

USAID BIODIVERSITY AND DEVELOPMENT HANDBOOK

IV

BIODIVERSITY AND DEVELOPMENT INTERSECTIONS



Families rest in the shade while Northern Rangelands Trust community rangers pass by on patrol in Kenya. Nature-based enterprises and improved management earned about \$1.3 million in 2013, in an area with low annual incomes and few economic options.

*Photo: Juan Pablo Moreiras,
Fauna & Flora International*

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Fishermen of the Hail Haor wetland in Srimongol, Bangladesh, have much to celebrate. After USAID helped local people participate in decision making and management of Hail Haor, fish diversity went up significantly, waterbirds that hadn't been seen for years returned, and fishermen regularly caught more fish in less time than they used to. This success with community co-management led the Government to change national policy on the rights of communities and initiated a large scale up in effort with USAID support.

Photo: Sirajul Hossein

IV BIODIVERSITY AND DEVELOPMENT INTERSECTIONS

4.0 OVERVIEW

This chapter supports Goal 2 of the Biodiversity Policy, “integrate biodiversity as an essential component of human development,” as well as Agency integration goals and emerging best practices. Virtually all USAID programs are integrated with other sectors, whether intentionally or not, because they operate within socioeconomic systems. Biodiversity conservation programs are no exception. Conservation activities impact other sectors and vice versa. This chapter provides information on these linkages and impacts, for consideration in increasingly common multi-sector programming. Programmers and managers may also find this information useful in considering how working in different sectors contributes to sustainability. In addition, biodiversity and environment experts need to know enough about other sectors to be able to engage appropriately, though they do not have to be experts.

Integration does not mean doing everything; it means being strategic. Resources presented in this chapter can help planners make these strategic choices – identifying entry points and actions in other sectors that can lead to and enhance biodiversity conservation outcomes. For example, in the context of a threats-based approach, planners and practitioners could engage with efforts to strengthen legal and justice systems and apply best practices to specific conservation challenges such as trafficking or illegal, unreported, and unregulated (IUU) fishing.

As explained in Chapter 3, it is also evident that conservation approaches require knowledge about and engagement with the sectors to be covered here. Broad-scale landscape and seascape approaches often dictate integration of agricultural considerations; these could involve a mix of ecoagriculture, agroforestry, and intensification techniques, as well as improved fisheries management in seascape settings. Community-based natural resource management (CBNRM) approaches can improve conservation impacts and results by

incorporating and facilitating the positive evolution of land tenure and property rights concerns. Similarly, many practitioners are increasingly realizing the importance of governance in biodiversity conservation programs: Integration of such basic principles as transparency and accountability can lay the foundation for more equitable, positive, and sustainable results. Finally, the crosscutting issue of global climate change has profound implications for natural resource management (NRM) and the conservation of biological diversity. Integrating climate change adaptation measures into conservation programs will be a necessity. At the same time, healthy and diverse ecosystems will provide resilience to climate change for other sectors.

4.10 ECONOMIC GROWTH

Economic growth is essential to development. While some have argued that “no-growth” models are best to support biodiversity conservation, this philosophy is untenable and unfair. Growth with technological innovation, equity, planning, and efficiency can improve the prospects for humanity, as well as nature. This section presents some promising models and tools for economic growth that are compatible with and support conservation, while also pointing to sectors and actions that have the potential to further damage biodiversity if they are not well managed.

Using the nature, wealth, and power (NWP) framework, it is important to note that economic decisions are closely linked to governance, so economic actions and models that otherwise may be sound can be diverted or damaged by poor governance. Conversely, better governance can lead not only to better conservation outcomes but also improved benefit sharing and equity for stakeholders whose economic growth depends on biodiversity.

4.10.1 Economic Growth and Biodiversity

Currently, humanity is experiencing the greatest increase in global economic growth and the most significant reduction in extreme poverty ever recorded. This is also a time when “humans have changed ecosystems more rapidly and extensively than in any comparable period in human history.”¹ There is a correlation.

Natural assets provide ongoing ecosystem services (ES) that supply inputs for key productive sectors. These services include water availability, soil fertility, pollination, pest control, and growth and reproduction of food species, as well as storm mitigation, climate regulation, waste assimilation, and many other services that are used in economic processes, provide conditions essential for the functioning of these processes, or inform mitigation techniques to protect these processes should shocks arise. While this dependence is well recognized, the costs of ES degradation are difficult to measure in economic terms; therefore, a gap remains between the emerging body of economic data on the role of ecosystem services on the one hand, and the narrowly focused economic information often used by policymakers and development efforts on the other. USAID is making strides to narrow this gap.

USAID and Economic Growth

USAID’s E3 Bureau has several offices with objectives that are explicitly oriented toward economic growth. The Trade and Regulatory Reform (TRR) Office handles commercial legal reform issues and generally helps countries build the institutions and knowledge needed to make international trade an engine for economic growth (e.g. policy; customs; management of international financial flows; and the ability to establish, monitor, and comply with global trades and standards). USAID’s Development Credit Authority (DCA) Office seeks to prove the commercial viability of underserved markets by working with investors, local financial institutions, and development organizations to design and deliver investment alternatives that unlock financing for priority sectors. The Economic Policy (EP) Office focuses on economic enabling environment and tools that help gauge project and business profitability. The Bureau’s

newly created Private Capital and Microenterprise (PCM) Office seeks to attract private capital investment in support of Agency and host-country priorities.

Many factors contribute to economic growth, including economic and political stability, investments in human capital (e.g. health and education), effective governance and strong institutions, favorable environments for private enterprise and investment, and increases in technology. USAID has directly invested in virtually all of these contributing factors across several sectors. Notably, these same factors are often outcomes or “co-benefits” from projects that are not explicitly those targeting economic growth, as is frequently the case in the natural resources sector. For example, community forest management projects frequently entail the strengthening of local governance and institutions, which supports economic growth more broadly.

More often than not, explicit economic growth projects incorporate natural resources considerations to the extent that they represent production inputs or negative externalities to production. Agency screening tools for addressing these environmental considerations include the regulatory compliance of the environmental review (22 CFR 216) and the sustainability assessment. The desire is to shift these considerations from a compliance check box to actually informing USAID project design in a manner that recognizes the risks and opportunities of undertaking productive activities that impact on and are influenced by biodiversity and ES.

While there are few examples of economic growth projects with biodiversity earmarked funds (compliant with the Biodiversity Code), there have been some efforts at integration. For instance, there are now environmental chapters of free trade agreements, and there are loan guarantees serving the natural resource sector (e.g. water). In addition, there are some high-level cross-sector U.S. Government initiatives, such as the **Tropical Forest Alliance 2020** (TFA 2020), a public-private partnership with the goal of reducing the tropical deforestation associated with key global commodities (soy, beef, palm oil, and pulp and paper). The alliance includes government, civil society, and private-sector partners, including the Consumer Goods Forum (CGF) – a network of more than 400 retailers,

¹ Millennium Ecosystem Assessment, 2005. *Ecosystems and Human Wellbeing: Biodiversity Synthesis* (Washington, DC: WRI, 2005).

manufacturers, and service providers across 70 countries with combined sales of approximately \$3.4 trillion and directly employing over 10 million people, with a further 90 million related jobs estimated along the value chain. In other words, highly significant market influences are being brought to bear on reducing commodity-driven deforestation on both the supply and the demand side.

What are the opportunities for integrating biodiversity conservation and economic growth in the USAID context?

Tools and Concepts

An important analytic tool used by USAID/EP, which is not mandatory but would arguably be a substantial component of the sustainability analysis, is a **cost-benefit analysis** (CBA). USAID is most frequently applying CBA to the agriculture, power, and infrastructure sectors, all targeting economic growth and development.

A CBA, as performed by USAID, includes four different analyses: the financial analysis (key to understanding incentives), stakeholder analysis (winners/losers), economic analysis (economy-wide perspective) and a sensitivity analysis (risk assessment). Not surprisingly, there are elements of these analyses that are coincident with those of the analytic tools used within the natural resource sector. For instance, the nature, wealth, and power (NWP) analytic construct also includes strong stakeholder analysis and an examination of incentives and impacts on the economy and society at large. In the CBA, it is the economic analysis that allows for the inclusion of the negative and positive environmental externalities of the projects and, therefore, possible compensation or mitigation opportunities.

Unfortunately, because environmental values (e.g. biological diversity) are often not quantified in monetary terms, they are frequently excluded from the CBA. A cost effectiveness analysis (CEA) is generally the methodology applied in such instances, but it is seldom actually used within USAID.

Over the past several years, advances have been made in the quantification of ecosystem service (ES) values and even their inclusion in CBAs. Two means of categorizing

ecosystem services have contributed to their valuation. The first originates from the 2005 Millennium Ecosystem Assessment (MEA), which divides ES into the following services: 1) provisioning (e.g. food, water, fuel); 2) regulating (e.g. climate, flood, disease, water); 3) cultural (e.g. aesthetic, recreational), and a cross-cutting service; 4) supporting (e.g. nutrient cycling, primary productivity, soil formation).

To this typology, one can then apply the second lens for categorizing ecosystem services, listing their contribution to total economic value (TEV) [*Pascual et. al. 2010 TEEB*]. The components of TEV include use values (direct use, indirect use) and non-use values (e.g. bequest value, existence value, option value). Cross-referencing these two taxonomies can then suggest the appropriate valuation methodologies, such as direct/market methods (e.g. market price, replacement costs), revealed preferences (e.g. hedonic pricing, travel cost), stated preferences (e.g. contingent valuation), or benefits transfer. Due to associated costs and the level of effort required, USAID will generally default to the use of benefits transfers, which simply access and apply ES values calculated from similar earlier projects researched by others.

Because natural resources are universal and undervalued input to most economic growth projects, the need for **natural capital accounting** is on the rise. Natural capital accounting is the process of calculating the total stocks and flows of natural resources and services in a given ecosystem or region. This process can subsequently inform government, corporate, and consumer decision-making as it relates to the use or consumption of natural resources and land and sustainable behavior. ES valuation is required for natural capital accounting, and several global initiatives provide good sources of information (e.g., [The Economics of Ecosystems and Biodiversity – TEEB](#)).

Increasingly, progressive private-sector firms are recognizing the value of natural resource goods and services to their profits and applying natural capital values to their financial calculations. Indeed, PES schemes – applied most frequently perhaps in the water sector by private, semi-private, and even public utilities – are predicated upon being able to value the ES provision.

See [Annex 5](#) for more information on PES. Both firms and nations can apply natural capital accounting. To date, USAID has explored application of natural capital accounting through a handful of its NRM projects (e.g. [Translinks](#), [SCAPES](#), [BUILD](#)) but has not yet engaged extensively in this area at either the scale of the firm or the nation. It continues to be a promising field with application for existing initiatives, such as TFA 2020.

In assessing a country's capacity for broad-based economic growth, it is not uncommon for economists to apply constraints analysis (CA) to identify the most binding constraints to private investment and entrepreneurship that hold back growth. USAID's **inclusive growth diagnostic** is a significant expansion upon the MCC's CA model, which itself builds on the [Ricardo Hausmann, Dani Rodrik, and Andrés Velasco \(HRV\) growth diagnostic model](#). All such CA models attempt to identify binding constraints (low supply matched with strong demand) to investment and growth. In as much as the CA approach incorporates a contextual cause-effect framework, it is not dissimilar to results chains and concept models used by the FAB Office for development of theories of change in project design.

A similar economic growth constraints analysis used by the World Bank stems from its **Doing Business** project. Doing Business measures business regulations for local small and medium-size companies operating in a country. Based on standardized case studies, it presents quantitative indicators on the regulations that apply to firms at different stages of their life cycle. The results for each economy can be benchmarked over 189 economies and ranked in 10 areas of business regulation, such as starting a business, resolving insolvency, and trading across borders. Doing Business encourages countries to compete toward more efficient regulation and offers measurable benchmarks for reform in the business climate of each country. USAID makes use of this analytic tool.

Sectors and Activities

It has already been demonstrated that good project assessment tools and processes (e.g. EIAs, CBAs, and natural capital accounting) can address environmental impacts and values of any project in a manner supportive of sustainable growth. Still, there are those economic growth projects with very direct links to natural assets and biological diversity that are worthy of special consideration, as depicted in Table 4.

4.10.2 Extractive Industry

Definition and Significance

Extractive industries are those that are engaged in the discovery and/or extraction of non-renewable natural resources, including minerals, petroleum, natural gas, coal, sand, and gravel. By their very nature, extractive industries are considered unsustainable, and the activities associated with extractive industries typically result in negative impacts on biodiversity. Congress places limitations on how USAID can work with extractive industry (forest industries to be specific), as described in [Section 4.5](#).

Extractive industries exert enormous pressure on biodiversity. These industries, by their very nature, convert natural habitat into permanent human uses, making it very difficult, if not impossible, to restore or rehabilitate. Extractive industries have both direct and indirect impacts on biodiversity. Direct impacts include the conversion of habitat and the displacement or destruction of species. Indirect impacts include long-term persistent effects on surrounding biodiversity, including those from noise, light, air, and water pollution; from fragmentation; and from associated infrastructure and activities required to explore, extract, process, and distribute industrial products, which can open up previously inaccessible areas to immigration and settlement, as well as conduits for illegal trade. Unfortunately, the environmental regulatory agencies responsible for oversight often do not have sufficient resources and capacity to assess and monitor these impacts and require that they be addressed. For more information, see [Partnering with Extractive Industries for the Conservation of Biodiversity in Africa: A Guide for USAID Engagement](#).

Table 4. Examples of Economic Growth Activities' Links to Biodiversity

TYPES OF ACTIVITY	STRENGTHENING THE LINK WITH BIODIVERSITY	WARNING SIGNS*
ecotourism/cultural tourism	incentives and benefits go to those who represent threats to biodiversity or are land managers	increases pressure on land and resources
natural products such as ornamentals, herbs, and spices	link back to land and wild species management	no native species used promotes cultivation of non-natives
sustainable agriculture	create covenant or conservation agreement with farmer groups, enforced by peer pressure and backed by economic incentives	farmers do not have secure title and cannot exert pressure to change practices of peers benefits unclear or not enough to change behavior promotes increased use of pesticides
tree crop rehabilitation and improvement	incorporate native tree crop diversity and connectivity into the planning	weak market or private sector buy-in; market board disincentives insurmountable no clear link to conservation of biodiverse area

Key Questions

What are trends in growth for extractive industries?

Growth in the demand for natural resources has been exponential over the past decade, particularly given population trends, a booming middle class in Asia, and China's position as a manufacturing giant. Commodity prices have skyrocketed, with a steep jump in the value of non-renewable resources. Ever-increasing demand and higher prices for natural resources have pushed extractive industries to search for non-renewable resources in places where it was once too expensive or too dangerous to do so. Globally, many areas once considered dangerous or unreachable for mining and oil companies to operate in are now safer and accessible. Nowhere does the tension between the demands of better livelihoods and environmental protection manifest itself so immediately as in the debate over resource extraction. Although extractive industries

create significant opportunities for the near term, they entail substantial risks for future generations, and the costs and benefits of resource extraction are seldom borne equitably. In many geographic areas, extractive operations overlap with indigenous and/or traditional peoples' territories, presenting additional complexities and challenges.

What role do NGOs and aid agencies have regarding extractive industries?

Addressing social equity is a major challenge for extractive industries, and it generally falls to governments to referee tradeoffs and protect the most vulnerable, as well as future generations. Transparency, public access to information on extraction, and stakeholder participation in decision-making are all elements of effective governance of extractive industries. Governments, however, are often ill-equipped to arbitrate tradeoffs

and, in some cases, may not consider the interests of all segments of the population when investors promise high returns, development projects, or even bribes in exchange for access to resources. Given this reality, international and local organizations, including USAID and its partners, need to fill critical niches in community development, public health, and the environment. They can do this by encouraging governments to exercise due diligence and implement social and environmental safeguards; by helping to negotiate tradeoffs with extractive industries; by ensuring that good governance is practiced by extractive industries; and by empowering affected communities to participate in decisions that have an impact on their lives. Often, empowering communities requires their ability to access independent legal, technical, and social advisors to allow for a more balanced decision-making and negotiation process. More specifically, donor agencies such as USAID can provide support for extractive industries policy analysis, support capacity building in SEA/EIA (environmental impact assessment), introduce biodiversity guidelines for EIA and other policy tools, collaborate with extractive industries at sites of high biodiversity importance, and support improved monitoring.

One example of due diligence in the extractive industries sector is the Model Mining Development Agreement (MMDA), a product of the International Bar Association, which can be used in negotiations by mining companies and host governments for mining projects. The MMDA project asks what a mining contract might look like if the process started from the precept of a project aiming to contribute to sustainable development. The MMDA recognizes that the natural, social, and economic environments around mining projects are also essential considerations. The final product is web-based and publicly accessible at www.mmdaproject.org. It is not “prescriptive” in the sense of setting out one standard form; rather, it seeks to provide an agenda for negotiations based on a sustainable development objective that is common to all parties. The MMDA’s public nature will also allow local communities and civil society groups to contribute in a sound manner to negotiation processes. By setting out a comprehensive and common template, it is hoped that this tool will enable and assist better structured negotiations, resulting in better lasting results in mining projects.

What kind of assessment and management tools can be used to improve extractive industries?

There are three primary tools that can be used to improve extractive industries and minimize their impacts on biodiversity:

Environmental impact assessment (EIA) –

This tool formulates short- and long-term goals for environmental responsibility and performance by determining a project’s current or potential impact on the environment. Before beginning a commercial project, a company should perform an EIA, which may be a requirement of a government or lending organization. The EIA reviews likely production of pollution, wastewater, and solid waste, as well as the proposed project’s use of energy, water, and other natural resources. The assessment identifies the nature and scope of potential impacts, presents options for mitigation, and recommends a course of action.

Environmental management plan/system – An environmental management plan can be developed from the EIA’s recommendations; it may include procedures for monitoring impact on species (e.g., changes in turtle nesting), changes in water/soil quality, and other indices of environmental health. An environmental management system can be based on the environmental management plan to improve a company’s environmental performance by helping to organize the management structure’s focus on environmental impact.

Strategic environmental (and social) assessment (SEA/SESA) –

SEAs move the environmental assessment process “upstream” to look for potential environmental and social impacts and opportunities at the level of policies, programs, plans, or regions. In this way, negative effects or positive opportunities can be identified early and over a broader range, so that individual projects can be “weeded out” before they begin if they will have negative impacts, or be reformulated to have positive impacts. SEA is a cost-effective approach that is being applied more and more in the developing world. Moreover, SEAs increasingly include social aspects (SESAs).

What is a framework for integrating biodiversity into extractive industries?

The questions below can help partners in extractive industry/biodiversity conservation projects identify biodiversity priorities and previously unrecognized biodiversity issues and values for areas of extractive interest.

- Has the project area been identified as having high biodiversity value? Does it contain endangered species, and is it considered critical habitat or unique and irreplaceable?
- Does the project or other biologically significant area contain, or exist within, a state-designated or community-managed protected area?
- Has the methodology used in the collection of baseline data for the determination of the area's biodiversity importance been rigorous enough?
- Can operating within the protected or other biologically significant area be avoided using technical options?
- Can the government approve extractive industry development activities within a protected area or other biologically significant area through a valid process?
- Can the biodiversity values of the conservation priority area not currently under protection be confirmed?
- Are there any significant biodiversity issues?
- Can negative environmental impacts on biodiversity be mitigated to an acceptable level?

What is the mitigation hierarchy approach in conservation?

The mitigation hierarchy is a concept that addresses the need to look holistically at activities that may significantly impact biodiversity and identify strategies at various stages of the activity development. The mitigation hierarchy includes four levels: avoidance, minimization, rehabilitation, and offset/compensation. It is referred to as a hierarchy because of a preferential application of the stages. The sequencing of adopting the hierarchy is to (a) anticipate and avoid risks and impacts; (b) where avoidance is not possible, minimize risks and impacts; (c) once risks and impacts have been minimized,

mitigate; and (d) where residual risks or impacts remain, compensate for or offset, as appropriate. Because the concept of biodiversity offsets is controversial, the mitigation hierarchy views the role of biodiversity offsets as a last resort, after all reasonable measures have been taken to avoid and minimize the negative impact of a project and then to restore biodiversity on site (http://bbop.forest-trends.org/pages/mitigation_hierarchy, 2014).

What are the opportunities for avoiding or mitigating/minimizing biodiversity impacts from extractive industries?

Depending on the extractive activity, there are industry, government, and financial institution safeguards, best practices, and protocols that not only reduce negative impacts to people and biodiversity but also enhance profitability and increase operational and resource-use efficiency. Recognition of the availability of such planning and operational resources, willingness to consider and invest in these, and capacity to approach them at the right time and scale are essential for minimizing impacts to biodiversity.

Some initiatives that work toward improving the environmental and social performance of industrial and small-scale mining include the [Alliance for Responsible Mining](#), the [Initiative for Responsible Mining Assurance](#), the [Framework for Responsible Mining](#), and the [International Council on Mining and Metals](#).

One interesting example of minimizing damage to a very biodiverse ecosystem and its vulnerable communities occurred in the Pastaza alluvial wetlands of the Peruvian Amazon. For years, as a consequence of petroleum exploitation activities, the Achuar indigenous people suffered serious health impacts (from respiratory and skin diseases to birth defects), and extensive thermal and chemical contamination of significant biological resources occurred. In 2011 an agreement was reached between the indigenous communities, the Peruvian government, and the oil company responsible for the damage. The agreement, brokered by local (Racimos de Ungurahui) and international (WWF) NGOs, included a commitment by the oil company to re-inject the contaminating process waters back into the oil wells being exploited, the implementation of a

monitoring plan that employed local residents, and the establishment of a health fund to address the community's medical conditions.

What are some examples of rehabilitation in extractive industries?

Without proper operational controls and closure protocols, extractive operations can leave behind dangerous conditions that may continue to cause negative impacts to biodiversity and people years after the activity has ended. For example, abandoned mining tailing, deposition pools, and large extensions of floodplains where the top soil and vegetation have been removed can continue to be costly sources of sedimentation, pollution, landslides, and ecosystem fragmentation. Mine reclamation is the process of restoring land that has been mined to a natural or economically usable purpose. It is a common practice among responsible mining companies and should be a requirement in all mining projects. One key principle in the rehabilitation of biologically significant areas impacted by extractive industries is that the agreements for such efforts are made as early as possible in the planning process, with institutional responsibilities and financial resources clearly assigned.

What are some examples of biodiversity offsets?

According to the [Business and Biodiversity Offsets Programme](#), biodiversity offsets are “measurable conservation outcomes resulting from actions designed to compensate for significant residual adverse biodiversity impacts arising from project development after appropriate prevention and mitigation measures have been taken.” The goal of biodiversity offsets is to achieve no net loss and preferably a net gain of biodiversity on the ground with respect to species composition, habitat and ecosystem function, and people's use and cultural values associated with biodiversity. Although biodiversity offsets are a relatively new conservation instrument, generating a wide range of opinions within the conservation and development world, they have the potential to transform biodiversity and land use planning and become a major new force in land conservation. One study found, for example, that there are more than 60 programs globally for

biodiversity offsets, with an annual global market of as much as \$3 billion.

One example of a voluntary, market-based biodiversity offset project is the Ambatovy nickel mining project in Madagascar.² The project, slated to run for 27 years, is located in the central portion of the country's moist forest ecoregion. Several offset activities are planned to compensate for the loss of approximately 1,100 hectares (ha) of natural forest associated with the mine. These activities go beyond regulatory requirements and include the off-site protection of 11,600 ha of similar, endangered forest, as well as set-asides of azonal forest and 4,900 ha of conserved forest around the mine footprint area. The project planned these offsets in consultation with local and international conservation stakeholders and employed quantitative calculation methods to estimate no net loss of biodiversity.

An example of a mandatory biodiversity offset program can be found in Brazil, which has two different biodiversity offset arrangements: a forest set-aside offset and a project development offset.³ Both schemes operate under the “polluter-pays” principle. The forest set-aside program requires rural landowners to maintain a minimum percentage of natural vegetation on their land and allows them to conserve similar habitat types within their watershed. The project development offset, which is linked to an environmental impact assessment, requires developers to create and maintain conservation land equivalent to their environmental impact.⁴

One must remember that offsets are the last option in the mitigation hierarchy, coming after efforts to avoid, minimize, and mitigate negative environmental impacts. Offsets are considered to address residual risks and impacts as necessary.

² [The Ambatovy Project Business and Biodiversity Offset Programme Pilot Case Study](#). Antananarivo, Madagascar.

³ Madsen, B., Carroll, N., Moore Brands, K. 2010. [State of Biodiversity Markets Report: Offset and Compensation Programs Worldwide](#).

⁴ Escorcio Bezerra, L.G. 2007. [Biodiversity Offsets in National \(Brazil\) and Regional \(EU\) Mandatory Arrangements: Towards an International Regime?](#) Dissertation. UCL Department of Laws.

What are some challenges in implementing biodiversity offsets in an extractive industries context?

Some of the challenges in implementing biodiversity offsets include the need for credible and measurable standards for biodiversity loss and offset, and the perception that industries could use biodiversity offsets to circumvent environmental standards. Organizations such as the Business and Biodiversity Offsets Program, run by Forest Trends, are working to develop international standards and best practices to address these challenges.

Even where extractive industry impacts on the environment are minimized and mitigated to the maximum extent possible, net loss of biodiversity still occurs. Biodiversity offsets have been put forth as a means for achieving no net loss of biodiversity by creating a framework that allows biodiversity to be reliably measured and businesses to compensate for biodiversity losses in one area through conservation actions in another. Biodiversity offsets include establishing new protected areas, financing management of existing protected areas, and restoring degraded areas. The idea is similar to that in the United States of creating a new wetland to replace one lost to a highway or housing development. As mentioned above, the concept of biodiversity offsets has been advanced largely by the Business and Biodiversity Offsets Program (BBOP), a partnership among companies, governments, and conservation organizations that explores the potential for such offsets. Through a number of pilots in a range of industry sectors, this community hopes to demonstrate the conditions under which biodiversity offsets can help achieve cost-effective conservation outcomes alongside infrastructure and economic development. Proponents of offsets hope that by undertaking a “no net loss” of biodiversity approach, companies can better secure their operational license, as well as better manage costs and liabilities.

Nonetheless, the questions and doubts surrounding biodiversity offsets should be known and properly discussed through transparent processes by stakeholders considering this option. Establishing credible and effective biodiversity offsets is very complex, given the multiple

values and services that biodiversity provides, the way threats and drivers to biodiversity interact beyond the boundaries of specific extractive enterprises, and the goal that offsets should be permanent. Many in the scientific and development community believe that some areas, like critical habitats, can't be offset due to their uniqueness. In countries where governance, science, data, and capacity for monitoring and implementation are weak, biodiversity offset options can carry significant sustainability risks.

4.10.3 Infrastructure

Definition and Significance

Infrastructure is defined as buildings (houses, warehouses, office building); structures (towers, fences); transportation corridors (roads, railroads, airports); and areas of permanent land conversion (parking lots, strip mines). Infrastructure includes the basic physical and organizational structures and facilities needed for a society to develop and function. Built, or physical, infrastructure can have wide-ranging impacts on ecosystem services and functions (sometimes known as “natural infrastructure”).

The development of physical infrastructure – roads, bridges, dams, ports – is a critical element of a country's economic growth and development trajectory. Infrastructure development is supported by a variety of entities globally, including the private sector, governments, and bilateral and multi-lateral institutions, on a variety of scales, from local farm-to-market roads to mega hydropower projects. Infrastructure projects that are poorly planned or implemented and/or do not take into account the full costs of development – including the totality of environmental and social impacts – have been and continue to be a key threat to biodiversity and ecosystem integrity worldwide.

Natural Infrastructure is the interconnected network of natural areas needed to maintain and support ecosystems and their functions. Natural infrastructure, and the biodiversity that underpins it, plays an important role in the provision of ecosystem goods and services that are critical to economic growth and development. Wetlands, estuaries, riparian areas,

intact forests, and free-flowing rivers are all examples of natural infrastructure.

The principle challenge at the nexus of biodiversity and infrastructure is to improve the interface between built and natural infrastructure to maximize sustainable development benefits. Over the next 20 years, more than \$35 trillion in public funds will be spent on infrastructure; in Asia alone there will be more than \$4.7 trillion in infrastructure investment over the next decade. Although there will be clear benefits accrued from this investment, infrastructure development that has negative impacts on biodiversity has the potential to have negative direct, indirect, and cumulative impacts on people, economic interests, and development investments as well, given that **4 to 8 percent of GDP is lost annually in developing countries due to the environmental impacts of poorly planned infrastructure.**

The impacts of infrastructure development on biodiversity and ecosystems depend on a variety of factors, including the planning process (or lack thereof); the scale, location, and management regime of the infrastructure itself; and the ecosystem and social context of the construction site and region. For example, roads bisect critical habitats, and national parks and dams eliminate migration of important fish populations and alter hydrological systems. These direct impacts are often accompanied by indirect and cumulative impacts, like opening up previously isolated areas to resource exploitation and settlement or changing flooding, sediment, and nutrient dynamics downstream. The negative implications of poorly planned, executed, and managed infrastructure for human populations can include threats to food security, displacement, increased health and safety risks, and loss of livelihoods and cultures. Often, these social impacts can have further knock-on environmental effects, including relocation of displaced populations into ecologically vulnerable areas and resorting to marginal and unsustainable economic activities.

From an economic growth standpoint, it is important to maintain and support ecosystem functions because healthy ecosystems provide goods and services that are key inputs for economic growth and sustainable

development, particularly among the poorest and most vulnerable communities. Built infrastructure has the potential to negatively impact or enhance the function of natural infrastructure and biodiversity. For example, when planning for coastal development, governments should consider the important role that natural infrastructure, such as mangrove forests, plays in buffering coastlines and proximate human populations from storm surges and sea level rise and plan built infrastructure accordingly, in a way that avoids the degradation or fragmentation of critical natural infrastructure. Effective approaches and tools exist to better integrate and maximize economic benefits from built and natural infrastructure.

Key Questions

How can more socially and environmentally responsible infrastructure decisions be made?

Infrastructure development is a response to a variety of needs that improve human well-being and opportunities for progress, including the needs for energy, communication, safety, transportation, food security, and reduced vulnerability to disaster. Particularly for mega-infrastructure (large projects like dams, ports, and roads that require large financial investments), a comprehensive needs assessment (or feasibility assessment) that compares several alternatives and/or scenarios can assist decision makers in selecting the options that provide the best balance of social, economic, and environmental costs and benefits. Location, design, scale, technology used, operational practices, sustainability, and monitoring parameters of all infrastructure developments can be enhanced through well informed and participatory needs-assessments processes.

What other kind of assessment and management tools can be used to improve infrastructure development?

Environmental impact assessments, environmental management plans/systems, and particularly strategic environmental (and social) assessments, as described in **Section 2.3.4**, are also useful tools to assist in the planning of infrastructure development. As with any assessment, access to the best data available, transparency, public participation, and proper timing within the planning process are keys for success.

What is a mitigation hierarchy approach to infrastructure and conservation?

The mitigation hierarchy, introduced in [Section 4.10.2](#), should be applied in the planning of infrastructure projects. It includes four levels: avoidance, minimization, rehabilitation, and offset/compensation. Because it is a controversial option with a wide range of opinions in the conservation and development world, the option of biodiversity offsets should only be considered as a last resort, and approached with the involvement of appropriate, preferably local, experts.

What are the opportunities for avoiding or mitigating biodiversity impacts from infrastructure?

Although many immediately think about EIAs as the primary tool for preventing negative environmental impacts of infrastructure development, there are a variety of entry points and opportunities for avoiding or reducing impacts of infrastructure on biodiversity and ecosystems. EIAs are project based. They generally only capture project-level impacts and mitigation measures; they often do not consider ecologically or socially relevant geographic scales or intergenerational impacts, and they leave out cumulative effects and broad social implications. These issues lead to problems that are very difficult to manage, either because the projects do not include effective safeguards, or because they have safeguards that cannot effectively assess and mitigate cumulative and broader indirect environmental and social impacts. EIAs without broader planning are only a partial solution. By the time an infrastructure project is at the EIA phase, it may be too late to have sufficient influence on the planning and siting of the investment; there is considerable benefit to taking a broader view of planning that considers more than a project-by-project view of development.

A holistic, spatial, and stakeholder-based approach to development planning that takes into account early in the process the full environmental, social, and economic costs and benefits of various patterns or options of investment and development (including infrastructure) at an ecologically relevant scale has the potential to produce greater benefits and minimize negative impacts over time. The SEA, which includes a range of “analytical and participatory approaches that aim to integrate

environmental considerations into policies, plans, and programs and evaluate the inter linkages with economic and social considerations,”⁵ responds to this need. It allows the integration of environmental considerations – alongside social and economic aspects – into strategic decision-making at all stages and tiers of development cooperation. Strategic environmental assessment is not a substitute for traditional project impact assessment tools, but a complement to them.⁶ Improving the interface between built and natural infrastructure in a way that conserves biodiversity and keeps ecosystems intact will involve “soft” strategic approaches to address the policy, planning, and regulatory environment and should improve the capacity for integrated decision-making in countries where USAID works.

Avoidance strategies include measures, such as careful spatial or temporal placement of infrastructure elements, taken to prevent from the outset impacts on certain biodiversity components or biologically significant areas. This results in a change to a “business as usual” approach. Minimization strategies include measures to reduce the duration, intensity, and/or extent of impacts that cannot be completely avoided, as far as is practically feasible. Rehabilitation and restoration strategies include measures to rehabilitate degraded ecosystems or restore cleared ecosystems following exposure to impacts that cannot be completely avoided and/or minimized. Offset and compensation strategies include measures to compensate for any residual significant, adverse impacts that cannot be avoided, minimized, and/or rehabilitated or restored.

Many conservation approaches have been developed to address biodiversity loss due to infrastructure development lower down the mitigation hierarchy, including biodiversity offsets; technological fixes (e.g., wildlife underpasses and bridges, fish ladders, and regulation of water flows from dams); and site restoration after damage has been done. Such strategies should be considered primarily after holistic planning and

⁵ [Applying Strategic Environmental Assessment: Good Practice Guidance for Development Cooperation](#). 2006. OECD Development Assistance Committee (DAC). <http://www.oecd.org/dac/environment-development/37353858.pdf>

⁶ [Applying Strategic Environmental Assessment: Good Practice Guidance for Development Co-operation](#). OECD. 2006) 24-25

avoidance measures have been exhausted. Also, it should be recognized that there are no “one size fits all” options in biodiversity conservation – for example, fish ladders in hydropower projects must be designed for specific fish species and river conditions, tested beforehand, and approached knowing that they may prove not to be an effective alternative. One example of a compensation effort is PES arrangements with hydropower management. Stewardship payments can incentivize conservation through, for example, compensation for the true economic value of the services intact ecosystems provide, including protection of water quality, prevention of soil runoff that increases siltation of hydroelectric reservoirs, harvest of natural forest products, and the aesthetic appeal of natural landscapes important to tourism. Downstream users, such as hydroelectric power plants and water companies, gain benefits from water regulation and soil conservation, and so arguably should pay upstream providers of these environmental services. Valuation studies can be instrumental in raising the confidence level of policymakers regarding setting payment levels.

What is USAID’s environmental and social oversight responsibility for multilateral development bank investments?

Title XIII of the International Financial Institutions (IFI) Act, as enacted in Section 537 of Public Law 100-202, instructs USAID to report to Congress on proposed and current multilateral development bank (MDB) projects (many of which include built infrastructure components) and other assistance proposals likely to have adverse impacts on the environment, natural resources, public health, or indigenous peoples. The law directs USAID to collaborate with other U.S. Government agencies to review MDB assistance proposals to determine whether they will contribute to the sustainable development of the borrowing/project country. USAID produces a biannual report to Congress that provides information regarding the Agency’s performance of its tasks, as assigned by the Act. USAID and its partner reviewing agencies have the responsibility for making recommendations, including proposing alternative measures that could eliminate or mitigate adverse impacts. After evaluating MDB proposals, USAID undertakes an affirmative investigation of selected

BOX 73. ASIA REGIONAL BIODIVERSITY CONSERVATION PROGRAM

USAID’s Asia Regional Biodiversity Conservation Program (ARBCP) worked with the Vietnamese government to establish a policy framework for payments for environmental services and implement a pilot PES arrangement with a hydropower dam operation in the Da Nhim watershed area of Lam Dong Province. In this pilot, payments were made by the hydropower operation to communities for the stewardship of the watershed and biodiversity upstream. Without proper watershed and forest management upstream, the levels of silt flowing downstream and the resulting siltation behind a dam would pose a significant problem for dam operation and management, requiring expensive strategic approaches. In the Lam Dong PES case, by December 2010, payments totaling 87,067,200,000 Vietnam Dong (VND; US \$4.46 million) were made to 22 forest management boards and forestry businesses and 9,870 households, 6,858 of which were ethnic minorities. PES activities have resulted in enhanced protection of 209,705 hectares of threatened forest land, and in 2010, the average annual payment per household was 10.5-12 million VND (US \$540-615), representing an almost 400 percent increase over previous forest protection payments by the Government of Vietnam. Based on information in logbooks maintained by patrol teams, forest protection patrols supported by PES payments have resulted in a 50 percent decrease in the number of reported cases of illegal logging and wildlife poaching in the Da Nhim watershed area. Benefits are accrued for both biodiversity and infrastructure in this case.

projects that may have substantial adverse impacts and ensures that the resulting information is made available to the public. USAID provides its findings from this process to the U.S. Department of Treasury. USAID/Washington works with its regional Bureaus and field Missions and other U.S. Government agencies, including the Department of State, the Environmental Protection Agency, and the U.S. Executive Directors' Offices at the bank to carry out the following tasks: providing adequate attention to priority MDB projects; engaging with project sponsors, bank staff, civil society, and communities affected by bank projects; and engaging early in the proposal process with project countries, sponsors, and bank staff.

When final project EIAs are released by MDBs 120 days before their boards vote, there may be inadequate opportunities and unsatisfactory results in identifying, averting, or mitigating negative environmental and social impacts. To increase its effectiveness in the oversight process, USAID continues to explore new approaches to earlier engagement in the MDB project-proposal process. However, earlier engagement in this process does not obviate the need to engage with relevant stakeholders during the later stages of the process, when all of the environmental and social documentation is available.

As of this writing, USAID is engaged in a lengthy process of **review of safeguards** used by multilateral institutions supported by the U.S. Government, especially but not exclusively the World Bank. U.S. Government agencies, NGOs, and other stakeholders are actively weighing in.

4.10.4 Illegal and Unsustainable Trade

Definition and Significance

Illegal trade is defined as the trade of any product that is bought, sold, exported, imported, or processed in breach of a country's national laws and/or international treaties, such as CITES or fisheries agreements. Illegal trade largely involves species of high value or high demand on international markets. For example, growing wealth in China and Southeast Asia has spurred a demand for exotic animal parts, precious woods, and seafood products. Illegal trade can also be masked by, or "co-mingled" within, legitimate trade, such as for

ornamental fish or the commercial timber and fish trades. The presence of illegal wood and fish products on commercial markets has become so pervasive that the private sector has joined in the cause to halt illegitimate trade that is undermining their good practices and cutting into profits. Illegal trade drives over-exploitation and the use of destructive methods and may do further damage by introducing invasive alien species that can create havoc in native environments lacking natural defenses. Illegal fishing and trade in fish products are often broken down into "illegal, unreported, or unregulated (IUU)" categories.

Unsustainable trade is defined as the extraction, trade, and consumption of any renewable resource (e.g., timber, fish) beyond what the regenerative capacity will allow, or any such activity that causes unacceptable levels of degradation of biodiversity and ecosystems. An example of unsustainable trade is the charcoal trade, where trees are cut in large numbers with no or weak enforcement of sustainable harvesting, regeneration, or replanting. Another example is the unsustainable trade of wild fish from many developing countries that lack adequate management regimes and enforcement capabilities.

The extraction and trade of wild animal and plant resources is a driver of biodiversity loss, but the demand also presents a potential incentive for conservation and sustainable management of ecosystems. Biological resources are extracted and traded legally and illegally within and across national borders to meet market demands for a variety of products and purposes, including

food – Fish are the world's most widely traded food products, and the vast majority of wild fish originate from developing countries. Fruits, mushrooms, nuts, leaves, and tubers are particularly important for nutrition and livelihoods in many rural areas. Wild animals, including fish, contribute at least a fifth of the animal protein in rural diets in more than 60 countries. An increasingly commercial bushmeat trade in Central and West Africa and the consumption of wildlife in populous Southeast Asia have significantly reduced wildlife populations and ranges. A recent study demonstrated that reliance on wild meat is growing in East and

Southern Africa in response to increased human populations and poverty.⁷

prestige – Certain wildlife products are traded because their combination of traditional value, beauty, and rarity (and even illegality) makes them desirable to give or receive. Examples include carved ivory from elephants, hippos, and walrus; carved or whole rhino horn; wolf pelts; precious woods such as mahogany, ebony, and rosewood; and exotic butterflies and coral reef species.

fuel and fodder – Trees and plants are an important source of fuel for cooking and heating and provide fodder for livestock, especially in rural areas.

building materials – Trees and plants provide timber and thatch for furniture and housing.

gums and resins – Sap from trees and plants produce resins used both in manufacturing processes and locally for a variety of purposes.

clothing and jewelry – Wildlife is used by many groups for clothing, and ornaments are made from leather, furs, and feathers. Coral, seashells, pearls, wood, and nuts are used in both traditional and commercial jewelry.

sport – Trophy hunting can generate tens of thousands of dollars for private-sector concessionaires, government resource managers, and local communities. Wildlife is also valued for its ability to hunt, specifically falcons used for sport hunting in the Middle East and Central Asia. Overhunting or unlicensed hunting is reported as a common threat in several countries.

physical and spiritual health – An estimated 80 percent of the world's population is said to rely on traditional medicines for primary healthcare needs. These include herbal remedies, such as those in the Ayurvedic tradition of India; traditional Chinese medicine, which includes ground seahorse, tiger bone, and rhinoceros horn to alleviate various ailments; and muti of Southern Africa, which involves ingested plant and animal ingredients for health as well as providing talisman properties. Essential oils are a burgeoning natural product that may be wild harvested and promoted for both health and well-being.

collections, pets, and research – According to **TRAFFIC**, any wildlife specimens and curios are collected by museums and private individuals; researchers import nearly 15,000 primates annually for research; and the illegal exotic pet trade is estimated at \$20 billion a year. The primary incentive for wildlife traders is economic, ranging from small-scale local income generation, to major industry, to international crime syndicates.

The problem of unsustainable and illegal trade in plant and animal species is significant and pervasive and poses a considerable and immediate threat to ecosystem health, biodiversity, global security, and human development prospects. For example, if current illegal and unsustainable trade trends continue, scientists predict that 13 to 42 percent of Southeast Asia's animal and plant species could become extinct during this century (Brooks et al., 2003), and at least half of those losses would represent global extinctions.

Illegal Timber Trade

The World Bank estimates that 90 percent of the \$10-15 billion timber trade is illegal. The global economic cost of illegal logging has been estimated at approximately US \$46 billion per year.⁸ In the host countries where USAID works, illegal trade in wood products robs governments of revenue that could be invested in public service. This pervasive problem, typically run by organized crime syndicates, has also resulted in the deaths of community activists in Cambodia, the Philippines, and Brazil. Illegal logging and associated trade, which enters and becomes lost within legitimate global commerce, is causing persistent environmental damage, costing governments billions of dollars in lost revenue, promoting corruption, and undermining the rule of law and good governance. A 2012 study by the World Bank describes the nature of the problem:

Forestry's criminal justice system is broken. Despite compelling data and evidence showing that illegal logging is a worldwide epidemic, most forest crimes go undetected, unreported, or are ignored. All too often, investigations – in the rare event that they do take place – are amateurish and inconclusive.

⁸ Centre of International Economics. 2010. [A Final Report to Inform a Regulation Impact Statement on a proposed new policy on illegally logged timber.](#)

⁷ [Traffic.](#)

The report observes that a four-year study in Brazil, Mexico, Indonesia, and the Philippines – four forest-rich countries – found that the probability of illegal loggers being penalized is less than 0.1 percent. The report goes on to say that estimates of financial losses from illegal logging don't consider “the enormous environmental, economic and societal costs – biodiversity threats, increased carbon emissions, and undermined livelihoods of rural peoples” (World Bank, 2012).

Consumer countries contribute to these problems by importing timber and wood products without ensuring that they are legally sourced. In recent years, however, producer and consumer countries alike have paid increasing attention to illegal logging and its associated trade. The Governments of the United States, the European Union, and Australia have developed legislation that prohibits illegal wood from entering their markets and requests importers to conduct due care on sourcing (see Box 74 on the U.S. Lacey Act). Furthermore, regional and international processes to address illegal logging through trade and diplomatic channels have emerged. These channels include the Asia Pacific Economic Commission; bilateral MOUs with key trading partners; voluntary partnership agreements with the European Union under their Forest Law Enforcement, Governance, and Trade (FLEGT) Action Plan; and environmental chapters of trade agreements, such as the one between the United States and Peru, which included an annex on forest governance requirements. The need to verify legality through better supply chain management and law enforcement has also given rise to new scientific applications and technologies to identify wood species and their origin – for example, the use of DNA barcoding, fingerprinting, or isotope analysis; enhanced use of wood anatomy; and improved remote sensing and forest monitoring.

BOX 74. LACEY ACT

- The Lacey Act (16 U.S.C. 3371 et seq.), the oldest wildlife protection statute in the United States, combats trafficking in illegally taken wildlife, fish, and plants. It was first enacted in 1900 and was significantly amended in 1981 and 2008. The Food, Conservation, and Energy Act of 2008 – also known as the 2008 Farm Bill – amended the Lacey Act further by expanding its protections to a broader range of plants and plant products, including trees (Section 8204, Prevention of Illegal Logging Practices).

As amended, the Lacey Act now makes it unlawful to

- import, export, transport, sell, receive, acquire, or purchase in interstate or foreign commerce any plant, with some limited exceptions, taken in violation of any federal, state, tribal, or foreign law that protects plants.
- make or submit any false record, account, or label for, or any false identification of, any plant covered by the Act.
- import certain plants and plant products without an import declaration. The declaration must contain, among other things, the scientific name of the plant (genus, species), value of the importation, quantity of the plant, and name of the country from which the plant was harvested. The import declaration is made by the importer.

The definition of the term “plant” under the Lacey Act now includes “any wild member of the plant kingdom, including roots, seeds, parts, and products thereof, and including trees from either natural or planted forest stands.” There are certain exclusions, including 1) common cultivars (except trees) and common food crops; 2) live plants that are to remain or be planted or replanted; and 3) specimens of plant genetic material to be used for research. Exceptions do not apply to species protected under CITES or the Endangered Species Act.

Violations of the Lacey Act provisions may be prosecuted through either civil or criminal enforcement actions. In addition, the tainted plants or products derived from plants – such as timber, furniture, and paper – may be seized and forfeited on a strict liability basis. The burden of proof is on the U.S. Government. The defendant need not be the one who violated the foreign law: The plants or timber, and the products made from the illegal plants or timber, become “tainted” even if another entity in the supply chain commits the foreign law violation; however, the defendant must know, or in the exercise of due care should know, about the underlying violation.

More information on the Lacey Act, including definitions of exceptions and the enforcement schedule of the import declaration, can be found at USDA’s Animal and Plant Health Inspection Service (APHIS) [website](#).

Illegal Wildlife Trade

The scale of the illegal wildlife trade is alarming. Due to the nature of illicit trade, obtaining exact figures is difficult, but some experts estimate the **value of the illegal wildlife trade** at \$10-20 billion annually, rivaling the scale of the international drug and arms trade and involving **more than 350 million plant and animal specimens every year**.

Arrests and interceptions, although increasing, expose only a small fraction of this underground criminal enterprise. The trade is global, with trade flows occurring between source and demand countries within regions and between continents. The United States, the European Union, and China are some of the largest consumer countries of illegal and unsustainably traded wildlife. "Hotspots" where wildlife trade is particularly active include China's international borders; trade hubs in East/Southern Africa and Southeast Asia; the eastern borders of the European Union; particular markets in Mexico; parts of the Caribbean, Indonesia, New Guinea; and the Solomon Islands.⁹ Southeast Asian countries, with the rich biodiversity of Indonesia, Malaysia, and Burma, are particularly targeted as sources for wildlife. Asia also serves as a conduit for such products as ivory and timber from as far away as Africa and Latin America.

This multi-billion-dollar black market trade in threatened and endangered wildlife, marine, and timber species has bred complex global criminal syndicates. A host of factors, including porous borders; the use of communication technology (cell phones, Internet, etc.); improving transportation infrastructure; falsification of paperwork and labels; and widespread corruption have facilitated this rapidly growing illegal trade. According to **TRAFFIC**, between collectors of wildlife and the ultimate users, any number of middlemen may have a role in the wildlife trade, including specialists involved in storage, handling, transport, manufacturing, industrial production, marketing, and the export and retail businesses.

Recognizing the increasing severity and scale of this issue, President Obama issued an **Executive Order to Combat Wildlife Trafficking** (July 2013), leading to a U.S. National Strategy for Combating Wildlife Trafficking (February 2014) and implementation plan (expected February 2015) that are mobilizing resources across the U.S. Government to address this important challenge. According to the National Strategy, poaching and illegal trade of wild animals has far-reaching economic, national security, and ecological consequences that are undermining decades of conservation and development gains. Trafficking in elephant ivory and rhino horn, from Africa to Asia, is particularly concerning due to the involvement of heavily armed poachers and organized crime.

The National Strategy has three strategic priorities: 1) Strengthen enforcement, in the U.S. and overseas; 2) Reduce demand for illegally traded wildlife, in the U.S. and overseas; and 3) Build international cooperation, commitment, and public-private partnerships. USAID is the major funder of overseas programs advancing the strategy and is co-lead for several areas of implementation. The Department of State's Bureau of International Narcotics Control and Law Enforcement (INL) has a large and growing role in responding to the first priority. USAID projects are managed in coordination with the diplomatic efforts of embassies, policy engagement by State and the U.S. Fish and Wildlife Service, and programs managed by INL. Additional steps are found in Box 75. See also key questions at the end of this section.

⁹ Traffic.

BOX 75. STEPS TO ADVANCE THE NATIONAL STRATEGY TO COMBAT WILDLIFE TRAFFICKING

The Implementation Plan of the U.S. National Strategy for Combating Wildlife Trafficking was released by the U.S. Department of State in February 2015. The plan guides and directs the efforts of Federal agencies in executing the strategy, and specifies the agencies responsible for executing particular tasks. The plan's success relies on agencies working in consultation or collaboration with each other whenever possible. Lead agencies are responsible for ensuring that progress remains on track and will contribute to monitoring or evaluating the effectiveness of strategic approaches.

USAID is taking a co-lead role in several international areas of focus under Strengthening Law Enforcement, including: Capacity Building of Government Authorities; Support for Community-Based Wildlife Conservation; Support for the Development and Use of Effective Technologies and Analytical Tools; Enhancement of Information Sharing with International Partners; and Support for the Development of an Effective Worldwide Network of Wildlife Enforcement Networks (WENs).

USAID is also taking a co-lead role in the Reducing Demand and Building International Cooperation priority areas, including: Raising Public Awareness and Changing Behavior; Promoting Demand Reduction Efforts Globally; facilitating Bilateral and Regional Cooperation among concerned countries; Promoting Partnerships among government, inter-governmental and private sector (including NGO) actors; and Encouraging Development of Innovative Approaches.

USAID will play a contributing role in international efforts to advise or facilitate overseas multinational enforcement operations; address wildlife trafficking in fighting other transnational organized crime; address corruption and illicit financial flows; use diplomacy to catalyze political will; strengthen international agreements and arrangements that protect wildlife; use existing and future trade agreements and initiatives to protect wildlife; and incorporate provisions to protect wildlife in other international agreements. Our programs may also contribute to domestic-focused efforts to "Take the Profit Out of Wildlife Trafficking."

Illegal, Unreported, and Unregulated Fishing and Trade

Fishing is the largest extractive use of biodiversity in the world, and fish products are the world's most widely traded foods. About 90 percent of wild fish products in trade come from the sea. Extraction of marine resources is often categorized as “legal” or “illegal, unreported, and unregulated (IUU)” fishing. IUU fishing includes all fishing that breaks fisheries laws and is thus “illegal” (i.e. is illegal or unreported) or occurs outside the reach of fisheries laws and regulations (i.e. is “unregulated”) in international waters.

Most of the world's fish are caught in the national waters of coastal States, their exclusive economic zones (EEZ), which can extend out 200 nautical miles. **Illegal fishing in national waters can include** fishing without a license; fishing in a closed area; fishing with prohibited gear; using illegal and destructive practices such as cyanide, dynamite, or bottom trawling; fishing over a quota; and the fishing of prohibited species. Illegal fishing also includes “pirate fishing,” where foreign fishing vessels come into national waters with no fishing license at all. **Unreported fishing**, i.e. not reporting or under-reporting the vessel's catch, even if the vessel is legally licensed to catch that species, is also considered to be illegal.

Unregulated fishing often occurs on the high seas, the international waters beyond a coastal state's exclusive economic zone. These areas are also referred to as areas beyond national jurisdiction (ABNJ). A network of regional fisheries management organizations (RFMOs) covers some of the high seas. However, the enormous expanse of the oceans, combined with patchy regulation and little enforcement, allows for rampant illegal and unregulated fishing.

IUU fish products and trade refer to those products associated with IUU fishing. Currently, about 50 percent of wild fish in trade originate from developing countries. Fishery resources in many developing countries are under huge pressures due to the increasing demand for seafood from developed countries. Coupled with weak institutions and limited capacity for enforcement, pirate fishing in the national waters of developing countries

poses high threats to marine biodiversity, local food security, livelihoods, national economies, and peace and security. For example, in Senegal, **a recent USAID-commissioned study** estimated that 60 percent of the fish collected in national waters were caught illegally, and of the legal catch, only about a third was reported.

IUU often creates conflicts between local fishers and vessels from outside communities or countries fishing illegally, fueling conflicts and loss of fishery resources for local communities. Global losses attributable to the black market from IUU fishing are estimated to be \$10-23 billion annually, representing around 20 percent of the global seafood catch, weakening profitability for legally caught seafood, fueling illegal trafficking operations, and undermining economic opportunity for legitimate fishers. This looting threatens the food security of the 2.6 billion people who rely on fish protein in developing countries. IUU fishing often impacts smaller-scale fishers by stealing fish from near-shore waters or undermining the ecosystem on which the fish depend. Illegal fishing undermines fisheries management efforts, as it skews catch and population estimates. Illegal fishing can also distort marine food webs, damage critical marine habitats, and catch non-target species, resulting in significant losses to marine biodiversity and ecosystem services. Overfishing and destructive fishing reduce the ability of ecosystems to recover from and adapt to global climate change impacts.

Graft and corruption are major contributors to IUU and barriers to its resolution. International reviews have found a strong co-occurrence of IUU fisheries and organized crime, particularly smuggling drugs and migrants, and piracy, largely because fishing vessels are far less regulated than other maritime vessels, which are managed by the International Maritime Organization. IUU fishing and trade is associated with egregious human rights violations, such as the rampant use of forced labor in fishing vessels and seafood processing plants, as highlighted by the **Human Trafficking Report**, issued by the Department of State on June 20, 2014.

Trade in coral reef species for ornamentals, home decor, and marine aquaria is a key threat in many countries, as it drives overexploitation and the use of destructive practices. Most countries prohibit the use of cyanide in

the collection of live reef fish for the aquarium trade. However, its use is still widespread, making the trade in these fish illegal. The United States is the world's largest importer of coral reef products and **could exert a major**

influence in redirecting the trade toward legality and sustainability. Box 76 presents more information on actions proposed to tackle IUU fishing.

BOX 76. PRESIDENTIAL MEMORANDUM AND TASK FORCE ON ILLEGAL, UNREPORTED, AND UNREGULATED FISHING AND SEAFOOD FRAUD

The United States is a major importer of seafood and potential driver of the illegal fish trade; up to 30 percent of the seafood sold in U.S. markets may be illegal. The United States is also a global leader in sustainable seafood. Over the course of the last six years, the United States has largely ended overfishing in federally managed waters and successfully rebuilt a record number of stocks depleted by the excesses of the past. As a result, the U.S. management scheme is recognized internationally as a model for other countries as they work to end overfishing. Nevertheless, illegal, unreported, and unregulated (IUU) fishing continues to undermine the economic and environmental sustainability of fisheries and fish stocks, both in the United States and around the world. A Presidential Memorandum issued on June 17, 2014 at the U.S.-hosted Our Ocean Conference called for the U.S. Government to develop a Comprehensive Framework to Combat Illegal, Unreported, and Unregulated Fishing and Seafood Fraud. The Presidential Memorandum – similar to an Executive Order – established a task force and two new U.S. Government policies to ensure that seafood sold in the United States is legally and sustainably caught and to combat the negative impacts of seafood fraud:

- a. It shall be the policy of the United States for all executive departments and agencies (agencies) to combat IUU fishing and seafood fraud by strengthening coordination and implementation of relevant existing authorities and, where appropriate, by improving the transparency and traceability of the seafood supply chain.
- b. It shall also be the policy of the United States to promote legally and sustainably caught and accurately labeled seafood and to take appropriate actions within existing authorities and budgets to assist foreign nations in building capacity to combat IUU fishing and seafood fraud. In addition, agencies shall identify opportunities to enhance domestic and international efforts to combat global IUU fishing and seafood fraud.

It is in the national interest of the United States to promote a framework that supports sustainable fishing practices and combats seafood fraud and the sale of IUU fishing products. To achieve these objectives, the United States will need to enhance the tools it has available to combat IUU fishing and seafood fraud, including by implementing the United Nations Food and Agriculture Organization Agreement on Port State Measures to Prevent, Deter, and Eliminate Illegal, Unreported, and Unregulated Fishing; strengthening coordination and implementation of existing authorities to combat IUU fishing and seafood fraud; working with the Congress to strengthen and harmonize the enforcement provisions of U.S. statutes for implementing international fisheries agreements; and working with industry and foreign partners to develop and implement new and existing measures, such as voluntary, or other, traceability programs, that can combat IUU fishing and seafood fraud and ensure accurate labeling for consumers. The task force will submit recommendations to the President through the National Ocean Council and will submit annual progress reports on implementation of the policies and recommendations.

Key Questions

What is the impact of illegal and unsustainable trade?

The impact of this illegal trade reaches beyond that of a key biodiversity threat. Trafficking in threatened and endangered species is also a regional security concern, as well as a national security interest for the United States, as articulated by the Library of Congress Congressional Research Service: "Numerous sources indicate that organized criminal syndicates, insurgency groups, and military units are among the primary actors involved in large-scale, commercial-sized wildlife trafficking. . . . Some observers claim that the participation of such actors in wildlife trafficking can threaten the stability of countries, foster corruption, and encourage the use of violence to protect the trade."¹⁰ See also [Section 4.8.2](#). Illegal trade also has economic, livelihood, health, food and nutrition security, and climate resilience impacts. Illegal extraction and the associated trade is undermining markets with cheaply produced goods that have not paid for environmental or social safeguards. It undermines efforts to promote the rule of law, good governance, and sustainable development and reduce poverty. In addition, there are significant and troubling linkages between trade in wildlife and zoonotic diseases, such as HIV, Ebola, and SARS (see [Section 4.1](#)).

What is the primary international treaty affecting illegal trade in endangered species?

The Convention on the International Trade in Endangered Species (CITES) restricts trade in threatened and endangered species that are listed in its annexes for countries that are parties to the treaty. Most countries also have domestic legislation for implementing CITES restrictions, making much of the trade in endangered species illegal or restricted. (This is not true for most species of fish, however.) For some species, the trade is regulated or prohibited in some countries, but not in others. Restrictions may also differ by country. International trade in species not listed under CITES, or domestic trade in listed or unlisted species, is often unregulated, and the trade is poorly understood. The lack of effective governance, including the presence and awareness of laws regulating wildlife extraction and

¹⁰ Liana Sun Wyler and Pervaze A. Sheikh, [International Illegal Trade in Wildlife: Threats and U.S. Policy](#), Washington, DC: Congressional Research Service, 2008.

trade, enforcement of those laws, and effective and just prosecution and sentencing of offenders, further enables illegal and unsustainable trade. For example, despite a complete ban on cross-border trade in pangolins (endangered scaly anteaters native to parts of Asia and Africa and valued for their meat) in Southeast Asia, investigators believe at least one metric ton is trafficked across borders every day. Similarly, although wild populations of tigers and leopards are rapidly dwindling, their skins and body parts are still found in trade across Southeast Asia.

Many species in trade, including most commercial fish and timber species, are not listed in CITES.¹¹ In these cases, trade is illegal when the products are taken in violation of national laws, such as illegal removal from areas or collection with illegal practices. Regional fisheries management organizations develop and manage regional fisheries treaties and set and allocate quotas for some high-value fish species. The International Tropical Timber Organization (ITTO) is an intergovernmental organization that develops [internationally agreed policy documents](#) to promote sustainable forest management and forest conservation. It also collects, analyzes, and disseminates data on the production and trade of tropical timber and assists member countries to adapt such policies to local circumstances and implement them.

What are the primary trends in demand for illegal and unsustainable trade?

Demand for illegally obtained wildlife, wood, and fishery products is widespread. The United States, China, and the European Union have some of the highest demand for illegally traded wildlife and wild fish and are also major consumers of wood products, with a significant proportion of both wildlife and wood products trafficked through Asia purchased by consumers outside the region. Although observers say demand for illegally traded wildlife is increasing, the underground nature of this black market makes it difficult to determine the magnitude and the trends of demand. Demand for threatened and endangered species is driven by different factors, depending on the product, region, and culture. In Asia, where a significant portion of the global trade takes place, demand is driven by traditional medicine,

¹¹ Here is a [list of the currently listed tree species](#).

human consumption, and symbols of wealth. The increase of the region's economic growth and affluence has reportedly escalated the demand for these illegal goods in Southeast Asia. In Europe and North America, analysts find that demand for illegal wildlife includes a wide variety of products, such as luxury fashion items, tourist souvenirs purchased abroad, and exotic pets, as well as traditional medicines and wildlife meats for human consumption. The United States is thought to be a significant destination for illegal wildlife, and the magnitude of the illegal trade in the U.S. may be increasing.

Illegal wood products, on the other hand, are often unknown or undetected by the time they reach the market or end consumer. Tree products are found in a multitude of common, everyday goods, including paper, furniture, tools, handicrafts, picture frames, packaging, resins, and industrial products. Products typically traverse several countries, where they are mixed with other products and transformed into value-added items. Supply chains have been poorly documented and are not well understood. Retailers and importers in the United States and Europe are struggling to learn more about their sourcing and finding that it is not simple. Motivated by good intentions and by the amended Lacey Act, buyers are struggling to locate consistent supplies of legal and sustainable timber but finding a short supply in tropical countries. This again points to the critical need for good governance that can support legitimate trade; much work remains to be done within USAID countries on this issue.

Similar to wood products, illegal fish products are often unknown or undetected by the time they reach the market or end user. Illegal fish products end up in many food products, including farmed-raised and aquacultured products; about 20-30 percent of all wild fish caught globally are ground up and used as fishmeal for aquaculture and livestock feed. The demand for wild fish for fishmeal is also driving demand for illegal, and cheap, fish. In an attempt to limit illegal fish from entering its market, the European Union now requires catch documentation for all seafood imports. African and Asian countries are trying to respond to this required information by setting up catch document and traceability systems.

What are some factors that enable illegal and unsustainable trade?

Among the numerous factors that can enable illegal and unsustainable trade are the following:

- lack of a national policy that clearly lists which species can legally be in trade, thus making all other species illegal
- corruption and direct involvement in the trade by government, law enforcement, and judiciary officials
- lack of scientific information and understanding of sustainable resource use levels and sustainable management
- lack of transparency over who has legal licenses for extraction and transport along the supply chain
- absence of laws and regulations against trade in an exploited resource
- failure of enforcement officials to make enforcement of international treaties or national and local laws regarding the trade a priority
- the high profitability of illegal trade for those involved
- failure of enforcement actions to stop the ringleaders who run the trade (often, only the lower-level traffickers are caught)
- weak penalties and sentencing for convictions for illegal trade, which do not serve as a deterrent for future offenses
- lack of capacity in enforcement and judicial systems
- lack of awareness of the problem in supply and demand countries and among enforcement officials
- high demand and lucrative returns combined with low risk of getting caught.
- increasing affluence of demand populations, driving an increase in trade of such "luxury" items as tropical hardwood furniture, shark fin soup, ornamental fish, ivory, wild meats, and sushi
- cultural factors, including the use of traditional Chinese medicine derived from threatened or endangered wildlife, such as tigers and rhinoceros, or traditional seafood preferences
- poor communication and networking between enforcement officials within and between countries
- lack of appropriate, inexpensive technologies for tracking all vessels and products in the supply chain

What are early impacts of the U.S. Lacey Act?

Under the Lacey Act (Box 74), importers of plants and plant products are required to file a declaration for entry, with potential civil or criminal penalties for failure to properly comply. The declaration requirement has had an immediate effect on the behavior of U.S. importers and retailers who have been forced to think about the identification and source of their imported products. Among other things, importers of wood products are required to identify genus, species, and country of harvest for all types of products in a load. Through such a mandate, the declaration requirement is expected to promote greater transparency in the supply chain of wood products and discourage importers from purchasing wood of uncertain or suspect origin and species.

Trade and manufacturing of goods derived from plants can involve global supply chains that touch several countries. The Lacey Act and its impacts on U.S. importers, therefore, may reach back to producers and beneficiaries in USAID-supported countries, regardless of whether they are exporting to the United States or other markets. Along with new, similar import prohibitions in the European Union and Australia, the Lacey Act is instilling substantial change in trade in order to eliminate illegal wood in the market.

Note: As new laws trying to regulate an extremely complex trade in forest products, the Lacey Act and the EU Timber Regulation (2013) are generating a necessary debate among a broad array of stakeholders and interests in forest product trade. Like any other law, the act and rules will continue to evolve, as both stakeholders and the government identify challenges and solutions to make them effective and true to their intent. Hence, it will be important to keep updated on the latest version of the statute and its rules.

What can USAID do to address the illegal and unsustainable wildlife trade?

See Box 76 and the text associated with it for specific steps the U.S. Government is taking to operationalize the National Strategy to Combat Wildlife Trafficking.

USAID's approach to the illegal and unsustainable wildlife trade is comprehensive, and the Agency has broad experience working on improving the governance and management of natural resources from a legal and enforcement angle. We invest in both the first line of defense against poachers and traffickers while also bolstering community conservation (see CBNRM [Section 3.2.5](#)), reducing demand for wildlife products, and developing innovative solutions to the crisis.

USAID invests in anti-poaching in approximately 25 countries, and despite proscriptions against support for law enforcement in other development sectors, biodiversity conservation (and recently, all environment) programs are allowed and even encouraged to work with police, park rangers, customs agents, and other authorities who can play a role in protecting wildlife or catching and prosecuting environmental criminals. Many programs include important law enforcement support components, working within policy restrictions on collaborating with certain governments, and sometimes vetting individuals for narcotics or human rights violations. USAID also works with the Department of State and the U.S. Fish and Wildlife Service in related enforcement coordination efforts. As a result, USAID partner countries have undertaken effective coordinated operations across regions and have helped to arrest criminals and close transit routes. Engaging with a variety of partners, such as agencies involved with trade or organized crime, is essential to complement and not duplicate U.S. Government enforcement efforts.

Progress is being made in Southeast Asia through support to the [Association of Southeast Asian Nations \(ASEAN\) Wildlife Enforcement Network \(WEN\)](#) for the ARREST project, which aims to increase public awareness of the problem, stem the demand for illegal wildlife parts, strengthen regional law enforcement coordination, and build the capacity of local authorities to implement CITES regulations. Over the past three years, this has resulted in frequent and high profile arrests and convictions of major criminals. From January 6-26 2014, 28 countries from Asia and Africa participated in "[Operation Cobra II](#)," an intelligence operation that resulted in over 400 arrests and the seizure of 36 rhino horns, over 3 metric tons of elephant ivory, over 10,000 turtles, over 1,000 skins of protected

species, and more than 200 metric tons of rosewood logs, among many other seizures. Though impressive, this demonstration of progress only exposes a small fraction of the total volume and scale of the illegal trade in the region. Enforcement of international treaties and regional and national policies and laws remains the last line of defense and deterrent for this transnational illegal trade.

Are there other actions that could be taken to combat illegal fish trade?

In addition to the recommendations on wildlife trade in the section above, specific actions can be taken to combat IUU fishing and trade. USAID could play an instrumental role in developing a comprehensive approach to IUU fishing and seafood fraud by drawing upon our international expertise and experience in multiple sectors, using such strategies as:

- building regional and national capacities to implement ecosystem-based approaches to fisheries management that emphasize habitat conservation, sustainable catch levels and methods, development of co-governance arrangements, and enforcement mechanisms;

- building national government capacities to integrate wild fisheries into national food security strategies, policies, and investment plans;
- building regional and national trade capacities for sustainable and transparent seafood through catch certification and traceability systems and other mechanisms;
- promoting integrated programming by USAID units focused on biodiversity, climate resilience, food security, trade, human health, and human rights in addressing IUU at regional and country levels;
- Strengthening port state measures to combat illegal wildlife trade, including terrestrial wildlife and fish trade; and
- Utilizing science, technology, and innovation – such as mobile technology, DNA bar coding, and electronic commerce – for traceability systems and enforcement.

In addition to supporting “source” countries through the approaches identified above, USAID could engage with priority “consumer” countries to reduce the demand for IUU products and unsustainable seafood.



FIRE WARRIORS: Twenty-seven indigenous young people from four ethnic groups received training in fire preparedness techniques and fire safety measures in the Capota-Jarina Kayapo Indigenous Reserve in Mato Grosso, Brazil.

Photo: Eric Stoner

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