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Partnering with Extractive Industries for the Conservation of Biodiversity in Africa:

A Guide for USAID Engagement

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PARTNERING WITH EXTRACTIVE INDUSTRIES FOR THE CONSERVATION OF BIODIVERSITY IN AFRICA:

A GUIDE FOR USAID ENGAGEMENT

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ON THE COVER (Left to Right): Bauxite shipment, Guinea (BATS / Brian App), **Oil platform construction site, Namibia** (Alexander Hafemann), **Illegal Timber Processing, Madagascar** (BATS /Steve Dennison), **Artisanal Fishing Tools, Mali** (BATS / Brian App)

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ACRONYMS

AA	Anglo American
AFR	USAID Bureau for Africa
AMD	Acid Mining Drainage
AZE	Alliance for Zero Extinction
APS	Annual Program Statement
Bbl	Barrel(s)
BBOP	Business and Biodiversity Offset Program
BCTF	Bushmeat Crisis Task Force
CASM	Communities and Small-scale Mining Initiative
CI	Conservation International
CIB	Congolaise Industrielle de Bois
CMS	Convention on Conservation of Migratory Birds
CSR	Corporate Social Responsibility
CTF	Conservation Trust Fund
EIA	Environmental Impact Assessments
EMS	Environment Management System
EMP	Environmental Management Plan
EPFI	Equator Principles of Financial Institutions
ESIA	Environmental and Social Impact Assessment
FOC	Flag of Convenience
FAO	Food and Agriculture Organization
FSC	Forestry Stewardship Council
FFI	Flora and Fauna International
FLEGT	Forest Law Enforcement, Governance, and Trade
FVCT	Flower Valley Conservation Trust
GCC	Global Climate Coalition

GDA	Global Development Alliance
GoRC	Government of the Republic of Congo
ICMM	International Council on Mining and Metals
ICME	International Council on Metals and the Environment
IFC	International Finance Corporation
IPECA	International Petroleum Industry Environmental Conservation Association
ISO	International Standards Organization
M&S	Marks and Spencer
MIBA	Société Minière de Bakwanga
MSC	Marine Stewardship Council
MOU	Memorandum of Understanding
PRA	Protection Sharing Agreement
PEFC	Program for Endorsement of Forest Certification
PES	Payment for Environmental Services
PSA	Production Sharing Agreement
QMM	QIT Madagascar Minerals
REACH	European Union Chemical Policy
SD	USAID Bureau for Africa Office of Sustainable Development
SANP	South African National Parks
SIF	Social Investment Fund
SI/MAB	Smithsonian Institute/Monitoring and Assessment of Biodiversity Program
SRI	Socially Responsible Investment
USAID	U.S. Agency for International Development
UNEP	United Nations Environmental Programme
WBCSD	World Business Council for Sustainable Development
WWF	World Wildlife Fund

INTRODUCTION

The growth in the demand for natural resources has been exponential over the past decade. Commodity prices have skyrocketed with a steep jump in value of non-renewable resources (Figure 1). Ever increasing demand and higher prices for natural resources have pushed extractive industries to search for renewable and non-renewable resources in places once too expensive or too dangerous to do so. Areas of conflict in Africa that were once unsafe for mining, oil, and timber companies to operate in are now at peace and accessible.

Nowhere does tension between demands for 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 significant risks for future generations, and the costs and benefits of resource extraction are seldom borne equitably.

Figure1 – Approximate Prices of Selected Commodities in the First Quarter of 2003 and 2008

Commodity	2003 Prices	2008 Prices	Change
Aluminum (US$/lb)	0.6	1.4	133%
Copper (US$/lb)	0.8	4	400%
Crude oil (US$/bbl)	31	110	254%
Gold (US$/oz)	300	950	200%
Mahogany (US$/$m^3$ *Khaya spp.)*	600	750	25%

Data Sources: Index Mundi (http://www.indexmundi.com/commodities/) and KITCO (http://www.kitco.com/charts/historicalgold.html)

Addressing social equity is a major challenge for extractive industries, generally falling to governments to referee trade-offs and protect the most vulnerable, including the unrepresented generations to come. Transparency, public access to information on extraction, and stakeholder participation in decision-making are all elements of effective governance. Governments, however, are often ill-equipped to arbitrate trade-offs; in their absence, other international and local organizations, including USAID and its partners, need to fill the niches in community development, public health, and the environment.

Resource extraction is usually, but not always, undertaken by business. Business performance is based on investment and return. Owners/shareholders and financiers hold companies accountable for sound performance and expect profits. Although businesses should be held accountable to both the society they serve and the environment in which they operate, management of risk to financial investment is generally a company's motivating force. Environmental restrictions can be viewed as a business risk since they limit access to resources and can lower profits.

Nevertheless, poor environmental performance by extractive industries is increasingly viewed as a greater institutional risk than access and profit. Inequitable sharing of benefits and social and environmental damage can create tremendous resistance to extractive industries, which leads to pressure on governments to ban extractive activities; affected communities and resisting stakeholders can effectively revoke the companies' "license to operate." Companies increasingly have incentive to go beyond basic legal requirements to ensure better environmental and social outcomes while protecting long term investments. As achieving high social and environmental

performance may require skills not available within the company, strategic partnerships between companies and stakeholders can improve institutional performance.

Many companies and organizations in the extractive industries sector are addressing sustainability and environmental concerns within their operations and can make a strong business case for effective conservation. It is, however, not uncommon for companies to manage the public's perceptions of environmental performance rather than the performance itself: "greenwashing" produces unsubstantiated claims of superior environmental and social performance, sometimes validated through social and environmental actors perceived as legitimate, and, at times, through legitimate actors who become unwilling accomplices.

Purpose and Objectives

This guide examines options for USAID engagement in Africa for biodiversity conservation in four categories of extractive industries: mining, oil and gas, timber, and fishing.

The objectives are:

1. To identify opportunities for USAID engagement with extractive industries in conserving Africa's biodiversity

2. To analyze forms of partnerships and to alert parties to opportunities and pitfalls

3. To examine tools, approaches, and initiatives to mitigate or prevent damage to biodiversity as well as improving biodiversity conservation

4. To direct parties to sources of information about biodiversity-centered partnerships with extractive industries

This guide should help decision makers in USAID, partner organizations, and extractive industries in Africa evaluate options for biodiversity conservation in the face of resource extraction pressure through constructive engagement with extractive industries and other stakeholders.

Background and Context

This guide is by no means comprehensive but serves as a resource guide toward a common understanding of issues and options to ensure informed, successful engagement in protecting the environment. Partners must first examine concepts where biodiversity and extractive industries intersect.

A more detailed treatment of these subjects follows in Sections I through V.

Biodiversity – *Biodiversity Conservation: A Guide for USAID Staff and Partners* defines biodiversity as "the variety and variability of living organisms broadly including a wide diversity of plant and animal species, communities, and ecosystems," and goes on to say that "the Earth's biodiversity consists of genes, species, and ecological processes making up terrestrial, marine, and freshwater ecosystems that both support and result from this diversity. All of these elements and living systems interact with each other to produce the web of life on Earth — the biosphere — a whole much greater than the sum of its parts on which every human being is dependant."

It is important to examine the habitat upon which biodiversity depends. To ensure viability of wildlife populations and the ecosystem services that humans and wildlife require, conservation is often viewed at the landscape level with large areas of mixed-use in which protected areas share space with private and commercial lands. While extraction in environmentally sensitive landscapes is possible, some sites should be considered no-go zones by virtue of their ecological or cultural value.

Impacts – Extractive industry activities can power economic growth and development but inherently impact the landscape. The key is to anticipate impacts in order to prevent, mitigate, and weigh them against development goals. Direct impacts can result in loss of trees from logging or disruption of land from mines. Indirect impacts such as access to sensitive areas through road construction and those cumulative impacts of multiple activities and secondary developments from land colonization can create cascading effects from localized impacts. These become greater than single activity impact when effects of different types of development exacerbate other impacts well beyond the project area.

USAID's Environmental Policies and Procedures

Section 118 and 119 of the Foreign Assistance Act (FAA) require that USAID missions analyze the actions necessary in their countries to conserve and sustainably manage tropical forests (section 118) and biodiversity (section 119), and the extent to which the activities proposed for support by the Agency meet the actions thus identified (both sections 118 and 119).

Updated on an at least a five year basis as part of mission strategic planning, these analyses can highlight the potential threats of extractive industries, and recommend mitigation measures given USAID engagement with the sector.

Certain activities, including those involving partnerships with extractive industries, may be eligible for funding under congressional earmarks for biodiversity ($195 million in FY08), if they meet the following requirements:

- The program must have an explicit biodiversity objective.
- Activities must be identified based on an analysis of threats to biodiversity.
- The program must monitor associated indicators for biodiversity conservation.
- Site-based programs must have the intent to positively impact biodiversity in biologically significant areas.

In addition to U.S. policies and regulations, USAID works within international environmental frameworks to support biodiversity conservation. These conventions which acknowledge the importance of conservation activities, and generally commit countries to national level conservation planning help USAID to target high-priority areas for conservation and may guide the agency selection of extractive industry partnerships.

Preeminent among them are the Convention on Biological Diversity (CBD), the Convention to Combat Desertification, the Convention on International Trade in Endangered Species (CITES), and the Ramsar Convention on Wetlands of International Importance.

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 commercial activity a company should perform an EIA, which may be a requirement for 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 (EMP/EMS) – An EMP can be developed from the EIA's recommendations with procedures for monitoring impact on a species (e.g., changes in turtle nesting), changes in water/soil quality, and other indices of environmental health. An EMS can be based on the EMP to improve a company's environmental performance by helping to organize the management structure's focus on environmental impact.

Governance – Sovereign states have the prerogative and the obligation to govern national assets and natural resources. Governments must enact legislation and support laws with regulations, enforcement, and a judiciary that is well trained, informed, and impartial. They likewise need proper accounting systems to collect public revenues that benefit affected areas, communities, and stakeholders. Good governance requires transparency in practices and easy public access both to information of environmental importance and decision-making processes surrounding environmental decisions.

Partnerships – For purposes of this report, partnerships are mechanisms that combine partners' skills in addressing a shortfall that neither partner can effectively address alone. Although partnerships can involve financial transactions, they are different from contractual relationships in which services are rendered for a fee. The key to a partnership is sharing values in achieving results otherwise unattainable as individual entities (see the adjacent text box on *Partnerships that Work: Shared Values*).

In some cases, there may be opportunity to develop alliances between stakeholders and companies in ecologically sensitive areas. Such an alliance can bring projects to fruition within environmental and social parameters that minimize impacts from extraction and create long-term benefits.

Partnerships That Work: Shared Values

Accountability **–** Partners show a high degree of commitment to each other and to the public. Allowing public participation is important to partners' accountability.

Transparency – Partners are open and transparent if they are to enjoy the confidence of each other and of the public.

Public service – The partnership does not undermine the long-term interests of any party, the public, or the environmental resources upon which society depends. Society stands to win as much as business or government.

Respect for human rights – The partnership is fatally compromised when rights of individuals or groups are undermined.

Balance – Partnerships achieve good results if power is distributed evenly, and benefits proportionate. One partner does not subsidize the others.

Extractive industries, by virtue of their capitalization and expertise, can contribute significant resources to avoiding risky environmental management by supporting research, improving access to information, and sponsoring or implementing conservation activities. Their risk management strategy should also leverage resources to prevent or mitigate environmental and

social hazards through creation of trust funds, providing seed capital for community enterprises, and other means.

Risks of engagement in partnerships include risk to reputation if the partnership sours, risk to operational consistency from setting a high bar for performance, lower profit, and delays. Risks posed to companies by civil society or government partners can result from inconsistency in mission, moral compromise and policy capture (or perceptions thereof) resulting in financial dependency and high costs of investment in human and other resources to develop the partnership.

On the upside, partnerships provide companies with opportunities for improved risk management and greater understanding of conservation. Fruitful collaborations produce greater employee fulfillment, satisfying results for shareholders, access to external expertise in managing risk, and the "license to operate" as a socially responsible company from affected communities and stakeholders. Effective risk management can also positively impact the company's bottom line.

Partnering allows expansion and diversification of the funding base, improved political leverage and technical skills. Potential environmental damage can be balanced with the advantages of conserving biodiversity through proactive engagement with extractive industries.

Structure of the Guidebook

This guidebook is organized into five sections plus annexes:

Section I analyzes risk and potential impacts on conservation from extractive industries in Africa.

Section II examines tools for partnerships for conservation in Africa for USAID, stakeholders, and extractive industries.

Section III discusses principal actors and organizations in the extractive industry sector.

Section IV details actors and industry structures, issues and impacts, and reviews best practices for conservation for mining, oil and gas, logging, and fishing.

Section V discusses governance and conservation action that makes the business case for extractive companies' engagement in conservation partnerships.

Annex A lists references consulted in compiling this guide.

Annex B details by country current and past USAID partnerships and activities in the extractive industry sector in Africa.

SECTION I – ANALYSIS OF RISK AND POTENTIAL IMPACTS

From an environmental perspective, engaging with extractive industries carries risk. Lack of consideration of these risks may lead to alliances that undermine reputations and best intentions of development institutions, and may provide poor environmental performers with an unwarranted alibi. An alliance bad for the environment may undermine the institution's environmental program and even its entire portfolio, generating antagonism at the national and local levels and making it difficult to operate effectively in the host country. Partnerships formed with proper due diligence and planning, however, can alert both the company and the national government to pitfalls and avert environmental damage and social conflict. A due diligence review considers not merely the company and its proposed activity but its environmental context of implementation.

A. MITIGATION HIERARCHY

A descending scale of options (Mitchell 1997) supports decisions in managing environmental harm. The scale provides a framework for managing risks with the lower rungs in the hierarchy representing less desirable and more risky options that require more robust due diligence.

Steps below show a simplified version of the hierarchy that is easily incorporated into planning extractive interventions:

Avoid – The best course of action for preventing environmental or social harm is to avoid doing harm altogether by finding an alternative to the project.

Minimize – When avoidance is impossible, minimize impact through careful planning and low impact extraction techniques.

Mitigate – If minimizing impacts does not produce the desired result, the next step is mitigation through direct interventions to correct environmental impact, e.g., through ecological restoration.

Compensate – When environmental destruction is assured and mitigation cannot restore it, the final option is to compensate.

B. RISKS TO THE ENVIRONMENT

The scramble for Africa's resources places the environment in a precarious position, particularly where there is overlap between resources extracted and environmental sensitivity. Impacts to biodiversity can be direct, indirect, cumulative, and cascading:

Direct impacts result from extraction itself, such as tree removal for timber production or mine construction that disrupts habitats. Direct impacts and risks at the site level require identification before extraction begins to avoid habitat clearing or development in sensitive areas home to endangered, threatened, or rare species.

Indirect Impacts of the Illegal Bushmeat Trade

Bushmeat applies to all species of wildlife hunted and sold for meat. The concern for extractive industries is bushmeat that is illegally, commercially, or unsustainably derived from wildlife. This may involve illegal hunting methods such as wire snares and unregistered guns; illegal killing of endangered, threatened, or protected species; poaching in protected areas; and unsustainable off-take for commercial or non-commercial uses.

In densely forested countries of West and Central Africa, road construction for extractive industries — logging, oil development and mining — dramatically increases hunters' access to isolated areas. Easier access decreases the cost of transporting bushmeat to urban markets thus increasing supply and profitability of illegal commercial trade. The Bushmeat Crisis Task Force says that per capita bushmeat consumption is highest in logging concessions because company workers and families desiring bushmeat have guns, ammunition, and motorized access to the forest.

Logging concessions hold most remaining blocks of intact forests outside national parks and protected areas, thus logging companies play an important role in wildlife conservation: They can ensure their practices do not directly or indirectly promote unsustainable consumption of bushmeat. Through adoption and enforcement of forest and wildlife management policies and practices, extractive industries can effectively control the commercial bushmeat trade. See the Bushmeat Crisis Task Force Web site at http://www.bushmeat.org

Indirect impacts occur through secondary activity related to extraction such as human migration through the opening of roads. Workers and their families move to sites to work for extractive industries and can create social and resource conflicts with resident communities and increase illegal and unsustainable trade in bushmeat. (See *Indirect Impacts of the Illegal Bushmeat Trade* in the adjacent box.) Indirect impacts result from increasing the access to remote areas, drastically increasing vulnerability of biodiversity to external pressures.

Three of the four industries — forestry, mining, and oil exploration — tend to greatly increase accessibility of remote areas to external agents. More often than not indirect effects of industry have greater negative impact on biodiversity than the direct impacts brought on by the activity. These impacts must be understood to properly mitigate them and put into place support infrastructures. (See figure 2 on the following page).

Extractive industries can also have profound impact in local economies, triggering demographic changes with serious consequences. Change and associated indirect impacts are depicted below:

Cumulative impacts are those where the effects of multiple activities result in environmental degradation greater than the sum of the individual impacts themselves. These are combined with the added impacts of secondary developments such as colonization of land by small-scale farmers facilitated by improved access.

For example, when roads increase access to remote areas, extractive industries frequently move vehicles to and from areas of extraction. These vehicles, including canoes, barges, and other watercraft, are used by hunters, loggers, and settlers to increase their radius of operation. Motorized vehicles can transport larger loads of bushmeat, timber, non-timber forest products, and agricultural products, transforming what were once subsistence activities into commercially viable enterprises, causing the bushmeat trade to quickly eliminate wildlife from large areas along logging tracts.

Figure 2 – Example of indirect impacts of a new extractive industries activity in a remote area:

Cascading impacts occur where effects from different kinds of development exacerbate one another, extending the breadth of impact beyond the project area. Although environmental and social impact assessments capture principal direct and indirect impacts, they are notoriously inadequate in assessing cumulative or cascading impact. The case of the Grand Inga complex in the Democratic Republic of the Congo and potential cascading impacts there are presented in a textbox on page 11.

Figure 3 – Example of cascading impacts from developments in the water sector:

C. CONSERVATION LAND-USE AND SITE SELECTION

In assessing risk and potential impacts from extractive industries, it is critical to examine conserved land values in order to best inform where to site activities. This avoids planning extraction in ecologically sensitive sites and protected areas and allows for leaving undisturbed, narrow swaths of land for migration and mixing of wildlife populations.

C.1 No-Go zones

Development from extractive industries poses risks to communities, biodiversity, and ecosystem services. Some sites are so sensitive by virtue of their ecological or cultural value that they should be off limits. No clear consensus exists among extractive industries, conservationists, communities, and government regulators regarding these choices. Factors determining out of bounds areas are the nature and methods of the extractive industry, the land's legal status, and the area's ecological and socio-cultural importance. Potential environmental impacts differ among the four extractive industries considered in this guide. Each industry employs a spectrum of methods and technologies having a greater or lesser degree of impact, hence, the no-go designation may depend on methods proposed. For example, an area that is a no-go zone for open pit copper mining may be acceptable for low impact forestry. Some areas, because of their unique biological and cultural value, should be considered categorically out of bounds.

Because the definition of a no-go zone concerns the nature of the activity and the site in question, a decision must be based on a thorough understanding of the site, the activity and its environmental impact, as well as the area's biological and cultural value. See the Framework for Integrating Biodiversity into the Site Selection Process in the box below. A well elaborated environmental impact assessment will contain this information. No-go decisions should be grounded in a mitigation hierarchy framework, but also involve participation of those who will bear the risks and those who will benefit. The mitigation hierarchy provides a framework for making decisions, but in the end the go/no-go decision requires participation of governments, environmental authorities, conservation experts, and communities.

Framework for Integrating Biodiversity into the Site Selection Process

The questions below are part of a framework developed by the Energy and Biodiversity Initiative, an organization created in 2001 (no longer operational) by energy companies and conservation organizations, to 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 values?
- ✓ Does the project area contain, or exist within, a Protected Area?
- ✓ Can the Protected Area be avoided using technical options?
- ✓ Can the Government approve hydrocarbon development activities within a Protected 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 impacts be mitigated to an acceptable level?

Source: The Energy and Biodiversity Initiative, 2003. Framework for Integrating Biodiversity into the Site Selection Process.

C.2 Landscapes and Corridors

Priority areas for biodiversity conservation are now normally formed on a landscape level where decision makers consider much broader conservation and policy issues, public and private investment resources, and activities at the landscape, local, regional, national, and global levels. Landscape conservation can address habitat restoration, connecting isolated populations of endangered or threatened species, assistance to protected area managers, as well as policy and economic activities such as supporting the value chain for marketable conservation-based products.

Additionally, the definition of landscapes must factor into the connectivity of areas both within the landscape and outside of so that wildlife can move freely across areas. This passage is facilitated by creating conservation corridors to help wild flora and fauna find new habitat beyond areas that have reached capacity. Such passage allows far-ranging species greater areas for finding sustenance and helps small populations breed with outside groups and increase diversity of gene pools.

Cascading Impacts in the Grand Inga Complex of the Congo Basin

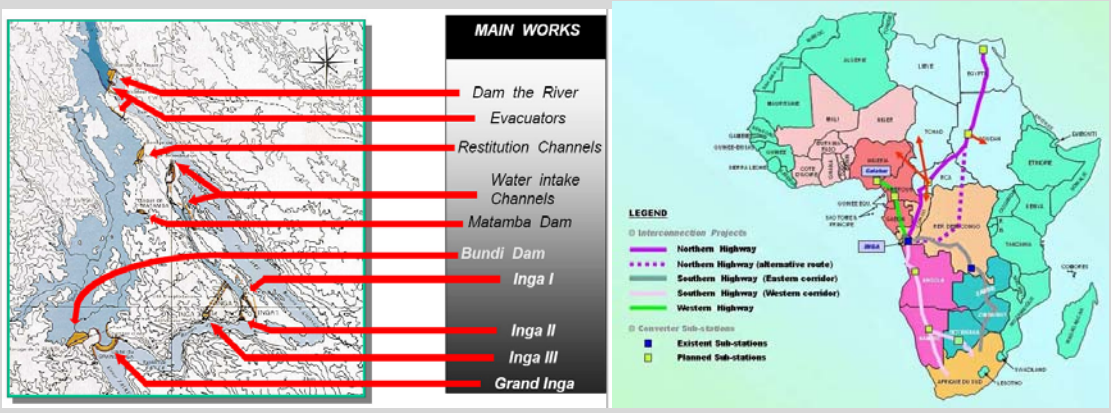
The Congo River that flows through central Africa is second in volume only to the Amazon. Energy companies, development institutions, African governments, and conservation organizations have been contemplating the potential benefits and consequences of harnessing this hydropower for more than 50 years. Currently two hydroelectric installations are operating on the river, Inga I (1972) and Inga II (1982). Combined these two stations have a generating capacity of 1,775 MW and currently distribute energy to DRC, Zambia, Zimbabwe, and South Africa. (Energy Information Administration, U.S. Department of Energy)

Plans exist for both an Inga III (3,500 MW) and Grand Inga (39,000 MW). In comparison, the Three Gorges Dam project in China has a capacity of 16,900 MW. The Grand Inga proposal would cost between $30 billion and $70 billion and supply energy across the continent, from South Africa to Egypt, exporting to Europe at competitive prices. (World Energy Council)

However in addition to the large upside in energy production, the scale of the proposed Grand Inga project will have many social ramifications. The communities displaced by the current two smaller Inga Dams have yet to be compensated and the Grand Inga project in its entirety involves much larger and more complex negotiations in both scope and scale, domestically and regionally. The trans-African transmission highways would be unprecedented for the continent. Many social advocates argue that due to current infrastructure and politics in recipient countries, the potential benefits of the Grand Inga project will go primarily to large international companies (mining and timber) and urban populations, while most rural populations will continue to be off the grid.

Numerous multiplier effects, both positive and negative, on communities throughout the continent would be seen aside from the Grand Inga construction project. Other private investors and governments would seek to complement and build on the foreseen benefits of this resource exploitation by expanding domestic infrastructure. Commercial interests, including extractive industries, would have access to greater amounts of power at lower prices, providing an additional incentive for investment and growth. The African Development Bank commissioned another feasibility study in 2007, and financing meetings were held in London in April 2008, but the future of the project and how it will interact with potential beneficiaries and affected populations remains a topic of much debate and speculation.

Map of Grand Inga Complex in DRC



Development Scheme, WESTCOR (How to make the Grand Inga Hydropower Project happen for Africa, World Energy Council Publication, April 2008.)

IUCN Protected Areas Classification

Category I a – Strict Nature Reserve: To protect biodiversity and also possibly geological features, where human visitation, use and impacts are strictly controlled and limited to ensure protection of the conservation values.

Category I b – Wilderness Area: Unmodified or slightly modified areas, retaining their natural character and influence, without permanent or significant human habitation, protected and managed so as to preserve their natural condition.

Category II – National Park: Natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible spiritual, scientific, educational, recreational and visitor opportunities.

Category III – Natural Monument or Feature: Areas are set aside to protect a specific natural monument, which can be a landform, sea mount, submarine cavern, geological feature, or living feature.

Category IV – Habitat/Species Management Area: Areas to protect particular species or habitats, often needing regular, active interventions to address the requirements of particular species or to maintain habitats.

Category V – Protected Landscape/Seascape: Areas where the interaction of people and nature over time has produced a distinct character with significant ecological, biological, cultural and scenic value, and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated conservation and other values.

Category VI: Protected area with sustainable use of natural resources: Areas which conserve ecosystems and habitats, together with associated cultural values and traditional systems, where sustainable natural resource management and low-level non-industrial use of natural resources compatible with nature conservation.

Guidelines for Applying Protected Area Management Categories: IUCN, 2008

C.3 Protected Areas

While there is widespread agreement among extractive industries and conservation NGOs that some categories of protected areas should be excluded from extractive activities, there is considerable debate over extraction within protected areas. The International Union for Conservation of Nature (IUCN) defines a protected area as "A clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long- term conservation of nature with associated ecosystem services and cultural values." The IUCN classifies areas by six principal categories (see IUCN Protected Areas Classification above) that are now international standards to differentiate the degrees of protection.

Industrial extraction in a protected area should raise a red flag although extraction may be legal and even sanctioned by involved governmental agencies. The protector agency is occasionally overruled by another ministry or elected officials (legal gazette of the protected area notwithstanding).

Protected areas at the local, regional, national, and international levels have numerous designations: the World Heritage Site designation deems an area as having outstanding universal value when it meets at least one of 10 criteria as a significant natural habitat for in situ conservation of biological diversity. In this case, extractive industry activities are clearly inappropriate.

Decisions to engage in resource extraction should be based not only on the legal status of the protected area but also on its ecological characteristics, biodiversity importance, and the

proposed activity. In keeping with the precautionary principle,[1] IUCN's protected areas in categories I and II should be considered no-go zones.

C.4 Priority Areas for Biodiversity Conservation

While protected areas have high biodiversity value, they may be insufficient in size and connectivity or less biologically valuable by comparison to areas not officially protected. Given limited resources and the impossibility of protecting all elements of biodiversity within a landscape, conservationists must prioritize. Approaches to priority selection vary, but despite differences in methodology there is a high correlation of areas considered "critical" by different organizations. For example, in a recent assessment of protected areas in Africa funded by the European Commission (2007), assessment authors found that, of the 144 areas classified as "critical" due to value and pressures, 75 percent were Conservation International (CI) hotspots, and 71 percent were World Wildlife Funds (WWF) Global 200 ecoregions. In a recent report, Bottrill et al. (2006) examined the approaches of five major conservation NGOs and included these key prioritization questions:

- How big of an area is needed to successfully conserve the biodiversity we value?
- What ecological elements need to be present? In what amount and spatial configuration?
- How connected do the ecological elements need to be?

In one example, CI uses the term "biodiversity hotspot" to signify conservation priorities. These hotspots are regions with especially high numbers of endemic species (those not found elsewhere) that have lost at least 70 percent of their original natural vegetation. CI (2007) has identified 34 hotspots that contain more than 50 percent of the world's endemic plant species and 42 percent of endemic terrestrial vertebrate species. Eight of these 34 are in Africa. (See CI Biodiversity Hotspots in Africa on page 14.) Hotspots and similar designations provide a coarse filter for the assessment of sensitive sites. Not all of these sites occur in hotspots nor are all areas within a designated hotspot equally sensitive. Hotspots are, however, one indicator of significant ecological sensitivity.

On a finer scale, the Alliance for Zero Extinction (AZE), a joint initiative of 52 biodiversity conservation organizations, has developed a global list of sensitive sites for biodiversity, which reflects growing consensus on priority areas for additional protection. See the Alliance for Zero Extinction Sites in Africa on page 14. For inclusion on the list, a site meets three criteria: endangerment (at least one IUCN red list critically endangered or endangered species), irreparability (endangered species are endemic or populations are an overwhelming proportion of the known population), and discreteness (there must be identifiable boundaries).

[1] The Precautionary principle – Article 15 of the 1992 Rio Declaration states: "In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."

Conservation International Biodiversity Hotspots in Africa

Of the 34 hotspots identified by CI, eight are located in Africa:

- The Cape Floristic Region on the Southwestern tip of South Africa
- The Coastal Forests of Eastern Africa stretching from Somalia to Mozambique
- The Eastern Afromontane region scattered in East Africa from Eritrea to Zimbabwe
- The Guinean Forests of West Africa stretching from Guinea to Cameroon
- The Horn of Africa including Somalia and parts of Ethiopia, Eritrea, and Kenya
- Madagascar and the Indian Ocean Islands
- The Maputaland-Pondoland-Albany zone encompassing the eastern coast of South Africa, and parts of Mozambique and Swaziland
- The Succulent Karoo zone stretching along the coast from Southern Namibia to Western South Africa

http://www.biodiversityhotspots.org/

Alliance for Zero Extinction Sites in Africa

- Of the 595 cites identified, 76 are located in Africa
- Of the 794 AZE priority species in the world, a total of 122 species are in Africa
- Tanzania has the most AZE sites with nine
- Mont Nimba, in Côte D'Ivoire, Guinea, and Liberia, has the most AZE species in Africa with six
- Only 60 percent of AZE sites in Africa are known to have any legal protection

www.zeroextinction.org/

Other frameworks[2] to assess risks to biodiversity-rich areas are Birdlife International's list of Important Bird Areas,[3] Key Biodiversity Areas[4] identified by Conservation International and its partners, and — at a broader scale — the WWF Global 200 Ecoregions[5] (238 ecoregions at press time). Extractive industry operations within priority sites for conservation should expect particularly strong scrutiny and may not be advisable even with appropriate mitigation measures in place. The Framework for Responsible Mining (Miranda et al., 2005) — a joint effort by NGOs, retailers, insurers, and technical experts to outline environmental, human, and social rights in mining — discusses no-go zones and the appropriateness of mining (or other industries) as land use in high conservation value areas.[6] This framework includes these guidelines for extraction:

- Mining should not occur in IUCN I–IV protected areas or in any marine protected areas (categories I–VI).
- A multi-stakeholder process should identify additional priority biodiversity conservation areas that qualify as no-go zones.

[2] For more information on Key Biodiversity Areas, Important Bird Areas, and Protected Areas can be seen on the Integrated Biodiversity Assessment Tool for Businesses website at: http://www.ibatforbusiness.org

[3] For the current list of Important Bird Areas in Africa see: http://www.birdlife.org/datazone/sites/index.html?action=SitHTMFindResults.asp&INam=&Reg=14&Cty=-2

[4] For information on the Key Biodiversity Areas framework, see IUCN's *Identification and Gap Analysis of Key Biodiversity Areas – Targets for Comprehensive Protected Area Systems* at: http://data.iucn.org/dbtw-wpd/edocs/PAG-015.pdf

[5] For the current list of WWF priority ecoregions, see: http://www.panda.org/about_wwf/where_we_work/ecoregions/ecoregion_list/index.cfm

[6] Information on the framework, and the framework itself, can be found online at http://www.frameworkforresponsiblemining.org/

- Companies should ensure their projects provide net conservation benefits consistent with maintaining the biological resources and ecosystem services on which communities depend.

The High Conservation Value (HCV) Concept

One concept for identifying priority areas for biodiversity conservation is the High Conservation Value process which provides a practical tool for land-use planning and responsible resource utilization decision-making.

According to the HCV Resource Network, "The core of the HCV approach is the identification and maintenance of High Conservation Values (HCVs). These HCVs encompass the whole scale from species to landscape, and include exceptional or critical ecological attributes, ecosystem services and social functions."

The six HCVs are as follows:

1. Areas containing globally, regionally or nationally significant concentrations of biodiversity values.
2. Globally, regionally or nationally significant large landscape-level areas where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance.
3. Areas that are in or contain rare, threatened or endangered ecosystems.
4. Areas that provide basic ecosystem services in critical situations.
5. Areas fundamental to meeting basic needs of local communities.
6. Areas critical to local communities' traditional cultural identity.

Information and tools for the identification of HVCs can be found on the High Conservation Value Resource Network website at: http://www.hcvnetwork.org

Many unprotected sites are in priority areas for conservation, constituting critical habitat for endemic, rare, or highly migratory species or communities of species. Examples of sites crucial to the life cycle of endemic or endangered species are in the Rift Valley salt lakes, home to flamingoes; reserves in Angola that are habitat for the Giant Sable antelope; and unprotected elements of the Maasai Mara-Serengeti ecosystem that is the stage for one of the last remaining large-scale terrestrial migrations in the world. Whether these critical habitats are deemed no-go zone hinges on the nature of the extraction, the sensitivity of the site, and species disturbed. In the case of areas lying outside protected areas, the likely presence of at-risk communities is important to promotion of partnerships that engage the local community. Here, local populations seeking livelihood opportunities introduced by developing extractive industries may multiply the force of impact on the landscape (see above discussion on indirect impacts), which — though important for conservation — has no legally protected status.

SECTION II – TOOLS FOR PARTNERSHIPS

Elements of effective partnerships include clarity of vision among partners, goals and objectives, partner expectations, activities with demonstrable impact, and measurable milestones. Environmental and social issues are identified up front and stakeholder expectations and sensitive sites are defined at the outset.

A partnership should emerge as early as possible to help shape the plan for an extractive activity. Early identification of and engagement with stakeholders is critical to understand the context, stakeholder dynamics, and sources of leverage.

Partnerships should be based on shared objectives and responsibilities rather than financial considerations. This involves time and dialogue as well as money. Work may be required at multiple levels, including engagement with corporate headquarters, national headquarters, and project offices.

In Entering an Extractive Industries Alliance USAID and Partners Should:

- ✓ Review conclusions from the environmental impact assessment;
- ✓ Understand rules and regulations in place to ensure the protection of the environment
- ✓ Ensure a process that will determine the company has evaluated alternatives to minimize impact
- ✓ Confirm the company has an environmental management system to mitigate environmental impact through closure of the activity
- ✓ Recognize the capacity of the country and regulators to monitor activities during operation and closing, and plan to fill in gaps

The mitigation hierarchy described in Section I A (page 6) provides a framework for addressing environmental impacts. The descending scale of options supports decision-making in managing environmental harm through the practice of avoidance, minimization, mitigation, and compensation. While details of the hierarchy differ for each sector and program, the absence of a mitigation hierarchy framework should be a red flag for impact assessments.

A. DUE DILIGENCE

A due diligence review determines if a partnership strengthens environmental performance consistent with USAID's mission. It examines the past and present environmental and corporate social responsibility record and reputation of a potential partner and looks at a company's motivations and past behavior. Partnering with a company whose environmental record and reputation are poor may sully another partner's reputation and thus compromise political support and funding. Assessing the commitment of a new company is difficult, so to help evaluate a company's commitment to a conservation partnership, it is useful to ask:

- Does the company have an environmental policy and biodiversity strategy?

- Do policies/strategies mention biodiversity, protected areas, and endangered and threatened species?
- Does the company embrace certification schemes that encompass environmental and socio-economic criteria?

Many companies have embraced corporate responsibility and have invested significant resources to project a green image. Concrete action or real commitment supporting a green image, however, may not hold up under scrutiny. Watchdog organizations, like Oilwatch[7] and Greenpeace[8] keep tabs on behavior of extractive industries, and a bad review from them can lead to bad press for the company and its partner agencies. The due diligence review should assess intentions of the extractive industry regarding activities the partnership will carry out together. The more harmful the activities, the more concern should be voiced.

Screening for Environmental and Social Sensitivity

The below course screen provides questions that USAID should ask to determine potential risks before entering into a partnership. Answering positively to any of the below questions calls for additional investigation and stakeholder consultation to determine if activities conflict with conservation or social objectives.

- ✓ Does the proposed project fall in high conservation value areas?
- ✓ Does the project fall within other environmentally vulnerable areas?
- ✓ Does the project propose environmentally risky practices?
- ✓ Is the project located in an area of high natural hazards?
- ✓ Is the project proposed in areas with disadvantaged communities?
- ✓ Is the project proposed in a country with poor governance?

Source: Miranda et al, 2003, "Mining and Critical Ecosystems: Mapping the Risks," World Resource Institute

In entering into a relationship, parties require definition and agreement on terms of the partnership often in the form of a signed memorandum of understanding (MOU) or official protocol. Since MOUs or protocol particulars vary depending on the activity, country, and local conditions, this guide addresses such issues. Section III makes recommendations by industry and industry associations. Such organizations have published the Framework for Responsible Mining,[9] the Energy and Biodiversity Initiative (EBI),[10] and the standards of the forest[11] and marine[12] stewardship councils.

[7] Oilwatch is a network that opposes "the expansion of socially destructive and environmentally damaging oil activity in the tropics." Information on Oilwatch is at: http://www.oilwatch.org/

[8] Greenpeace is "an independent global campaigning organization that acts to change attitudes and behavior, to protect and conserve the environment and to promote peace." Information on Greenpeace International is online at: http://www.greenpeace.org/international/

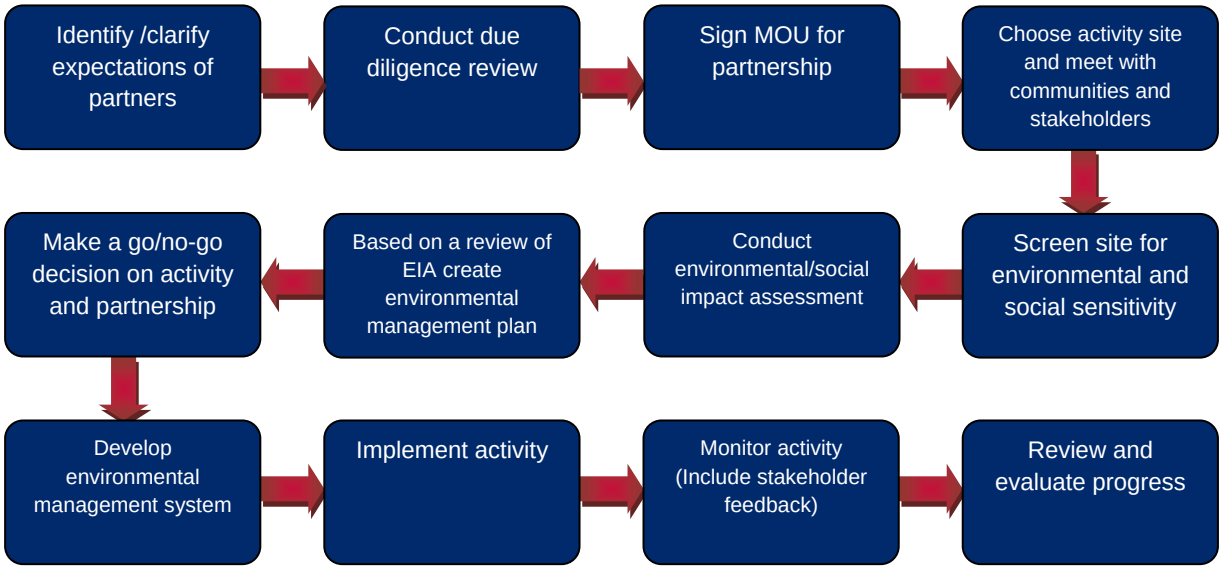
[9] The Framework for Responsible Mining can be found at http://www.frameworkforresponsiblemining.org/docs.html/

[10] EBI documents are available at http://www.theebi.org/products.html/, and include Integrating Biodiversity into Environmental Management Systems, Integrating Biodiversity into Environmental and Social Impact Assessment Processes, the Framework for Integrating Biodiversity into the Site Selection Process, Biodiversity Indicators for Monitoring Impacts and Conservation Actions, and Good Practice in the Prevention and Mitigation of Primary and Secondary Biodiversity Impacts.

[11] The Forest Stewardship Council's principles and criteria for forest management are available at http://www.fscus.org/standards_criteria/

[12] The Marine Stewardship Council's environmental standard for sustainable fishing are available at http://www.msc.org/about-us/standards/msc-environmental-standard

Figure 4 – Steps in Developing an Extractive Industries Conservation Partnership



B. ENVIRONMENTAL IMPACT ASSESSMENTS (EIA)

The environmental impact assessment evaluates the likelihood of a successful partnership. Ideally such an engagement will take place well before performing the EIA so that the assessment is integrated into the partnership. If the EIA is conducted prior, it should be a key element of the due diligence review. An EIA's failure to consider cumulative and potentially cascading impacts of the project raises a red flag.

The EIA documentation should describe the activity, its social and ecological setting, the environmental and social-economic impacts in terms of worst to best case scenario, and measures for avoidance, minimization, mitigation, and compensation. The EIA also describes methodologies used to arrive at results and recommendations. See the boxes at right and on the following page.

An EIA Should Include the Following:

- ✓ Adequate baseline data, especially surface and groundwater resources, as well as biological resources and ecosystem integrity and condition;
- ✓ Environmental costs, including those associated with regulatory oversight, monitoring, reclamation, closures, and post closure monitoring and maintenance;
- ✓ A range of scenarios (including worst case and no-go) and appropriate response strategies, including emergency spill and accident plans;
- ✓ Biodiversity and ecosystem conservation or restoration strategies.
- ✓ Cumulative and indirect impacts resulting from project development, including as a result of infrastructure development and regional development plans.

Source: Miranda et al, 2005, "Framework for Responsible Mining: A Guide to Evolving Standards," WWF and Center for Science in Public Participation

Invariably, EIA legislation requires public participation at stages in the EIA process which provides needed information for decision makers. The non-technical summary should provide sufficient information to form an educated opinion; however, while an EIA report may make recommendations, it is not

prescriptive. The utility of EIA findings and recommendations hinges on the system and process of its execution.

Additionally, it is critical to examine an EIA's procedures and timing and have independent experts vet the assessment. To ensure transparency, an EIA should identify authors of each section and provide contact information for follow-up. The EIA should have technical appendices of further information to allow readers to review and evaluate data on methodology, assumptions, and limitations of the modeling.

Environmental legislation of most African countries requires EIAs of economic activities that may have a significant impact on the environment. Most medium- and large-scale extractive activities within national boundaries meet this criterion. The EIA is not, however, a tool to recommend a given company or partnership. The partnership is formed to perform the impact assessment and implement its recommendations.

Phases of the EIA Process

- ✓ *Project Screening* – Environmental and social sensitivity
- ✓ *Setting the Scope* – The boundary of the EIA and description of project and baseline
- ✓ *Implementation* – Identification of key impacts
- ✓ *Evaluation* – Review of EIA findings and identification of mitigation, avoidance, and compensation measures
- ✓ *Presentation* – Non-technical for public consumption
- ✓ *Review* – By independent experts and public
- ✓ *Decision making* – Go, no-go, or go with conditions
- ✓ *Monitoring* – Implementation and effectiveness of mitigation measures

In most cases, EIA financing is the investor's responsibility. It is common for the business to perform the EIA. This can create a conflict of interest and impinge on objectivity, especially since large mining, oil, and timber corporations are often clients of environmental consulting companies. It is, thus, important for an independent party serve as an external monitor of the EIA process, and that national legislation and EIA regulations contemplate a subsequent independent review. The EIA process is only as valid as an institution is equipped to monitor implementation and apply mitigation and compensation measures. The validity of the EIA, in short, depends on the effectiveness and transparency of environmental governance.

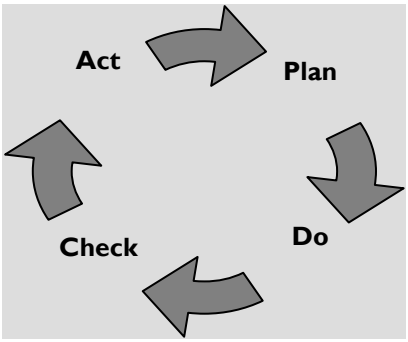
C. ENVIRONMENTAL MANAGEMENT PLANS AND SYSTEMS

The Environmental Management Plan (EMP) can be developed from the EIA's recommendations with reviews and adjustments throughout the life of the project. EMPs also may outline procedures for monitoring impact on species such as changes in turtle nesting, water/soil quality, and other indices of environmental health.

A key element in an extractive industries partnership is an Environmental Management System (EMS) based on the EMP. The EMS improves environmental performance by organizing partnering companies' management structure to encompass a focus on environmental impact. EMS managerial staff identifies and addresses immediate and long-term impacts on the environment from partners' products, services, and processes. The basic components of an effective system consist of the Plan → Do → Check → Act cycle (see Figure 5 below).

An EMS is efficient, flexible, and transparent, and sufficiently resourced to achieve results. Adequate planning and implementation is required to deal explicitly with the tension between project goals (on time and within budget) and environmental and social impacts of the project (ongoing and open-ended). A partnership can produce a management system for environmental and social issues that is accountable to stakeholders, and can address minimization or mitigation of impacts, staff training in social and environmental sensitivity, and implementation of community development plans.

Figure 5 – Basic Components of an EMS



D. MECHANISMS AND MODELS FOR PARTNERSHIPS

USAID and partners can choose from various mechanisms and models to engage extractive industries, depending on resources available, the goals of the parties involved, and the social, economic, and environmental conditions on the ground. Mechanisms are vehicles of authority for the conduct of the partnership, while models detail partnership direction.

D.1 Mechanisms for Partnerships

USAID involvement with extractive industries is either through public-private partnerships or indirect work with funding to a partner organization. Since 2001, USAID has obligated more than US$2.1 billion to about 680 public-private alliances worldwide and leveraged more than US$9 billion in committed contributions from more than 1,700 partners. Annex B lists past and current USAID partnerships with extractive industries.

Mechanisms for partnerships with extractive industries in Africa include:

Global Development Alliance (GDA) – USAID's principal mechanism to forge an alliance is the GDA whereby the private sector partner matches government funding at a ratio of at least 1:1. The partnership supports USAID's priorities, among which is the environment.

Annual Program Statement (APS) – To catalyze partnerships, USAID issues the APS, an open ended call for proposals (USAID 2008) for review according to a set of pre-established criteria. Once approved, USAID and the private sector entity sign a letter of intent or MOU outlining respective commitments and responsibilities. The partnership may entail competition for the provision of services that neither USAID nor the partner company is positioned to deliver. As of now, the competition under the APS is restricted to NGOs, which limits the pool of service providers.

Case Study: Using an Environmental Management Plan to Minimize Biodiversity Impacts in Southern Namibia

Southern Namibia is one of the world's top 25 most biologically diverse hotspots and the world's only arid hotspot. In September 2000, the British mining firm Anglo American announced it would develop the Skorpion zinc mine and refinery near Rosh Pinah in southern Namibia. After Namibia's Ministry of Environment and Tourism voiced concerns for the conservation of biodiversity, Anglo American partnered with the ministry to develop an environmental management plan that addressed biodiversity issues during exploration. The partners worked in conjunction with other stakeholders to form the Rosh Pinah Environmental Forum.

The forum developed an environmental management plan that made its first objective the prevention of harm and protection of biodiversity , highlighting pollution control, reporting, biannual audit commitments, and the design of new tracks to avoid track and drill damage. In addition, field crews were trained to recognize endangered plant species.

The forum's second management objective was to rehabilitate areas where environmental damage was unavoidable. Anglo American hired a full-time four-person team to rehabilitate drill sites and access tracks by leveling/raking disturbed ground and replanting/watering vegetation from surrounding areas. As part of its follow up, the firm held site visits for all stakeholders, conducted biannual audits, and held spot checks. In the end, Namibia's government formally recognized the rehabilitation of affected areas.

Adapted from Good Practice Guidance for Mining and Biodiversity International Council on Mining and Metals, p. 28.

Project-level alliances – Extractive industries join forces with donor-funded efforts to form project-level alliances that provide in-kind support for transport, equipment, technical expertise, or a service in order to achieve shared goals of the project and industry actors.

D.2 Models for Partnerships

The partnership models below illustrate points of commonality between conservation programs and industry interests and can form the frame for a successful partnership. This list of models, however, is neither exhaustive nor mutually exclusive, as some partnerships contain elements of multiple models, or create new models based on the issues at hand.

Models for partnerships with extractive industries in Africa include:

Risk management – Partnerships can help businesses broaden their knowledge for better management of environmental and social risk. By teaming with organizations that operate in a proposed extraction site, the partnership can limit environmental risk and enhance conservation or social development initiatives. This requires engagement with partners during the business planning phase and may include exchange of confidential business information and input to business decision-making. The extraordinary level of trust required at this stage is powerful yet exceedingly difficult to achieve.

Value chain interventions – These partnerships increase sales value and volume of a product by supporting the weak link in a value chain. Interventions tend to be sustainable because it is good for business. For example, an exporter and a timber producer partner with a donor-funded project to improve sustainable timber quality, volume, and delivery time. This model may entail assistance to help small producers uphold certification and international trade standards. This would help small producers gain market access while helping conserve biodiversity. One

successful model used by USAID is called the "anchor" company model whereby a well established company helps disadvantaged suppliers meet market requirements.

Case Study: Flower Valley in South Africa

South Africa's Cape Floral Kingdom is the world's most botanically rich habitat and nearly 70 percent of the plant species there are found nowhere else on Earth. It is home to the heath-like fynbos vegetation, the global record holder for floral diversity. However, the flowers of the fynbos are at great risk from agricultural (e.g., vineyards), urban development, and other threats. Between 1999 and 2002, Fauna and Flora International (FFI) purchased 1,338 ha of globally important fynbos land and the associated flower harvesting operation – Flower Valley Farm, which would have otherwise been developed as vineyards. The Flower Valley Conservation Trust (FVCT) was then established to promote FFI to take on ownership and assess opportunities to link conservation and local economic development through the sustainable use of natural resources.

Starting in 2002, FFI engaged Shell South Africa and Shell to work with FVCT to develop a business model that used Shell's retail stations in South Africa and the UK for flower sales. Shell Foundation contributed US$240,000 to enable FVCT to hire an executive director and purchase farm equipment. In 2003, a new commercial entity, Fynsa, was created to manage commercial operations and sell to investors, leaving FVCT to focus on non-profit activities. The Shell Foundation then assisted Fynsa in developing an innovative partnership with Marks and Spencer (M&S) – as part of the Shell Foundation's Sustainable Communities Programme – to facilitate access to a much larger retail market. The foundation has funded some 20 neighboring farms to meet international labor standards and supply Fynsa with flowers for M&S thereby helping to ensure continued use and protection of the natural flora versus conversion to other agricultural uses.

Management plans are based on available field data, with harvesting rates and patterns dictated by scientific criteria. Surplus income is re-invested in alien species clearance, the purchase of harvested wild flowers from local landowners and farmers, the development of marketing plans, support for micro-enterprise activities based on fynbos products and the creation of an Early Learning Centre and adult education facilities. South African National Parks (SANP) is using the Flower Valley project as a model to support fynbos conservation through the establishment and development of the Greater Agulhas National Park. FFI is building collaborative links with local, national, and international agencies (including the Botanical Society, Kirstenbosch, the Institute for Plant Conservation and WWF) and has formed partnerships with SANP, Cape Nature Conservation and Grootbos Private Nature Reserve.

Co-financing or collaboration – A company may wish to help communities or associations engage in a business venture not directly linked to the company's core business. Improved community relations make the collaboration worthwhile to the company. Development of eco-tourism products inside a protected area or a nearby concession is a case in point. Here a third party such as a tour operator can market the community-operated eco-tourism product. A case study from an example in South Africa is provided above.

Knowledge generation – Extractive industries want to minimize environmental impact and ensure activities have no unforeseen negative impacts that compromise operations. Extractive industries may have significant concession areas they want to manage for conservation purposes. In such cases, a partnership can focus on knowledge generation of the local ecology and socio-economy in tandem with a university, a scholarship program for local youth who would continue their association with the project and the company. Shell, for example, works with the Smithsonian Institute to establish independent biodiversity assessments of their areas of influence. The box on the following page illustrates this partnership.

Case Study: Shell and the Smithsonian in Gabon – Monitoring Biodiversity

The Shell Foundation, through Shell Gabon, has been partnering with the Smithsonian Institution Monitoring and Assessment of Biodiversity Program (SI/MAB) since 2000. This relationship started in Peru when Shell invited SI/MAB to assist in biodiversity assessments concerning Shell's interest in the Camisea gas project in Peru. Shell subsequently withdrew its interest in Camisea, but together with the Gabonese Government are working to better understand biodiversity and its relationship to energy resource development in Gabon.

Shell Gabon manages four separate areas with certified environmental management plans within their concession which is itself located within the Gamba Complex protected area system. SI/MAB has been carrying out long-term biodiversity studies that examine ways to minimize impact of resource extraction and increase understanding of the relationships and dynamics through capacity building, monitoring, and scientific studies and between sustainable development and conservation. Since 2000, the collaboration has resulted in the identification of over 3000 new species (International Petroleum Industry Environmental Conservation Association) and although basic differences in structure and value systems have produced significant challenges from both within the team and outside critics, this groundbreaking initiative highlights a positive possible future for partnerships in the industries.

Community development – Developing and implementing a plan for community development makes it necessary for a company to seek out partnerships to fill its knowledge and skill gaps. Establishing a community development plan helps companies to compensate communities for costs incurred from an extractive activity (e.g., displacement or pollution), or to meet corporate social responsibility objectives via health, economic, or educational programs.

Biodiversity offsets – Developing countries need the financial resources derived from extractive industries. The industry depends on natural resources and often has environmental impacts that are residual and unavoidable — impacts that remain despite all measures to mitigate or remediate. In the past no viable alternative to negative impact existed. One new action is the "offset" of unavoidable negative impact. A biodiversity offset compensates damage done in one place with actions to conserve an area of equal or superior biodiversity value; the new concept has yet to gain wide acceptance. The conservation community, among others (WWF 2006), has concerns about what biodiversity offsets should be and do, including:

- Do offsets actually result in "net biodiversity gains"?
- Are conservation actions truly additional (would not have occurred without the offset)?
- Are offsets considered only after all efforts have been exhausted to avoid and minimize impacts to biodiversity and livelihoods?
- Offsets are not acceptable when unique "un-tradeable" biodiversity values are at stake.

Implementation of a biodiversity offset is complex involving questions on biodiversity, finances, community relations, conservation actions, and benefit sharing. A partnership with an extractive industry can answer some of these questions and help design a pilot biodiversity offset program.

Conservation funds and financing mechanisms – Extractive industries, particularly mining, and oil and gas, are experiencing an extremely profitable period, but are also coming under increased scrutiny by investors and civil society because of undeniable and unavoidable negative impacts on the environment. The moment is opportune to partner with extractive industries to address the

Achilles heel of biodiversity conservation: sustainable financing. This can be accomplished with the establishment of conservation trust funds (CTF) to cover basic conservation costs such as protection, infrastructure, and monitoring. Partnerships with extractive industries may involve the establishment of CTF funds whereby the donor funds its design and the extractive industry capitalizes it. One such system for organizing biodiversity payments for businesses is the USAID-supported Business and Biodiversity Offset Program (BBOP) discussed below.

Business and Biodiversity Offset Program (BBOP)

The Business and Biodiversity Offset Program (BBOP) is a USAID-supported partnership between companies, governments, and conservation experts to explore biodiversity offsets.

Through a number of pilots in a range of industry sectors, BBOP hopes to demonstrate that biodiversity offsets can help achieve cost-effective conservation outcomes alongside infrastructure and economic development. BBOP also hopes that by undertaking a "no net loss" of biodiversity approach, companies can better secure their operation license as well as help better manage costs and liabilities.

"Our vision and expectation is that biodiversity offsets will become a standard part of business practice for those companies with a significant impact on biodiversity. The routine mainstreaming of biodiversity offsets into development practice will result in long-term and globally significant conservation outcomes."

For more information on the BBOP program, as well as references for biodiversity offsets, visit the BBOP Web site at: *http://www.forest-trends.org/biodiversityoffsetprogram/*

Payment for environmental services – The design of a payment-for-environmental-services (PES) scheme can be complex, involving setting costs of conservation actions, designing a benefit-sharing scheme, financial management systems, resource allocation quotas, monitoring system, community-based natural resources management programs, and a compensation scheme. A PES scheme can be the central axis of a partnership with an extractive industry. For example, some types of mining require vast amounts of water and it is in the interest of mining companies to ensure water supply and avoid conflicts with communities if water shortages result for other users. By paying for the environmental service of the water, the mining company can compensate communities for their diminished supply and provide additional revenue streams for community development. PES is a quickly growing movement, and organizations such as The Katoomba Groups promote networking and capacity building among PES practitioners.[13]

[13] The Katoomba Goup is an international network dedicated to promoting markets and payments for ecosystem services. More information on the Katoomba Group and PES is available online at: http://www.katoombagroup.org/

SECTION III – EXTRACTIVE INDUSTRY SECTOR ACTORS AND ORGANIZATIONS

In examining the potential for USAID involvement in the extractive industry sector, it is critical to know the sector's organization, its types of businesses, and associations. Section IV – Industry Specific Issues and Analysis details major companies, institutions, and organizations.

A. EXTRACTIVE INDUSTRY SECTOR

Multinational companies operating in Africa often have corporate responsibility or community relations unit, sometimes, unfortunately consisting of only a single individual.

Extractive industries' in-country offices generally do not usually have a budget line item for environmental programs beyond basic environmental compliance or community relations. If the local office decides to participate in an environment-focused alliance, it may need to secure funding from other divisions. This is ultimately a business decision. The local office may be constrained by the nature of its contractual relationship with the national government. For example, if investment in the environment detracts from the bottom line of a production sharing agreement (PSA), the multinational may need concurrence from its government partner before programming funds applied outside of its core business.

Whereas local offices tend to focus on issues in the immediate vicinity of their operations, headquarters often have a more global vision. Local offices want to avoid immediate problems and maintain good relations with communities and government entities; at headquarters, the concern is the company image worldwide, stockholder pressures, and long term vitality. It is common for companies to have a corporate responsibility program with a budget line item for the environment. Given that the scope is global, headquarters may be more flexible about the location and topics in which they invest. Thus, if the proposed activity giving rise to the alliance is in the vicinity of in-country operations, there is a greater likelihood that the local office or subsidiary will participate. If the alliance's focus is not linked to the extractive activity in the country but rather to the sector as a whole, approaching the corporate responsibility department at headquarters may be more fruitful.

B. ORGANIZATIONS AND ASSOCIATIONS

Many companies — including extractive industries — have publicized the sustainability of their actions, their carbon footprint, and the environmental and social benefits of their work, whether for corporate social responsibility, an environmental ethic, or for marketing. The extent to which standards are adhered to and practices are sustainable or environmentally friendly may vary widely depending on the company, location, and the terminology used. There are key questions to help gauge organizational commitment to such claims:

- Does the company have an environmental code of conduct or mission statement?
- Do senior staff and company publications routinely address environmental concerns?

- Does the company track and report against environmental indicators?
- Is this information publicly available?

While these questions may be a good indicator of commitment to conservation, they may be subjective and difficult for potential partners to confirm reliability of claims. The advent of grades and standards, however, through certification systems and industry associations, has helped set norms to assure consumers of the validity of "green" claims. This makes it possible for consumers to support practices (e.g., sustainably harvested products) and for producers to gauge willingness to pay a premium for products produced at higher costs.

B.1 Certification Organizations

Certifications are normally administered by international third party organizations through a set of requirements and monitoring and evaluation systems to confirm compliance. By certifying a product, these organizations provide sustainable production guidelines to industries and assure consumers that resources are extracted in sustainable and environmentally conscious ways.

Examples of certifications relative to extractive industry activities include:

The International Standards Organization 14001 series (ISO14001) certifies that a given operational unit adheres to an approved environmental management system (EMS). The ISO14000 certification does not specify environmental performance standards; it does, however, ensure that the environmental management system continuously improves the unit's performance. With no benchmarks or targets for improvement, ISO 14001 certification simply means that the company is meeting its commitments to improve on an environmental front. A key element is the environmental policy document that demonstrates high-level commitment to the implementation of the EMS. www.iso.org

The Marine Stewardship Council (MSC) is an independent, global, non-profit organization working with fisheries, seafood companies, scientists, conservation groups and the public to recognize, via a certification program, well managed fisheries. Through eco-labeling, the MSC's fishery certification program rewards commercial actors in the sector who employ sustainable fishing practices. www.msc.org

The Forestry Stewardship Council (FSC) is an international NGO whose standards have become the premier sustainable forest management certification. See the Forestry Stewardship Council Principles on page 27. No other forest certification scheme is so widely applied as FSC. www.fsc.org

The Program for Endorsement of Forest Certification schemes (PEFC) is a membership-based global umbrella organization that provides a mutual recognition framework for national forest certification systems. The presence of a PEFC-endorsed system in the country indicates a level of good environmental governance. www.pefc.org

Forestry Stewardship Council Principles

1. Compliance With Laws And FSC Principles: Forest management shall respect all applicable laws of the country in which they occur, and international treaties and agreements to which the country is a signatory, and comply with all FSC principles and criteria.

2. Tenure and Use Rights and Responsibilities: Long-term tenure and use rights to the land and forest resources shall be clearly defined, documented, and legally established.

3. Indigenous Peoples' Rights: The legal and customary rights of indigenous peoples to own, use, and manage their lands, territories, and resources shall be recognized and respected.

4. Community Relations and Worker's Rights: Forest management operations shall maintain or enhance the long-term social and economic well-being of forest workers and local communities.

5. Benefits from The Forest: Forest management operations shall encourage the efficient use of the forest's multiple products and services to ensure economic viability and a wide range of environmental and social benefits.

6. Environmental Impact: Forest management shall conserve biological diversity and its associated values, water resources, soils, and unique and fragile ecosystems and landscapes, and, by so doing, maintain the ecological functions and the integrity of the forest.

7. Management Plan: A management plan — appropriate to the scale and intensity of the operations — shall be written, implemented, and kept up to date.

8. Monitoring and Assessment: Monitoring shall be conducted — appropriate to the scale and intensity of forest management — to assess the condition of the forest, yields of forest products, chain of custody, management activities, and their social and environmental impacts.

9. Maintenance of High Conservation-Value Forests: Management activities in high conservation-value forests shall maintain or enhance the attributes which define such forests. Decisions regarding high conservation-value forests shall always be considered in the context of a precautionary approach.

10. Plantations: Plantations shall be planned and managed in accordance with Principles and Criteria 1-9. While plantations can provide an array of social and economic benefits, and can contribute to satisfying the world's needs for forest products, they should complement the management of, reduce pressures on, and promote the restoration and conservation of natural forests.

For more information visit the FSC Web site at: www.fsc.org

B.2 Industry Associations

Membership in industry associations, councils, or other bodies can be another way for producers to demonstrate good environmental stewardship practices, where group members share common visions and objectives and often agree to follow best practices. While these associations do not hold members to the same level of scrutiny and adherence as certifying organizations, they can act as a way for concerned producers to assure consumers of sustainable practices. These associations can also help diffuse public pressure by finding voluntary solutions to environmental problems.

Membership in a proclaimed pro-environment or sustainable development council/ association/group, however, is no guarantee that a company takes such responsibilities seriously. A company may join others to circumvent and counteract criticisms from pro-environment organizations and civil society, or may have better environmental practices in one area than in another. For example, until 2002, many companies that are now members of the World Business Council for Sustainable Development — and proclaim to be environmentally responsible — were also members of the Global Climate Coalition (GCC), one of the most outspoken and confrontational industry groups in the United States battling reductions in greenhouse gas emissions. Oftentimes conservation organizations find guidelines proposed by these associations inadequate for purported conservation objectives.

Association membership, nevertheless, is a good way to show a company's commitment to conservation, and can provide valuable information and guidance to members. Examples of associations related to extractive industry activities include:

The International Petroleum Industry Environmental Conservation Association (IPIECA) represents the oil and gas industry on key global environmental and social issues and is a communication channel for a dialogue with the United Nations. Its vision is an oil and gas industry that successfully improves its operations and products to meet society's expectations for environmental and social performance. www.ipieca.org

The World Business Council for Sustainable Development (WBCSD) is a CEO-led, global association of some 200 companies dealing exclusively with business and sustainable development. Its mission is to provide business leadership as a catalyst for change toward sustainable development and to support the business license to operate, innovate, and grow in a world increasingly shaped by sustainable development issues. www.wbcsd.org

International Council on Mining and Metals (ICMM) is a CEO-led industry group that addresses key priorities and emerging issues. ICMM provides a platform for industry and key stakeholders to share challenges and develop solutions based on sound science and principles of sustainable development. www.icmm.com

Another important example is that of the Equator Principles Financial Institutions, discussed in Section V, page 63, where standards not necessarily related to extractive industries can attest to responsible social and environmental practices of the beneficiary to green financing. www.equator-principles.com

SECTION IV – INDUSTRY SPECIFIC ISSUES AND ANALYSIS

Activities in Africa of four extractive industry sectors — mining, oil and gas, logging, and fishing — have potential impacts on the environment that are highlighted here. Each subsection contains best practices that first examine partnerships and present options, eco-friendly methods, and key issues to consider when planning. Section II – Tools for Partnerships, page 16, addresses best practices and tools that apply to all industries.

A. MINING ACTORS AND INDUSTRY STRUCTURE

Three major mining companies operate in Africa: Anglo American (AA), BHP Billiton (BHP), and Rio Tinto (AA).

Anglo American is a mining conglomerate headquartered in England that extracts platinum, diamonds, coal, base metals, industrial minerals, ferrous metals, and gold largely from Southern Africa. Debeers, a member of the AA conglomerate, controls 69 percent of the production and sale of diamonds in association with the Central Selling Organization. It is the biggest mining conglomerate operating in Africa and it controls the lion's share of the market for platinum, manganese, diamonds, gold, and coal sourced from southern Africa. Its subsidiary, Anglo Platinum Limited, is the world's largest producer of all platinum family metals (platinum, palladium, rhodium, ruthenium, iridium and osmium), accounting for 37 percent of global supply. Anglo Platinum is a vertically integrated company that mines, processes, refines, and markets South African platinum products, which comprise 50 percent of the global supply of this scarce resource (Anglo American 2008). www.angloamerican.co.uk/

BHP Billiton is another large mining conglomerate operating in Africa employing more than 39,000 employees in 100 different operations across 20 countries. Generically BHP specializes in aluminum products, metals, coal, manganese, diamonds, iron, petroleum and stainless steel materials (BHP Billiton (d) 2008) with production facilities concentrated in South Africa and Mozambique; these include three aluminum smelters, one heavy minerals mine and smelter, one coal energy subsidiary, five collieries, and a manganese metal company (BHP Billiton (a) 2008, BHP Billiton (b) 2008, BHP Billiton (c) 2008). www.bhpbilliton.com

BHP has committed to spending one percent of pre-tax profits, on a rolling three-year average, on voluntary community programs, and an additional $3.5 million for research and development in biodiversity conservation. BHP Billiton is developing a biodiversity assessment tool for site managers to analyze biodiversity risk from mining operations. BHP Billiton is working with Proteus Partners (a partnership between the World Conservation Monitoring Center and the United Nations Environment Program) to redevelop the global database of protected areas. BHP Billiton's corporate responsibility program includes the commitment not to mine in World Heritage sites and to minimize impacts from mines adjacent to World Heritage sites, offsetting unavoidable biodiversity losses, and supporting community-based conservation and ecotourism projects. BHP Billiton's formal affiliations with organizations and associations include the Initiative for Responsible Mining, Council for Responsible Jewelry Practices, Copper Stewardship Council, European Union Chemical Policy (REACH), and Greenlead, indicates a

firm commitment to biodiversity conservation and environmental best practices (BHP Billiton 2007).

The final major player in sub-Saharan Africa mineral extractive industries is Rio Tinto, an international mining group headquartered in London, comprised of Rio Tinto Plc and Rio Tinto Limited. The mining group consists of wholly and partly owned subsidiaries, jointly controlled assets, jointly controlled entities, and associated companies (Rio Tinto (b) 2008). In Africa, Rio Tinto is active in Guinea, Namibia, Zimbabwe, South Africa, Madagascar, Ghana, and Cameroon to produce iron, uranium, diamonds, copper, titanium dioxide, and aluminum (Rio Tinto (c) 2008). In terms of global mineral production, mines of particular note include the Rossing Uranium Mine and the QIT Madagascar titanium dioxide/ilemite mine. www.riotinto.com

Integration of biodiversity conservation strategies in Rio Tinto's operational plans includes site exclusion principles, development of a Biodiversity Value Assessment Protocol, and conservation mapping. Site exclusion principles commit Rio Tinto to not developing mining projects within a 10 kilometer radius of Birdlife International Important Bird Areas, Alliance for Zero Extinction conservation sites, important flora sites, Natura 2000 sites, and nationally or state recognized ecological communities or critical habitats. In 2007, Rio Tinto assessed 73 operations for land use planning and biodiversity conservation using the Biodiversity Value Assessment Protocol. This planning tool analyzes the 1) land in proximity to biodiverse areas; 2) species of conservation significance; 3) additional site specific context; and 4) external conservation context. Rio Tinto also created a biodiversity monograph to delineate biodiversity found in Madagascar's Littoral Forest (Rio Tinto (a) 2008).

Although most public-private partnerships with mineral extraction companies in Africa include one of the three big conglomerates described above, there are several other players: COGEMA Resources Incorporated for uranium mining in Niger; Alcoa for bauxite production in Ghana, Guinea, and South Africa; DuPont for titanium extraction in Zimbabwe and South Africa; DeBeers and its subsidiaries for diamonds in South Africa, Namibia, and Botswana; the Société Minière De Bakwanga (MIBA) for diamonds in the Democratic Republic of Congo; and Geovic Limited for cobalt in Cameroon.

Several initiatives with global mining companies are underway to improve, or guarantee good environmental and social performance, which offer potential points of entry for USAID partnerships, including the "No Dirty Gold Campaign," the Council for Responsible Jewelry Practices, and the Global Mining Initiative. The No Dirty Gold Campaign targets 7 of the 10 largest jewelry retailers to ensure the sale of gold products in a manner that respects human rights and the environment (Earthworks 2008). The Council for Responsible Jewelry Practices has a similar objective with the net goal to reinforce confidence in the gold and diamond supply chain (Council for Responsible Jewelry Practices 2008). And the Global Mining Initiative was a mining and metals industry sponsored program active from 1999 to 2002 that sought to develop a sustainable development model to improve the sector's economic, social, and environmental performance. The diamond mining sector also has significant alliances that are platforms for industry best practices, although they explicitly lack biodiversity conservation or environmental

protection criteria. These alliances include the Kimberly Process Certification Scheme, World Diamond Council and the Extractive Industries Transparency Initiative.

While the mining industry primarily focuses on large-scale development, considerable volumes of minerals in Africa are extracted by artisanal and small-scale mining. Artisanal mining is practiced by individuals, groups, families, or cooperatives, using simple, un-mechanized tools and equipment, and usually occurring outside the legal and regulatory framework. Most African artisanal miners excavate gold because it is easy to extract, refine, and transport. In Ghana, gold accounts for two thirds of total artisan and small-scale production, however, artisanal miners also produce about 65 percent of Ghana's diamond production.

Preventing or mitigating the impact of small-scale mining on biodiversity tends to be difficult due to the lack of organized operations and regulatory oversight. Artisan mining's most substantial impacts on biodiversity include production of garbage and solid waste, mercury and cyanide pollution, direct dumping of effluents into rivers, deforestation and landscape destruction, and erosion damage. The indirect impacts of artisanal mining can be quite severe as well, with large populations arriving in the event of newly discovered deposits. In one example in southeastern Mali, near the border with Côte d'Ivoire, thousands of artisanal mine shafts were dug for gold, with tailings covering the landscape. In two years, a town of more than 30,000 people sprang up in what was a formally uninhabited zone (BATS 2008).

The Communities and Small-Scale Mining (CASM) Initiative is a global networking and coordination facility with a stated mission to "to reduce poverty by improving the environmental, social, and economic performance of artisanal and small-scale mining in developing countries." www.artisanalmining.org

A.1 Mining Issues and Impacts

World mineral exploration and development has increased for five consecutive years. According to the Metals Economics Group, investment in nonferrous metals exploration reached $10.5 billion in 2007, double the level reached in 1997, and gold exploration continued to attract a significant portion of this expenditure. Of the total, Africa received 16 percent, behind Latin America and Canada (www.metalseconomics.com), and accounts for a significant share of global production of metals and non-fuel minerals, with South Africa and Guinea playing a major role in gold and bauxite production respectively. With high metal prices and increased demand from Asia, especially from China, this exploration activity is likely to result in new mining development in the region. Over the past few decades large-scale mining has expanded rapidly to the most remote and biologically rich areas of the globe. While corporate behavior with respect to the environment has improved, mining activities located in environmentally sensitive areas have the potential of greatly reducing biodiversity.

The scale of the operation is a major determinant of the severity of the environmental impact of a mining activity. The larger the scale of the mining operation, the greater the use of natural resources such as energy and water, and the greater the generation of waste there will be (Sweeting and Clark 2000). Additionally, the proportion of water consumption, energy, and waste generation, hinges on factors such as extraction method (e.g. open pit; underground;

alluvium sifting), mineral types, and, as indicated above, location. Large-scale operations, however, may be easier to manage than artisanal mining sites, as they have a centralized authority, significant infrastructure investment, can employ high-tech and responsible techniques, and are interested in a long-term arrangement in the country.

Mineral exploration begins with geologic reconnaissance and geochemical and geologic sampling. These stages may be relatively benign provided no access routes are opened. In the final stages of exploration drill rigs may be needed and access tunnels built. At this stage significant surface disturbance can take place, and more often than not the movement of drill rigs requires the opening of access routes, which greatly increases the vulnerability of biodiverse areas. The exploration stage of mining generally receives the least scrutiny from government agencies, NGOs, and the public. The Prospectors and Development Association of Canada (PDAC) has developed an Internet-based toolkit called "Environmental Excellence in Exploration" (e^3), which offers guidelines and examples for environmental and social responsibility in the minerals industry.[14]

Mining activities may be categorized into four broad classes: 1) underground mining; 2) open pit mining; 3) large-scale alluvial deposit mining; and 4) artisanal mining, usually of diamonds or gold in alluvial deposits.

Underground mining entails the construction of underground access tunnels used to reach the mineral lode. Because it is conducted underground and does not involve the removal of the overburden to access the mineral-rich strata, it produces less waste than open pit mining. Underground mining also occupies less surface area and entails fewer disturbances to plant and animal life than either alluvial deposit or open pit mining. Still, underground mining has serious environmental impacts such as the generation of mine tailings and associated impacts, water and energy consumption.

Open pit mining generates large areas of disturbance. To get at the target mineral, it is necessary to remove the rock and regolith (sediments) that overlie the lodes. This overburden, when removed, is piled in the vicinity of the mine, covering large areas and creating a source of sediments that may block naturally occurring surface drainages, and wash into rivers, lakes, and lagoons. The open pit from which the mineral is extracted continues to grow deeper and wider as the mining operation progresses, and if deep enough there is a danger that it could contaminate the water table. Open pit mining also requires the use of large earth moving machinery (trucks, excavators) that, in turn, requires access routes to arrive at the mine site. In addition to the noise and dust generated by earth moving and excavation machinery, open pit mining exacerbates both of these impacts by using dynamite to loosen rock.

Closely related to open pit mining is wet dredging of surficial deposits such as rutile in Sierra Leone using dredges and dredge ponds. In this case water is used to mobilize the ore. Permanent impoundments are left behind in lieu of recoverable land, and pose public health risks in the form of water-borne diseases as well as public safety risks such as dam and embankment failure resulting in flooding.

[14] The toolkit can be accessed on-line with a free registration at http://www.e3mining.com/

Alluvial deposit mining in Africa is used primarily for diamond and gold mining. In the case of diamonds, the process involves digging and sifting through mud, sand, and gravel to extract the target mineral. When conducted on abandoned alluvial terraces and alluvial plains, the sifting of the alluvial deposit may entail the removal of the overburden with considerable disturbance to plant and animal life, as well as modification of surface drainage patterns. More often, however, large-scale alluvial diamond mining is conducted on fresh river side and channel deposits. In this case the entire river or stream is diverted into an artificial channel and heavy machinery is used to move the alluvium. The sifting is aided by the use of vast amounts of water sprayed under high pressure that washes away the finer sediments leaving the gravel and precious stones on sieves. The washed sediments are usually washed into adjoining rivers and streams causing local and downstream siltation impacts. Alluvial mining is widespread in Angola with serious detrimental impact on gallery forests, rivers, and streams.

Artisanal mining is usually conducted by large numbers of people that dig pits in alluvial deposits. The sifting of the alluvium for diamonds is done using shovels, hand-held sieves, or even bare hands. Because this guide mainly concerns itself with alliances with corporations, the discussion of small-scale mining by artisans is limited. However, it should be noted that where artisanal mining is associated with a particular mining company's operation/vicinity, it may have negative reputational connotations especially where mining accidents are associated with operations. The International Finance Corporation (IFC) is particularly stringent on this activity as part of the Environmental and Social Impact Assessment (ESIA) process.

The degree of environmental impact of a mining operation is linked with the characteristics of the target mineral. In the case of industrial minerals such as rocks, clay, and sands, the major impacts are due to the large amounts of material extracted and the fact that these activities take place in open quarries or adjacent to river channels. Downstream impacts are primarily due to increased sediment loads and the alteration of drainage patterns. Generally, chemical contamination is not a concern. The same may be said of diamond mining since no chemicals are used to separate the target mineral from sediments or rock, although some waste material associated with kimberlite mines may produce natural acid drainage. Other minerals, however, create conditions and chemicals that can be highly toxic to humans and the environment.

Currently there is no economically viable alternative to cyanide to separate gold from sediments. In the environment, cyanide is highly toxic to fish, mammals, birds, and other forms of oxygen breathing life such as aquatic plants and certain bacteria. Cyanide is used in gold mining because it combines with gold in aqueous solution to form a stable compound which is then separated from the other minerals. The leached ore is then moved to tailing piles from which, if not properly designed, constructed and maintained, contaminated water may leach into rivers, streams, and ground water. In arid areas, cyanide-containing dust may emanate from mine tailings.

Because of the danger posed by cyanide compounds to humans and other organisms, a multi-stakeholder Steering Committee under the guidance of the United Nations Environmental Program (UNEP) and the then-International Council on Metals and the Environment (ICME) developed the International Cyanide Management Code. The code is an industry voluntary program for gold mining companies. It focuses exclusively on the safe use, transportation, and

overall management of cyanide used in gold mining. Companies that adopt the code must have mining operations that use cyanide to recover gold audited by an independent third party to determine the status of code implementation.[15] To date, 34 mining cyanide producers and transporters are signatories to the code. It is highly recommended that USAID require compliance with the cyanide code as a condition for entering into an alliance with gold mining companies.

Coal and metal mining may generate acidic discharges from pyrite or other metal sulfides. As water drains from these operations, it becomes acidic as the sulfide minerals react with water and oxidize. This discharge is known as acid mine drainage (AMD). AMD poses a serious threat to the environment, particularly surface water bodies when dissolved sulfides precipitate and form a substance of oxidized iron precipitates known as "yellow boy," which can discolor water and disrupt aquatic ecosystems. Problems caused by AMD are likely to be more common in areas of high precipitation, where soils tend to be acidic and there is an abundance of rainfall to leach mine tailings and transport toxic substances to rivers and streams. It is of utmost importance to be cognizant of the geochemistry of the mine site and its spatial and topographic relationship to surface and ground water. The environmental impact of poor AMD management can be catastrophic to animals, plants, and people, but according to Akcil and Koldas (2005), can be minimized with strategies at three major points: 1) prevention of the acid-generating process, 2) deployment of acid drainage migration prevention measures, and 3) collection and treatment of effluent.

Mining can produce serious air pollution through either dust from mine tailings and waste piles, or emissions from mineral extraction or processing. Air-borne dust from mine tailings and waste piles have serious environmental impacts, with improperly stabilized tailings and waste dumps releasing not only dust but also highly toxic substances. Air pollution tends to have serious environmental and health impacts that reach well beyond the mining facilities. Its severity depends on the composition of the ore, processing methods, and mitigation measures.

Throughout the life cycle of a mining project, activities affect biodiversity both directly and indirectly. Indirect impacts are usually less readily identified. For example, mining-related infrastructure — such as roads, railways, pipelines, and power lines — attract people either looking for mining work or intending to take advantage of flow-on economic benefits from mining activity. Large-scale biodiversity loss occurs as these people clear land for settlement/farming and pressures increase on local resources as they hunt/poach threatened species, gather wood for fuel, graze their domestic livestock, and litter. Key biodiversity impacts at the main project stages are summarized in the table on the following page.

Direct impacts on biodiversity from mining infrastructure come from power generation facilities at some distance from the mine site, corridors for power, water, goods and people. These factors likewise contribute to environmental and social impacts.

[15] Information on the International Cyanide Management Code For The Manufacture, Transport and Use of Cyanide In The Production of Gold (Cyanide Code) can be found at: http://www.cyanidecode.org

MINING LIFECYCLE PHASE	POTENTIAL IMPACT ON BIODIVERSITY
Exploration	
• Geophysical/ airborne surveying • Drilling/trenching • Blasting trenches • Developing camps during exploration • Building roads	• Habitat lost or fragmented • Species lost • Suspended sediment in surface water increased due to runoff of sediments • Breeding/calving seasons of marine animals disturbed or disrupted; local communities disturbed • Demand for local water resources increased • Fuels and other contaminants spilled • Human colonization increased due to road development
Site Preparation/Mineral Extraction	
• Constructing mines (removing vegetation, stripping soils, etc.) • Developing mine infrastructure (power lines, roads, , dams, rail lines, ports, etc.) • Constructing plants, offices, and other buildings • Building mine camps • Creating waste rock piles • Creating low- and high-grade ore stockpiles • Blasting to release ores • Transporting ore to crushers for processing	• Habitat lost or fragmented • Surface and ground water contaminated by chemicals • Populations of plant/animal species decreased • Terrestrial and aquatic plants and animals exposed to toxic substances • Landscapes altered • Demand for utilities increased • Erosion and siltation increased • Dust/fumes created by explosives • Human colonization increased due to road development • Species lost due to illegal and unsustainable bushmeat hunting for commercial trade
Processing/Smelting	
• Milling/grinding ore • Leaching/concentrating ore using chemicals • Smelting/refining ore	• Chemicals and other waste discharged in surface waters • Sulfur dioxide and heavy metals released • Demand for electrical power increased
• Transport to Final Markets	
• Packaging/loading final product • Transporting product	• Disturbing noise created • Dust/fumes created from stockpiles
• Mine Closure/Post Operation	
• Reseeding and replanting vegetation • Re-contouring waste piles/pit walls • Fencing dangerous areas • Monitoring seepage	• Persistent contaminants released into surface and ground water • Expensive, long-term water treatment required • Organisms exposed to persistent toxicity • Original vegetation/biodiversity lost • Pits/shafts that pose hazards abandoned • Windborne dust created

Adapted from *Mining and Critical Ecosystems: Mapping the Risks*, World Resource Institute, 2003

A.2 Mining Best Practices

With large infrastructure requirements, the use of heavy machinery, and the release of toxic chemicals, large-scale mining has the potential to create enormous impacts on the landscape. These impacts may be mitigated or prevented with careful planning and adherence to environmental management systems. While mining companies have an important role to play in ensuring their activities are environmentally sustainable, governments — national, regional, and

local — must also create a legislative and regulatory framework that requires, supports, and enforces responsible practices.

Mining Partnerships – Partnerships between environment and development organizations and extractive industries will be most effective working at the upper end of the mitigation hierarchy (avoid, minimize, see Section I A on page 6) in the prevention of biodiversity loss through cooperation in the initial planning stages. This would involve the unification of knowledge of ecosystem services, infrastructure requirements, and mineral, biological, and cultural resources with a view to developing strategies that balance economic benefit with environmental protection and social safeguards. Where harm is unavoidable, partnerships may organize satisfactory offsets and, in some cases, advise on ecological restoration. Management of direct disturbance (acid mine drainage, tailings, pits, etc.) and restoration is the responsibility of the mine operator and generally speaking should not be left to partners.

Before deciding to enter into an alliance with a mining company, USAID and partners should: review the conclusions from the EIA, the long-term impact after mining ceases, and how the EIA and mitigation system works within the country. Since the EIA consultant may not focus on biodiversity and may rate such impact low in comparison to other priorities such as water shortage, specialized studies incorporated into the EIA may require review to provide a more accurate examination. Potential partners should also review the environmental management plans to assess how impacts will be mitigated on site.

Working with Governments to Create Comprehensive Environmental Regulations – Governments can produce legislation that clearly identifies actions to uphold environmental standards. Legislation can require mining companies to conduct formal environmental impact assessments and to protect endangered species. Laws can also limit mine discharges into waterways or regulate emission of toxic gases and dusts from mining and refining operations. Effective legislation requires a monitoring and enforcement program to ensure compliance and delineates transparently which agencies have jurisdiction.

Working with the Government to Develop Long-Term Land Use Plans – Governments should produce strategic long-term land use plans that consider geological, ecological, and cultural priorities for specific regions and for the country as a whole. Working with key stakeholders — including companies and communities — governments should identify environmentally sensitive areas as part of these plans.

Use an Environmental Management System (EMS) – Measures that private companies can take to prevent or minimize environmental impacts include using an EMS, environmental assessments, employee training, and ecosystem rehabilitation. An EMS framework enables a company to incorporate environmental concerns into its day-to-day operations by (1) integrating concern for biodiversity into its environmental policy; (2) documenting and assessing local biodiversity before and during project activities; (3) identifying and assessing risks to biodiversity; and (4) monitoring, measuring, and reporting performance on biodiversity management.

Ensure employee familiarity with environmental practices – Companies should provide training and ensure their employees are familiar with environmentally sound business techniques, the

company's environmental targets, and policies aimed at limiting damaging behavior such as hunting or land clearing.

Produce a rehabilitation plan – Companies should produce a rehabilitation plan (generally carried out during decommissioning) that describes the activities necessary to return mined land to agreed post-closure uses. The plan should take into account pre-mining and post-mining landforms, soils, characteristics of remaining waste materials, hydrology, land uses, biodiversity characteristics, pre-mining surveys, and data from established monitoring sites.

Important Mining Resources

Biodiversity Offsets: A Briefing Paper. 2005. This paper — by the International Council on Mining and Metals — highlights the key elements of the current debate on biodiversity offsets. Available at: http://www.icmm.com/library_pub_detail.php?rcd=186

Environmental Excellence in Exploration (e3). E^3 is an online toolkit developed by the Prospectors and Developers Association of Canada. The toolkit provides examples of environmentally and socially responsible best practices for the mining industry. Available at: http://www.e3mining.com

Good Practices Guidance for Mining and Biodiversity. 2006. This booklet is authored by the International Council on Mining and Metals. It offers guidance on managing biodiversity at various operational stages. In addition, the document describes the application of systems, tools, and processes that integrate mining and biodiversity conservation. Available at: http://www.icmm.com/library_pub_detail.php?rcd=195.

Lightening the Lode: A Guide to Responsible Large-Scale Mining. 2000. This publication — by Conservation International — includes tools governments can use to promote a responsible mining sector. It reviews the potential negative effects of large-scale metal mining on sensitive environments and cultures, and a range of technologies, practices, and strategic approaches for minimizing these impacts and increasing the positive contribution of mineral development to conservation and community development. Available at: http://www.celb.org/ImageCache/CELB/content/energy_2dmining/lode_2epdf/v1/lode.pdf

B. OIL AND GAS ACTORS AND INDUSTRY STRUCTURE

An exclusive group of large multinational companies controls production, manufacture, distribution, and sale of oil and gas commodities internationally (Ridgeway 2004). The four major groupings of oil and gas companies internationally are major oil companies, minor oil companies, state-owned oil companies, and joint stock companies.

Major companies, or holding corporations, are vertically integrated companies involved in all aspects of the oil industry from production to marketing to retail. Typically they are umbrella corporations that unite subsidiaries, and semi-independent units of the larger parent company. Presently the three major oil companies are Exxon-Mobil, Beyond Petroleum (previously British Petroleum), and Royal Dutch Shell, all of which have an operational presence in Africa (Falola and Genova 2005).

Minor oil companies, or independent marketers, tend to work on a smaller scale and focus on the marketing of petroleum products. They often purchase surplus oil from independent refiners or

multinational companies and market it to local or regional consumers. Examples of minor oil companies include Chevron Texaco, ENI, and TotalFinaElf, all of which have a large retail presence in Africa. Through its partial control of the Doba oil fields in Chad and the Chad-Cameroonian Pipeline, TotalFinaElf holds a sizeable production interest in Africa (Falola and Genova 2005).

The third oil company structure is a state-owned business, which tends to be joint ventures between the national government and a multinational company, with the multinational company selling the oil on the international market in addition to fulfilling national oil needs. An example of a state oil company is Angola's SONANGOL, which works with multinationals through production sharing agreements.

The final organizational structure for an oil/gas company, joint stock companies, can include several companies (state-owned or independent). For example, a jointly owned company in Africa is the Kenya Petroleum Refineries, owned by the Government of Kenya and several oil companies including BP. Sampref in South Africa is jointly owned by Shell and BP, and furnishes 35 percent of South Africa's domestic oil supply.

The oil and gas industry uses various contracting mechanisms. The two most common are production sharing agreements (PSAs) and service agreements. Production sharing agreements involve joint ventures between a country and an oil company. Less developed countries that lack capital, know-how, and infrastructure prefer PSAs to avoid upfront exploration and production costs. Production sharing agreements are structured such that the oil company assumes up-front start-up costs, and after the initial investment is recovered, the company and government share the profits. Often in PSAs the government grants production rights on an oil concession to an oil company. Some concession agreements include a termination or relinquishment clause that requires the foreign company to return the concession land and all improvements to the government after a predetermined number of years of operation or breach of contract.

In service agreements, an international oil company provides services for the state-owned company at a flat rate. Contractual agreements are most common with countries reluctant to relinquish access and control of national petroleum reserves to foreign-owned businesses (Falola and Genova 2005).

Different contractual arrangements have a bearing on the willingness and ability of oil and gas companies to support conservation efforts that go beyond compliance. For example, if an oil concession has a termination clause, its long-term commitment to the country may be undermined. Under a PSA with a state-owned company, the multinational has to secure the permission to invest locally derived funds on biodiversity conservation because this investment detracts from the bottom line and may affect the profitability of a company that does not have to concern itself with the opinion of stockholders or international consumers.

B.1 Oil and Gas Issues and Impacts

Production and sourcing of oil and natural gas from non-Middle Eastern countries is a strategic and national security concern for many consumer countries, such as the United States. There has been a surge of oil exploration and production in oil producing states, particularly in sub-Saharan

Africa. Shell, Total, and Chevron each currently invest between 15 and 35 percent of their global exploration and production budgets in Africa. Since 1990, $20 billion has been spent on oil research and development in Africa and, by the end of the decade, new technologies and markets will encourage another $50 billion investment in oil and gas exploration, one third of which will come from the United States. By National Intelligence Council estimates, Africa will provide 25 percent of U.S. oil by 2015, in excess of shipments from Saudi Arabia (Ghazvinian 2007). There is a tendency for both companies and governments to downplay environmental concerns of highly lucrative oil development.

Once extracted, oil must be transported to processing facilities and markets. This is most efficiently done through oil pipelines. Things may go wrong during this process, chief among them oil spills. Countries where oil infrastructure is old, security low, and environmental governance poor are more prone to oil spills than countries where the oil industry is relatively new, using modern technology, and adhering to international standards. Although large spills from tankers gain notoriety because of the potential for dramatic environmental and socio-economic impact, the cumulative impact of thousands of oil spills from pipelines on a daily basis is perhaps of greater magnitude than the more visible large but unusual events. Oil spills are frequent in offshore operations and often occur during tanker loading operations where tankers dock to loading buoys. They also occur in the transfer of oil from offshore platforms to land-based storage facilities through submerged pipelines.

Generally the principal cause of oil pipeline spills and gas pipeline leaks is corrosion, and in some countries, sabotage or theft. Nigeria, the sixth biggest oil producer in the world, loses oil to lack of security, old oil infrastructure, and poor environmental governance. 50 percent of oil spillage is due to corrosion, 28 percent is lost to sabotage, and 21 percent to leakage during oil production operations, some of which is due to negligent oil companies that fail to adhere to basic international standards (Wikipedia (a) 2008). The degree of impact that spills have depends on the area's sensitivity, the systems to cut oil flow when a leak occurs, the structures that limit its spread, the amount spilled, the contingency plan in place, and the ability of the responsible party or government to respond to emergencies. How well a company manages its oil spill/leakage contingency plan is a function of company policy, a training program, national laws and regulations, and the government's ability to enforce.

Produced water, the water trapped in underground formations that is brought to the surface along with oil or gas, is by far the largest volume byproduct or waste stream associated with oil and gas production (ANL 2004). The average ratio of barrels (bbl) of water to barrels of oil produced range from about 3:1 to 7:1. There was about 77 billion bbl of produced water generated in 2004 worldwide. The volume of produced water from oil and gas wells, however, does not remain constant over time, and water-to-oil ratio increases over the life of a conventional oil or gas well. While water makes up a small percentage of produced fluids when the well is new, in wells nearing the end of their productive lives, water comprises as much as 98 percent of the material brought to the surface. Hence, as oil fields mature the problems due to wastewater tend to increase (ANL 2004).

Oil and grease tend to be the constituents of produced water that have the greatest negative impact in marine and coastal resources, while salinity is the greatest cause of concern in

terrestrial and inland water bodies. Produced water contains many potentially toxic compounds. The impacts of production water depend on where it is discharged. In the early days of the oil business, production water (brine) was commonly disposed of by dumping into streams or infiltration into the soil. In some countries, law requires that most brine be injected into deep formations. However, even today production water mixed with oil is often spilled on the soil surface and into shallow emergency or reserve holding pits. When improperly sealed pits are used, brine may flow out the bottom of unlined holding pits and into the ground water system. Movement of the brine and the oil into the subsurface poses a threat to ground water quality and nearby streams and lakes. Extreme weather events may cause the overflow of pits used for production water storage with catastrophic impacts on surface water bodies.

It is common practice to re-inject production water into oil wells; however, surface pits are widely used to store, dispose of, or evaporate production water. In some cases, where the production water is mixed with crude oil, the mixture is temporarily stored in surface "skimming" pits, allowing oil and water to separate. The oil is then "skimmed" off the surface with appropriate equipment. In others, lined surface pits are used to evaporate formation water, allowing for the removal of remaining salts for disposal. If improperly sealed, saline formation water may infiltrate and contaminate ground water. Horizontal movement of contaminated water may then contaminate surface water bodies to the detriment of aquatic plants, animals, and micro-organisms. In percolation pits, the formation water is allowed to percolate into the soil. If water overlies a shallow ground water table, or there are areas of high precipitation, the column of saline solution may reach and contaminate the ground water table.

Pits are also used to store used drilling fluid (mud) and a soup of chemicals and minerals such as bentonite clay, barium sulfate, calcium carbonate, hematite, polyphosphates, and lignophosphates, among many others. Used drilling fluids are toxic. Pits used to store drilling mud are toxic and pose a serious risk to the avifauna, as birds, primarily migratory water birds, often mistake these contaminated pools with surface water bodies.

Other features of oil exploration, drilling, and extraction also have a significant impact on biodiversity. For example, drilling across rock layers may create a subsurface linkage between ground water and oil reserves that can lead to the contamination of the water table. Other impacts include noise from seismic surveys, the operation of machinery and transport (ground and air), and the gas flaring. As with other extractive industries, oil and gas development require infrastructure, with concomitant knock-on impacts. The table on the following page summarizes the key impacts on biodiversity of the primary oil and gas extraction stages.

OIL AND GAS ACTIVITY	POTENTIAL IMPACT ON BIODIVERSITY
Exploration Stage (seismic drilling, etc.) – Onshore	
• Creating access (airstrips, temporary roads, etc.) • Setting up/operating camps and fly camps • Using resources (water, aggregate, etc.) • Storing fuel • Using explosives • Closing shot holes, mud pits, camps, and access infrastructure • Mobilizing drill rig • Conducting drilling operations • Conducting well testing/flaring	• Plants and their habitats disturbed or damaged • Animal populations subject to increased noise • Soils and watercourses disturbed • Soil, surface, and groundwater contamination • Landscape modified
Exploration Stage (seismic drilling, etc.) – Offshore	
• Mobilizing/moving vessels • Operating vessels that produce emissions and discharges • Conducting seismic operations • Anchoring on sea floor • Using chemicals • Discharging mud and cuttings • Fuelling/handling fuel	• Fish disturbed • Breeding/calving seasons of marine plants and animals disturbed or disrupted • Sediment and deep-sea organisms disturbed • Sediment contaminated • In event of oil spill/leak, seabirds, coastal habitats, etc., disturbed or damaged
Construction Stage – Onshore	
• Setting up/operating construction camps • Providing access for construction • Using resources (water, timber, aggregate, etc.) • Importing heavy equipment and machinery • Moving vehicles • Moving earth (excavation)/laying foundations • Storing/using fuel and construction materials • Generating construction wastes • Road building	• Temporary and permanent loss of habitat and component ecological populations due to temporary and permanent footprint • Soil eroded and agricultural productivity reduced • Soil, surface, and groundwater contaminated • Cultural heritage damaged
Construction Stage – Offshore	
• Mobilizing/moving vessels • Using vessels that produce emissions and discharges • Anchoring/piling • Transshipment of equipment and from vessels.	• Disturbance to sediment, benthic fauna, and other seabed flora and fauna • Loss of seabed habitat • Disturbance of marine animals breeding and calving • Introduction of invasive species
Operation/ Production Stage – Onshore	
• Establishing a physical footprint and visible presence • Importing/exporting materials and products • Handling/storing/using products, chemicals, and fuel • Using liquid effluent • Releasing emissions to atmosphere • Creating noise • Using artificial light sources	• Long-term landtake effects on ecology • Landscape disturbed or damaged • Soil and groundwater contaminated • Water quality and aquatic ecosystems disturbed or damaged and resource users (such as fishermen) unable to secure customary resources • Air quality worsened and human health adversely effected
Operation/ Production Stage – Offshore	
• Establishing a physical footprint • Storing/handling/using chemicals • Releasing emissions to atmosphere • Using helicopters and standby vessels to transport supplies (which creates noise) • Releasing discharges into the sea • Using artificial light sources	• Loss of seabed habitat • Fishing efforts interrupted • Breeding/calving seasons of seabirds and marine mammals disturbed or disrupted • Water quality worsened and marine ecosystems adversely effected • Air quality worsened and global warming increased • In event of oil spill, marine and coastal resources disturbed or damaged

Adapted from Shell's draft "Integrated Impact Assessment: Environmental Impact Assessment Module," EP 95-0370 (May 2002).

B.2 Oil and Gas Best Practices

Responding to increased public pressure and companies' own sense of corporate responsibility, some businesses go beyond mitigation to make investments that protect biodiversity. These investments —funds donated to manage protected areas, to support scientific research, or to build the capacities of local government — are important in countries with limited resources to protect the environment.

To protect biodiversity successfully, companies should work with government officials and other stakeholders to evaluate the local economic, environmental, and social situation in their project areas. Such a partnership will enable them to identify and develop the strategies to best conserve biodiversity.

Oil and Gas Partnerships – As with mining, the management of direct impacts and restoration is the domain of the operator. Partnerships will be most effective early in the planning for oil and gas exploration and production, where sensitive sites can be avoided. Partnerships may be able to assist in services for mitigation, but in general, this is a business arrangement providing payment for services, and doesn't constitute a partnership in the sense used in this document.

In the list that follows, business activities of the oil and gas industry (or the results of such activities) are paired with actions to protect biodiversity — onshore and offshore — during exploration, construction, operation, and production.

ONSHORE DRILLING PRACTICES:

Use of Helicopters/Helipads

- Minimize disturbance to land by clearing or excessive over land transport
- Choose helipad area with flight paths that disturb local plants and animals the least
- Avoid operations during sensitive periods for plants/animals (migrating, nesting, etc.)

Use of Cars/Trucks

- Use existing infrastructure whenever possible
- Reduce dust on unpaved surfaces
- Minimize transport operations during the night

Use of Noise-Producing Equipment

- Reduce noise from heavy machinery
- Use sound barriers in sensitive areas (however, ensure they do not impede the movement or migration of wildlife)
- Minimize nighttime noise

Infrastructure Development and Site Clearing (buildings, camps, etc.)

- Minimize impact of activities by using existing structures
- Clear vegetation by hand when possible; minimize use of heavy machinery for this task
- Use areas prone to natural re-vegetation whenever possible
- Minimize use of artificial light
- Educate work force about environmental concerns

Volatile Organic Compounds, Nitrogen, and Sulfur Oxide Emissions

- Minimize effects from exhausts
- Monitor emission levels

Oil Spills/Leaks

- Develop/implement robust oil spill and emergency plans
- Confer with/involve local communities/authorities in planning and share information with them

Erosion

- Be aware of natural topography and drainage patterns
- Stabilize slopes with adequate covering/grades
- Include erosion controls in design and construction of roads

Produced Water

- Properly dispose of produced water
- Re-inject untreated produced water
- Install water-treatment facilities
- Determine beneficial use of treated produced water

Effluent/Sewage Water

- Consider water receptors and supply sources

- Use separation/recycling mud systems when faced with water shortages
- Use local sewage facilities when adequate
- Do NOT discharge wastewater into local waterways
- Use package treatment plants for rig camps

Soil Disposal

- Avoid disposing of soil on sensitive habitats and slopes
- Place work sites away from surface waters
- Re-vegetate quickly on permanent sites

Drill Cuttings/Muds

- Use nontoxic water-based muds; minimize use of oil and synthetics
- Use contained storage for drill cuttings and muds
- Reuse diesel-based muds and water decanted from the drilling-mud pond

Waste Disposal

- Develop and implement detailed waste management plan
- Investigate local waste disposal options and create back up if necessary
- Monitor waste streams and comply with local laws

OFFSHORE DRILLING PRACTICES

Use of Sea Vessels

- Identify protected and sensitive areas
- Schedule operations during least sensitive periods
- Consult local authorities regarding site selection and support infrastructure
- Select site and equipment to minimize disturbance, noise, light, and visible changes
- Consult local authorities to determine that chosen traffic channels have the least impact on biodiversity
- Minimize speed of vessels around sensitive habitats

Use of Noise-Producing Equipment

- Confer with/involve local authorities/stakeholders regarding survey programs, permitting, and notification
- Use local expertise to support operations
- Avoid unnecessary activity in sensitive areas
- Reduce noise to lowest levels possible

Volatile Organic Compounds, Nitrogen, and Sulfur Oxide Emissions

- Minimize effects from exhaust
- Address and effectively control problems

Oil Spills

- Develop oil spill and emergency plans
- Train personnel and conduct regular drills of planned response to oils spills
- Confer with/involve local communities/authorities in planning and share information with them
- Ensure that measures to prevent spills and leaks are taken during transfer operations
- Double-hull tankers to avoid spills

Produced Water

- Treat and dispose of produced water onshore or use down-hole separation of oil and water
- Minimize quantity of produced water and reduce the toxicity of discharged produced water
- Recover oil from wastewater prior to disposal
- Use produced water for stream generation when stream is used to stimulate reservoir production

Effluent / Sewage Water / Cooling Water

- Use effluent/sewage treatment systems that meet international standards
- Measure increase in water temperature from effluent discharge; keep increase under 3°C

Drilling Cuttings/Mud

- Use low toxicity water-based drilling muds
- Minimize use of oil-based mud
- Develop/implement mud composition and mud/cutting disposal requirements
- Do NOT dispose of oil-based mud in the sea rather dispose of it down hole

Waste Disposal

- Treat oily water prior to discharge
- Develop/use detailed waste management plan
- Monitor waste streams and comply with local laws
- Do NOT dispose of waste chemicals overboard
- Separate and store oil from well-tested operations
- Place spent oils and lubes in containers and return them to shore
- Collect/compact all domestic waste for onshore disposal

Ballast Water and Hull Fouling

- Thoroughly clean equipment before transportation and take appropriate measures to manage invasive species introduction risk
- Use appropriate ballast water treatment consistent with International Maritime Organization guidance[16]

Anchoring

- Anchor offshore exploration facilities in least sensitive locations

Trenching/Dredging

- Measure impacts on local plants and animals
- Avoid intertidal areas

[16] Information on the IMO (http://www.imo.org/) ballast water management guidelines can be found at: http://www.imo.org/environment/mainframe.asp?topic_id=548

Important Oil and Gas Resources

Framework for Integrating Biodiversity into the Site Selection Process. 2003.. This publication by the Energy and Biodiversity Initiative provides guidance in identifying and developing appropriate responses to managing new business ventures in areas of high biodiversity value. Available at: http://www.theebi.org/pdfs/selection.pdf

The Politics of the Global Oil Industry: An Introduction. 2005 (Praeger Publishers). Written by Toyin Falola and Ann Genova, this book provides a solid overview of the main issues, concepts, practices and players of the global oil industry.

Background for NEPA Reviewers: Crude Oil and Natural Gas Exploration, Development, and Production. 1992. This publication by the Science Applications International Corporation provides guidance to the U.S. Environmental Protection Agency in identifying the most pertinent issues for review of potential oil and gas developments. Available at: http://www.epa.gov/compliance/resources/policies/nepa/oil-and-gas-background-pg.pdf.

C. Logging Actors and Industry Structure

A handful of multinational companies, notably International Paper, Georgia Pacific, and Weyerhaeuser largely control the global extraction and flow of timber resources and subsequent product transformation. Together with Stora-Enso of Norway and Smurfit Stone Container of the United States, these five multinational companies account for 20 percent of global timber production (Ridgeway 2004). The majority of extracted timber comes from tropical countries, with 17 percent coming from Africa (Ridgeway 2004). Asian countries, particularly Japan and China, are the largest net importers of tropical timber products (Bowles 2001).

The timber industry is only partially integrated in a vertical sense. Other entities take over product marketing at the retail level. Horizontally the industry displays considerable variability. For example, among the major multinational timber companies, Weyerhaeuser owns and manages production forests (Weyerhaeuser 2008), whereas others, such as Georgia Pacific, source their timber externally (Georgia Pacific 2008).

The three major companies with substantial operations in Africa, Rougier International, Danzer Group, and Henrich Feldmeyer hold extensive forest concessions. These companies control all aspects of production, transformation, wholesale commercialization, import, and distribution of timber products from the region (Rougier 2008, Danzer Group 2008). On the other hand, they specialize in tropical wood products and offer a much more narrow range of products and services. Rougier International has a niche market for 70 tropical hardwood species marketed as logs, sawn timber, plywood, and surface products. The Danzer Group specializes in the manufacture of veneer, sawn timber plywood, and surface products. The Danzer Group specializes in the manufacture of veneer, sawn timber products, and round timber from high-quality tropical hardwoods.

Home Depot is committed not to sourcing wood in Africa from the Cameroonian Highlands or mangroves in the Gulf of Guinea, Madagascar, and East Africa. Home Depot has agreed not to purchase wood products from 40 tree species classified as potentially endangered by the World Conservation Monitoring Center (Home Depot 2008).

IKEA has committed to engage and educate local communities in sustainable forestry practices to promote FSC certification (IKEA 2008).

Lowes has targeted not only in-country forestry practices, but works with customers along the supply chain to increase the efficiency of wood use through reuse, recycling, advanced framing techniques, and the procurement of recycled, engineered, or alternative wood products (such as bamboo) (Lowes 2008).

A number of initiatives are underway to work with timber companies to certify sustainable timber (described in Section III B), which offer potential points of entry for USAID partnerships. The Sustainable Forestry Initiative is a certification scheme that validates forest management practices, chain of custody, and recycled product content of forest products manufactured in North America (Sustainable Forestry Initiative 2008). The case study at right presents an example of a timber partnership in the Republic of the Congo.

Case Study: CIB and WCS in The Republic of Congo – Working with Communities

Congolaise Industrielle des Bois (CIB) is a private timber company operating in the Republic of Congo. Since 1999, CIB has collaborated with the Government of the Republic of Congo (GoRC) and the Wildlife Conservation Society (WCS) to manage and conserve wildlife in four logging concessions extending over 1.3 million ha of tropical forest. The project formed through this collaboration, PROGEPP, enforces Congolese hunting laws to protect endangered species via eco-guard patrols, monitors wildlife populations and Bushmeat consumption, promotes the production of alternative protein sources, and conducts environmental education and awareness raising activities. The project promotes community conservation as a long-term solution to forest and wildlife management.

Indigenous community rights NGOs, like Forest Peoples Program, acknowledge that CIB has made significant progress in applying the principles of the Forest Stewardship Council (FSC) in seeking FSC certification; "Indigenous communities in particular are benefitting from CIB's new emphasis by securing increased protection for their forest rights." (www.forestpeoples.org) CIB obtained FSB Chain of Custody and Forest Management certifications for two of their concessions, Kabo and Pokola, in 2006 and 2008 respectively. (www.fsc-info.org)

The timber company provides free housing, electricity, running water, primary health care and schooling to their over 1800 employees and works with them to mitigate forest and local impacts. CIB works with communities in and around their concessions to map forest use (including sacred sites, key hunting and gathering areas, tombs, and other key community resources) and discuss and consult with these communities concerning CIB forest use plans. While there are many opportunities for social program improvements, the PROGEPP project is widely hailed as an example of conservation and community involvement through partnership with an extractive industry.

The Programme for Endorsement of Forest Certification "is a global umbrella organization for the assessment of and mutual recognition of national forest certification schemes developed in a multi-stakeholder process" (PEFC 2008). PEFC, originally a European certification body, now

incorporates 35 certification schemes from its member states, including two projects in Cameroon and Gabon. The Forest Stewardship Council is a non-profit organization that certifies forest products that meet exhaustive principles and criteria in legal issues, indigenous and labor rights, multiple impacts, and environmental considerations in forest management (Forest Stewardship Council 2008).

C.1 Logging Issues and Impacts

A major impact of tropical forest logging is the opening up of previously inaccessible areas. While this aspect was addressed previously as a common impact of extractive industries, commercial logging often takes place over a large surface, with potentially significant impacts on biodiversity and so bears repeating here.

There is a widespread misconception about the proportion of trees felled during tropical forest logging operations. In reality, the species composition of most tropical forests is so diverse that only a small proportion of the trees are suitable for exploitation. For example, even in species-rich forests, harvesting of all marketable trees would, on average, result in the removal of only about 15 trees per hectare of forest (UNESCO 1994). In the tropical forests of Africa a typical count would be as low as about eight commercially attractive trees removed per hectare. While the impact of removing so few trees may seem limited, such exploitable trees are often large and, when felled, create large gaps in the canopy and, perhaps most importantly, can damage neighboring trees unless precautionary measures are taken.

Additionally, sedimentation may increase by 20 times as a result of log extraction by means of tractors or skidders. Roads and compacted tracks often form a lasting source of runoff and sediment, and a return to pre-logging sediment concentrations is never likely to occur. Where stream sediment loads used to be low, increased sediment concentrations after exploitation may alter the composition of the fish population in the streams, directly affecting the diet of forest dwellers.

Monocyclic logging entails the removal of up to 100 percent of the commercially valuable stocking from a forest at relatively long intervals. The interval between harvesting operations is typically equal to the maturation period of timber species, which may be as long as 60 to 80 years. Because monocyclic logging removes not only mature but also semi-mature trees, a relatively large proportion of the forest may be affected. The result of such intense logging is the creation of relatively large gaps in the canopy, which stimulates light-loving species in the re-growth. The potential for damage to both soil and remaining trees through monocyclic logging is relatively high (UNESCO 1994). Monocyclic logging, however, is likely to be favored by companies with short leases and in countries where long-term security is uncertain, making long-term investment risky.

Polycyclic logging is the selective removal of only the largest individuals of desirable species. The objective is to wait for a sufficient number of trees to reach maturity, and then to remove these alone. Compared with monocyclic logging, under polycyclic logging fewer trees and a lower volume of timber is harvested at any one time, but the intervals between harvests are shorter, often as short as 20 to 25 years. Whereas forest disturbance occurs more frequently with polycyclic (given the shorter harvest cycle) than monocyclic logging regimes, the amount of

damage caused to the overall forest is believed to be less for each operation due to the lower numbers of trees being extracted. In fact, it is against the interests of loggers to damage immature trees because these constitute their next harvest. In contrast with monocyclic logging, polycyclic logging creates smaller gaps and this favors the regeneration of shade-loving species, which are often those with the greater commercial value. Nonetheless, the level of care necessary to ensure sustainability is not always reached and the cumulative damage may render the operation unsustainable.

Skidding is the process by which logs are dragged (skidded) from the place where they have been felled to a landing area or road side for subsequent transport. The temporary trail over which they are dragged are called a skid trail. In tropical forests most roots are concentrated in the top 15 centimeters of soil and the dragging of logs and heavy machinery traffic can damage the superficial root systems and soil structure. Poorly planned skid tracks in humid areas may act as channels for surface flow. These may become seriously eroded and the sediments have a negative impact on surface water quality, and repeated traffic results in reduced infiltration rates (UNESCO 1994). Measures can reduce the impact of skidding and skid trails, chief among them minimizing the number and length of skid trails through careful harvesting plans. The recovery of skid trails depends on the degree of compaction to which they were subjected and soil characteristics. There is growing evidence that severely impacted skid trails do not recover to pre-harvest conditions.

In contrast with skid trails, logging roads are improved and unpaved routes are used to haul logs to a sawmill or shipping area. Improperly constructed and poorly positioned logging roads may block surface waterways, cause landslides, channel water, and increase the delivery of sediments to surface water bodies. Further, logging roads increase the vulnerability of tropical forests to outside pressures (hunters, colonists, illegal loggers). In tropical forests trees tend to have large canopies, with vines often extending between trees. If felled without vine removal, one tree may bring down several others. If the angle at which the tree falls is not adequately oriented toward the skid trail, it has to be rotated to align it with the skid trail and drag line (cable), causing further damage to the under storey, small trees, and soils.

The creation of canopy gaps, heavy machinery traffic, skid trails, and roads all have an impact on the local hydrology. Generally, forest operations that result in a reduction in canopy cover increases base flow and storm flow and overall water yield (UNESCO 1994). The first impact results from water that percolates through the soil and reaches streams and rivers through subsurface flows; the second impact is associated with overland flow and coupled with rainfall events. It is widely accepted that tropical forest logging increases peak flows and therefore the probability of floods. While quantitative evidence is far from comprehensive, and conditions in particular forests are highly variable, some studies have shown that where selective logging is done using heavy machinery, overall water yields may increase by 70 percent (UNESCO 1994). Soil moisture regimes are also affected with the creation of canopy gaps. The reduced canopy translates into reduced evapo-transpiration and infiltration of a greater proportion of rainfall. The outcome is a soil that is moisture laden and less able to mitigate the impact of extreme events.

Tropical forests are able to grow despite relatively nutrient poor soils due to tight nutrient cycling. Nutrients from decomposing organic matter (leaves, trunks, roots) are quickly re-

absorbed by a dense shallow root system. Any disturbance to this cycle releases nutrients that are either leached or washed into surface water bodies through overland flow. Damage by skidding, heavy machinery, and felling of trees can disrupt the superficial root mat. Nutrients are also lost from the forest ecosystem in logs. Where intervals are long, and timber extraction is light, as in certain polycyclic regimes of selective logging, the associated losses of nutrients through removal in logs will be very small, typically about 2 percent to 5 percent of the total amount stored in the above-ground living biomass. On the other hand, heavy logging (extracting more than 100 m^3 of timber per hectare) may lead to losses of as much as 15 percent of the total stock of nutrients in the biomass (UNESCO 1994).

Logging can greatly increase erosion rates from forested areas due primarily to skid trails, roads, and landing areas. Sedimentation of rivers, streams, lakes and lagoons negatively affects aquatic organisms. Gully and rill erosion are prevalent in skid trails and landing sites. Poorly positioned logging roads may cause landslides (mass wasting). The extent of the increase in erosion and sediment yield after logging in moist tropical forests is poorly quantified. Nevertheless, the available evidence suggests that sediment yields in areas with initially low sediment production may increase by between 2 and 10 times as a result of road construction alone, depending on the location and extent of the road network.

C.2 Logging Best Practices

Some key actions can minimize harm to biodiversity in an extractive forest while still allowing steady timber harvesting and accompanying economic returns. Precise prescriptions for mitigating impacts vary depending on the type of forest, the timber company's management practices, and the plant and animal species on site. However, timber companies can find most solutions in effective planning, improved capacity of logging crews, and learning to see the forest as a ecosystem with areas used for multiple purposes. The following are suggested actions to reduce negative impacts of logging on forest biodiversity.

Logging partnerships – As with mining and oil and gas production, addressing environmental harm is the responsibility of the operator. Partnerships formed early in the planning cycle can avoid sensitive sites, however, the broader scale of industrial forestry activities may limit options for siting. Unlike minerals and energy resources, it is feasible to distinguish forest products in post-extraction processing and marketing, opening possibilities for their certification as having been produced according to standards that favor biodiversity. Partnerships can play important roles in the certification of products, but, to avoid possible conflicts of interest, the roles of certifier and partner must not be mixed. As with the other sectors discussed so far, partnerships can also play an important role in the development of offsets to address unavoidable harm. Partners may play important roles in the longer-term concessions as custodians of selectively logged lands with significant residual conservation value.

Use effective timber management planning – Many countries in Africa now require timber companies to have a management plan in place before awarding them a concession or before they can begin logging. However, once in place these plans are often not followed or enforced, and some countries have not established minimum standards. With proper planning for reduced impact logging practices, road building, road reconstruction, and wildlife/habitat conservation measures, many threats to biodiversity can be mitigated, reduced or eliminated entirely. At a

minimum, standards related to the following aspects of a timber operation should be addressed in a management plan:

- Building and reconstructing roads
- Creating buffers for rivers, streams, and bodies of water
- Protecting important or rare habitats
- Logging restrictions in wetlands and on slopes
- Establishment of felling and extraction procedures
- Determining inventory and monitoring techniques
- Setting the requirements on number and spacing of trees
- Determining required size of canopy openings that must remain
- Identifying the impact on human populations
- Involving local populations in planning
- Choosing locations for logging camps landings, and skid trails

Plan/build roads that limit harm to biodiversity – Roads built for logging can have significant negative impacts on biodiversity. First, new road systems bring people to forests that were previously protected from human interference by their remoteness. the ensuing development, agriculture, or illegal logging can increase siltation of rivers/streams, hasten erosion, and open new areas to unsustainable bushmeat hunting particularly since the hunters now have faster access to larger commercial markets. All of these changes can negatively affect biodiversity.

However, effective planning of road networks, including access points to the forest, can reduce the costs of road construction/maintenance, control access to the forest concession, and minimize negative effects to biodiversity while still providing development opportunities for rural communities. The appropriate use of skid trails can also reduce harmful impacts.

Establish protected areas – Protecting relatively small areas within a logged forest can go a long way toward ensuring the viability of many species. The text box at right lists important habitat elements that loggers should leave untouched if the site is to remain a viable habitat for plants and animals once operations are complete. In addition, protected sites should include those that (1) are home to any local threatened, endangered, or endemic species, (2) can protect streams/rivers from pollution or disruption created by logging, and (3) are rare or unique habitats, such as gallery forests, mineral soils, caves, and natural forest openings. If possible, these protected patches should be connected to any protected areas in the region.

Key Elements of Habitats to Protect in a Logged Forest

- Snags (standing dead trees)
- Downed logs
- Trees prone to hollowing
- Large seed- or fruit-bearing trees
- Large overstory/emergent trees
- Habitat for pollinators (bats, birds, insects)
- Habitat for seed dispersers
- Trees supporting bird colonies

Maintain forest structure – When all of the trees with the highest canopies are selectively logged, the age and height of remaining trees tends to become uniform. Such homogeneity means fewer types of habitats than are necessary to support the full range of forest-dwelling plants and animals. However, research has shown that well planned operations that consider retention of a variety of forest structures and protection of key habitats enable tree stands to recover more quickly along with their valuable timber-dwelling species.

Use good felling and extraction techniques – Directional felling, cutting stumps low to the ground, and removing vines before cutting can reduce impact on biodiversity from felling and extracting trees. These practices also improve worker safety and operational efficiency. Planning and constructing skid trails and landings to minimize soil disturbance, soil erosion, changes to rivers, and access to the forest are also critical. Such measures are relatively simple yet require an investment in training of logging crews. Oftentimes, previous haul roads that may be used to haul commercial logs are sediment contributors due to inadequate maintenance and design. Requiring an upgrade or reconstruction of these haul routes can have significant benefits in reducing negative environmental effects.

Involve local communities – Throughout Africa, the livelihoods of communities are inextricably tied to the natural resource base around them. Rural citizens rely on forests for both timber and non-timber products, supplies of bushmeat (protein), as well as the benefits of water and soil protection. Companies should involve local populations in the management of forest concessions and should return a portion of the benefits to them. A poorly managed timber concession can impact neighboring communities far beyond the loss of the trees harvested. It can also harm both community health and local economies. However, responsible timber managers have the unique opportunity to provide local communities with significant benefits in the form of improved roads and a portion of timber profits, which locals can use for energy, education, health, or agriculture.

Monitor impact of operations – To properly assess the impact of timber operations on biodiversity (and the possible success of mitigation), companies must monitor both logged and protected forests. Changes in the composition and structure of vegetation, in regeneration rates, and in the presence and health of key species will all help evaluate the effectiveness of biodiversity protection. Such monitoring will also improve those safeguards in the future. Monitoring evaluates the welfare of people living near concessions and their perceptions of the industry. Governments should monitor members of the industry to ensure they are complying with national laws, their management plans, or any biodiversity protections they have in place.

Important Timber Resources

Blue Ox Forestry, RILSIM (Reduced Impact Logging SIMulator) financial modeling software. RILSIM permits users to rapidly estimate the cost and net revenue associated with logging operations to compare short-term financial costs and returns expected from reduced-impact logging with those expected from conventional logging under identical local site conditions. Available at http://www.blueoxforestry.com/RILSIM/index.htm.

Fimbel, R.A., A. Grajal, and J.G. Robinson, eds. 2001. *The Cutting Edge: Conserving Wildlife in Logged Tropical Forests*. New York: Columbia University Press. This book presents topical pieces by many of the leading conservation scientists in wildlife and forest management and makes the case for the need for new approaches to integrating wildlife into the management of tropical forests.

Hall, J.S., D. J. Harris, V. Medjibe, and P.M.S. Ashton. 2003. The effects of selective logging on forest structure and tree species composition in a central African forest: Implications for management of conservation areas *Forest ecology and Management* 183, nos.1-3: 249-264.

U.S. Forest Service International Programs. 2003. *Low Volume Roads Engineering: Best Management Practices Field Guide*. Available at http://ntl.bts.gov/lib/24000/24600/24650/Index_BMP_Field_Guide.htm/

D. FISHING ACTORS AND INDUSTRY STRUCTURE

The fishing industry has three major subcomponents: small-scale fishing, industrialized fishing, and aquaculture. Commercial operations dominate the ocean-based global fishing economy with more than 80 million tons per year, or 75 percent of the world marine fisheries catch sold on the international market (Ridgeway 2004). The emergence of large retail stores has promoted the globalization of the fishing industry. According to the FAO (2008), large retail stores in the fishing industry have negatively affected smaller producers, particularly in developing countries, who lack purchasing power parity with large supermarkets or discount superstores.

Factory boats, large retail stores, and national regulations have tightly consolidated the fishing industry within a few major producing states and even fewer large multinational corporations. Asian countries, such as China and Japan, constitute the biggest net importers of fish products globally. In the United States, Tyson Foods dominates the Alaskan fishing industry, and Canada's Fishery Products International and Spain's Pescanova Group SA dominate global fish production (Ridgeway 2004). Unilever is the largest purchaser of fish and fish products in the world. The company partnered with WWF to create the Marine Stewardship Council (MSC) and its fisheries certification scheme.

The Pescanova Group and Fishery Products International are both horizontally and vertically integrated, publicly traded companies that are major suppliers of fresh and frozen seafood products internationally. Pescanova, with the second largest global fishing fleet after China, is the principal supplier of fresh and frozen seafood products to the restaurant, catering, wholesale fish, and the pet food industries in three major markets, Europe, the United States, and Japan. Pescanova owns two subsidiary companies in Africa, Pescamar in Mozambique and NovaGroup in South Africa. Additionally, Pescanova controls a large fish farming operation off the Namibian coast (Pescanova Inc. 2008) and fishing rights in the territorial waters of Angola and Madagascar. Like Pescanova, Fishery Products International has a global representation in 40 countries and specializes in manufacture of frozen fish products and wholesale of unpackaged frozen fish (Fisheries Products International 2008). Pescanova, Fisheries Products International,

and Tyson Foods International all incorporate global tenets of fisheries sustainability into their business operations.

In contrast with the other three extractive industries addressed in this guide, the production phase of the fishing industry operates in the global commons where national laws either do not apply or are difficult to enforce. This makes sustainable management a difficult proposition.

D.1 Fishing Issues and Impacts

Threatened Marine Species

- Mangroves
- Coral reefs
- Sea grass
- Turtles
- Sharks
- Whales
- Sea birds
- Seals
- Dolphins
- Seahorses

The oceans are home to many more species than are terrestrial environments. Roughly 3,000 species of fish live in or near Africa alone (Boden et al. 2004). Nearly 150 of these species are now threatened, due to a combination of overharvesting, habitat destruction, and the introduction of exotic animals that compete with native species (USAID 2007). In addition to fish, many other plant and animal species depend on healthy waters to thrive, some of which are listed in the textbox on the next page. In turn, they contribute a healthy marine ecosystem. While the plants and animals listed are not directly harvested, they are still greatly impacted by the fishing industry. The IUCN Red List identifies well over 200 African marine species that are vulnerable or endangered.

According to FAO statistics, the global demand for fish and seafood products has doubled in the last 30 years and will likely continue to increase by 1.5 percent per annum until 2020. Directly correlated to the rise in fish consumption is the substantial number of new entrants in the fishing industry, doubling in the last 20 years, with the majority of new fisherman coming from less developed countries. Countries such as Tanzania, Uganda, and Kenya now account for more than 70 percent of the global fish trade (Kura et al 2004), and in 14 African countries, fisheries represent more than 25 percent of all agricultural exports (Halweil 2006), with nearly 10 million Africans depending on the fishing industry for their livelihoods (MSC 2008).

The burgeoning exploitation of fish resources in both developed and developing countries is problematic for long-term fisheries management and biodiversity conservation because of globally declining fish reserves. Statistically, 75 percent of commercially important marine and most inland freshwater fish are over-fished or fished at their biological limit (Kura et al 2004), and only the Hake fisheries in the south Atlantic off the South African coast has been certified as sustainable by the MSC. Unsustainable fishing techniques, practiced in large part by foreign-owned and -operated fleets, have left much of Africa's coastal waters depleted of local fish stock. These large fishing fleets have formidable equipment — including sonar, powerful motors, and strong nets — which help them locate and capture huge schools of fish.

Given declining fish populations, local fishermen must venture into deeper, unsafe waters or into protected marine areas to find fish. The decrease in profitable fish species, in particular, obligates fishermen to sell low-value fish, which reduces their income and thus leads them to fish more in order to make up for lost profits. Continued overexploitation of fisheries may lead to boom and bust cycles, which have profound impacts on regional and national economies and global food security (particularly in West African countries such as Ghana and in Malawi, which derive 50

percent of their protein from fish, as compared to approximately 10 percent in developed countries such as the United States, Canada, and France; Kura et al 2004).

Commercial fishing can be either small- or large-scale industrial fishing operations whose objective is the sale of fresh, frozen, canned, cured, or transformed fish products on a local, regional, or international market (Hanna 2000). Commercial fishing includes capture fishing through means such as trawling, dredging, nets, lines, traps, and pots. Commercial fishing often uses sophisticated technology (e.g., sonar technology, satellite navigation, and onboard refrigeration systems), mechanization, and economies of scale. In some cases, industrial fishing is distinguished from commercial fishing as fishing that targets small pelagic fish for fishmeal (Kura et al 2004).

Artisanal fishing in Africa, though small-scale by fisheries standards, has a major cumulative impact. Small-scale fishing is characterized by less sophisticated technology and no economies of scale. Small-scale fishing may include commercial, subsistence, or artisanal fishing. Typically small-scale fishermen employ traditional or local gear; boats lack fish-finding technology; and trips are limited to short, near shore excursions. Small-scale fishermen may own their own equipment or they may hire vessels, gear, and small crews from local boat owners (Kura et al 2004). In Africa, most small-scale fishing does not involve access to refrigeration or canning facilities. Fish that cannot be sold and consumed fresh are commonly smoked using wood harvested from surrounding areas. Fishing communities can, therefore, have a very large environmental footprint due to wood demands. Alternative processing methods continue to be the subject of fisheries research, and processing remains both a major impediment to economic development and a major environmental impact.

In West Africa, small-scale fishing accounts for approximately 75 percent of the region's total catch. Because of the importance of small-scale fishing to local food security and past conflicts between industrial fishermen and small-scale fishermen, most West African countries now grant small-scale fishermen exclusive fishing rights in near shore waters, excluding industrial trawlers within a fixed distance to the shore or to a fixed water depth (Kura et al 2004). Although this protectionist measure is in place, many governments have opted to sell fishing rights to foreign European vessels for hard currency payments. Consequently, encroachment of industrial fishing in inshore fishing zones has exacerbated ecological problems and natural resource-based conflict in parts of Africa and thus has implications for partnerships with industrial fisheries as well.

Fishing vessels, additionally, have access to an easy means to evade conservation or resource management requirements: the "flags of convenience" (FOC) law governing the high seas. This law only requires ships to adhere to the laws applicable in the country in which the ship originates. If the mother country either has not signed on to fishing agreements or does not enforce them, vessels from that country are not held responsible for following them. For only a few hundred dollars, some countries will even allow vessels of other nationalities to fly their flag and, thus, circumvent possible penalties. WWF reports that 1,300 large fishing vessels around the world are flying flags of convenience, and the FAO reports that FOC vessels account for 30 percent of world catches (WWF 2005).

The targeted species largely determines the impact of the fishing activity on biodiversity since: 1) the species may be endangered or threatened; 2) certain populations may decline to the point that it cannot recover from disturbance; 3) the trophic level of the species may play a key role in maintaining the equilibrium among fish populations; 4) the bycatch of associated non-target species may be endangered or threatened; and 5) the possible destruction of habitat and other cascading ecosystemic effects in the targeted areas. The vulnerability of fish species to extinction varies with fecundity or gestation periods, territorial requirements, natural predators, and adaptability to disturbance. Lobsters, sea cucumbers, and sharks, in particular, are vulnerable to extirpation or extinction. The huge demand for lobster and the lack of fishing quotas on lobster catch continue to imperil this resource. Similarly, sea cucumbers have been hunted to near extinction globally and shark populations verge on endangerment due to demand for shark fin soup in many Asian markets.

The trophic level of the species has direct impact on the food web and nutrient cycling. Presently, of the 300 species of fish harvested worldwide, 20 percent are predatory species yielding 10 percent of global production (Jennings et al 2001). Removal of highly important commercial species such as salmon, tuna, and swordfish, can have cascading effects (Committee on Ecosystem Management for Sustainable Fisheries et al. 1999) on the rest of the food chain, creating possible predator-prey imbalances and a dilution of stock genetics.

Marine bycatch results in the unnecessary capture and mortality of non-target species. In the early 1990s, it is estimated that 27 million tons of non-target bycatch were discarded each year (Committee on Ecosystem Management for Sustainable Fisheries et al 1999). The fisheries with the highest proportion of bycatch are: 1) trawl fisheries for shrimp, cod, flounder, halibut, and sole; 2) encircling net operations that harvest tuna and other highly migratory fish species; and 3) long-lining, which catches seabirds and sharks (Jennings et al 2001, Kura et al 2004). Of these, shrimp fishing is possibly the world's most wasteful fishery as fish bycatch from shrimping can exceed the weight of harvested shrimp eight times over (Berrill 1997). The least harmful fisheries for incidental bycatch include pelagic trawls, mid-water trawls, and purse seines (Kura et al 2004). It should be noted, however, that discarding bycatch is uncommon among the artisanal fishermen that constitute 75 percent of the region's catch.

Habitat destruction by commercial fishing, especially trawling, in nursery habitats, is a major global concern, and, in combination with overfishing, coastal ecosystems have already lost much of their fishing capacity (WRI 2000). Trawling and dredging have the most severe impacts on habitat and biodiversity conservation. They have opened up relatively pristine ecosystems to fishing such as continental shelf, slope, submarine canyons, and seamounts (Committee on Ecosystem Effects of Fishing et al 2002), in addition to the more traditional locales such as the sea bed, near shore waters and tidal zones, and deep water.

Trawling and dredging irrevocably alter habitat complexity by removing or damaging the sea floor. They are particularly harmful to seagrass ecosystems and mud habitats. For example, a single scallop dredge can kill 70 percent of living maerl, a collective term for several species of calcified red seaweed, in the dredge path (Committee on Ecosystem Effects of Fishing et al 2002). Maerl is an important habitat for an array of flora and fauna that attach to its branches or burrow in the layer of dead maerl beneath the living top layer (UK Biodiversity Action Plan

2008). Due to their severe impact on the substrate, trawling and dredging cause shifts in the biotic composition of marine ecosystems. In general these changes lead to a loss of species richness and diversity, with opportunistic species, such as hard-shelled mollusks, increasing in importance.

Similarly, the practice of use cyanide and dynamite in fishing is extremely damaging to marine ecosystems. Cyanide and dynamite are used to stun, anesthetize, or kill fish, making them easy to catch as they float to the top of the water. Both of these practices are indiscriminate, and kill not only the target fish but all organisms in the vicinity, including coral, aquatic plants, and juvenile fish. WWF estimates that for each fish harvested using cyanide, a square meter of coral reef is killed. Additionally, fishing equipment is often abandoned or lost at sea and it either floats in the current or falls to the sea floor. Either way, it continues to trap animals and destroy coral and other marine life.

Fish stocking increases fish stock populations for recreational or commercial fishing purposes, and, in some instances, fish stocking re-equilibrates natural populations and predator-prey relationships, having a positive net impact on the ecosystem. In other situations, however, stocked fish are non-native species that out-compete local species for food and resources, as occurred with the stocking of Nile Perch into Lake Victoria. In 2003, the non-native Nile Perch earned European commercial fishing operations $169 million Euros in sales to the European Union. The introduction of Nile Perch, a high-level predator, into Lake Victoria, led to a precipitous decline in native cichlid populations, with populations of hundreds of species declining to near extinction. Harvesting and processing of Nile Perch have also led to increased deforestation and water siltation, as fishermen preserve Nile Perch by smoking rather than by sun drying, due to the higher fat content of perch over native cichlids (Wikipedia (b) 2008).

Illegal fishing is also a major global problem, as it is more likely to damage marine environments, while undermining legal fisheries and threatening the livelihoods of those fishing legally. Legal controls put in place to protect fishing resources, such as no-fishing zones or seasons are not widely respected and the value of illegal, unregulated and unreported fishing (unlicensed, under-reported, or unauthorized) is estimated at $10-23 billion (11.06 to 25.91 million tons) per year (MRAG as cited in MSC 2008).[17] More detailed information on the nature and extent of illegal, unreported, and unregulated fishing can be found on the Web site "Illegal Fishing.info" (http://www.illegal-fishing.info/).

D.2 Fishing Best Practices

Although both commercial and artisanal fishing has severely damaged aquatic biodiversity in many parts of Africa, there is still hope for recovery. Focusing on mitigation of harmful practices, increasing law enforcement, and enlarging protected areas can reverse the damage already done. Below are suggested actions that can improve biodiversity conservation in aquatic environments.

[17] More detailed information on the nature and extent of illegal, unreported, and unregulated fishing, can be found on the Web site "Illegal Fishing.info" (http://www.illegal-fishing.info/).

Fishing Partnerships – The fisheries sector is distinct from sectors discussed so far; industrial operators rarely have exclusive use of an area, and are seldom held to account for physical disturbance, e.g., to the benthos from dredging or dragging. Partnerships may play a role in identifying sensitive sites to avoid and sites set aside for regeneration (no-take areas and marine protected areas). However, unless a single operator or group of operators has exclusive rights of access to an area, closures are out of control of the industry and are the responsibility of government authorities. Community-managed fisheries can and do create closures; control of access and enforcement of rules can bring community-managed fisheries and industrial fisheries into conflict. In some cases, innovative partnerships may unify participants in a fishery around a conservation goal, such as restoration of damaged benthic areas, fish stock recovery, and restoration/protection of areas critical to the lifecycles of target species (such as corals, mangroves, and seagrass beds that may be important nursery areas). As with forest products, fisheries' products can be distinguished in the marketplace and, therefore, are certifiable. They may be able, for example, to work with different actors in an industry to create a code of conduct for responsible resource extraction, and promote adoption of the code within the industry. Partnerships may be useful to establish the conditions for certification, provided, as with forestry above, that the roles of certifier and partner are kept separate.

Manage concessions reasonably – If well managed, concessions by developed countries can provide African nations with essential foreign currency and contribute to their sustainable development. As discussed in section Section III B, the Marine Stewardship Council offers resources and certification for sustainably managed fisheries. African nations need assistance in negotiating concessions to avoid threats to their biodiversity and food security.

Remove Flags of Convenience laws – International law enforcement should pressure nations to uphold conservation requirements and require of all ships adherence to international fisheries management laws.

Stop overharvesting – A minimum size requirement, as well as bag limits, should be established, and the use of appropriate fishing gear required. Closed seasons and no fishing zones may be critical for fish regeneration and help to address overharvesting.

Limit bycatches – The use of large (so juveniles and other small animals can escape) and square mesh (not diamond, which can constrict during towing) can help to limit the bycatch from fishing operations.

Use good harvesting practices – Educating fishermen about the long-term environmental impact of dynamite, cyanide, oil, grease, soap and other waste on marine ecosystems, as well as ensuring the harvest rate does not exceed the rate of replenishment, can bring more sustainability to the sector.

Develop alternatives – Encourage the development of fish farms and ponds (aquaculture) that can contribute needed protein to local populations and increase their income through sales.

Establish protected areas – Increase protected areas to ensure a safe environment for fish and coral to breed. In addition, ensure these boundaries are well enforced.

Important Fisheries Resources

USAID. Environmental Guidelines for Small Scale Activities in Africa*, Chapter 6: Fisheries and Agriculture.* This publication briefly describes potential environmental impacts due to capture fisheries and aquaculture in Africa. Available at: http://www.encapafrica.org/sectors/fisheries.htm.

Food and Agriculture Organization of the United Nations Fisheries and Aquaculture Department. This Web site provides an overview of social and economical trends in worldwide fisheries as well as environmental impacts. Available at: http://www.fao.org/fi/website/FIRetrieveAction.do?dom=topic&fid=16000.

R.S. Pomeroy and R. Rivera-Guieb. 2006*. Fishery Co-Management, A Practical Handbook*. CABI Publishing. This handbook describes community-based co-management of small-scale fisheries in developing countries.

World Wildlife Fund for Nature's Poorly Managed Fishing. This Web site provides information about illegal fishing problems around the world. Available at: http://www.panda.org/about_wwf/what_we_do/marine/problems/problems_fishing/index.cfm.

SECTION V – GOVERNANCE AND THE BUSINESS CASE FOR BIODIVERSITY CONSERVATION

The two principal reasons for extractive industries to get involved in partnerships are compliance with national and international regulations, and for internal investments designed to return value to shareholders. While the former reason is inherent in doing business, the second reason is more nuanced and is normally made on a company by company (or even case by case) basis. This section will examine both reasons, and make the case that engaging in these partnerships makes good business sense in addition to the intrinsic value returned to society and the environment.

A. NATURAL RESOURCE MANAGEMENT GOVERNANCE

The behavior and attitude of extractive industries toward the environment is strongly influenced by the environmental governance regime in which it operates. For example, weak enforcement of environmental laws often results in a lax attitude of industry toward the environment. On the other hand, a strong environmental governance regime provides a strong incentive for extractive industries to take precautions not to damage the environment or risk expensive legal battles and stiff fines. In some countries, non-compliance with environmental laws and regulations may be grounds for the cancellation of concessions and contracts.

A.1 National Legislation and Regulations

Most developing countries today have legislation requiring environmental impact assessments and the establishment of measures to reduce negative environmental impacts of their activities. When active in protected areas, extractive activities generally have to comply with more stringent regulations. In many instances in Africa, however, the regulations for the application of environmental legislation are lacking or deficient. Furthermore, even if good legislation exists and regulations exist, the institutions responsible for monitoring and enforcement are chronically underfunded and under staffed. Hence, extractive industries may operate outside the law with little fear of reprisal; compliance with local law may not be a reliable indicator of environmentally responsible behavior.

Strengthening national law enforcement and monitoring capacity, and the ability to effectively engage the public in environmental decision-making, should be the point of departure for all development assistance to address environmental performance of extractive industries. Regulations, and the capacity to administer regulations, are critical to the adoption of best practices. Practices not mandated by law or hard to enforce are less likely to be adopted. Another principal factor is timely public access to information, including in local languages. Frequently even basic national legislation is not available in forms accessible to much of the population.

Forest Law Enforcement and Governance in Africa

Forest law enforcement and governance is an integral issue within the context of natural resource management. In Africa, the forests are often on the margins of existing infrastructure, where the national governments have less influence and oversight. It thus often falls on sensitive partnerships with local communities and private companies to work closely with national governments to implement law, enforce boundaries, and govern forest areas.

The challenge of forest law enforcement is being approached at both regional and domestic levels. In 2003, the Africa Forest Law Enforcement and Governance (AFLEG) Ministerial Conference took place Yaounde, Cameroon, sponsored by the World Bank. More than 300 participants from 39 countries attended the Conference, representing governments, international organizations, non-governmental organizations (NGOs) and the private sector. AFLEG represents a forum for governments and organizations to share and explore ideas on forest governance; consider priority issues, and identify ways in which various stakeholders can address these issues. Other existing sub-regional, regional, and international organizations include the New Partnership for Africa's Development (NEPAD) and, inter alia, Conference of the Ministers of Central African Forests (COMIFAC), African Timber Organization (ATO), Economic Community of West African States (ECOWAS), Southern African Development Community (SADC), Interstate Committee to Fight Drought in the Sahel (CILSS), and the Brazzaville Process (CEFDHAC). These reaching organizations signify an international and regional recognition of the importance of harmonizing forest laws and working together to enforce and govern forests.

On a national level, individual countries approach this challenge differently, depending on their existing laws, infrastructure, and other domestic issues.

- In the Democratic Republic of Congo, the government is working with programs like CARPE to disseminate new forest laws and institutional reforms working with communities to map land use and resolve land title disputes in the interior, coordinating with post-conflict reconstruction efforts.

- Ghana has worked towards improving their governance through institutional reform by creating a Forestry Commission, introducing market-based incentives, and the lifting of bans on log exports.

- Cameroon has continued to have strong political will behind forest governance and strengthened its governance approach using legal frameworks including land-use planning reforms, forestry planning, involvement of local communities in forest management, increased transparency, and the intensification of control and enforcement measures.

- Uganda has a strong reformed forest product monitoring unit, which tracks timber from the forest to the market, as well as a functioning forest product licensing system.

- Madagascar has put forth a national agenda, the Madagascar Action Plan (MAP), which includes conservation and protection of the environment (through more effective management) as a primary pillar. The MAP is hoped to focus the efforts of the existing complex system of environmental and conservation institutions and programs.

While national initiatives and programs may differ, and are an imperative component in improving forest laws and governance, their effectiveness can have ripple effects when complemented with regional level coordination and sharing. Partnerships with extractive industries can ensure coordination at both levels and enhance existing programs by bringing in additional resources and stakeholders.

The principal incentive for good environmental performance in the first instance is compulsory adherence to the relevant legal regime. Elements of effective national governance include:

- Technical and managerial competence
- Institutional capacity
- The legal framework
- Accountability
- Transparency and public access to information
- Informed civil society participation
- Respect for human rights

In general, good governance implies good transparent relations between public authorities and the citizenry. Often it entails a combination of administrative decentralization, empowerment, accountability, revenue-sharing, and the involvement of community-based organizations (CBOs) and NGOs in their capacity as service providers and watchdogs. Democratic environmental governance depends on the existence of a strong civil society with the ability to supervise and influence the use of state power. A discussion of law enforcement and governance in the African forestry sector is presented in the box on the previous page.

A.2 International Biodiversity Related Treaties

In addition to national legislation, most African countries have signed international conventions that once ratified become part of their legal framework. From a biodiversity conservation perspective, four merit special attention.

The Convention on Biological Diversity. Its objective is the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits arising from genetic resources. The convention also requires parties to "develop national strategies, plans or programs for the conservation and sustainable use of natural resources" and "integrate as far as possible and as appropriate the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programs, and policies." The convention further requires parties to "introduce appropriate procedures requiring environmental impact assessment of its proposed projects that are likely to have significant adverse impacts of biological diversity." Each signatory maintains a national "focal point" which is responsible for the coordination of the implementation of the convention. Forty African countries are parties to this convention.

The Ramsar Convention. This mission of this convention is "the conservation and wise use of all wetlands through local, regional, and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world." Parties to the convention must designate at least one wetland within its territory as a wetland of international importance and promote its conservation. Under the Ramsar Convention there is a general obligation for the parties to include wetland conservation considerations in their national land-use planning. They commit themselves to formulate and implement this planning so as to

promote, as far as possible, "the wise use of wetlands in their territory." To date there are 1,743 sites in the List of Wetlands of International Importance, 169 in Africa distributed among the 39 countries.

Convention on Conservation of Migratory Species (CMS). The convention on the conservation of migratory species of wild animals (also known as CMS or the Bonn Convention) aims to conserve terrestrial, marine, and avian migratory species throughout their range. It is an intergovernmental treaty, concluded under the aegis of the United Nations Environment Program, concerned with the conservation of wildlife and habitats on a global scale. Twenty-eight African countries are parties to the convention. Since it deals with migratory species, the CMS provides a framework under which specific agreements or memoranda of understanding are signed among countries that have migratory species in common. In Africa, the most relevant agreements and memoranda of understanding are: 1) the Memorandum of Understanding concerning Conservation Measures; 2) Agreement on the Conservation of African-Eurasian Migratory Waterbirds; 3) Agreement on the Conservation of Gorillas and their Habitats; 4) the Memorandum of Understanding concerning Conservation Measures for Marine Turtles of the Atlantic Coast of Africa; and 5) the Memorandum of Understanding on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South-East Asia

The World Heritage Convention. This convention calls on parties to ensure that effective and active measures are taken for the protection, conservation, and presentation of the cultural and natural heritage situated on its territory. Each party shall endeavor to adopt a general policy that aims to integrate the protection of that heritage into comprehensive planning programs. Most countries in Africa are parties to this convention. There are 34 natural national parks or nature reserves distributed in 27 sub-Saharan countries. This convention is important as World Heritage Sites are the only category of protected areas that the International Council on Mining and Metals (ICMM) accepts as no-go areas.

B. THE BUSINESS CASE FOR BIODIVERSITY

A company's primary goal is its bottom line. The decision to incorporate Corporate Social Responsibility (CSR) as part of its strategy is fundamentally a business decision. According to The Economist (January 17, 2008), "Corporate responsibility is largely a matter of enlightened self interest." As Gibson (2000) suggested, "The actions of economically rational corporate and real individuals will provide valuable benefits but they will not reliably serve the common good in development, much less in environment." Extractive industries, particularly those that depend on non-renewable resources, have limited incentive to be environmentally responsible. In the absence of effective law enforcement, conservation may depend upon the motivation of an extractive industry to go beyond the minimum required by law

Most corporations act to mitigate the negative environmental impacts and make a meaningful contribution to conservation in response to external pressures from affected communities, consumers, shareholders, competitors in the sector who are setting the benchmark, civil society, financiers, or government. Increasingly, they are also motivated by public perception, which can be seen as a benchmark of business risk, which could translate into higher operating costs. When operating in remote areas in developing countries, extractive industries may be sheltered from the scrutiny of consumers, investors, regulators, and NGOs.

The risks for companies in partnerships with development agencies, governments, and civil society may include inconsistency with the corporate strategy or business plan, exposure of business strategy and other proprietary information, and increased costs and delays in implementation of the project. On the side of other partners, risks may include financial dependency resulting in moral compromise and policy capture (or perceptions thereof), and the high cost of investment in human and other resources to develop a partnership. For both, failed partnerships or unsuccessful projects can result in recrimination and bitterness, and concomitant risk to reputation. On balance, however, the benefits of an effective partnership have the potential to outweigh these risks. These benefits include:

- Management of environmental risk
- Avoidance of conflict with affected communities
- Broadening the knowledge base of the company
- Market access and expansion
- Improved corporate image
- Improved access to financial resources
- Shareholder satisfaction
- Employee satisfaction

The following sections provide the principal arguments for businesses to embrace conservation partnerships and environmentally and socially sensitive practices.

B.1 Market Access and Expansion

In light of the current hunger for minerals and oil, gaining access to new markets or expanding current ones is not a preoccupation of either mining or oil companies. It is the case, however, for companies attempting to place tropical hardwoods and fisheries products in niche markets.

The movement to restrict the importation of tropical hardwoods produced under unsustainable extractive regimes is particularly strong in Europe where the level of consciousness about tropical deforestation is high. Public pressure has prompted several European governments to put in place policies and guidelines for the importation of tropical timber. Many of them require that timber be certified under "environmentally friendly" certification systems, such as the one regulated by the Forestry Stewardship Council, before being admitted into the countries. More recently, the European Union launched an action plan to restrict the amount of illegal timber entering the Union. This action plan, known as the Forest Law Enforcement, Governance, and Trade (FLEGT) increases the requirements on timber imports. The European timber market is particularly important to African countries.

B.2 Access to Financial Resources

Extractive industries derive financial resources for investment in their operations from a number of sources. Access to two such sources may be contingent on good environmental behavior: Loans from multilaterals and privately owned financial institutions, and investments.

Loans from multilateral funding agencies such as the World Bank and IFC have long conditioned the financing of projects judged to have a significant impact on the environment on the outcome of environmental impact assessments and mitigation or environmental management plans (or other social and environmental analyses). Similar requirements have now been adopted by 64 financing institutions under the "Equator Principles," a set of nine conditions (see sidebar at right) that borrowers must meet to receive loans in excess of US$10 million. A tenth principle is a reporting requirement for financial institutions. Loans may not be relevant to large multinational oil and mining companies, but they may play a decisive role in the investment decision of smaller companies and those that deal with renewable resources such as fisheries and timber.

According to the nonprofit Social Investment Forum (SIF 2007), from 2005 to 2007, socially responsible investment (SRI) assets increased more than 18 percent from the US$2.29 trillion documented in 2005 to US$ 2.71 trillion in 2007, while all investment assets under management edged up by less than three percent. Today, nearly one out of every nine dollars under professional management in the United States is involved in socially responsible investing.

The United States alone has approximately 60 SRI funds. In the words of the chief investment officer for Calvert Funds, a family of funds that bills itself as an SRI fund family: "We look for both good environmental performance in terms of the past – a fairly good compliance record; management of

The Equator Principles

The equator principles are a financial industry benchmark for determining, assessing and managing social and environmental risk in project financing.

To assist project financiers with social and environmental issues, particularly for those projects in the emerging markets, the Equator Principles Financial Institutions (EPFIs) have adopted a set of principles to ensure that projects are developed in a manner that is socially responsible and reflect sound environmental management practices, and recognize that the role of project financier affords the opportunity to promote responsible environmental stewardship and socially responsible development.

Loans from these institutions will not be provided to projects where the borrower does not comply with the principles:

1: Review and Categorization – Projects are categorized according to nature and magnitude of environmental impact in accordance with the environmental and social screening criteria of the IFC.

2: Social and Environmental Assessment – Projects with significant environmental impact must conduct social and EIAs.

3: Applicable Social and Environmental Standards – Projects must comply with environmental performance standards. In developing countries projects are to use the IFC performance standards.

4: Action Plan and Management System – For projects with environmental impact, borrowers must prepare an action plan that addresses the relevant findings of the EIA and SIA.

5: Consultation and Disclosure – The borrower or a third party expert must consult with project-affected communities in a structured and culturally appropriate manner.

6: Grievance Mechanism – The borrower must establish a grievance mechanism for projects judged to have a significant impact on the environment and local societies.

7: Independent Review – The EIA and SIA, together with action plan and environmental management plan, must be reviewed by an independent reviewer.

8: Covenants – Compliance with local laws and prescriptions of the environmental action and management plan, etc. is required.

9: Independent Monitoring and Reporting – Project implementation must be independently monitored to ensure adherence to plans and mitigation measures.

10: EPFI Reporting – Each EPFI commits to report publicly at least annually about its implementation. *Details can be found at: http://www.equator-principles.com/*

environmental impacts – as well as the right policies and programs to manage environmental impacts in the future: ownership of environmental issues at the board and executive, as well as staff, level. The kind of management systems we look for depends on the type of company and its impacts: for a forest products company, for instance, we'd look not only at the impacts of production (papermaking or lumber manufacture) but habitat management (as well)."

But it is not only the SRI funds that scrutinize extractive industries for sound environmental management. Other investment entities such as Goldman Sachs have recognized the relationship between good environmental stewardship and investment (see box at right).

Introducing the Goldman Sachs Energy Environmental and Social Index

Environmental and social issues count. While one-off events have limited share price impact, environmental and social issues will become increasingly important for oil and gas companies seeking to access the new legacy assets, which we view as the key driver of future performance and valuation.

Companies that are preoccupied with attracting investment or securing loans will ensure that their reputation is not sullied by negative environmental performance. Thus, their focus is on reducing impact of their operations and making sure that communities and their environment are not negatively affected. On the other hand, a mechanism to compensate for unavoidable environmental damage on site by conserving nature elsewhere known as "biodiversity offsets" is being supported by certain investment companies.

Good social and environmental and social policies and principles can also help to attract funding through green investment funds or securing financing for an operation from a financial institution that complies with the Equator Principles. Companies thus benefiting are screened for their behavior vis-à-vis the social and natural environment, and should demonstrate at least a better-than-average social responsibility agenda. These companies would also have more to lose from poor environmental performance, as they would risk their current and future funding if they do not meet their stated principles. Nonetheless, the criteria used by financial institutions and funds vary and may not be rigorous enough to ensure the protection of biodiversity or social equability as desired.

B.3 Risk Minimization

A successful company is profitable both for its shareholders and the society in which it operates. Poor environmental performance is a business risk. It can result in negative perceptions on the part of investors and lenders, government regulators, consumers of the business's products, and the business's own employees. This may result in higher operational costs, higher insurance costs, higher capital costs, and decreased productivity due to low morale. Most importantly, it can brand a company as a poor environmental citizen. This threatens its license to operate, the bond of trust without which stakeholders across the spectrum cease to tolerate the risks of doing business. When this perceptual license to operate evaporates, stakeholder resistance becomes overwhelming.

Local conflicts can seriously disrupt extractive activities when they entail road blocks, the takeover of installations, hostage-taking, or damage to infrastructure such as pipelines and machinery. Whereas in the past extractive industries were quick to appeal for assistance from the

national governments to quell these situations, they are now more wary of international public opinion. This wariness is owed largely to the negative publicity and criticism that surrounds the often-violent repression of local action by security forces. Perhaps the most notorious case, and what propelled Shell to change company policy toward the environment and community relations, was the rebellion of the Ogoni people against oil exploration in the Niger delta. The summary execution of Ogoni writer Ken Saro-Wiwa brought worldwide condemnation from international organizations such as Earthlife Africa, Amnesty International, Friends of the Earth, Greenpeace, and others. It also resulted in a call for the boycott of Shell products.

When a company's goal is the avoidance or mitigation of conflict with local communities and government, their interest in biodiversity conservation is more likely to focus in the immediate vicinity of operations. Indeed, a review of corporate responsibility program will reveal that most of the ground-level actions take place in and around their installations. Hence, HOLCIM spends considerable efforts in the rehabilitation of quarries in Kenya. Within the installations the company may implement environmental management systems to minimize the negative impacts in the surrounding environment. These efforts may lead to certifications such as ISO14001 (environmental management system) or Forestry Stewardship Council (sustainable forestry). Part of the local conflict avoidance program may also involve working with neighboring communities.

Because of the negative impact on their image and the potential they have to disrupt production, extractive industries go through great measures to avoid conflicts with local communities and local governments. Many have community relations program or community development programs. Community relations usually address immediate local concerns. They attempt to avoid protests and local action by quickly meeting community demands for goods and services. These range from small items, such as uniforms for a soccer team, to more substantial demands such as a clinic, school, jobs, or environmental clean-up. In other words, community relations programs are reactive and may not adhere to a development strategy. They are designed to keep the natural resources flowing and avoid the loss of revenue. Community development programs usually entail an agreement between the extractive industry and local communities or local governments that define lines of action and may entail a development strategy and annual work plans. They tend to be proactive and ongoing even without an imminent conflict. Community development programs may provide a viable instrument for collaboration for biodiversity conservation.

Extractive industries that operate in sensitive areas without the consent of local communities expose themselves to local-level action against their operations. This can have three outcomes. The company: 1) complies with the demands of the community and is allowed to continue to operate; 2) appeals to the central government for assistance and the local opposition is suppressed; 3) is forced out of the area.

One way to avoid delicate situations created by conflictive local relationships is to ensure that a truly participatory process leads to the design of extractive activities that minimize negative impacts and enjoy the support of local communities. It is important to establish that this participatory process was inclusive and includes a mechanism for continuous communication, conflict resolution, and that the design and implementation of the activity responds to the fears and aspirations of local people.

On the other hand, the approval of communities is no guarantee that the extractive activity will not harm biodiversity. Local populations may have concerns more pressing than the conservation of biodiversity or the environment. Most environmental impact assessment legislation requires local participation as an integral part of the assessment process. Whether this occurs depends on local environmental governance and how seriously the EIA process was conducted and will be monitored.

Where extractive industries recognize environmental risk and take a proactive stance, they can bring significant resources to bear on a problem. Their risk management strategy can leverage resources to prevent or mitigate environmental and social hazards. Partnerships may bring access to new knowledge and skills for a business at a lower cost and greater efficiency than developing these assets directly.

B.4 Green Image

Industries in general, and extractive industries in particular, are conscious of the importance of creating and maintaining a positive corporate responsibility image. Corporate responsibility encompasses company behavior toward the environment. Hence, BP, which once stood for British Petroleum, now means "Beyond Petroleum;" Shell and Rio Tinto tout their biodiversity strategy in their Web site. Virtually every large mining or oil company has a sustainable development, environment, or biodiversity program or strategy. To implement them they use mechanisms such as forming partnerships with conservation organizations and projects.

The projection of a green image is helped by an association with renowned conservation organizations. The introduction to the "partnership" page of Conservation International's Web site states that: "Contrary to popular belief, corporations are a major ally in our conservation efforts. It's like adding a big hitter to your championship team. We've always taken pride in our relationships with our creative corporate partners." The site goes on to list 65 corporate partners, among them some of the largest oil (BP, Shell, Conoco, Chevron Texaco, Statoil), mining (Alcoa, BHP Billington, Anglo American, CEMEX, Mitsubishi, Rio Tinto), and wood product (Weyerhaeuser, Boise Cascade), companies in the world.

WWF maintains licensing agreements under which companies are permitted to use the WWF logo and become conservation partners. La Favre, a multinational cement company, and IKEA, a wood products company, hold such an agreement. Companies that wish to project a green image may be more flexible as to where they invest in the environment. Since most large mining and oil companies have a global image, a positive action toward the environment will achieve the green image effect irrespective of where the conservation takes place. The green image effect is magnified if the target ecosystem or species is well known or charismatic. Nonetheless, extractive industries prefer to focus environmental activities in the immediate vicinity of operations. In these places the returns on investment are higher: local conflicts are mitigated and a green image effect is generated.

B.5 Conserving Renewable Resources

Companies that derive their living from renewable resources may be interested in conserving the ecosystems that produce those resources. This is especially the case for fisheries companies that operate in international waters because there is a reduced likelihood that their rights to operate will be withdrawn. To some extent, timber companies may also be genuinely interested in conserving tropical forests, but their commitment is tempered by the uncertainty that often surrounds timber concessions in African countries. Companies that live from the extraction of non-renewable resources have little interest in their conservation. In fact, many contractual arrangements specify minimum rates of extraction. These legal commitments may serve as a disincentive for oil and mining companies to adhere to international environmental management standards.

B.6 Altruism

There are motives behind good environmental stewardship by extractive industries that go beyond pragmatic and economic reasoning. These are usually associated with the personal convictions of a pro-environment decision maker, someone interested in leaving behind a better environment. The practical manifestation in terms of good environmental stewardship depends at what level these pro-environment individuals find themselves in the corporate hierarchy and on the financial and management structure of the company. A family controlled company is more likely to translate into action the value of its owners. One that is focused on satisfying stockholders is more likely to sacrifice good environmental intentions to boost profitability.

Companies that practice good environmental stewardship and invest in biodiversity for conviction are more flexible about where they act. They also express a preference to act near their centers of operation. Many set up a grant-making mechanism in the form of a foundation or grant program.

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ANNEX B. EXTRACTIVE INDUSTRIES AND USAID RELATIONSHIPS AFRICA

* Denotes partnerships utilizing the USAID Global Development Alliance (GDA)

ANGOLA

Resources. Diamonds, gas, oil.

Objectives. The public-private partnerships in Angola have focused on business development support, credit and property right reforms for artisanal miners, macroscopic economic and financial reforms, civil society strengthening, improved agricultural production and food security, transparency and accountability in the extractive industries, and public health issues such as malaria and HIV/AIDS. Between 2002-2005, cumulative public-private contributions totaled $15,467,000, and overall, USAID/Angola has been one of the agency's most successful implementers of the GDA approach.

Projects

1. Angola Chevron-Texaco Seed Recovery

Project dates: 2004-
Implementing partners: Chevron-Texaco, OFDA, USAID/Angola, World Vision

Cost: $7.8 million (Chevron $3.9 million, USAID $3.9 million)

Summary (nature/goals). The Angola Seed Recovery project responds to Angola's dire need for civil society building after the country's 27-year civil war. Notably, at the time of Angola's 2002 peace agreement, the country's food production and distribution systems had completely disintegrated, and nearly four million Angolans depended on foreign food assistance. The Seed Recovery Project, therefore, targets food independence for internally displaced persons in the Planalto highlands. Key interventions are providing an improved variety of maize and bean seeds, farming tools to small-scale farmers, promotion of crop diversification through multiplication, and tubers and root crops such as sweet potatoes and cassava.

Results (outcomes of partnerships: successes, lessons learned, leveraging resources). Due to the World Vision/USAID/Chevron Texaco partnership, 276,000 families in five provinces reestablished their farms and became food independent. Secondary effects created a guaranteed market for local seed producers, new employment opportunities, and civil society building through collaboration with farmer associations and social networks.

2. Angola Partnership Initiative*

Project dates: 2002-2007
Implementing partners: Cabinda Gulf Oil Company, Chevron-Texaco, DfID, USAID, UNDP, United Nations Foundation

Cost: $50 million (Chevron $25 million, USAID $25 million)

Summary (nature/goals). The Angola Partnership Initiative supports the growth of small and medium enterprises, reconstruction of national infrastructure damaged in Angola's civil war, rehabilitation of roads to improve farmer access to markets, and the return of ex-combatants to productive agricultural employment.

Results (outcomes of partnerships: successes, lessons learned, leveraging resources). The Partnership Initiative has distributed food, seeds, tools, and technical assistance to nearly 800,000 farmers and internally displaced person in the Planalto region. Concurrently, the project assisted farmers in developing business plans and accessing trade networks and farmers associations. The project also advanced agronomic research, agricultural productivity, and food security in Angola through the funding of seed replication banks, agricultural extension services, agronomic research centers, and policy and economic hubs.

Another significant accomplishment of the initiative was the establishment of NovoBanco, Angola's first microcredit bank. NovoBanco has administered more than $3 million in microcredit loans individually valued at $100 to $15,000. To date, NovoBanco has achieved a 98 percent repayment rate on microcredit loans and has created 5,000 savings accounts, valued at $1 million.

Collectively, the success of this public-private partnership is evident by additional resources leveraged by partners. In addition to USAID's initial commitment of $25 million, project partners leveraged $43 million, exceeding the original pledge by $17 million. Due to the project's momentous achievements attained in food security, economic growth, and civil restructuring, this public-private partnership received the Global Development Excellence Award in 2004.

Although largely heralded as a success, a lesson that the Partnership Initiative learned is that public-private partnerships with extractive industries may create transparency and accountability concerns for implementing partners. In this case, Catholic Relief Services, a long-standing USAID partner in Angola, perceived a conflict of interest in taking corporate partnership money, due to its commitment to the Publish What You Pay Campaign.

3. Enterprise Development Alliance

Implementing partners: UNDP, USAID
Cost: $10 million ($5 million UNDP, $5 million USAID)

Summary (nature/goals). The Angolan Enterprise Development Alliance will provide technical assistance and financial assistance to small and medium enterprises in the agriculture and water sectors. The partnership will also support education and training projects.

4. Municipal Development Program

Project dates: 2006-2008
Implementing partners: CARE, Chemonics, Chevron Texaco, Development Workshop, DfID, Dutch Government, Fundacao Brilhante (a philanthropic organization created by the ENDIAMA Group), Ministry of Territorial Administration, Open Society Institute, Save the Children, Social Assistance Fund Government of Angola, World Bank, World Learning

Cost: $11.5 million (Lazare Kaplan $500,000)

Summary (nature/goals). The Municipal Development Program is a public-private partnership that supports the Government of Angola's legal mandate, authorized by the Local Administration Decree (1999), to decentralize national government authority. Through the program, Chevron-Texaco and Lazare Kaplan International are working in five provinces (Bie, Cabinda, Cuando Cubango, Huambo, Lunde Norte) to build local institutional governmental capacity. Project objectives include: enabling communities to collaborate with municipal authorities to implement municipal development plans; improving participatory planning processes in municipal government; monitoring the delivery of public services; improving budget and planning processes; and establishing a municipal development fund for social infrastructure projects. The project also bolsters essential health care services, strengthens civil society, and collates data, including demographic, administrative, poverty vulnerability, and environmental data for urban planning and modeling.

Results (outcomes of partnerships: successes, lessons learned, leveraging resources).Partners hope to vest local communities in the licit diamond trade by curtailing diamond smuggling and by enhancing NGO capacity to monitor human rights violations in the diamond sector.

5. President's Malaria Initiative

Project dates: 2006-2009
Implementing partners: Angolan Ministry of Health, ExxonMobil (Esso Angola) Tuberculosis and Malaria (GFATM), UNICEF, USAID, World Health Organization and the Global Fund for AIDS

Cost: $2 million Exxon Mobil

Summary (nature/goals). The goal of the President's Malaria Initiative in Angola is to reduce malaria-induced deaths by 50 percent during a three-year period.

*Results (outcomes of partnerships (*successes, lessons learned, leveraging resources).
Since 2006, more than 100,000 houses have been sprayed with pesticides against mosquitoes and 800,000 bed nets have been delivered to households. Exxon Mobil has provided financial assistance to develop educational health materials and to distribute anti-malarial drugs in affiliation with nongovernmental organizations.

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CENTRAL AFRICAN REPUBLIC

Resources. Diamonds.

Objectives. As the world's eleventh largest net producer of diamonds, the Central African Republic (CAR) has a vested interest in licit and conflict-free diamond trade in Africa. Consequently, many of USAID's projects in the Central African Republic seek to bolster national administrative capacity to implement the Mining Code and the Kimberly Process Certification Scheme. Current USAID/CAR projects emphasize the codification of statutory property rights for mineral extraction, "earth to export" manifest systems, miner cooperatives to improve on environmental health and safety norms, repatriation of diamond export taxes to locally affected communities, clearer accounting for public revenues from mining, and stronger environmental mitigation and remediation standards.

Projects

1. Property Rights and Artisanal Diamond Development Pilot Program (PRADD)

Project dates: March 2007-May 2008
Implementing partners: USAID, U.S. State Department

Summary (nature/goals). The primary objective of the Property Rights and Artisanal Diamond Development Pilot is to strengthen the application and enforcement of the Kimberly Process Certification Scheme. PRADD fortifies the Kimberly Process by creating a data collection and manifest system for diamond production. PRADD also promotes "earth to export" value chains for alluvial diamonds to abate the sale of conflict diamonds. Other long-term objectives of this pilot program include raising community awareness, reducing the negative environmental impacts of artisanal diamond mining, and clearly identifying property rights holders in the target zone.

Results (outcomes of partnership: successes, lessons learned, leveraging resources). Full and transparent implementation of PRADD has been difficult as there are many vested interests in the illicit sale and transfer of diamonds in Guinea and Central Africa Republic. Furthermore, PRADD lacks the institutional and administrative capacity to effectively monitor the manifest system to ensure compliance with the Kimberly Process. Other problems that have plagued PRADD include the absence of a social mandate for extractive industry reforms, a legacy of corruption and opaque transactions in the extractive industries, and state centric land tenure policies that neglect customary property rights and the right to access sub-surface minerals.

Central African Republic References

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SFA Discussion: Extractive Industries – Central African Republic.

SFA Discussion: Extractive Industries: Central African Republic – Natural Resources and Biodiversity.

DEMOCRATIC REPUBLIC OF CONGO

Resources. Coal, cobalt, coltan, copper, diamonds, gold, manganese, natural gas, niobium, oil, rubidium, silver, tantalum, tin, tungsten, uranium, zinc.

Objectives. Mineral resources have long been a source of regional armed conflict for the Democratic Republic of Congo. Consequently there exists an imperative for the international community to aid the government in quelling the violence spurred by extractive industries. USAID approaches to mitigating conflict in the Congo include the validation and valuation of the mining sector through alternative livelihood generation, uniform application of existing environmental, health, and labor laws, economic diversification, corporate accountability and civil empowerment, and support of international accords such as the Voluntary Principles on Human Rights, the Kimberly Process, and the Extractive Industries Transparency Initiative.

Projects

1. Conflict Management and Artisanal Mining

Project dates: May 1, 2007-June 30, 2009
Implementing partners: Anvil Mining, Groupe One, International Finance Corporation, Katanga Mining Limited, Mintek, Nikanor, PACT, Tenke Fungurume Mining, University of Lubumbashi, USAID, Wardell Armstrong LLP

Summary (nature/goals). The Conflict Management and Artisanal Mining project supports the integration of commercial mining companies, subsistence diggers, and illegal/informal miners in Kolwezi, Democratic Republic of Congo (DRC), in order to promote long-term social and economic development in the region. Successful integration of these groups is dependent upon identifying the constraints and opportunities for artisan miners to peacefully and viably extract mineral resources alongside their commercial counterparts.

Results (outcomes of partnerships: successes, lessons learned, leveraging resources).
Principal constraints for artisan miners to extract mineral resources include the transportation of goods, access to micro-credit, vocational training, and alternative livelihood opportunities.

Consequently the project has four main objectives: 1) to rehabilitate roads with the potential for labor-intensive and efficient road construction technology and maintenance; 2) to provide vocational training in anticipation of employment in modern mine operations and to provide alternative education opportunities for children for whom formal education is not currently an option; 3) to promote alternative livelihoods in agriculture and micro-enterprise especially for women; 4) to encourage mining companies to provide contracts for micro-enterprise projects such as for bricks, roofing, fencing, gravel making and other products and services with flexible and open-ended business counseling and training, including linkages with sources of micro-finance credit.

2. Extractive Industries Initiative and GDA Mining Partnership*

Project dates: October 1, 2006-January 2009
Implementing partners: AngloGold Ashanti, Anvil Mining Ltd, First Quantum Minerals Ltd., DfID, IFC, International Foundation for Education and Self-Help, MONUC/UNDP, PACT, Phelps Dodge/Tenke Fungurume Mining, USAID

Summary (nature/goals). The Extractive Industries Initiative (EII) has several principal objectives *vis à vis* extractive industries in the Katanga Province of the Democratic Republic of Congo. The first goal is to promote transparency and accountability and decrease corruption in the extractive industries through local capacity building and empowerment of a civil coalition to oversee, and report on, the activities of local mining companies.

The project has also undertaken reform of the legal and political enabling environment in the mining sector. The program supports practical implementation of the Voluntary Principles on Human Rights and Security, which provide guidelines for military oversight of mines and strategies for handling traffickers. The project further seeks to clarify revenue collection and to repatriate funds collected from the extractive industries to locally affected communities. The Extractive Industries Network emphasizes public-private partnerships whose mission is to incorporate into the extractive industries model environmental health and safety, livelihood generation, rigorous implementation of labor law and concerns for artisan miners.

A second objective of the EII is to work with industry and civil society to diversify the economy of the Katanga Province, historically based on mineral extraction and artisan small-scale mining. Diversification has focused on improved agricultural production, more accessible public education and health care systems, small infrastructure development projects, and the promotion of small and medium enterprises. The project further promotes community engagement in the decision-making process for corporate social development projects.

Results (outcomes of partnerships: successes, lessons learned, leveraging resources). The greatest success of the Extractive Industries Initiative thus far is the completion of numerous small-scale social development projects and the occurrence of community-based training. Since June 2007, the project has constructed 38 community infrastructure projects including schools, clinics, markets, water points and silos. Community Development Committees have been trained to rehabilitate classrooms and clinics, how to treat malaria, and how to socially market impregnated malaria nets. The initiative also has sponsored teacher and farmer field training and

one workshop on the Voluntary Principles; in addition, 252 artisan miners have received vocational training for jobs outside of the mining sector.

Furthermore, at the community level, the EII has facilitated the establishment of 48 small and medium enterprises and 959 women are participating in micro-savings and literacy programs. Fifty-five communities have convened to develop community action plans and one community has analyzed how to incorporate mining sector revenues into public development activities.

Democratic Republic of the Congo References

Overview of Donor Activities in the Small-Scale Mining Sector in DRC.

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SFA Discussion: Extractive Industries – Democratic Republic of Congo.

USAID/DRC. DfID/DRC Extractive Industries Initiative: Executive Summary.

GHANA

Resources. Gold, timber.

Objectives. USAID/Ghana extractive industry projects emphasize strengthened democratic local governance, enhanced economic development through the private sector, and the adoption of environmental and social best practices in the mining sector. The Responsible Mining Alliance is an important mechanism by which stakeholders can address conflicts in the mining sector and promote best practices in community development and compensation, livelihood generation, human rights, and environmental protection and remediation.

Projects

1. Ghana Responsible Mining Alliance

Implementing partners: Biodiversity and Business Offset Program, Ghana Chamber of Mines, Gold Fields Ghana, Newmont Ghana Gold Limited Mining Company

Cost: $9.7 million (GDA $400,000, USAID $1.25 million, Newmont & Gold Fields Ghana $8.38 million, other partners $279,700)

Summary (nature/goals). The Ghana Responsible Mining Alliance seeks to strengthen democratic local governance, enhance economic opportunity through the local private sector, and promote responsible mining practices. To achieve these goals, the project has created a stakeholder alliance among the mining industry, host communities, civil society, and local governments which serves to disseminate information and to promote best practices in environmental stewardship, social development, and conflict mitigation. Incorporation of best practices ranges from human rights, mine security and conflict mitigation to community development, resettlement, community compensation, and mine reclamation and closure.

A secondary objective of the Mining Alliance is the generation of local livelihoods and economic development projects which extend beyond the life cycles of the mines. The project couples livelihood generation with improved standards of living in health care, education, waste management, and sanitation for communities living in proximity to mines. In the Ahafo Region, the project targets improved socio-economic well being for households economically or physically displaced by the mine. Social-economic enhancement projects include the promotion of small and medium enterprises and agricultural training programs for improved food and cash crop production and reductions in post harvest crop loss.

Results (outcomes of partnerships: successes, lessons learned, leveraging resources). Although the Alliance is nascent, its activities compliment Newmont's other environmental and development initiatives and networks such as the Ahafo Sustainable Development Foundation, the Ahafo Social Responsibility Forum, ecotourism work with Earthwatch and the Ghana Nature Conservation Research Center, and Newmont's forest partnership with Conservation International.

2. Northern Ghana Peace-Keeping Initiative*

Implementing partners: Catholic Relief Services

Summary (nature/goals). The goal of this project is to create forums for dispute resolution in the extractive industries and other sectors to avoid conflict escalation.

Ghana References

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SFA Discussion: Extractive Industries – Ghana.

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GUINEA

Resources. Aluminum, bauxite, diamonds, gold, iron, oil, timber, uranium.

Objectives. Global Development Alliances in Guinea provide a structured mechanism for managing community development trusts established by extractive industries as a condition for a license to operate. Other projects in Guinea emphasize "earth to export" manifest systems to decrease the sale of conflict diamonds, local workforce development, and clearly defined statutory, rather than customary, property rights for mineral extraction.

Projects

1. Newmont Mining Fields, Gold Field, Global Alumina *

Cost: $3 million

Summary (nature/goals). The Newmont Mining Fields, Gold Field, Global Alumina Global Development Alliance is a structured mechanism for managing community development trusts. A subsidiary component of the alliance is workforce development training to build local capacity to staff technical and management positions within mining operations.

2. Property Rights and Artisanal Diamond Development Pilot Program (PRADD)

Project dates: March 2007-May 2008
Implementing partners: USAID, U.S. State Department

Summary (nature/goals). The primary objective of the Property Rights and Artisanal Diamond Development Pilot is to strengthen the application and enforcement of the Kimberly Process Certification Scheme. PRADD fortifies the Kimberly Process by creating a data collection and manifest system for diamond production. PRADD also promotes "earth to export" value chains for alluvial diamonds to abate the sale of conflict diamonds. Other long-term objectives of this pilot program include raising community awareness, reducing the negative environmental impacts of artisanal diamond mining, and clearly identifying property rights holders in the target zone.

Results (outcomes of partnerships: successes, lessons learned, leveraging resources). Full and transparent implementation of PRADD has been difficult as there are many vested interests in the illicit sale and transfer of diamonds in Guinea and Central Africa Republic. Furthermore, PRADD lacks the institutional and administrative capacity to monitor the manifest system to ensure compliance with the Kimberly Process. Other problems that have plagued PRADD include the absence of a social mandate for extractive industry reforms, a legacy of corruption and opaque transactions in the extractive industries, and state centric land tenure policies that neglect customary property rights and the right to access sub-surface minerals.

Guinea References

ARD, Inc. 2007. Guinea Preparatory Mission Report: Property Rights and Artisanal Diamond Development Pilot Program – Towards An Approach for Conflict-Free Artisanal Diamond Development in the Central African Republic and Guinea. November 4-20, 2007. ARD, Inc. for USAID.

SFA Discussion: Extractive Industries – Guinea.

LIBERIA

Resources. Diamonds, gold, iron, timber.

Objectives. Liberian extractive industry initiatives focus on equal participation of stakeholders in the production and management of extractive industries, particularly timber and oil. In broader terms, GEMAP and the Liberia Forestry Initiative strive to reassert licit control over extractive industries and to bolster civil society capacity to oversee transparent and accountable extractive industry operations.

Projects

1. Governance and Economic Management Assistance Program (GEMAP)

Summary (nature/goals). The Governance and Economic Management Assistance Program promotes transparent and legitimate management of the forestry, mineral, and petroleum sectors

in Liberia that were illicitly operated during the country's nine year-civil war. Transparent and legitimate management of these natural resources is multifaceted and includes: institutional capacity building for governmental agencies to implement and monitor national laws; re-exerting licit control over natural resources including diamonds, timber, iron, and oil; and bolstering civil society capacity to oversee and ensure the accountability of extractive industries.

2. Liberia Forestry Initiative

Implementing partners: Community Forestry Technical Assistance for Liberia, COFTAL Program Civilian Conservation Corps, Conservation International, U.S. State Department

Summary (nature/goals). The Liberia Forestry Initiative is among a series of USAID projects that strive to rebuild Liberian civil society through the sustainable and transparent management of natural resources, particularly oil and timber. This project underscores equal participation of stakeholders in the production and management of extractive resources and promotes equitable distribution of oil revenues. The initiative, in collaboration with the State Department, further seeks to improve the legal and economic enabling environment to improve the commercialization of natural resources. Lastly, the Community Forestry Technical Assistance for Liberia (COFTAL) Program, the Civilian Conservation Corps, and Conservation International are working to ensure that the benefits of protected area management positively impact communities around Sapo National Park.

Liberia References

SFA Discussion: Extractive Industries – Liberia

MADAGASCAR

Resources. Bauxite, gemstones, gold, ilemite, oil, nickel, timber.

Objectives. In Madagascar, numerous mineral and gemstone deposits buttress against sensitive conservation areas and protected areas. Consequently, as a biodiversity hotspot and a highly indebted poor country, Madagascar must balance the economic growth and development offered by the extractive industries with the real environmental impacts of mining. This dichotomy has encouraged strong reforms in the mining sector and has also led to the promotion of best social and environmental practices when developing new mining projects. To date, USAID interventions in extractive industries in Madagascar have included reforming the mining code, facilitating good governance, joint mapping for timber and mineral extraction, improving transparency through the Extractive Industries Transparency Initiative, improving NGO capacity to oversee the extractive industries, and training artisan miners in gemstone faceting and valuation.

Projects

1. Madagascar Minerals (QIT)*

Project dates: 2006-2009
Implementing partners: Regional Government of Anosy, QIT Fer Malagasy Minerals (QMM) (subsidiary of Rio Tinto), and USAID

Cost: $6 million

Summary (nature/goals). QIT Fer Malagasy Minerals (QMM) is a subsidiary company of Rio Tinto that plans to extract a sizeable ilemite deposit near Ft. Dauphin in the Anosy Region of Madagascar. While the ilemite mine represents the largest single capital investment in Madagascar ever, thus presenting opportunities for economic growth, it also poses formidable sociological and environmental problems. Poverty, isolation, political and administrative neglect are insidious in southeastern Madagascar, as evidenced by the fact not one regional human development indicator (life expectancy, revenue, literacy, etc.) meets the national median of 0.5.

The Madagascar Minerals Global Development Alliance (GDA) seeks to redress the social and environmental problems that invariably will occur with development of the ilmenite mine. The GDA unifies USAID's strategic objectives to support community based-natural resource management, economic growth, improved health services and poverty reduction, with governmental goals outlined in the Regional Development Plan, and Rio Tinto's operating principles and mitigation strategies enumerated in the Social and Environmental Impact Assessment.

The interventions underscored by the alliance include: 1) finalization of a regional development framework, strategic investment plan, and four communal development plans; 2) an urban plan for Ft. Dauphin which would incorporate land use, zoning laws and construction standards, transportation planning, migration strategy for displaced persons and incoming migrant mine workers, and tax and revenue collection; 3) community health programs that emphasizes STD and HIV/AIDS prevention; 4) investment in social infrastructure for health and education; 5) a regional, landscape approach for natural resource management; 6) generation of local employment opportunities and enterprise development through technical and business training; and 7) land use agreements and resettlement programs.

The project also has incorporated a strong environmental protection and biodiversity conservation element. Possible environmental components of the QMM Alliance include the establishment and management of additional conservation zones, development of sustainable tree nurseries or plantations, reforestation of 100 hectares in Anosy, expansion of ecotourism, aquaculture and other alternative income generating activities, community-based natural resource management, environmental education, and improved agriculture and fishing practices.

Results (outcomes of partnerships- successes, lessons learned, leveraging resources). The environmental interventions proposed by the QMM Alliance are credible and implemental because they incorporate tenets of both statutory and customary law. Under Malagasy law, customary property rights and dispute resolution mechanisms are incorporated into an agreement reinforced by a *dina.* A dina is a uniquely Malagasy construct that enables community members to collectively identify problems, allocates commitments of parties, and determines sanctions in cases of noncompliance.

In the case of the QMM ilemite mine, the local dina has committed to environmental actions as agreed upon in the environmental management plan. Environmental action include a 500-hectare off-deposit plantation, 230 hectare Mandena conservation zone, rehabilitation of 1,500 hectares of the mine site with fast growing tree species, and the reestablishment of 200 hectares of wetlands as part of the environmental rehabilitation program.

Madagascar References

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MALI

Resources. Gold, timber.

Objectives. Mali epitomizes the resource curse in that it is the third-largest gold producer in the world, yet it ranks 175th out of 177 on the Human Development Index. USAID interventions and public-private partnerships in Mali seek to close this discrepancy gap in favor of prosperous economic and social development. USAID has thus worked with the extractive industries to conduct needs assessments and to implement joint interventions such as social development projects, improved agriculture practices, and increased local governance. Other bilateral donors in Mali have focused on legalizing small-scale mining associations, rehabilitating gold washing

stations, and incorporating environmental and biodiversity conservation elements into existing practice.

Projects

1. Morila Mine Global Development Alliance

Project dates: March 24, 2007
Implementing partners: Commune of Sanso, Morila Mining Inc. (a subsidiary of a consortium of Rand Gold, AngloGold Ashanti and the Government of Mali), USAID/Mali

Summary (nature/goals). The Global Development Alliance between USAID/Mali, Morila Mining, and the Commune of Sanso leverages funding and technical management for community development projects in four villages directly impacted by Morila gold mining operations (Morila, Sanso, Figula, and Domba). The collaboration expounds upon Morila's preexisting social and environmental development goals, as articulated in the Community Development Strategy, and USAID's strategic objectives.

The Community Development Strategy addressed will: 1) build lasting relationships through ongoing communication and active participation; 2) cooperate in areas of community needs such as agriculture, health, education, and the environment; 3) invest resources into development programs through selected sponsorship activities; and 4) maintain partnerships and cultivate other partnerships with identified stakeholders to promote self-help, and sustainable development initiatives in the area.

Results (outcomes of partnerships: successes, lessons learned, leveraging resources). To date, Morila Mining has spent $1.7 million on community development projects. Although much of this expenditure predates the GDA, results have been achieved in improved participation in transparent governance, ameliorated health services, education, and agricultural production. Key accomplishments include the construction of a maternity ward in Domba and a women's center in Sanso, improved yields per hectare of rice in Morila and Figola, construction of 14 bore holes in the four target communities, and the provision of local recreational facilities. A yet unrealized goal of the coalition is to build a community-run FM radio station.

Although this project has attained many of its community development objectives, it has also been criticized on several levels. One criticism is that since the company is voluntarily implementing its corporate social responsibilities, this exempts the company from long-term, sustained impact. Second, because the Government of Mali is a joint shareholder in Morila Mining, there exists a perverse incentive to minimize the company's social and environmental expenditures. Concurrently, the government, as shareholder, regulator and tax collector, lacks strong commitment to remunerate community development projects with tax revenue. Lastly, the allocation of funds for community development projects is politicized and not wholly participative.

This Global Development Alliance may sustain more long-term results if it relies less upon activities and infrastructure development, and more on tangible results achieved through other private-public partnerships in Mali such as the Project for Technical Assistance to the Mining

Sector (PATSM), the National Union of Mining Operators (UNOMIN), Promotion of Traditional Mining and Environmental Protection Project, and the Small Subsidies Program of the World Development Fund. These World Bank and United Nations projects have focused on development projects that directly correlate gold mining business development to local capacity building. These projects have legalized small-scale miner groups into sellers' cooperatives, developed and rehabilitated gold washing stations, and incorporated environmental and biodiversity conservation dimensions into mineral resource exploitation.

Mali References

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NAMIBIA

Resources. Diamonds.

Objectives. Projects in Namibia focus on engaging and strengthening civil society in order to promote transparency in the extractive industries sector.

Projects

1. USAID/Nambia Democracy and Governance Strategic Objective

*Summary (nature/goals).*The objective of this project was to engage and strengthen civil society to promote transparency in the extractive industries sector.

NIGERIA

Resources. Natural gas, oil.

Objectives. The lion's share of bilateral donor projects in the extractive industries in Nigeria has focused on transparent revenue collection in the petroleum sector. USAID donor support promotes political stability in Nigeria, enhanced energy security for the United States, transparent revenue collection, civil society strengthening to investigate traffickers, expanded response capability to violence and conflict, and public awareness campaigns about social and environmental impacts of oil extraction.

Projects

1. Advocacy, Awareness and Civic Empowerment (ADVANCE)

Project dates: 5 years

Cost: $3 million, African Bureau Anti-Corruption Initiative (ACI)

Summary (nature/goals). The central tenet of the Advocacy, Awareness and Civil Empowerment project is to better engage civil society to provide effective oversight of the extractive industries, particularly the petroleum sector, in Nigeria. The project encourages civil society capacity building through anti-corruption initiatives, full and transparent implementation of the Extractive Industries Transparency Initiative (EITI), and public awareness campaigns which expose the broader policy implications of oil production in Nigeria.

Results (outcomes of partnerships: successes, lessons learned, leveraging resources). The project has wielded significant financial support for two principal extractive industry initiatives in Nigeria. First, in concert with the African Bureau Anti-Corruption Initiative, more than 90 civil society organizations have received capacity development grants to ensure the transparent implementation of the EITI. The effectiveness of this program is evident by the fact that the EITI, recently adopted by the Nigerian House of Representatives, incorporated several civil society goals into the enabling statute. The project also supports a national public awareness campaign comprised of a regional symposium, media coverage, and the production of documentary on petroleum extraction in the Niger Delta.

2. USAID/Nigeria Democracy and Governance Strategic Objective

Summary (nature/goals). In Nigeria, the project funds the investigation of traffickers of mineral resources.

3. Extractive Industries Transparency Initiative

Project dates: 2004-present
Implementing partners: Civil society, DfID, EITI Secretariat, Government of Nigeria, media, petroleum companies, USAID, World Bank

Cost: $10 million+ from all donors ($1 million from USAID funding for civil society organizations to monitor the Nigerian EITI)

Summary (nature/goals). The Extractive Industries Transparency Initiative is a global program that promotes accountability and transparency in the petroleum sector through the publication of revenues and payments. Donor organizations provide funding and technical assistance to support the Secretariat, as well as direct funding to civil society to advocate for transparent implementation of the EITI.

4. Publish What You Pay

Implementing partners: Africa Bureau Anti-Corruption Initiative

Summary (nature/goals). Publish What You Pay is a civil society initiative that has gained traction with the donor community to promote transparency in the extractive industries. In Nigeria, the Publish What You Pay Campaign focuses on developing partnerships with civil society organizations, industries, and the National Stakeholder Working Group to develop common principles of engagement for e extractive industries' stakeholders. The coalition is working to create a stakeholder dialogue comprised of government, media, civil society organizations and the Extractive Industries Transparency Initiative to publish industry revenue reports.

Nigeria References

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SFA Discussion: Extractive Industries – Nigeria.

World Bank, DfID, USAID. Policy Notes: Nigeria Extractive Industries Transparency Initiative (N-EITI).

SIERRA LEONE

Resources. Diamonds, timber.

Objectives. Sierra Leone perpetuated its brutal civil war by the wholesale of "blood diamonds" and conflict timber. Consequently, sustainable, long-term management of Sierra Leone's natural resources is imperative to reducing natural resourced-based conflict in the future. Thus, it is unsurprising that bilateral donor assistance in Sierra Leone has emphasized good governance and transparency to ensure that government revenues from diamonds are used for the public good, to fight against corruption, to protect human rights, and to deny violent extremists. Specific USAID interventions have focused on strengthening civil society as it relates to employee health/safety and labor law, training in sustainable natural resource management, reclaiming mined-out lands, leveraging private sector involvement to make diamond mining responsive to needs of youth, conflict resolution, generation of alternative livelihoods, and harmonizing regional policy as it

relates to licensing, export and tax regimes, national laws, and equitable and transparent management of the mining sector.

Projects

1. Diamond Area Community Development Fund (DACDF)

Summary (nature/goals). The Diamond Area Community Development Fund is a program that aims to repatriate diamond revenues to locally affected mining communities in Sierra Leone. Local chiefdoms and the Ministry of Local Government and Community Development administer the diamond revenues through community development funds, which are tangentially overseen by community members who ensure the transparent and accountable use of fund monies.

Results (outcomes of partnerships: successes, lessons learned, leveraging resources). The project has evidenced varying levels of success for the repatriation of diamond revenues and the transparent use of community development funds. In many communities, community development projects are lagging and questions of fund management have arisen. The Lower Bambara community, however, has successfully built a multi-purpose conference center with DACDF funds.

2. Peace Diamond Alliance (PDA) *

Project dates: 2003-
Implementing partners: DfID, DeBeers Group, Global Witness, Government of Sierra Leone, Koidu Holdings, Kono's Hope, Management Systems International, Rapaport Group, USAID, World Bank Communities and Small Scale Mining Project

Cost: $4,412,500 (DfID $40,000; Government of Sierra Leone $50,000; Rapaport and Kono's Hope $75,000; World Bank Communities for Small-Scale Mining Projects $47,500; UAID $4.2 million)

Summary (nature/goals). The Peace Diamond Alliance builds upon other existing protocols, such as the Kimberly Process, to promote a sustainable, conflict-free, licit diamond trade in the Kono District of Sierra Leone. The crux of the project is the advancement of community and economic development, environmental stewardship of existing mines, and reclamation of mined-out landscapes. USAID and its partners are working toward achieving these strategic objectives through key interventions including conflict mediation mechanisms, "earth to export" value chains, developing livelihood alternatives to mining, micro-lending, competitive buying schemes, and diamond evaluation training for small-scale miners. The latter interventions encourage artisan miners to extract and sell rough cut diamonds at fair market value to internationally recognized buyers so as to curb historical problems such as diamond smuggling, money laundering, abuse of official position, and unfair labor practices.

Another component of the Peace Diamond Alliance is the remuneration of diamond revenues to local communities through the DACDF. Peripherally, the project also aims to address corruption and child mining issues, and to build local and institutional capacity within the alliance itself.

Results (outcomes of partnerships: successes, lessons learned, leveraging resources). The Peace Diamond Alliance has achieved tangible results in gemstone valuation, technical capacity building, dispute resolution, environmental management, and economic development. This most notable achievement of the Peace Diamond Alliance is the marked growth of legal diamond sales and the remuneration of profits to affected communities. From 1999 to 2007, legal export of diamond revenues increased from $1.5 million to $127 million. Furthermore, mining proceeds distributed to local mining communities through the DACDF reached $312,000 in 2002 and more than $500,000 by the end of 2003.

In affiliation with USAID's Youth Reintegration Training and Education for Peace Alliance (YRTEP) and Nation Building programs, the PDA is forming an Association of Master Trainers, to ensure the sustainability of small stones training. The Master Trainer Program will produce at least two persons capable of replicating the training and eight individuals capable of serving as Seller's Advisors. It would also develop an additional Diggers and Small Stone Awareness Training Module to target more miners. The Master Trainer Program complements the technical assistance program that DeBeers will provide to the Sierra Leone Department of Mineral Resources. To date, the project has trained more than 200 miners in small stone identification and valuation.

In terms of dispute resolution and environmental management, the Alliance brokered a compromise agreement that promoted a greater understanding of the mining process and created a participative process for resettlement and blasting procedures between Koidu Holdings and local communities. The Diamond Partnership Alliance has also mitigated long-term disputes by leveraging government funds to rehabilitate mined-out lands in the Koidu and Kono Districts. Lastly the project sponsored five mining cooperatives whose management plans emphasize the production and sale of fair trade diamonds in the Kono District. Fair Trade certification indicates that diamonds have been mined in an environmentally sustainable fashion and that the mined land is reclaimed after the completion of mining operations. Although the fair trade certification adds sale value to rough cut diamonds, DeBeers diamond company would not commit to buying diamonds from specific buyers, therefore it may be difficult to promote diamond fair trade cooperatives in Sierra Leone.

Sierra Leone References

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SOUTH AFRICA

Resources. Chromium, gold, platinum, gold.

Objectives. USAID/South Africa has no direct interventions or public-private partnerships in the extractive industries, except those projects related to youth and HIV/AIDS prevention.

Projects

1. Kimberly Process

SUDAN

Resources. Gold, oil, teak.

Objectives. The U.S. government through USAID has lent significant financial assistance to the Government of Sudan to aid in transparent and sustainable oversight of petroleum and timber. In the oil sector, USAID has provided funding to ensure citizens benefit from oil revenues and that stakeholders can equally participate in the extractive industries. USAID also monitors military action in the oil producing zones of Sudan to ensure civilian safety and human rights and it will promote institutional capacity building to bring local institutions into the planning process for new oil projects. In the timber sector, USAID will work with the Government of Sudan to enforce sustainable timber utilization.

Although USAID has an ambitious agenda in Sudan, implementation may be difficult as conflict prevention strategies used in other oil-producing states — revenue transparency, free prior informed consent of local communities, corporate socially responsibility, and environmental best practices — are virtually unknown in Sudan.

Sudan References

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TANZANIA

Resources. Diamonds, gemstones, gold, natural gas.

Objectives. USAID has no direct interventions in the extractive industries in Tanzania, but it did facilitate the drafting of a legal and policy framework for the mining industry that incorporates environmental management practices.

WEST AFRICA REGIONAL PROGRAM (WARP)

Resources. Natural gas.

Objectives. Extractive industries alliances in West Africa underscore building regional capacity to manage natural resources by promoting transparency and best practices: reducing illegal logging, community management of natural resources, protecting biodiversity in transboundary zones, and reducing conflict, human trafficking, and terrorism.

Projects

1. Conserving Productive Landscapes

Summary (nature/goals). The project addresses governance issues by promoting decentralization, capacity building, and increased livelihood opportunities and access to natural resource management benefits.

2. West African Gas Pipeline (WAGP)

Countries: Benin, Ghana, Nigeria, Togo
Project dates: 2003-
Implementing partners: Chevron-Texaco, Economic Community of West African States (ECOWAS), Ghana National Petroleum Corporation (GNPC), Ghana's Volta River Authority (VRA), Host Country Governments, Overseas Private Investment Corporation, Nigerian National Petroleum Corporation (NNPC), Shell, Société Béninoise de Gaz (SoBeGaz), and Société Togolaise de Gaz (SoToGaz), World Bank
Cost: $671 million (local government $3 million, oil consortium $615 million, OPIC $45 million, USAID $8 million)

Summary (nature/goals). The West African Gas Pipeline is heralded as one of the most successful public- private partnerships due to the 80:1 financial leveraging capacity of the venture. The partnership between international donor organizations, four host country governments, and multinational companies resulted in the construction of a 678-kilometer onshore/offshore gas pipeline that traverses the gas reserves in Nigeria's Escravos region of

Niger Delta area through Benin, Togo, and Ghana with possible extension through Côte d'Ivoire and Senegal.

Results (outcomes of partnerships: successes, lessons learned, leveraging resources). The construction of the pipeline presumably will generate cascading benefits for national energy production, economic growth, and environmental protection. In terms of national energy production, the inter-governmental agreement regulating the pipeline allows participating countries to initially purchase natural gas at prices 50 percent less than the average market price. During a 20-year period, the World Bank estimates that Benin, Togo, and Ghana can save nearly $500 million in energy costs by substituting more expensive fuels with natural gas from the WAGP.

Regional macroeconomic growth will occur through the creation of 10,000 to 20,000 to primary and 30,000 to 60,000 secondary jobs. Concurrently, the pipeline is expected to generate $1 billion in direct investment and $800 million in new industrial investment in West Africa. Alcoa, a Ghanaian aluminum mining and smelting company, has indicated that increased electricity will encourage $1 billion in new investments.

Environmentally, the pipeline will have two major environmental impacts. First, capturing the natural gas for energy production will decrease green house gas emissions from flaring by more than 86 million tons throughout 20 years. In turn, decreased flaring should improve agricultural yields, which have declined in Nigeria due to stunted plant growth around oil/gas facilities.

Despite perceived economic and environmental benefits of the West African Gas Pipeline, however, the project has been criticized for potential inadequacies in emergency planning and benefits accruing to local communities. The pipeline may exacerbate conflicts over oil in the Niger Delta and the socio-environmental impacts of run-off and potential water pollution from the pipeline have not been considered adequately.

West African References

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ZAMBIA

Resources. Cobalt, copper.

Objectives: USAID work in the Zambian extractive industries emphasizes economic reform away from a heavy reliance on mineral extraction to a diversified economy with a vibrant agriculture sector.

Projects

1. Zambia Copperbelt Economic Diversification*

Project dates: 3 years
Implementing partners: AmIran Ltd, Cheetah Zambia Limited, Coffee Board of Zambia, DAI, Konkola Copper Mines, Stravendale Farm Ltd, Zambia Coffee Growers Association, Zambia Agribusiness Technical Assistance Center
Cost: $2.6 million

Summary (nature/goals). The Zambia Copperbelt Economic Diversification project is a public-private partnership to diversify the economy in a traditional Copperbelt mining area from a sole dependence on extractive industries to include vibrant agribusiness development. The project provides technical assistance and equipment to local farmer cooperatives that grow Arabica coffee in the Copperbelt region. Farmer groups seek to add value to their coffee production through improved farming techniques such as irrigation and small-scale processing. Additionally the project seeks to develop market linkages throughout the agribusiness sector.

General Country References

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GLOBAL

Projects

1. Global Human Rights Defenders Fund

Cost: $1.5 million

Summary (nature/goals). The Global Human Rights Defenders Fund indirectly addresses human rights violations in the extractive industries by providing financial, legal, or medical support to human rights defenders repressed by government regimes and militant groups. Human rights violations are all too commonplace in the illicit trade and sale of mineral resources such as diamonds or coltan.

2. Guiding Principles on Non-Governmental Organizations

Summary (nature/goals). The Guiding Principles on Non-Governmental Organizations is another project that focuses on protecting human rights with a partial nexus to the extractive industries. The project has created 10 guiding principles for the governance or oversight of NGOs in order to promote transparency, human rights, and democracy.