts that would potentially affect the project area and systemic drivers or root causes of impacts. Using this rule, it was found that one-third of the projects did not adequately address indirect/induced impacts in the project's area of influence.

For example, the Environmental Assessment for the Indonesia Integrated Swamps Development Project predicted that a significant increase in illegal poaching and wildlife trafficking activities would occur in the project area of influence. It noted the presence of tigers at some project sites and concluded that the only way to stop the trade in tigers was to attack the problem at the dealer level and close black market opportunities. No actions were taken because this was perceived to be a law enforcement issue beyond the scope of the project to effectively address. However, the fact that the drivers of impact were of a regional nature did not obviate the requirement of the project to implement mitigation measures to prevent, minimize, or compensate the impacts on protected species and natural habitats experienced in the project's area of influence, and to monitor their effectiveness over time as part of the project's monitoring and evaluation system.

All but four of the projects conducted upstream assessments, such as regional or sectoral environmental assessments. However, although they may have conducted such studies, it was not clear in many cases from project documents whether they made effective use of the assessments as inputs to reaching agreements with borrowers to implement the Bank's safeguard policies or to inform implementation decisions that project managers made.

The majority of projects reviewed included capacity-building elements for local counterparts in project activities. However, these project components or elements were often measured as inputs or outputs (for example, the number of local counterparts trained or knowledge products disseminated) rather than as outcomes achieved as a result of their implementation.

Illustrating both of these issues (that is, the use and value added of upstream assessments and local capacity-building efforts) is the case of the first and second road maintenance projects in Lao PDR. These two projects provide an example of Bank staff learning from experience and improving implementation through better project design and supervision in the follow-on project. In the first Lao PDR Road Maintenance Project (RMP1), no environmental assessment was prepared, and the Bank's project staff relied on very generic national environmental guidelines to supervise implementation of the project (mentioned in the "Identification" section).

Annex 11 (Safeguard Policies, Social and Environmental Issues) of the staff appraisal document for RMP1 stated, "Better maintained roads could lead to increased accessibility in remote areas thus increasing the potential for uncontrolled resource extraction and land conversion along the road. Concern over such issues is heightened in areas where roads pass through protected areas and other sites of a sensitive ecological nature." However, in apparent contradiction to this analysis, the appraisal document concluded: "Environmental issues associated with the project are temporary and localized in nature..." Therefore, no environmental assessment was prepared, and no public consultations were held for RMP1.

In contrast, the Summary of the Safeguard Policy Issues in Annex 10 of the Project Appraisal Document for the second Lao PDR Road Maintenance Project (RMP2) stated: "Main concerns are related to management of borrow pits, potential impacts on natural habitats and other sensitive areas, compliance performance of contractors, and capacity of the [Department of Roads] environmental and social safeguard staff and field engineers to supervise and monitor the safeguards." As a result of these concerns, a Strategic Environmental Assessment was conducted during the preparation of RMP2 with the following justification:

Based on the lessons learned from RMP1, the mitigation activities are designed to: (a) prevent or mitigate the adverse social and

environmental impacts of project works, including ensuring adequate disclosure and consultation; (b) facilitate mainstreaming of safeguard procedures and guidelines; (c) enhance capacity of the Environmental and Social Division of MCTPC; and (d) identify priority programs to improve [Department of Roads'] capacity to address the safeguard issues. Funding for the activities has been provided under the Project. Effective execution of the mitigation plan will ensure that the Project meets with the requirements of the Bank's safeguard policies and will also significantly increase ... capacity to address the environment and social issues related to road development.

Finally, with respect to whether adequate human and financial resources had been provided to implement mitigation measures and monitoring programs, 12 projects did appear to be adequate, and none was unsatisfactory in this regard as far as could be determined by a review of project documentation. However, it was not possible to

make that assessment in eight cases (40 percent) because of poor or inaccessible project reporting documents. Table 4 shows the rating results for the five "mitigation" evaluation questions.

### Effectiveness of Mitigation Measures to Address Threats

*Little information was available that documented the effectiveness of mitigation measures in achieving better environmental outcomes. Consequently, it could only be established that a few projects had successfully mitigated either direct or indirect threats to protected species or natural habitats. This was particularly true for indirect impacts induced by Bank supported projects in the area. Most projects did not have the information required to report on the results achieved or to provide useful lessons from past experience to apply to ongoing and future projects, policies, and decisions.*

Both OP 4.01 (Environmental Assessment) and OP 4.04 (Natural Habitats) and their predecessors

**Table 4: Mitigation of Potential Impacts**

Evaluative questions	Satisfactory	Unsatisfactory	Not evaluable
To what extent were adequate mitigation plans/programs prepared to address direct impacts on natural habitats and protected species (including tigers)?	15	3	2
To what extent did mitigation programs include measures to address indirect threats within the project's area of influence?	9	7	4
To what extent were appropriate assessment methods (for example, sectoral or regional environmental assessment) and mitigation programs (for example, environmental management systems or Endangered Species Action Plans) prepared to address direct and/or indirect threats?	16	3	1
To what extent were World Bank project activities designed to help strengthen the capacity of local stakeholders to protect natural habitats and protected species?	14	3	3
To what extent were adequate resources included in the project budget to implement conservation and mitigation measures, and monitoring and evaluation programs?	12	0	8
Average mitigation ratings (%)	66	16	18
<i>Source: IEG.</i>			
<i>Note: A six-point rating scale was used: 1 = highly satisfactory, 2 = satisfactory, 3 = moderately satisfactory, 4 = moderately unsatisfactory, 5 = unsatisfactory, 6 = highly unsatisfactory. Ratings from 1 to 3 were grouped into a "satisfactory" category; ratings from 4 to 6 were grouped into an "unsatisfactory" category. "Not evaluable" means insufficient information was available to answer the evaluation questions.</i>			

require the Bank to supervise the client or borrower's implementation of all projects to ensure compliance with the Bank's applicable safeguard policies. Both these safeguard policies require that direct and indirect threats within the project's area of influence be identified and addressed in environmental management plans, mitigated to the extent practicable, and monitored regularly throughout the project implementation process. The Natural Habitats policy explicitly states that appropriate corrective actions should be taken when warranted by monitoring data that provide feedback on conservation outcomes.<sup>6</sup>

Therefore, a third set of questions was used to measure the effectiveness of mitigation measures across all 20 projects to determine the adequacy of Bank supervision in ensuring compliance with relevant safeguard policies and the effectiveness of mitigation measures and programs in addressing both direct and indirect or cumulative impacts. Also, issues such as whether corrective actions had been taken when warranted by monitoring data, and whether any monitoring data had been systematically collected and evaluated in terms of the project's effect on natural habitats or protected species in general, or more specifically, if any changes or trends in key indicator species populations or habitats (such as tigers) had occurred in the project's area of influence over the life of the project were also assessed.

The last two questions sought to determine whether data on key indicators of biodiversity health and natural habitat conditions had been monitored, and if so, to what extent that information indicated an upward or downward trend in key species' populations and habitats within the project's area of influence, and whether that could be attributed to project activities. This question was intended to measure the ultimate indicator of interest for the purposes of this study: positive and negative effects of Bank-financed projects on

protected species and natural habitats (in particular wild tigers and their habitats).

The primary data sources of information used to determine the effectiveness of mitigation measures were Implementation Supervision Reports (ISRs) and ICRs prepared by Bank project staff, and ICR Reviews prepared by IEG staff to validate project performance and outcomes supplemented by any additional information available in project files. ISRs require that a rating be given of the borrower's compliance with applicable safeguard policies, but these are frequently not substantiated with any narrative and are usually done by nonspecialist project staff. The Bank's operational policies require that the ICR evaluate environmental impacts and the effectiveness of any mitigation measures, including natural habitat conservation, although they do not require ratings for safeguards compliance.<sup>7</sup> Acceptable indicators of environmental performance were only mentioned in a few of the projects evaluated, and were not integrated into the results frameworks of the majority of projects (aside from the three Integrated Conservation and Development Projects [ICDP]).

One of the most salient results of the evaluation was how little information was available to determine the extent to which planned mitigation measures were actually implemented to protect natural habitats and protected species, and how little information was provided by which to evaluate their effectiveness. Follow-up interviews with project staff did not provide significant information to fill gaps of understanding about environmental outcomes achieved. Interviews also revealed largely incomplete project files that were difficult to access, making it difficult to assess whether documents had been prepared.

The high number of "not evaluable" ratings in the effectiveness set of questions (see Table 5) was six times higher than it was for the set of

6. OP 4.04, Annex A – Definitions, June 2001, para. 1(e).

7. BP 4.01, paragraph 29, and BP 4.04, paragraph 6.



questions regarding the identification of threats or impacts and three times higher than it was for questions about the preparation of mitigation plans. This demonstrates a lack of transparency and accountability in many of the projects' monitoring, reporting, and verification systems. For example, it could only be determined for one project whether protected species and habitats (including tiger populations or habitats) had increased or decreased in the vicinity of the project. For the other 19 projects, that information was not available or a judgment could not be made by the evaluators, even though almost all (17) had identified protected species or natural habitats within the project's area of influence in project preparation documents.

Similarly, there was insufficient information in available project documents to determine if mitigation measures had been effective in addressing the most serious indirect threats to protected species and habitats—habitat fragmentation and degradation or loss—in 14 of the 20 projects evaluated. In terms of whether corrective actions had been taken to remedy perceived or actual adverse impacts, 12 projects were lacking information to allow a determination to be made on that question (see Table 5). These findings raise questions about whether documents for Bank-supervised projects (such as ISRs and ICRs) are reporting useful information about the effectiveness of mitigation measures or the environmental outcomes achieved by the project. These findings are in line with those from a broader IEG evaluation of Bank Group safeguards and sustainability policies (IEG 2010b), which found that Bank projects often lack adequate monitoring and evaluation of safeguards performance results.

Nine projects had adequately supervised and reported on the implementation of mitigation measures to protect biodiversity and natural areas and nine did not. However, of those that had demonstrated satisfactory supervision of the client's implementation of mitigation measures, most had done so in the form of inputs or outputs, not outcomes. For the remaining two projects, it could not be determined whether

they had satisfactorily supervised the client's implementation of applicable safeguard policy requirements. A few projects that were well supervised by Bank staff in terms of complying with environmental safeguards did not result in successful outcomes because of poor implementation of mitigation measures and project management systems by clients.

An example of this was provided by the Grand Trunk Road Improvement Project in India. Bank staff thoroughly reviewed the assessment of potential risks and threats to natural habitats and protected species and prepared a comprehensive mitigation program along the entire length of upgraded trunk highways in the Golden Triangle region. However, weak institutional capabilities resulted in "recurring implementation problems and inadequate monitoring" of environmental conditions or impacts. Similar issues of not regularly monitoring compliance with safeguard requirements that were noted in the ICR also applied to the road information reporting system of road paving and safety conditions that jeopardized the enormous government investment in this project. The Environmental and Social Management System developed in 2001 to guide the National Highways Authority of India had still not been adopted when the ex post ICR was written.

Only the three ICDPs in the sample were able to demonstrate successful mitigation of direct project-related threats or impacts on natural habitats and protected species. For eight other projects, inadequate attention was paid to civil works activities or project management to ensure mitigation of direct project impacts with the potential to cause significant impacts to natural habitats or protected species. In the remaining nine projects of the sample there was insufficient information in project documents to determine whether direct threats or impacts had been satisfactorily addressed by the mitigation measures or environmental management systems. These results reflected the generally poor quality of data collection, analysis, and reporting of results-based information throughout the sample of projects evaluated.

The lack of information on the implementation, performance, or outcome of mitigation measures was even more pronounced in the case of indirect threats or impacts. In nearly three-fourths of the projects, it was not possible to make an assessment because of poor documentation. Several projects attempted to address indirect threats to natural habitats and protected species within the project's area of influence, but where information about implementation and results is available, it points to limited success and the challenges facing those attempting to address indirect threats at the project level.

Despite diligent Bank supervision, the Kerinci Seblat ICDP was instructive for its unsuccessful effort to mitigate indirect threats and impacts to the project site. The difficulty of trying to impose conservation values on existing social systems or resistant economic interests by external parties (for example, the Bank and conservation NGOs) was clearly stated in the ICR for the Kerinci Seblat ICDP: "Changing the behavior of societies is complex and slow, and understanding the incentives for certain types of behavior is of key importance...conservation cannot work in a situation where there is no effective governance" (World Bank 2003). The central development hypothesis of the project "incorrectly assumed that village-level poverty and the lack of alternative livelihoods were the driving forces behind illegal natural resource extraction (for example, agricultural encroachment, poaching, and logging)."

Therefore, it was assumed that interventions to promote alternative livelihoods would reduce such behaviors and improve management of nearby protected areas. However, several of the targeted villages around Kerinci Seblat National Park were among the wealthiest in Sumatra, and many of those responsible for such activities were individuals acting with immunity from prosecution. The ICR stated, "Very few individuals responsible for financially backing the illegal sawmills and logging networks operating in the area were ever prosecuted due to corruption and intimidation of the judicial system, and no one has ever been prosecuted for attacks on park patrols or for burning down park administrative

buildings" (World Bank 2003, p. 14). The ICR concluded that the project had made a "significant impact in protecting the national park and preventing forest loss" (World Bank 2003, pp. 6–7), by stopping several proposed road projects and shutting down a third of the illegal sawmills located in the park and buffer zones.

Among the 20 projects reviewed, only the India Ecodevelopment Project could demonstrate that it mitigated indirect threats to protected species and natural habitats, such as tigers and their habitat. But this project was overwhelmed by indirect impacts in some of its seven project areas, stretching its capacity and financial resources to mitigate potential impacts to protected natural habitats and species it encompassed. Despite preparation of Environmental Assessments and mitigation programs, satisfactory monitoring and evaluation systems, and extensive input and participation from affected communities, the project's efforts to control poaching and natural resource extraction within national parks and reserves were unsuccessful in several sites. The failure of the state government to return a portion of the eco-tax charged to visitors of the Ranthambore Tiger Reserve, or of local hotels deriving benefits from tourism to the Reserve to return a portion of the revenues generated by the reserve, undermined the commitment and incentive of local communities to support the project.

The ICR for the Vietnam Forest Protection and Rural Development Project stated that close supervision of the applicable safeguard policies was maintained throughout the project, and the reduction in the number and severity of forest violations and crimes was confirmed by the ICR Review. However, there was no corroborating evidence presented to substantiate if mitigation efforts had in fact stanchied poaching activities in the project area of influence.

As evidenced by this review, there are many instances where adequately addressing the root causes of indirect impacts on natural habitats and protected species requires measures beyond the scope of what project-level safeguards measures

and implementing agencies can address. They require concerted and focused action at the policy level, which is generally beyond the mandate and purview of implementing agencies in charge of specific development projects.

Six projects were able to demonstrate that corrective actions had been taken during their implementation in response to unexpected threats or because of the unanticipated degree or nature of impacts experienced. In most cases, this was a direct result of good project management and supervision. An example of corrective actions taken was provided by the Kerinci Seblat ICDP that underwent a “radical redesign” following the midterm review, but was ultimately rated as having been unsatisfactory because of the long delay in the project management’s response to obvious indications that the development theory of the project was seriously flawed and compromising the project’s achievement of its development objectives.

However, in one case (the Cambodia Forest Concession and Management Project), corrective actions were taken in response to the Bank’s Inspection Panel finding that the project had not complied with Bank safeguard policies for Environmental Assessment, Natural Habitats, and Physical Cultural Property by supporting forest concessionaires engaged in illegal and uncontrolled logging without adequate supervision and monitoring (World Bank 2009, pp. 81–2). The Bank Management Response and Action Plan included a new Natural Resources Management Framework to address the immediate concerns of illegal logging, continued forest loss and degradation, and uncontrolled encroachment and poaching. In the majority of projects reviewed (14), there was no evidence provided in project documents, from interviews, or in response to requests for information that any corrective actions were taken.

Among the 20 projects reviewed, only the Ecodevelopment Project in India provided evidence that it had conducted tiger population surveys and defined tiger habitats at several of its project sites. A senior-level Bank biodiversity

expert mentioned that such surveys had also been conducted regularly on another one of the ICDPs (Kerinci Seblat), but the IEG evaluation team was not successful in locating documentation to validate this assertion. No information was available or provided of any upward or downward trends in protected species or natural habitats (including tiger populations or habitats) attributable to the project for any of the other 18 projects sampled.

The three ICDPs (Kerinci Seblat in Indonesia, Forest Protection and Rural Development in Vietnam, and Ecodevelopment in India) were special cases in the study sample because their primary objective was to balance the need for local economic development with that of conserving biodiversity through a mixture of regulatory mechanisms and financial incentives to decrease unsustainable or illegal natural resource extraction practices. This balancing act proved very difficult to achieve in practice, demonstrating the inseparable link between good governance and biodiversity conservation. The recent experience of two ongoing projects suggests that effective engagement at the community level is essential to arresting encroachment and settlement of protected natural and poaching of protected species, as described in Box 1.

The three ICDPs demonstrated stronger monitoring and evaluation systems than the rest of the projects evaluated. Two of them were supported by Global Environment Facility financing. NGOs played an instrumental role throughout the implementation of these projects in addressing indirect and cumulative impacts of threats to natural habitats and protected species. Last, all three projects point to the issue of sustained coordination with relevant parties, especially when there were regional master land-use plans covering areas within the projects’ areas of influence.

Ironically, unlike the rest of the projects in the sample, much of what is known about the shortcomings of ICDPs would not have been appreciated were it not for their comprehensive

### Box 1: Two Examples of Protecting Tiger Populations

Two projects that were not evaluated as part of this assessment have shown promising results for slowing tiger poaching and encroachment into core tiger habitats. The Terai Arc Landscape project in Nepal has initiated joint forestry programs with local communities and granted local people stewardship responsibilities of critical core areas and migratory corridors. The goal is to maintain genetically viable pools of breeding tigers with adequate prey populations and protection from poaching. This has been shown to be an effective conservation mechanism if a large enough share of the benefits gained from managing natural resources sustainably is directed back to the communities.

A second example of tiger conservation efforts is the ongoing program of the Wildlife Conservation Society in the Russian Far East. This program has taken a similar approach of strengthening the “property rights” of local communities and local organized groups of hunters responsible for managing hunting, controlling poaching, and monitoring wildlife populations of Amur (Siberian) tiger populations. In exchange for meeting these conditions, these groups are given exclusive leases to hunt in these large intact natural areas. As a result of this program and other combined efforts in the region by governments, local communities, and local and international NGOs, tiger populations in this region have reversed their decline and begun to recover.

Source: Smithsonian National Zoological Park and World Bank 2008, pp. 19–21.

documentation and reporting of implementation activities and environmental outcomes. Staff working on these projects collected and analyzed environmental monitoring data on changes and trends in vegetative cover and species populations from baseline conditions to inform project management decisions based on results-based information within an adaptive

project environmental management system. This trend has been promoted by Bank operational management initiatives in recent years.

The results of the final set of evaluation questions regarding the “effectiveness” of mitigation measures and programs are presented in Table 5.

**Table 5: Effectiveness of Mitigation Measures and Programs**

Evaluative questions	Satisfactory	Unsatisfactory	Not evaluable
Was there adequate supervision and reporting on the implementation of mitigation measures, monitoring and evaluation systems, and institutional support?	9	9	2
To what extent were project mitigation measures successful in protecting natural habitats and protected species from direct impacts (including tiger populations and habitats)?	3	8	9
To what extent were project mitigation measures successful in protecting natural habitats and protected species from indirect impacts (including tiger populations and habitats)?	0	6	14
To what extent were corrective actions taken to remedy perceived or actual adverse impacts natural habitats and protected species (including tiger populations and habitats)?	6	2	12
Did protected species and/or natural habitats (including tiger populations and habitats) increase or decrease in the area of influence of World Bank projects, and was this attributable to the project?	1	0	19
Average effectiveness ratings (%)	19	25	56

Source: IEG.

Note: A six-point rating scale was used: 1 = highly satisfactory, 2 = satisfactory, 3 = moderately satisfactory, 4 = moderately unsatisfactory, 5 = unsatisfactory, 6 = highly unsatisfactory. Ratings from 1 to 3 were grouped into a “satisfactory” category; ratings from 4 to 6 were grouped into an “unsatisfactory” category. “Not evaluable” means insufficient information was available to answer the evaluation questions.

## 4. Conclusions and Outstanding Issues

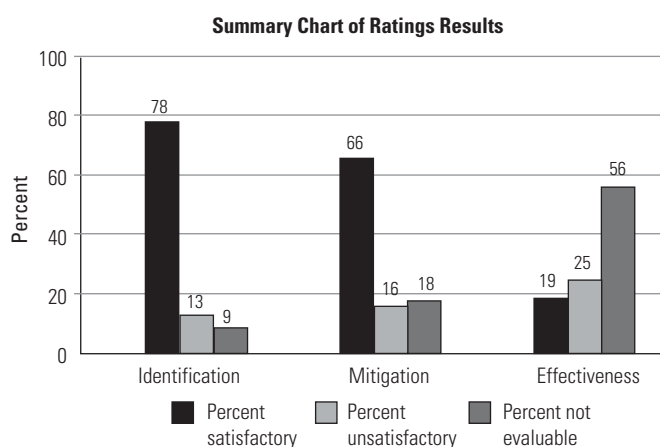
Figure 1 summarizes the average percentage ratings across the three main evaluation themes. The average share of satisfactory ratings for the questions involving identification and mitigation were 78 and 66 percent, respectively, but then dropped off markedly for effectiveness (19 percent), principally because of lack of evidence about the performance of mitigation measures. Unsatisfactory ratings (center bars in Figure 1) remained relatively low throughout the three areas of investigation (ranging from 13 to 25 percent), and the share of “not evaluable” ratings rose modestly from identification to mitigation (from 9 to 18 percent) and increased sharply for the set of effectiveness questions (56 percent).

The lessons from the main findings are similar to those of IEG’s recent evaluation of the Bank Group’s social and environmental safeguard policies and performance standards (IEG 2010b). In general, the sampled projects instituted rigorous due diligence practices, resulting in high-quality environmental and social assessments being conducted during the preparation and appraisal phase of projects. However, in most projects evaluated, clients did not provide adequate monitoring and evaluation data about the effectiveness of activities undertaken or of the results achieved during implementation. This made it difficult for them (and for the Bank in its supervisory function) to identify conditions warranting corrective actions, to document actions taken and results achieved, or to apply lessons learned to other projects. In response to IEG’s evaluation of the Bank Group’s safeguards policies and performance standards, World Bank management has committed to undertake actions to strengthen supervision and monitoring of the application and results of safeguards policies (IEG 2010b, pp. xxxiv–xlii).

An important finding of this review is the frequent but not always effectual use of upstream

strategic assessment tools, such as sectoral and regional environmental assessments. The fact that such assessment tools are being used indicates that Bank projects are taking a step in the right direction because sound environmental assessment is a necessary precondition for subsequent positive outcomes. However, it is not necessarily a sufficient prerequisite if not fully implemented or linked to adaptive and self-

**Figure 1: Average Evaluation Ratings Summarized by Thematic Area**



adjusting project management systems. One-third of the 20 case studies did not integrate actions detailed in environmental assessments into project design to address clearly identified indirect threats to protected natural habitats and species. It was also apparent that ecological data were not collected, analyzed, or evaluated as part of environmental management systems and appropriately integrated into overall project implementation and management systems, decisions, or actions.

The paucity of data on direct and indirect impacts on nearby protected species and habitats (including tiger populations and habitats) at project conclusion even when environmental assessments identified significant potential negative project impacts was striking. The fact that essentially no project could demonstrate that it had successfully mitigated indirect impacts on protected species' populations and habitats within the project's area of influence—although several made serious attempts to do so—and that only one actually measured upward or downward trends in such populations or habitats makes it clear that better application of existing monitoring tools is needed.

It was not surprising to find that only one project (Kerinci Seblat ICDP) had used remote sensing and imagery tools to conduct threat assessments and to deploy vehicle and foot patrols to encroachment hot spots, because many of the projects evaluated were designed well over a decade ago. However, there have been rapid technological advances in recent years in landscape-scale spatial assessment platforms and real-time field-based monitoring systems; these can provide cost-effective, reliable and timely data about rapidly changing conditions in the field that pose imminent threats to species and habitats of concern.

There was inconsistent application of the Natural Habitats policy among the 20 projects evaluated, with little apparent difference between projects that addressed natural habitat issues under the Environmental Assessment policy and those that

did so under the Natural Habitat policy. A substantial number of projects took into account the special requirements posed by natural habitats and protected species under the Bank's umbrella environmental assessment policy. However, the efficacy of this approach was limited, with five of the eleven projects that took this approach failing to do so satisfactorily. The Natural Habitats policy is very clear about the situations in which it should be triggered; it is far less clear about the additional analysis or actions required to comply with its mandate of taking a precautionary approach. This suggests a gap in the consistency of its application and in the prescriptive guidance provided about what actions should be taken when OP 4.04 is applicable.

In addition to using GIS-supported decision support systems to interpret landscape-scale earth observation imaging platforms or higher resolution aerial surveys (for example, LIDAR), a number of other approaches are being promoted and used by the Bank and other multilateral donors, such as putting more emphasis on addressing indirect impacts, making greater use of payment for environmental services, ensuring more direct and transparent benefit flows to local communities, clarifying property rights of common-access natural resources, and promoting global standards of environmental governance. These approaches were not evaluated in this review, but they have been applied in a number of Bank-financed projects with biodiversity impacts and might be considered in defining future guidance about what specific actions should be undertaken when OP 4.04 is applied.

In many cases, indirect threats of poaching and encroachment were clearly identified in project environmental assessments, but mitigation measures were not implemented by more than one-third of the projects evaluated. From interviews, it became apparent that the reason for this is that the threats were perceived as transcending the resources, capabilities, and mandates of the projects as well as the role of the Bank as a lender. This raises the fundamental question of how realistic it is to expect individual

development projects to address systemic threats to wild tiger populations, such as the ongoing “poaching crisis” occurring in tiger range countries and the more gradual but equally destructive process of habitat loss, fragmentation, degradation, and decreased connectivity of large, intact tracts of tiger habitats. Effectively addressing these broader issues is vital but usually calls for actions that go beyond the scope of what such projects can address with safeguards measures.

These impacts require dedicated national or transnational policies and programs well beyond the scope of individual projects to effectively address. Several projects assessed here were heavily criticized by NGOs for impacts and outcomes that could have reasonably been considered beyond the projects’ ability or means to mitigate and that go beyond the legal requirements of the Bank’s safeguard policy framework. Other projects attempting to implement novel approaches to integrate the basic needs of development with biodiversity conservation were also criticized. In several cases, the projects were trying to inculcate new attitudes and behaviors among local populations in the face of powerful economic interests and established social practices. Whether some projects might have gone further to address these threats is debatable, but all projects must monitor the environmental impacts of both direct and indirect threats and document the environmental outcomes achieved by the project.

Safeguards are an essential part in the Bank’s toolbox as a means to achieve sustainable development, but it is clear that safeguards by themselves are not sufficient to address broader systemic threats to biodiversity conservation. It cannot be assumed that by simply remedying the current deficiencies in implementation support and uneven supervision on a project-by-project basis the remaining wild tiger populations will be saved. As a recent joint United Nations Development Programme–World Bank Global Environment Facility report states, “The scale of interventions is usually much smaller than the scale of the threat” (UNDP and World Bank

2007). In the face of such threats, the Bank has begun to apply its global experience and convening power, its financial leadership and ability to leverage large, innovative capital flows, and its high-level dialogue with governments to engage clients and regional partners in civil society to strategically address these types of systemic threats through a variety of different forums, partnerships, and initiatives.

In taking a leading role with several new and ongoing initiatives, such as the Global Tiger Initiative (GTI), the Save Our Species (SOS) microgrant financing program, and the Critical Ecosystem Partnership Fund (CEPF), the Bank has launched a series of coordinated joint actions and strategic partnerships with other donors, governments, the private sector, and civil society to address the global challenge of biodiversity loss. For example, the SOS program is being prepared for Bank Board approval to address the funding gap for biodiversity conservation by mobilizing grant financing and private sector engagement in partnership with the World Conservation Union.

The GTI has spearheaded the Bank’s efforts to develop an effective international framework to help curb illegal networks trafficking in wildlife, such as tiger parts, and has supported the recently formed International Consortium on Combating Wildlife Crime to strengthen regional cooperation, improve wildlife crime reporting, establish a clearinghouse of tiger trade tracking data, and enhance international law enforcement efforts at the recent Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). It also aims to help to raise political awareness and financial support for the cause of biodiversity conservation, in fora such as the 2010 summit in St. Petersburg, Russia, which brought together policy makers from key donors and the 13 tiger range countries. The GTI is also working with partners on developing potentially innovative funding schemes, such as a wildlife premium piggy-backing on the Reduced Emissions from Deforestation and Degradation+ carbon market and the Global Tiger Recovery Program. Finally, the CEPF has awarded

over \$100 million to more than 1,500 NGOs and private sector organizations in the world's biodiversity hotspots.

In parallel with these valuable biodiversity conservation efforts and initiatives, this review has shown that the Bank, countries, and partners should continue efforts to integrate biodiversity considerations into the design and implementa-

tion of development projects. Complementary to promoting biodiversity conservation through targeted efforts are steps to anticipate and mitigate biodiversity losses associated with development projects in areas such as rural transport, watershed management, or integrated rural development.



# Appendix A: List of Evaluated Projects

Name	Region	Sector	Concept note review	Board approval date	Closing date
Bhutan: Rural Road Access Project (Category B)	SAR	TR	February 1999	December 1999	June 2006
Cambodia Forest Concessions (Category B)	EAP	ARD	May 1999	June 2000	December 2005
India: AP State Highway (Category B)	SAR	TR	June 1995	June 1997	January 2003
India: Grand Trunk Road (Category A)	SAR	TR	January 2001	June 2001	June 2008
India: Karnataka State Highway (Category A)	SAR	TR	August 2000	May 2001	December 2006
India: Tamil Nadu Road Sector (Category A)	SAR	TR	March 1999	June 2003	March 2009*
India: Integrated Watersheds Development (Hill 2) Project (Category A) September 2005	SAR	ARD	ARD	July 1998	June 1999
India: Eco-development Project (Category B)	SAR	ARD	January 1992	September 1996	June 2004
Indonesia: Bengkulu Regional Development (Category B)	EAP	TR	October 1995	March 1998	December 2005
Indonesia: Integrated Swamps Development (Category A)	EAP	ARD	March 1988	June 1994	September 2000
Indonesia: Sumatra Regional Roads (Category A)	EAP	TR	May 1996	March 1998	December 2005
Indonesia: Kerinci Seblat ICDP (Category A)	EAP	ARD	November 1991	April 1996	September 2002
Lao PDR: Road Maintenance Project I (Category B)	EAP	TR	February 2000	March 2001	December 2004
Lao PDR: Road Maintenance Project II (Category B)	EAP	TR	February 2004	June 2004	June 2010
Lao PDR: Agricultural Development Project (Category B)	EAP	ARD	April 2000	May 2001	June 2008
Nepal: Rd. Maintenance & Rehabilitation (Category B)	EAP	TR	January 1992	March 1994	June 1999
Nepal: Road Maintenance & Development II Project (Category A)	SAR	TR	November 1997	November 1999	June 2007
Vietnam: Rural Transport (Category B)	EAP	TR	April 1995	December 1996	December 2001
Vietnam: Northern Mountains Poverty (Category B)	EAP	ARD	November 1999	October 2001	December 2007
Vietnam: Forest Protection & Rural Development Project (Category B)	EAP	ARD	September 1995	October 1997	June 2006

Source: IEG.

Note: Category A = projects likely to have significant adverse environmental impacts that may affect an area broader than the sites or facilities subject to physical works; Category B = projects with potential adverse environmental impacts on human populations or environmentally important areas—including wetlands, forests, grasslands, and other natural habitats—that are less adverse than those of Category A projects. These impacts are site specific; few if any are irreversible, and in most cases mitigatory measures can be designed more readily than for Category A projects. **Regions:** EAP = East Asia and Pacific; SAR = South Asia. **Sectors:** ARD = Agriculture and Rural Development; TR = Transport. \* signifies still active project with closing date subsequently extended beyond that given in project document.

# Appendix B: Rating Scale for Assessing Impacts of World Bank–Funded Projects on Wild Tigers

Rating	Definition
1 Highly satisfactory	Exemplary identification/analysis of potential impacts on wild tiger populations and habitats and other species/habitats of concern. Creative approaches to mitigation measures and their management. Highly effective implementation of the mitigation measures and other protective activities. Innovations and opportunities taken to design and implement protection measures for species or habitats per se and provide stepped up supervision of their implementation.
2 Satisfactory	Satisfactory identification/analysis of potential impacts on wild tiger populations and habitats and other rare and endangered species/habitats. Adoption of appropriate mitigation measures and their management. Satisfactory implementation of the mitigation measures and other protective activities. Satisfactory supervision of their implementation. No innovations and opportunities taken to design and implement protection measures for species or habitats per se or to provide close supervision of their implementation.
3 Moderately satisfactory	Moderate lapses in identification/analysis of potential impacts on wild tiger populations and habitats and other rare and endangered species/habitats. Moderate lapses in adoption of appropriate mitigation measures and their management or in implementation of the mitigation measures and other protective activities and supervision of their implementation, but not considered to put implementation of protective measures at risk.
4 Moderately unsatisfactory	Significant lapses in identification/analysis of potential impacts on wild tiger populations and habitats and other species or habitats of concern, adoption of appropriate mitigation measures, management and implementation of mitigation measures and other protective activities, supervision of their implementation. Considered to put implementation of protective measures at risk. Opportunities exist to rectify oversights not taken.
5 Unsatisfactory	Very significant lapses in identification/analysis of potential impacts on wild tiger populations and habitats and other species/habitats of concern, adoption of appropriate mitigation measures, management and implementation of the mitigation measures and other protective activities, supervision of their implementation. Considered to put implementation of protective measures at risk. Few, if any, opportunities to rectify oversights or issues.
6 Highly unsatisfactory	No recognition of potential impacts on wild tiger populations and habitats, no formulation of mitigation measures and their management, no implementation of the mitigation measures and other protective activities. No opportunities taken to design and implement protection measures for species or habitats per se.

Source: IEG.

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