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POLITICAL ECONOMY ANALYSIS FOR BIODIVERSITY CONSERVATION PLANNING IN THE CONTEXT OF EXTRACTIVE INDUSTRIES

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1.0 INTRODUCTION

Political Economy Analysis (PEA) is a field-based methodology¹ that can improve the effectiveness of international development assistance by helping development practitioners to focus not only on *how* things happen but why they do. Exploring the politics, history, social, and economic dimensions of a given development problem can help unpack the dynamics and incentives that structure actors choices and ultimately determine development success or failure. In many ways a PEA tries to determine the who, the what, and the why that keeps and sustains the status quo and what realistic opportunities are there are to change incentives and to effect change.

PEA, which is derived from classical economic theory, has deep theoretical underpinnings, but the questions it asks and the problems these questions can address are highly relevant and applicable to everyday life. Consider the process of making a change to a school in your home town. Members of the school board, the superintendent, parents, the teachers union, state officials, city administration and others might have varying degrees and types of influence and interests regarding the proposed change. These actors might have conflicting views that are all shaped by complicated incentives and interests that are rooted in past policies, political fights along with legal rules, regulations, and informal norms. Strong educational research findings might back up your technical recommendation, but iterative political action, developing relationships, addressing concerns and understanding the underlying power dynamics will all be crucial in making the change happen. It becomes vital to work within these rules, norms and political dynamics to see if your reform suggestion is possible, and adapt it to create a coalition that can see it through to becoming reality. Development and conservation-related development work is no different. PEA can help identify ways to support local solutions and create incentives for changes in political will within existing and ongoing dynamics.

USAID's Applied PEA Framework can help situate conservation efforts and extractive activities within the broad governance characteristics of the state in order to illuminate the opportunities and the limitations of potential programming.

The United States Agency for International Development (USAID) has developed a framework for conducting applied PEA field assessments that can be applied at the country, sector, or problem-level.² USAID has piloted the framework – focusing on a problem-level analysis – in several regions and different sectors including health in Eastern Europe and Southeast Asia,

¹ USAID, *Applied Political Economy Analysis Framework: Guidance for PEA Field Assessments*, Washington, DC: USAID. <https://www.usaidlearninglab.org/library/applied-political-economy-analysis-field-guide> [accessed 15 September 2016]

² USAID's Applied Political Economy Framework, op cit.

governance in Latin America and Africa, and, most recently, biodiversity conservation in Africa. The methodology is agnostic to the subject matter and country context. USAID applied this PEA Framework to an examination of biodiversity conservation to learn how it could best be used to strengthen programming within the context of extractives. Resource extraction activities can produce turbulent social, economic, and political dynamics that can thwart efforts to conserve biodiversity. The dynamics produced by extractive industries present complexities to conservation efforts in any context, but they are particularly pronounced in politically fragile states where some of the world's most significant biodiversity is found. The PEA assessment framework can help focus an inquiry in these particularly complex development settings but is relevant to almost any development and/or reform context. USAID's Applied PEA Framework can help provide development practitioners with a systematic approach to answer questions about why particular technical approaches are not working, and can help conservation practitioners situate conservation efforts and extractive activities within a broader governance context in ways that illuminate the opportunities and the limitations of potential programming.

USAID's Applied PEA Framework structures analysis around four key variables:

- (1) *Foundational Factors*, the deeply embedded national or sub-national structures that shape the character and legitimacy of the state, the political system and economic choices. These are things that are slow to change like class structures, natural resource endowments, historical grievances over losses of customary land.
- (2) *Rules of the Game*, the informal institutions (rules and norms) that influence actors' behavior, their incentives, relationships and their capacity for collective action. These may include formal constitutional and legal frameworks as well as informal norms, social and cultural traditions that guide behavior in practice, like customary law.
- (3) *The Here and Now*, current or recent behavior of individuals or groups and their response to events that provide opportunities for, or impediments to, change. These include leadership changes, domestic and international pressures that impact social, political, and economic structures and processes.
- (4) *Dynamics* examines questions such as: What features are in flux and may drive an opening or closing space for change? What foreign or domestic drivers are acting on society already? What levels of complexity and uncertainty are there in any potential changes that are identified?

Studying these variables around a particular question can help practitioners gain new perspective on a problem specifically by redefining the problem in terms of the larger forces at play, rather than in terms of the technical issues and funding constraints, in shaping projects and development outcomes.

2.0 WHAT CAN POLITICAL ECONOMY ANALYSIS DO FOR BIODIVERSITY CONSERVATION PROGRAMMING?

2.1 HOW IS PEA USED IN CONSERVATION PROGRAMMING?

Because different development sectors do not always speak the same language, it is worth providing some practical considerations for how USAID's Applied PEA Framework can strengthen biodiversity programming in particular. USAID's Biodiversity Policy supports programming around sustainable, resilient development with two specific goals. First, to conserve biodiversity in priority places, and second, to integrate biodiversity as an essential component of human development. The objective is to transform the relationship between biodiversity conservation and development to increase and sustain development outcomes.³ To USAID, these goals are not mutually exclusive and offer ample scope for program integration. USAID's Forest and Biodiversity Office (FAB) actively pursues tools from other sectors that might improve conservation programming. FAB is explicit about applying tools that can specifically strengthen cross-sectoral analysis of biodiversity conservation problems and build new models for this integration. USAID's Applied PEA Framework is one the tools that can support biodiversity program compliance with the Agency's Biodiversity Policy⁴ and Biodiversity Code.⁵

2.2 USAID'S BIODIVERSITY POLICY AND CODE

USAID's Biodiversity Policy supports the implementation of USAID's Biodiversity Code, which requires compliance with four criteria. These criteria are: (1) the program must have an explicit biodiversity objective; (2) activities must be identified based on an analysis of drivers and threats to biodiversity, and a corresponding theory of change; (3) Programs must have intent to positively impact biodiversity in biologically significant areas; (4) the program must monitor

³ Kushnir, H. "Intro to Measuring Impact Process for PEA Workshop" PowerPoint projection presented 7 July 2016 at USAID PEA Lessons Learned Workshop Afternoon Session.

⁴ USAID's Biodiversity Policy see <https://www.usaid.gov/biodiversity/policy> [accessed September 9, 2016]

⁵ USAID's Biodiversity and Development Handbook 2015 see <https://www.usaid.gov/biodiversity/impact/requirements> [accessed on September 9, 2016]

indicators associated with that theory of change.⁶ A FAB theory of change is a description or graphic representation of the logical causal relationships among a strategic approach and multiple levels of conditions or preliminary results needed to achieve a long-term result. USAID's Applied PEA Framework can refine a theory of change by testing particular assumptions and examining specific aspects of causal relationships through a political economic lens. This deeper analysis of threats and drivers of biodiversity loss are often rooted in foundational factors and the here and now dynamics that are beyond the scope of typical conservation programming. **Conservation and development practitioners recognize these dynamics as components of political will and consider it the black box around which their technical approaches must work.** For conservation practitioners, government actors may demonstrate political will by enforcing due diligence practices on chain of custody, policing of boundaries and livelihood activities, introducing reforms and trans-boundary initiatives and dismantling wildlife trafficking syndicates, among other things that threaten biodiversity resources. An absence of these demonstrations of political will tends to be a significant impediment to conservation goals. Conservation practitioners using USAID's Applied PEA Framework describe it as a key that can open the black box and unpack political will into a set of comprehensible incentives, behaviors, rules, and norms that can be changed.

USAID's Applied PEA Framework forces a deeper look at the political processes that influence the incentives, behaviors, rules, and norms and foundational factors that shape resource management decisions. PEA requires researchers to analyze the politics and power, not simply to understand the relationships but to expose how and why these specifically hinder conservation goals. This in turn aids the researcher to identify change processes, which might include new actors, new interests, new initiatives, that could be supported by targeted programming.

2.3 USING THE APPLIED PEA FRAMEWORK FOR BIODIVERSITY PLANNING

USAID's Applied PEA Framework complements existing tools of biodiversity programming analysis.⁷ It promotes an evolution from a linear biodiversity threats analysis to a more complex three-dimensional (3-D) approach that contextualizes conservation issues within the political, social and economic processes that influence programming outcomes.⁸ PEA can support this 3-D conceptual analysis of the biodiversity threats and drivers of biodiversity loss through the lens of the key questions of political economy, embedded within the Applied PEA Framework and restated in a format that is perhaps more familiar to resource managers: (1) *Who owns what?* (2) *Who does what?* (3) *Who gets what?* (4) *What do they do with it?*

USAID's Applied PEA Framework encompasses these questions but also asks *why?* Why are things occurring they way they do? This question is at the heart of applied PEA and its ability to

⁶ To read about the four criteria, see: <https://www.usaid.gov/biodiversity/impact/requirements> [accessed on September 9, 2016]

⁷ See, for example, USAID report, (2015). "Measuring Impact: Combating Wildlife Trafficking" [http://pdf.usaid.gov/pdf_docs/PA00KJRB.pdf Accessed 5 September 2016.]

⁸ Anderson, J., McGahuey, M. and Mehta, S. (2013). Nature, Wealth, and Power 2.0: Leveraging Natural and Social Capital for Resilient Development. USAID.

unpack political will into components that can be influenced through change processes. This first question, “*who owns what?*” relates to different kinds of property regimes: common pool resources, private property, access rights to land, trees, minerals, water, wildlife, etc. It is important to understand how and why people acquire property or otherwise gain access to resources. People might acquire access to or control over property through customary law, formal law, by violent dispossession, political connections, or by informal agreement, even by squatting. They may do so in order to acquire social or political power or to exercise property rights to expand livelihood options. It may be helpful to think of these property rights as inherently social relationships mediated by customary arrangements, the state, or power brokers (e.g. armed groups). Some PEA research may require significant background work to determine *who is where?* before this question can even be asked. The question of *who owns what?* cuts across the four variables in the USAID Applied PEA Framework.

The second question, “*who does what?*” formally concerns social divisions of labor, i.e., “*who performs what roles?*” The concept of division of labor (e.g., along age, gender, and ethnic lines) is helpful in understanding cultural and social norms and tuning into how those Rules of the Game are changing. Applied PEA on biodiversity conservation needs to delve into the question, at least in broad terms, of *what is generally being done by whom?* Livelihood pursuits may also include illicit activities and extortion, and those must be included in the PEA analysis to understand why resources are threatened by particular activities. Actors’ interests, behaviors, and influence come into play here within USAID’s Applied PEA Framework.

The third question, “*who gets what?*” is related to the distribution of gains from livelihood pursuits. Along with the legitimate “fruits of labor” such as foraging, farming or fishing, livelihood gains may include illicit harvests, criminality and patronage networks, all of which are important factors for analysis. This is an area where the Applied PEA Framework can particularly help biodiversity programming, through improved understanding of claims to resources, and the relative power various actors have in obtaining, securing, or exploiting those resources. This part of the analysis will include identifying rules of the game (e.g., existing or new regulations) and how well they are working, as well as the underlying incentives.

The fourth question, “*what people do with the ‘income’ from their livelihoods?*” is an indicator of their relative well-being and security. People may choose to spend on a range of goods and services, including food, education, health, housing, investments in production, ceremonial activities, community funds, or personal items. Again, here it is important to consider how spending patterns vary by gender, age, and other characteristics. Understanding spending patterns can help resource management practitioners identify areas where cross-sectoral programming along the causal links that could support livelihoods and biodiversity. Using applied PEA to build the question of what people do with livelihood “income” into biodiversity programming around extractives can reveal insights into rules of the game (e.g., the infrastructure of patronage networks), influence (e.g., extortion and social capital). These insights can help to build more effective conservation programming.

2.4 APPLYING PEA TO BIODIVERSITY AND EXTRACTIVES CASE STUDIES

The Applied PEA Framework is an important tool for understanding of how the impacts of extractives affect customary property rights and customary law, intersect with patronage

networks, including those related to land accumulation, territorial occupation associated with these industries, and criminality. “Extractive industries” in the narrowest sense encompasses non-renewable resources such as minerals, oil and gas. For the purposes of this analysis, the concept applies equally to renewable living resources such as forests, fisheries and wildlife. The Applied PEA Framework can be used to research questions such as: *Who benefits from the current extractive activities? What does that activity actually look like both on the ground and through various parts of the political and material value chain? What and who enables these activities? What incentives and opportunities exist to change key actors’ behaviors?*

In addition to the direct environmental impacts of extractive activities, the indirect impacts have both immediate and long-term repercussions that can drive and amplify biodiversity loss. The indirect impacts include unsustainable bush meat hunting and trade, land use change, and improved access to resources. Extractives are also associated with dispossession of land the displacement of customary occupants, and securing of land resources by political elites and armed groups. Increased human population movements, often associated with prospects of employment in extractive industries and, particularly where new roads are opened, coincide with the expansion of settlements into natural habitats. Improved access is often followed by criminal syndicates that traffic in illegal wildlife and forest products. These forces can result in disruption and eventual collapse of local and customary resource management regimes, undermining livelihoods and pushing a population away from their traditional land and their identity. This in turn results in political instability, which undermines any form of resource stewardship.

To explore these dynamics, Integra conducted three case studies on biodiversity and extractives in the Democratic Republic of Congo (DRC), Madagascar, and Uganda. The following section provides concrete examples of how this applied PEA research uncovered these dynamics and identifies some ways that USAID’s Applied PEA Framework can not only strengthen analysis around sustainable natural resource management planning in these contexts, but also can define strategies to address some of the complex dynamics.

3.0 CASE STUDY OVERVIEW

This report explains the technical findings from three case studies using USAID’s Applied PEA Framework that were selected to cover priority biodiversity areas and a range of different types of extractive industries and to respond to USAID Mission requirements. Synthesizing the key findings of these case studies illustrates that threats to biodiversity have political and criminal dimensions and often involve conflict with customary rights to resources. The report shows how PEA is helpful in understanding the turbulent dynamics and incentives that accompany resource extraction. Threats to biodiversity not only affect the resources directly, but also shape the behaviors of resource dependent communities. For that reason, PEA can better inform conservation programming by explaining how potential points of leverage might be exploited to change behaviors in a positive direction. A separate report addresses lessons learned Using USAID’s Applied PEA Framework.⁹

⁹ USAID, 2016 *Lessons Learned Using USAID’s Applied Political Economy Analysis Framework*. A report prepared by Integra Government Services International under contract.

The three cases represent some of the most challenging contexts for conservation. Artisanal gold mining in Kahuzi-Biéga National Park (KBNP) in the Democratic Republic of the Congo (DRC) has a long history. It has become the focus of international concern due to the financing of conflict and the ongoing violence in and around the park. These conditions not only complicate conservation efforts in a key biodiversity area, but also have long-term implications on the well-being of the people living in the surrounding areas.

Resource governance is part of the larger problem of governance. The DRC faces high levels of corruption and entrenched patronage networks. It is occupied by armed groups involved in conflict that has continued since the Congo Wars began in 1996. Complicated colonial legacies underlay historical grievances and ethnic tensions. Powerful actors within and across borders finance armed groups occupying parts of the eastern DRC and specifically the KBNP. Yet Congolese civil society organizations and academics have identified options to address the situation, including coalitions to bridge unexamined programming gaps to bring greater attention to the motives underlying conflict in the region. Meanwhile Congolese “microgovernance,” or self-governance in the absence of the state, and an emerging trend in many fragile states, may be the foundation for new forms of accountability with engagement at the local level.

Oil development in the Albertine Graben geological formation around Uganda’s Lake Albert has become a major vehicle for land acquisition and resource exploitation by political elites, which in turn has disrupted regional resource management regimes. Land speculation has resulted in some violent dispossession and different forms of land displacement. Meanwhile, some government officials are working to expose these violations. Civil society platforms addressing the impacts of oil on human rights and biodiversity bring innovative approaches that have garnered some political support. The applied PEA research explored insights around how conservation programming work can strengthen local government accountability to tackle these issues. The applied PEA research pointed to a number of interesting possibilities to explore and added to the contextual understanding of the political dynamics at play in resource exploitation.

Marine biodiversity and fisheries in coastal Madagascar presented an interesting opportunity to work with the political will to expand Marine Protected Areas through explicit inclusion of coastal fishing communities in the protection of near-shore fisheries. The Government of Madagascar, recognizing the importance of fisheries to food security, has embraced a cutting edge approach to conservation, but the applied PEA research identified a need to find leverage to credibly and effectively address ongoing conflicts over resources from commercial fishers, illegal, unreported and unregulated (IUU) fishing and with criminal wildlife trafficking networks. Involvement of national marine science research institutes and private sector actors as well as active involvement of a network of locally managed marine areas (LMMAs) supported by national and international conservation organizations offers interesting potential for creating livelihood alternatives that can protect and restore depleted fisheries and coral reefs. Building on customary law, or *dina*, this network can work with local government fishing authorities and these conservation partners to develop appropriate steps toward stronger enforcement and sustainable management of the country’s fisheries.

4.0 CASE STUDY SYNTHESIS

Each of the three case studies on biodiversity and extractives was prepared using USAID's Applied PEA Framework and conducted by a multidisciplinary research team composed of international and in-country members and led by Integra. The teams included both members trained in using USAID's Applied PEA Framework and others who were not. The teams were led by an international consultant with expertise in PEA and were conducted collaboratively with USAID/Washington, USAID Missions and local experts.

4.1 HOW USAID'S APPLIED PEA FRAMEWORK STRENGTHENS THREATS ANALYSIS

The three cases are distinct and yet they share commonalities borne out in the PEA research. In all three cases, PEA identified indirect drivers of biodiversity loss, the understanding of which can refine appropriate programmatic interventions and approaches. Many of these interventions go beyond traditional conservation programming, but failure to address them may continue to undermine progress in promoting biodiversity protection. Because USAID's Biodiversity Code requires an explicit definition of the biodiversity objectives of programming and must directly use earmarked biodiversity funds to address threats to and drivers of biodiversity loss, it becomes important to understand the implications of the "black box" of political will. USAID's Applied PEA framework can help to make causal links explicit, even when interventions appear to fall outside the scope of conventional biodiversity programming. The Applied PEA Framework not only helps uncover insights and solutions for complex conservation problems, but also provides the details needed to refine a theory of change.

4.1.1 DRIVERS AND THREATS TO BIODIVERSITY IN DRC'S KAHUZI-BIÉGA NATIONAL PARK

In the DRC, the occupation of the park by armed groups engaged in artisanal mining has led to unprecedented losses of eastern lowland, or Grauer's, gorillas (*Gorilla beringei graueri*) since the start of the Congo Wars. During this period of conflict from 1996 to 2003, the country suffered tremendous upheaval with international and internally displaced populations seeking refuge in remote areas, including Kahuzi-Biéga National Park. The displacement was due to armed conflict that resulted in huge losses in human life and high levels of trauma.¹⁰ Many armed groups had turned to artisanal mining operations with the fall of Mobutu, and continue to occupy parts of KBNP to control artisanal mining operations. Despite efforts to demobilize armed groups, conflict has persisted. Artisanal mining is a driver of the ongoing lawlessness and violence, including illegal hunting and habitat destruction. Understanding the incentives

¹⁰ Prior to 1995, the largest gorilla populations were found in Kahuzi-Biéga National Park (KBNP), located in the province of South Kivu, near the center of conflict in the eastern DRC. The park was a refuge for as many as 800,000 people during the First Congo War (1996 – 1997) and served as a staging ground for skirmishes throughout the Second Congo War (1998-2003).

associated with livelihood activities, including the artisanal mining that drives lawlessness, can help to illuminate options to change incentives and address these biodiversity threats.

It is important to look more deeply at the origins of the conflict and the incentives driving livelihood pursuits from the perspective of the armed groups and surrounding communities. Some 62 to 77 armed groups continue to occupy parts of the eastern DRC, and multiple armed factions with various historical, political, and economic motivations for pursuing extractive activities effectively control the vast lowland part of KBNP.¹¹ These groups are not united under a single cause. Most of the groups inside the park are militias known as *Raia Mutomboki* (RM).¹² The RM groups emerged during the Congo Wars, ostensibly to defend their land from outsiders. Some Congo scholars refer to these groups as franchises, as they are only loosely associated with one another, yet all use the RM nomenclature.¹³ At least fourteen RM groups are engaged in mining in the park, making large sections too dangerous for rangers to patrol. They smuggle minerals out of the park using established routes and illicit connections that, according to interviewees, include trade in arms, drugs, bushmeat, and other wildlife products. There is a clear economic logic at the core, but that does not tell the entire story. Conflict specialists have been successful in convincing some of these groups, particularly around Shabunda,¹⁴ to put down their arms, but the groups demanded a formal demobilization package including money, job training, and employment to offset loss of livelihoods (i.e., through extortion and theft). Focusing efforts on this area, which was once a major agricultural hub, could bring security and encourage others to disarm. Claims on land inside the park will remain contested, however, without addressing the underlying disputes over land.

USAID's Central Africa Regional Program for the Environment (CARPE) and the Congolese Institute for Nature Conservation (*l'Institut Congolais pour la Conservation de la Nature* or ICCN) acknowledge that, even prior to the Congo Wars, the boundaries of the park remained locally disputed. Some thirty customary communities were relocated from within the lowland section of the park when it was designated in 1975. These communities were not consulted during the gazettelement process. The park's boundaries encompass large parts of the traditional territories of at least eight ethnically and linguistically distinct population groups. The park boundary was never clearly demarcated. Conflicts over land for cattle grazing and agriculture have been a constant in the history of the park. Some communities have taken advantage of the weak enforcement to expand their grazing lands into the park. The park's history and the local population's reliance on the park's natural resources, including gold, has fuelled long-running disputes over land ownership within the park's boundaries, as well as difficulty in enforcement of conservation laws and regulations. Addressing these threats requires a regional and political economic understanding of the underlying drivers and the levers that might be available to resource managers.

¹¹ Spittaels S., Matthysen, K., Weyns, Y., Hilgert, F. and Bulzomi, A. (2014) *Analysis of the interactive map of artisanal mining areas in eastern DR Congo: May 2014 update*. Antwerp: International Peace Information Service (IPIS).

¹² or "Outraged Citizens" in Kiswahili (pers comm, 2016). Some interviewees preferred the generic term "Mai-Mai" deriving from colonial and post-colonial groups resisting state rule. (pers comm, 2016).

¹³ Stearns, J. and Vogel C. (2015) *The Landscape of Armed Groups in the Eastern Congo*. New York: New York University Center on International Cooperation, Congo Research Group.

¹⁴ Shabunda is a territory in Southern Kivu.

4.1.2 DRIVERS AND THREATS TO BIODIVERSITY IN UGANDA'S ALBERTINE REGION

Uganda's oil development in the species rich Albertine region of Uganda threatens biodiversity resources in the area both directly and indirectly. The oil exploration phase attracted jobseekers but also new political players that challenge land and resource governance. Lake Albert's fisheries, already fragile, have come under greater pressure as large numbers of job seekers continue to move to the area with expectations of employment in the oil sector. Since production has not yet begun, there are few jobs available, especially for unskilled workers. Many individuals have turned to fishing in Lake Albert for subsistence, and elites have made use of the surplus labor supply to establish new commercial fishing operations. Traditionally, the communities on Lake Albert followed customary laws that govern the dates of fishing seasons and the boundaries of "sacred groves," off-limits areas that function as critical fish nurseries. The newcomers violate the fisheries' customary regulations and catch unsustainable quantities of fish, however, either being unaware of the existence of the traditional rules or unwilling to comply with them. In addition, government agencies formally charged with managing Lake Albert's fisheries lack the resources to effectively enforce relevant laws and regulations. In the meantime, Lake Albert's fisheries have collapsed, yielding fewer and smaller fish every year. Even more damaging, the national government has in some cases superseded local government fisheries management by creating parallel governance structures in the Albertine region, putatively claiming the local government is mismanaging fisheries in Lake Albert where much of the oil exploration has occurred. Central government authorities established new beach management units to seize fish that were below the legal limit. These fish were then loaded into refrigerated trucks and transported on the newly constructed road to be sold in local markets. This venture is a quintessential example of the future discounting that takes place among those with means. This pure short-term gain approach is quickening the collapse of Lake Albert's fisheries in the name of regulation. Functionally, this provides yet another pathway for rent capture by national-level elites.

Important wildlife habitat in the Albertine region is also under stress. Although bidding for oil production has proceeded in a relatively orderly and transparent manner, **there is evidence of elite rent capture at nearly every other point along the oil value chain**, especially at the local level. Of most concern, from a biodiversity conservation perspective, is the growing use of abusive and illegal land acquisition practices. Prior to oil exploration, land in the area was largely untitled customary property, and newcomers typically were able to gain access to land through informal arrangements with customary property holders. Following the discovery of oil, prospective land acquisitions by local elites drove up the value of land in the region. These elites, savvy to bypassing formal land acquisition procedures, have gained titles to large plots of land, often dispossessing their neighbors of their ancestral land in the process. In at least one case, an entire community was forcibly evicted, based on fraudulent papers backed by a court order. This has destroyed large areas of wildlife habitat, both by elites paying to clear and occupy forested land and by displaced populations attempting to rebuild their homes and livelihoods. The local government authorities lack the resources to respond to these trends. This case demonstrates not only how destructive unregulated resource management can be for biodiversity, but also that addressing these threats requires a deeper analysis of the broader governance problems of the state.

4.1.3 DRIVERS AND THREATS TO MADAGASCAR'S MARINE AND COASTAL BIODIVERSITY

Madagascar's fisheries play a central role in providing livelihoods and food security for millions of Malagasy people. The country possesses some of the highest levels of terrestrial biodiversity on Earth and has huge variations in climate and terrain as well as in coastal marine resources. Overfishing and illegal, unreported, and unregulated fishing over past decades have led to the collapse of the country's fisheries. In addition, a current ongoing drought in Southwestern Madagascar has led to a sizable population movement toward the coast, placing further pressure on fisheries. Other parts of coastal Madagascar like the Northeast are isolated except by sea due in part to the political interference of a powerful elite vanilla baron who controls any efforts to change the status quo. Harvard health researchers are finding that these communities are experiencing severe micronutrient deficiencies due to the lack of food security in part and frequent conflicts with commercial shrimp trawlers.

Although Madagascar has faced high levels of political instability and humanitarian crisis in recent decades, the government elected in 2014 has made a strong commitment to marine protection. At the IUCN¹⁵ World Parks Congress in 2014, Madagascar's newly elected president pledged to triple Marine Protected Areas in the country with explicit inclusion of a community-based management model for marine areas. Since 2004, local fishing communities have been working with researchers and conservation organizations to protect important marine areas as LMMAs. In 2012, Madagascar's first national forum of LMMAs came together to form a network called the Madagascar Locally Managed Marine Area Network (MIHARI). The government welcomed this network given the state's limited financial resources to oversee large-scale marine conservation. The state also has limited capacity to enforce existing regulations and relies largely on the enforcement of *dina*, or customary law, to regulate fishing in coastal communities.

Dina can be effective at regulating access to marine reserves and enforcing bans on destructive fishing equipment, but *dina* is not always enforceable when outsiders are violating customary laws on fishing. Fishing communities have little to no power to apprehend fishing vessels that are entering a community's LMMA or traditional fishing zones. Due to an imbalance in power relations, no effective conflict resolution mechanisms exist for fisher communities to resolve disputes with powerful outsiders. Local political elites take advantage of their positions arranging for the sale and trafficking of wildlife species to willing buyers on foreign vessels. Where community associations have attempted to press charges in court, they have found the cases thrown out for lack of evidence or have seen their association legally disbanded. Moreover in the Southwest, as increasing numbers of people take to fishing for subsistence and livelihoods, LMMA associations sometimes have difficulty enforcing *dina* on newcomers, who are often unaware of fishing practices. LMMAs have little if any enforcement capacity against powerful or armed outsiders who break the rules. Similarly, local level government officials and district officials do not have the resources to enforce regulations on foreign fleets often politically connected or linked to criminal networks, or frequently both. Patronage networks reward corruption at multiple levels of government. As a result, overfishing remains a serious and growing problem in Madagascar. Community-based conservation approaches to biodiversity protection are insufficient to address the threats, even with government support, due to conflicts

¹⁵ International Union for the Conservation of Nature

over marine resources that require dealing with conflict resolution and enforcement as well as food security and livelihood opportunities.

Box 1. Community Enforcement Efforts

One community leader in Southwest Madagascar described how they went to one of their traditional fishing zones expecting to find plenty of fish. He described how they could find this zone in the dark by measuring depths at ordinal points, because they are accustomed to going out to fish at three AM. When they did not pull up any fish, they realized a large boat had depleted the fish stock. They found the boat and tried to report it; however, the people on the larger vessel destroyed their fishing equipment and threatened them. They tried to pursue this at the district level in Tuléar and discovered there is apparently no record kept of fishing licenses at the district level. They did eventually pressure the captain of the ship to provide them with compensation for the destroyed property but not for the fish they took (presumably with an illegal fish aggregating device). Other communities had similar stories, but said that vessels' crews had brandished guns to make the fishers back off, had gotten away because the vessel was larger and motorized or in some cases the vessel was manned by people hired by a prominent local. The regional office in Tuléar is inadequately resourced for enforcement. It was unclear whether they had the necessary staff or boats to patrol.

To effectively address issues of transparency and record keeping related to licensing and permitting at local level, several key areas should be considered:

- How enforcement of fishing licensing and permitting could be improved.
- How best to support the Regional Directorate of Fisheries.
- How to support communities trying to enforce fishing local rights.

4.2 HOW CAN PEA HELP IDENTIFY INCENTIVES FOR CHANGES IN BEHAVIOR?

4.2.1 INCENTIVES FOR CHANGING BEHAVIOR AROUND KAHUZI-BIÉGA NATIONAL PARK

Because mining in the park in the DRC is already illegal and assumed to be lucrative to the armed groups, certification efforts for minerals coming out of the DRC were also assumed to provide no incentive for demobilization of armed groups within KBNP. A closer examination of all the actors in the park and their various livelihood pursuits enabled researchers to learn about the historical, political, and territorial grievances that motivate livelihoods. Applied PEA research into mining confirmed that there is little incentive to demobilize, but that also mining is far less lucrative than previously thought, even for the armed groups controlling mine pits. Moreover there exists more fluidity in the composition of actors within the park than previously thought and more complicated relationships among armed groups, customary leaders, and political figures than previously understood.

The RM groups have ties with the surrounding communities. Tracking economic transactions is one way that local researchers have been putting together the pieces of the puzzle. Armed groups typically exact informal (illegal) taxes on miners or anyone who wishes to enter or pass their territories. A survey of artisanal mining sites on the borders of the park indicated that those who control the mining sites earn substantially more from taxes than do the miners from mining.¹⁶ Signed documents indicate that payments have been made to the RM from the small scale mining technical service (*services d'assistance et d'encadrement du small scale mining*), and likewise from an illicit Chinese mining company operating in an RM zone of influence in Shabunda. Payments of tribute by RM to chiefs of these communities appear to be a norm in the area. These social relationships and transactions can reveal additional points of leverage for engagement of these groups in dialogue.

Although general information about those ultimately benefitting from these livelihood pursuits may be very widely understood, details about specific beneficiaries and channels through which resources flow can be much more challenging to expose. In the particular case of the DRC, it was broadly known that substantial benefit from mineral exploitation was accruing to national level politicians. Likewise, it was generally understood that substantial resources from eastern DRC were crossing borders illegally into Rwanda and other neighbors and generally benefitting the economies of those countries, as well as elites within them. Specific details were understandably elusive, however. The PEA researchers found that cash and in-kind transactions, as customary tribute, was used to strengthen patronage relationships and as political or security pay-offs to armed groups. Spending patterns, answering the question of *what do people do with their "income?"* can indicate the relative security and power at stake. Where a gain is reinvested in the community in some form (e.g. the RM tribute to local chiefs in DRC), or where spending fits patterns of a long-term expected investment, it may signal opportunities to coopt stakeholders into more favorable long-term resource management arrangements. Where rents are spent quickly, it may point more directly to spoilers whose influence over planned solutions needs to be minimized or mitigated. importantly, these patterns of spending can help identify potential allies.

These insights reveal leverage points that might be useful when encouraging miners to leave the park. Understanding underlying incentives in consultation with local experts can help to formulate more effective approaches for engagement with local coalitions interested in finding solutions to this problem. These approaches lie outside of what would typically be considered the domain for biodiversity programming, yet they are critical steps in changing behaviors to address the threats to this critically important gorilla habitat.

4.2.2 INCENTIVES FOR CHANGING BEHAVIOR IN THE ALBERTINE REGION

Oil development activities have turned both newcomers and customary residents into casual laborers. Elites have taken advantage of the surplus of available labor to gain control of land.

¹⁶ Kirkby, A. Spira, C., Bahati, B. Twendilonge, A. Kujirakwinja, D. Plumtre, A., Weiland, M. and Nishuli, R. (2015). *Investigating artisanal mining and bushmeat around protected areas: Kahuzi-Biega National Park and Itombwe Reserve*. Wildlife Conservation Society Technical Report.

For inhabited areas, this usually consists of a combination of (irregularly) titling land, acquiring a court order, and hiring security guards to forcibly and illegally evict customary occupants and secure boundaries with fences. In uninhabited areas, elites contract laborers to clear the land, reducing the forest while producing charcoal and allow them to farm and occupy the land for a set period, after which it reverts to the elites. A third approach to illegal land occupation is through fencing rangeland commons by politically connected herders. In all cases, elites combine physical occupation with irregularly obtained land titles to facilitate the subsequent sale and development of the land.

A final trend revolves around the land use practices of the Bunyoro Kitara Kingdom, whose domain includes land where oil development is proceeding. For political reasons, since before independence, the state has held land in trust for the kingdom. This land includes the most important parks and reserves in the Albertine region. Restitution of some of these forest reserves to the kingdom by the state in recent years has resulted in boundary disputes with residents, the National Forest Authority, and private sector plantations. On the one hand, the kingdom has legitimate historical grievances, and it has aggressively pursued forest conversion. On the other hand, the kingdom is trying to create a system to fast-track land certificates for legitimate customary owners, in order to prevent further displacement. Enlisting the kingdom to contribute to biodiversity conservation and land use planning will be critical to long-term goals. Local and national level civil society organizations are following these events.

4.2.3 INCENTIVES FOR CHANGING BEHAVIOR AROUND MADAGASCAR'S MARINE AND COASTAL BIODIVERSITY

Throughout periods of instability, customary law has provided local governance over traditional resources and has played a strong role in near shore fisheries management in coastal communities. Fisheries represent the kind of common pool resource¹⁷ that is best managed through local governance regimes. LMMAs for example are a form of micro-governance¹⁸ to ensure horizontal accountability¹⁹ amongst the members.

Locally Managed Marine Areas have established marine reserves controlled by community-level councils in collaboration with marine scientists using *dina* to regulate fishing practices. USAID's PEA research team sought to understand the capacity of these community-level councils to set and enforce rules around marine management and identify how well these community institutions are functioning. One of the areas where LMMAs have been successful is in the creation and enforcement of temporary marine reserves. The model of creating temporary, or seasonal, marine reserves has allowed coastal species to rebound in size and quantity within

¹⁷ Ostrom, E. (1990). *Governing the Commons, the Evolution of Institutions for Collective Actions*. New York: Cambridge University Press.

¹⁸ Microgovernance refers to the creation of institutions in a community that can enable collective action to address problems being faced. The concept views governance as substantially different than government in the sense that it is outside the formal government institutions but can be applied in this case to govern resources more effectively than, or in the absence of, government.

¹⁹ Horizontal accountability refers to the ways in which members of an association can be held accountable to each other and hence follow rules that they set as a group. This is particularly important in locally managed resource management and proves to be more effective than vertical accountability, when rules are imposed and sanctioned from above, by those in authority.

the LMMAs, particularly in the Southwest of Madagascar. The National Marine Science Institute has worked with non-governmental organizations and the private sector to provide LMMAs with incentives for protecting marine reserves by increasing livelihood options through aquaculture.

Box 2. Conflicts between Traditional and Commercial Fishers

Throughout discussions, various actors in the Northeast noted the on-going conflicts with commercial shrimp boats. Many key stakeholders noted that commercial shrimp fishers frequently come close to the shore. Government and community stakeholders reported that commercial fishers do not respect the 3,800 meter exclusive subsistence fishing rights zone. Those communities located near coastal geographic features such as sizable fresh water river outlets tend to come into high levels of conflict with commercial fishing boats. These near-shore waters have higher shrimp concentrations due to the nutrient-rich river waters. Local fishers frequently have their nets destroyed by the large nets of the commercial vessels fishing close to the coast. Though communities have tried to report these incidents to the local gendarme, mayor's office and others, no fisher has been compensated for loss of equipment or catch. The informal rules are not enforced and there is no formal and established process to manage these disputes or a means to seek compensation by local fishers for loss of equipment.

These arrangements work well in the Southwest where coastal communities are highly motivated to explore alternative livelihoods and where they have opportunities to engage with private sector actors. The Southwest also has a variety of different management arrangements. These range from formal Marine Protected Areas to management transfer arrangements from the regional government to community-managed reserves through leases. In contrast, the low market access and high levels of conflict with commercial fishers in the Bay of Antongil offer few management options in the Northeast. Incentives come from the successful use of *dina* to enforce closures of marine areas for different species throughout the year in collaboration with MIHARI's network. In both the Northeast and Southwest, LMMAs have seen increases in the size and quantity of some marine products in only a few years as a result of temporary closures. This provides incentives to continue to work together at the community level to protect reserves. Compliance by commercial vessels will be facilitated through additional efforts to resolve conflicts over use of the marine resources.

4.3 HOW CAN PEA HELP EXPLAIN MOTIVES AND BEHAVIOR?

A key element of applied PEA research is examining the incentives and influence of stakeholders. In each of the three cases, the field research teams identified motives and behaviors that affect biodiversity conservation.

In the DRC, motives for occupation of the park go beyond economic interests. Customary territorial grievances against the park and its militarized approach to conservation are additional factors. On the one hand, local communities are currently living in a conflict zone with the threats of violence, extortion, and low access to health and education facilities and to market

opportunities. Mining provides the only real source of income; farming is not a viable option in this situation where people, particularly women are left vulnerable to the violent occupation of armed groups. On the other hand, elites in these situations appear to be benefitting from the inability of the state or the park to enforce regulations. Getting into the gray area of motives will require further detailed work from local researchers who are able to get to those communities and identify legitimate territorial grievances. Several interviewees indicated that motivating miners to leave the park will require: 1. Security outside the park to make it a more suitable place to live; 2. Investment in agriculture and power that can provide jobs and a higher standard of living outside the park; 3. Creative demobilization plans that can offer employment and education; and 4. Rezoning of the park to excise the most egregious mining areas and offer opportunities to regularize those mines. None of these directly relate to traditional conservation programming but all of these will lead to changing behaviors that are currently directly threatening the park's resources. Some consideration of these options will be needed to reduce threats to biodiversity in KBNP.

In the case of Uganda's oil development, there are options for enforcement to change behaviors. One way of understanding the behavior of elites that defies the assumption of pure greed is that political elites are under tremendous pressure to amass power and wealth to maintain their political positions and to support their dependents. It is worth considering whether there are opportunities for interventions to coopt these types of stakeholders by providing less destructive alternatives to meeting their obligations. The Government of Uganda is concerned about its reputation and is responsive to international scrutiny regarding the oil sector to an extent that public exposure by domestic and international bodies does spur the GOU to remedial action. Uganda's active civil society platforms can demand accountability

In the case of Northeast Madagascar, conflicts over fishing rights between commercial and traditional vessels undermine the ability of coastal communities to manage biodiversity resources. Although zoning establishes exclusive subsistence rights for traditional fishers, uneven power relationships make it difficult to enforce the existing regulations. LMMAs have little capacity to address this problem. Credible and effective mechanisms for conflict resolution, combined with increased enforcement were two steps identified by the applied PEA field research for addressing threats to resources in NE Madagascar. In the Southwest, conflicts with armed bandits fishing in coastal waters requires a level of enforcement that is beyond the reach of coastal LMMAs or of local government. In this part of the country, the PEA identified a role for the private sector in specifically working with local government and LMMAs to address criminal networks that threaten the aquaculture and other marine products offering livelihood alternatives that can take pressure off the reefs and allow them to regenerate. It also identified the possibility of licensing traditional fishers to work beyond the reef, alleviating pressure from the depleted reef zone and enabling fishers from the LMMAs to diversify incomes from a new source while protecting the more vulnerable coastal waters. These options for programming consideration can address threats to marine biodiversity by shifting commercial incentives for local fishers.

4.3.1 HOW PEA RESEARCH IDENTIFIES INTERESTS OF KEY ACTORS

A good PEA requires investigation of "*who is where?*" in order to understand ownership and control of assets. Once "*who is where?*" is determined, (including dynamics of population movements, such as in Uganda's oil region or in the eastern DRC's Kahuzi-Biéga National

Park), then the question of “*who owns what?*” can reveal the extent to which a property regime may support biodiversity conservation programming. Another way to frame the question is “*who has what at stake?*” Using the Applied PEA framework, researchers can then begin to understand why current conditions exist. The governance contexts in Uganda and Madagascar for these biodiversity resources are distinct from that of the eastern DRC, yet the methods used to shed light on the dynamics are the same.

In the DRC case, determining “*who is where and why?*” was a critical starting point for mapping the political economic interests of key actors and therefore the leverage options for change agents. Eastern DRC, with its ongoing armed conflict and large United Nations (UN) peacekeeping presence, is heavily monitored, including for mining activity. Because of the high levels of scrutiny given to conflict minerals by the International Peace Information Service and other national and international research institutes with good local contacts, the team could map generally who was inside the park. The team met with a range of key stakeholders including journalists, government officials, non-governmental organizations, UN officers, community-organizers, traditional leaders, university professors, park rangers, researchers, think-tanks, middle-men in the minerals trade, and private sector operators of the two large scale mines to the north and south of the park. These stakeholders provided detailed information about who was where in different areas inside and outside the park and explained why they were where they were. The applied PEA research was able to frame the bigger picture and identify key partners who could add to CARPE’s understanding of the concrete steps that could be taken such as tapping into local research networks and building multi-stakeholder coalitions to address security and economic growth around the park.

None of these directly relate to traditional conservation programming, but all of these incentivize changing behaviors that are currently directly threatening the park’s resources. Some consideration of these options will be needed to reduce threats to biodiversity in KBNP.

In the case of Uganda’s oil development, there are options for enforcement to change behaviors. One way of understanding the behavior of elites that defies an argument of pure greed is that political elites are under tremendous pressure to amass power and wealth to maintain their political positions. Tapping into opportunities for intervention to draw these types of stakeholders into more accountable frameworks will require work on multiple levels.

Civil society organizations and local government officials in Uganda were good sources for “*who was where and why?*” i.e., specifically where forests and fisheries were exploited and who is involved. Researchers identified three key patterns around local elite resource capture uncovered by the PEA team. First, local elites have exercised power to gain control over land that is not theirs. For inhabited areas, this may mean a combination of acquiring a title for land fraudulently, acquiring a court order on the basis of the fraudulent document, hiring security guards to forcibly and illegally evict customary owners, and securing land with fences. In one documented case an entire village was forcibly evicted. Second, for uninhabited areas, elites informally contract laborers to clear the land, reducing the forest to charcoal, and allow them to farm and occupy the land for a set period before reverting the land to the new self-proclaimed landlords. A third approach to illegal land occupation is the fencing of rangeland commons by politically connected herders. In all cases, elites may combine physical occupation with the irregularly obtained land titles to facilitate the subsequent sale and development of the land.

The National Forest Authority (NFA) in Uganda has run up against local and national elites who try to curry popular favor if the NFA is trying to enforce forest boundaries, by declaring “Don’t evict my voters!” The state’s political machine has endless ways to reinvent claims on access to resources. Changing these behaviors will take more than locally-oriented conservation efforts. It will take work at multiple levels in different sectors. The study flagged the importance for biodiversity programming to support these coalitions and to push for more inclusive and effective land use planning that involves a wide range of stakeholders including local government and civil society groups as well as conservation organizations and the National Forest Authority. Building these coalitions to tap into existing efforts to build local government accountability will be important as oil development proceeds.

In Madagascar, some elites were involved in violations of regulations on trade in wildlife and illegal harvesting of marine products; communities could do little to prevent this. The pressure of national and international actors, including CSO platforms, has helped to curb these behaviors. Conservation and development practitioners will at times have to work with corrupt actors to identify mutual interests. The researchers focused on understanding the way that *dina* was able to change behaviors and the extent to which it is regarded as an effective means of enforcement at the local level by government. Although enforcement of *dina* varies among communities, where there is local-level participation and agreement on the need for a new local level *dina*, there tends to be very high compliance. The government has even backed broad sweeping *dinas* to re-establish law and order across regions during the height of political upheaval. These *dinabe*, (big *dina*) as they are called, could put a stop to cattle rustling and criminality through severe sanctions that can generate compliance, even from outsiders. The effective use of *dina* is something that USAID can continue to explore, along with building the capacity of the LMMA associations to set and enforce appropriate sanctions.

Box 3. Comparing *Dina* & Compliance

In the Northeast region of Madagascar, Rantohely and Ambodipaka, there are two communities with contrasting experiences in compliance. Rantohely has a relatively strong, functioning LMMA. In Ambodipaka, the LMMA no longer functions. Comparison of the made clear the role that community ownership of a *dina* plays. The people of Rantohely developed their own *dina*, and they set very high fines. The penalty in the *dina* for using a beach seine is one zebu²⁰, five kilograms of salt, and 100 kilograms of rice. In contrast, Ambodipaka association members were given *dina* by Ministry of Fisheries and did not develop their own. The Ministry set their fines very low, assessing only 5,000 ariary for the illegal use of a beach seine. The members said this was far too low and did not serve as a deterrent. The lack of ownership of the *dina*, along with light penalties, has produced a classic collective action problem where individuals feel more and more compelled to use illegal equipment since many others were also doing so.

In many communities in the Southwest of Madagascar, there is leniency on community members and a preference to resolve things locally to avoid the weight of the *dina*. Community leaders told us that they prefer to educate people rather than to punish them because ultimately, they are trying to strengthen marine management. When non-members are caught breaking the rules, they typically comply with the *dina* payments. However, in a number of cases the fishers

²⁰ A type of cattle.

have been unable to enforce the *dina*, even with the involvement of the administrative authorities. This is particularly the case where industrial or commercial fishers, traffickers, or corrupt government officials are involved. Interviewees discussed one case where a local politician released individuals accused of illegally harvesting wild sea cucumbers. When a civil society organization pursued the case, district level officials dissolved the organization, and the local politician replaced it with his own organization. Although national-level pressure from civil society ultimately spurred the national government to pressure the district to bring charges against the local politician, he ultimately did not stand trial and simply stepped down at the end of his term.

4.4 HOW PEA EXPLAINS PUSH AND PULL FACTORS TO EXPOSE CONSTRAINTS AND OPPORTUNITIES

Biodiversity conservation planning with communities is often defined in terms of local people with exclusive rights and outsiders with limited access. Locals have greater incentives to co-manage resources with conservation partners if they are guaranteed exclusive access to the resources. In Madagascar, *dina* regulates the use of particular types of fishing gear, banning those that are most destructive, mainly the illegal use of mosquito nets and very fine mesh purse seine nets used to catch fry and very small fish. The LMMA associations set sanctions through *dina* for the use of equipment such as these very fine nets because they endanger the fisheries. These can be effectively enforced within communities, but where communities have succeeded, outsiders – ranging from poor neighbors to criminal networks – will be attracted to the relatively more abundant resources resulting from the improved management. **Extractive activities create a pull factor to once isolated areas, bringing outsiders that create additional pressure on resources. In these circumstances, local resource management regimes can break down.** Consequently, conservation approaches need to be aware of push/pull dynamics and support local management regimes.

Climate change and climate events can significantly affect local resource management regimes by creating push factors that shape resource management decisions. In Southwest Madagascar, the prolonged drought has pushed communities out of drought stricken highland plains to seek livelihoods on the coast conflicting with local fisher communities with established rules and regulation for the management and use of fisheries resources. Geography matters. In the Northeast, the conflicts of traditional and commercial fishers were highest where the confluence of the river to the bay provided the nutrients for richer shrimp populations. Along the Southwest coast of Madagascar, closer to estuaries and wetlands, where the nutrients were richer, communities had more successful aquaculture and also were more vulnerable to marauding criminal gangs stealing resources and other outsiders attracted to the area by the resources. Outsiders tend not to participate in local management regimes. Conservation programming frequently deals with populations that are not settled and not homogeneous, but PEA and the tradition of institutional economics offers resource governance tools to conservation planners. The Madagascar applied PEA research identified the need to strengthen LMMAs to deal with these dynamics.

Applied PEA can help elaborate constructive approaches for biodiversity programming that are rights-based and *microgovernance* oriented. The example of LMMAs in Madagascar offers

insight into ways forward with the understanding of conservation as a governance regime that follows Elinor Ostrom's design principles of common pool resources²¹ summarized in Box 4 below. Ostrom's insights into the problems of collectively managing shared resources are well-suited for moving communities from competition to cooperation, but may also offer insights into the problem of (re)building legitimacy of resource management institutions in conflict-sensitive environments.²²

Madagascar's coastal and marine biodiversity play an important role in the livelihoods and food security of the country.

Box 4. Design Principles for Common Pool Resources

1. Define clear boundaries.
2. Match rules governing the use of common goods to local needs and conditions.
3. Ensure that those affected by the rules can participate in modifying the rules.
4. Make sure the rule making rights of community members are respected by outside authorities.
5. Develop a system carried out by community members for monitoring members' behavior.
6. Use graduated sanctions for rule violators.
7. Provide accessible, low-cost means for dispute resolution.
8. Build responsibility for governing the commons resources in nested tiers from the lowest level up to the entire interconnected system.

The PEA research identified effective conflict resolution mechanisms to facilitate *dina* enforcement on outsiders as an important goal for programming. Addressing IUU fishing will require national and international cooperation with local level fisheries managers and law enforcement agencies. The applied PEA research identified an opportunity for marine biodiversity programming to engage with private sector actors to secure political commitments to dismantle criminal syndicates threatening fisheries and marine biodiversity. The applied PEA research pointed to building on existing livelihoods diversification and considering how program integration on health and livelihoods in the fisheries sector can address coastal malnutrition due to fewer and smaller fish, changes in climate, and slim market penetration in remote coastal areas. Finally, the applied PEA research identified specific ways to support internal functions of local level marine management association through customary law institutions.

²¹ Ostrom, E. *Governing the Commons*. Cambridge: Cambridge University Press, 1990.

²² Ratner, B.D., Meinen-Dick, R., May, C. and Haglund, E. "Resource Conflict, Collective Action and Resilience: An Analytical Framework," *International Journal of the Commons*, IASC: Utrecht University Library Open Access Journals, February 28, 2013.

5.0 WHAT DOES THE PEA RESEARCH REVEAL FOR PROGRAMMING?

Given the challenges brought about through illegal minerals exploitation and trade within and around the Kahuzi-Biéga National Park in the DRC, effective conservation may require reconsideration of the boundaries, zoning, and management of KBNP, as well as the demobilization of armed combatants. Park managers and other stakeholders will benefit from the advice and participation of conflict experts. Alternative livelihoods outside the park may require new partnerships and different skill sets. Revising governance and territorial arrangements in consultation with key stakeholders can enhance benefits to communities living in and around the park.

In Uganda, the applied PEA research indicated a need to identify programming goals that can shift the power balance to favor local communities and local governments indirectly through government agencies with allied political interests working through them on technical issues. This implies engaging with government on land use planning and dispute resolution, through existing coalitions of civil society organizations and partners bringing together expertise on biodiversity and community livelihood and security and to address issues around the oil pipeline going forward in the Albertine Region.

In Madagascar, USAID will need to focus on strengthening community-led marine resource management bodies like MIHARI and associated institutions through analysis of their function and providing technical and peer support. These institutions will need to support the development of scalable, sustainable and crime-resilient alternative livelihoods, as well as associated markets for domestic and international consumption. Importantly, USAID will need to consider programming that enhances the capacity of government and community institutions to credibly and effectively resolve local conflicts through greater cooperation and enforcement of existing laws and protection of the exclusive rights of local fishers through clearly delineated boundaries and zoning for traditional and commercial operators.

PEA in these three cases identified three levers for conservation planners:

1. **Livelihoods:** Although addressing livelihoods is not new, the applied PEA research emphasized the importance of paying attention to power and infrastructure, institutions for local governance, gender imbalances, food security, building on customary law, and leveraging private sector engagement where possible.
2. **Accountability:** Building local accountability for resources through strengthened engagement with local government is key. Conservation planners need to work with government officials on enforcement and on identifying opportunities to support interests that will build collaboration. In some cases, tax structures and decentralization reforms will be directly relevant to biodiversity threats and these will be issues that conservation practitioners need to address.

3. Conflict resolution: Greater attention to the need for conflict resolution skills to identify legitimate grievances that might be at the root of conflicts over resources and to tackle issues of power imbalances through mediation will be critical to ensuring the credible and effective resolution of conflicts and establishing good indicators for the monitoring of conflict. Working with conflict specialists, gender specialists, and social scientists trained specifically in resource conflicts will be key.

Local resource management regimes do not and cannot operate in a vacuum. It is vital that other layers of government support the functioning of local resource management regimes and provide a means to ensure its legitimacy as well as resolve disputes, particularly with outside entities. Although foundational factors like patronage networks, geography and customary norms like tribute cannot be easily changed, conservation practitioners can use PEA thinking to identify ways to engage powerful actors in a shared vision to achieve conservation goals and to address criminality. Building coalitions that increase the stakes for cooperation will be the way forward and PEA helps identify ways to do that.

In conservation, there is often conflict around boundaries among different stakeholders. In Madagascar, coastal communities want to set their own boundaries and protect the resources within them against outsiders because they see the value. Boundaries are difficult to enforce in a marine context without the involvement of both communities and the government, however. The challenge of community-based reserves is that the community cannot rely on *dina* alone to keep outsiders from entering their reserves. The government entities that do not have competing interests lack the resources to back the communities. In one case, the commune was called to come and help talk to outsiders fishing in the reserve, but because the encroachers were armed, the commune representative and community members were afraid. In another case, the community association apprehended people illegally harvesting wild sea cucumbers, but the mayor was allegedly complicit in the illegal harvesting. In general, there is a desire for more cooperation from the government to protect marine areas from outsiders in Madagascar, but government enforcement seems to be limited to confiscation of fishing nets. The Directorate of Fisheries in Tuléar told the research team that he knows that this is not effective, but he doesn't have resources to patrol the coast. Identifying government requirements for enforcement is critical; linking them to broader institutional problems sustainably is the way forward in programming.

In the DRC, reducing the biodiversity threat of artisanal mining inside the park cannot happen without addressing a set of institutional problems that go beyond the scope of conservation programming. Understanding the incentives of actors inside the park who benefit from mining is critical in approaching the conservation issues. Certification alone will not provide sufficient incentive for actors to relocate outside the park. Local civil society groups and researchers have valuable relationships with communities around the park. Local university researchers also have contacts and information that the conservation partners need to approach park residents and miners. The applied PEA research identified unexplored opportunities that can build on the initiatives of local civil society groups. RM groups are not unreachable, but it will take skilled local researchers and mediators outside the conservation community to identify opportunities, carefully avoiding direct conflict with patronage networks. Conservation groups can work to support local coalitions, including the ICCN, which can address historical grievances arising from the park's creation. Trust building is as important as resources for a viable coalition.

With USAID's commitment to support over the long term, these coalitions can begin to develop the economic growth initiatives needed to draw artisanal miners and residents out of the park as security improves. To accomplish this, work is needed on multiple levels and at multiple scales. USAID is already working on improving certification and piloting traceability of gold. Private sector gold, cassiterite, wolframite and coltan industries are willing to work with the park to campaign for alternatives to bushmeat as a food source for miners, and for stricter enforcements against wildlife trafficking. Harmonizing export taxes could go a long way toward reducing incentives for smuggling minerals out of the DRC, but not without providing incentives for enforcement. Although these suggestions may extend beyond traditional conservation programming, failure to address them may continue to undermine progress in promoting biodiversity protection. Even the primatologists and conservation biologists acknowledge there is no other way forward but to address the political economy of gold mining.

In Uganda, as oil development continues to reshape patterns of land use and labor in the Albertine region of Uganda, it will be important to develop collaborative natural resource management initiatives that provide local communities and governments with both the motivation and means to promote biodiversity conservation. Robust civil society coalitions play a key role in spotlighting abuses. Identifying ways to support these coalitions and their allies in government to push for change will be an important part of any biodiversity conservation programming going forward. Promising areas for future programming also include more effective and inclusive land use planning that supports alternative, environmentally sustainable livelihoods, more accountable environmental impact assessment procedures, multi-stakeholder forums where abuses can be flagged and improved enforcement capabilities for preventing and rectifying land acquisitions that have dispossessed customary property holders and unsanctioned expansion into wildlife areas.

For Madagascar, there are two primary approaches being implemented to promote biodiversity conservation and the viability of coastal fisheries. First, there are initiatives to strengthen customary law relating to fisheries management. Although Madagascar has attempted to do this by approving local level customary laws and codifying them to improve enforceability, this has had little practical effect. Second, there is an initiative to coordinate marine research efforts and expand options for environmentally sustainable livelihoods in coastal communities through aquaculture and improved reserve management. The aquaculture initiatives include sea cucumber and seaweed farming in near shore waters. Reserve management requires monitoring the sizes and locations of octopus and other products in conjunction with temporary reserve closures. These closures are essentially seasonal bans on harvesting octopus and other marine wildlife like shrimp, lobster and crab. These measures have met huge improvement in incomes for fishing communities, but there are practical obstacles to scaling these initiatives up. The aquaculture harvests can vary significantly across geographical locations and the high value sea cucumbers are particularly attractive to armed criminal syndicates. The aquaculture arrangements are a form of contract farming for a few private sector companies, which control the price and export of these and other products. Even the private sector has been hesitant to invest in their development because of the risks armed criminal gangs impose.

Fisheries restoration in Madagascar will depend on identification of viable sustainable livelihoods to replace or supplement traditional fishing practices, and on curtailing the IUU fishing practices in its coastal waters. Coral reef rehabilitation will rely on a strong LMMA network with access to effective conflict mediation mechanisms and enough power to enforce

local *dinas* on outsiders. Political commitment to dismantling criminal syndicates and addressing corrupt practices will be long-term goals tied to protecting fisheries and marine biodiversity in Madagascar. Finally, customary law is a powerful mechanism for LMMA fisheries management within the fishing communities; additional uses of customary law should be explored to maximize the advantages of *dina*.

6.0 CONCLUSIONS

Several themes emerge from these applied PEA case studies on biodiversity conservation and extractives in Africa. The applied PEA research identified three themes as indirect drivers of biodiversity loss that should be familiar by now:

- *Patronage* networks, which play an important role in the illegal or unregulated acquisition of resources (e.g., fish, land, forest resources and minerals) and abuse of power leaves communities vulnerable to the above drivers;
- *Lack of accountability*, which is related to failures of land use planning and security of property (armed occupation of the park in the DRC, elites enabling dispossession of customary landholders in Uganda and lack of enforcement of existing fishing regulations and coastal zoning in Madagascar); and
- *Criminality* related to wildlife trafficking and unsustainable hunting or fishing practices related to and amplified by extractive activities taking place.

These case studies and the above patterns highlight how power inequalities exacerbate the difficulty of credibly and effectively resolving conflicts over resources among stakeholders. In all three case studies, it is clear that conservation practitioners in these contexts require conflict-sensitive approaches.

All three cases highlight the importance of establishing conflict resolution mechanisms to address long standing grievances, to resolve immediate disputes about violations of traditional resources or generally remedy the power inequalities of local communities struggling against powerful actors. Customary rights and the recognition of ancestral lands remain important even in the midst of the violent dispossessions that we associate with modernity. Customary identities persist in these resource dependent settings for the simple fact that identities are territorialized, even for the nomadic *Vezo* fishers, semi-nomadic coastal people of Southwest Madagascar. These issues push the boundaries of what information is needed for good conservation planning. Applied PEA research helps open conservation to the understanding that these spaces claimed for biodiversity and occupied for extractives are frequently contested for both traditional and modern reasons. These applied PEA cases, demonstrate how traditional cultural practices are mediated by customary law and play important roles in the management of biodiversity resources.

Resource governance challenges are governance arrangements specific to a particular resource sector but exist within the broader governance characteristics such as state capacity and legitimacy, rule of law, freedoms of expression and political organization, and protection of

human rights. **PEA can help practitioners involved in biodiversity programming to place the specific resource governance challenges of interest into the context of broader governance issues to determine practical steps for advancing conservation goals.** Resource governance arrangements include mechanisms for representation of diverse groups in decision-making, the distribution of power and the mechanisms of accountability.²³ Contextualizing resource governance challenges is particularly critical in conflict-affected environments for more effective programming. Conflict afflicted environments tend to create divisions that neither sustain resource dependent communities nor the conditions for biodiversity conservation. For that reason, it is especially important for biologists focused on conservation goals in conflict-sensitive environments to understand the risks of creating additional threats if they are unaware of the political economic linkages of conservation to conflicts over resources. A simple example is the in the case of the sea cucumber farming in Madagascar. An enormous amount of resources were put into these aquaculture ventures without a recognition that raising such a high value product increased the vulnerability of the communities to criminal networks and as a consequence undid many of the gains made in building community level commitment to resource management with the incentive of a new marine product. Linking greater enforcement and more attention from powerful actors (private sector and regional government) could protect these investments and strengthen the resource management arrangements. Extractives activities tend to exacerbate existing struggles over resources and can – as in the case of Uganda’s oil development – lead to degradation of resources as a result of increased pressures on resources from new practices or people. Criminal networks, conflict/post-conflict actors and patronage networks can also impede sustainable natural resource management. USAID’s Applied PEA Framework provides the structure for analyzing resource conflicts across scales and sectors. Security is often examined at provincial, national and international levels, whereas natural resource management analyses, with some exceptions, tend to focus on local ecosystems, landscapes or habitats. PEA is a particularly useful tool as it can be applied to all levels. Similarly, USAID’s Conflict Assessment Framework, which is used to examine conflicts and make linkages at multiple levels, might enrich applied PEA assessments of biodiversity conservation.

USAID’s Applied PEA Framework offers no uniform solutions or routine approaches for dealing with these dynamics. Rather, the framework serves to heighten awareness of the need to examine the historical legacies of conservation and the political context within which conservation programming is planned. Applied PEA research can provide greater understanding of how conflicting claims on resources are functions of power and its expressions. Conservation practitioners recognize that it is not just the economic value of resources that is at stake. Intrinsic biodiversity values and the benefits of ecosystem services are critical to wellbeing. Just as initiating change in a school requires an understanding of context, resource use involves deeply held beliefs and traditions; both intrinsic and extrinsic motivations for behavior must be understood in proposing change.

PEA can facilitate additional forms of collaboration – including working with local researchers, traditional leaders and community members to establish community biodiversity reserves; engaging local actors in land use planning and cultivating alternative, environmentally

²³ Agrawal, A. and Ribot, J. (1999). Accountability in decentralization: A framework with South Asian and African cases. *Journal of Developing Areas* 33:473-502.
And Lemos, M. C. and Agrawal, A. (2006). Environmental governance *Annual Review of Environment and Resources* 31(1):297-325.

sustainable, livelihoods. It can also highlight opportunities for integrating programming from other sectors to enhance biodiversity conservation, including efforts to improve government transparency, accountability and tax policy. As demonstrated by the case studies discussed in this paper, applied PEA research can provide program designers with information about key political, economic and social structures, actors and trends in their programming area. Applied PEA research also establishes how these dynamics influence the willingness and capacity of government officials, civil society organizations, and communities to cooperate with conservation efforts and co-design relevant laws, regulations, and policies. Finally, program designers can incorporate applied PEA evaluation of existing programming and priority-setting processes. In these ways, applied PEA research can serve as an important tool for looking at a seemingly intractable problem and break it down into parts within which practitioners can design effective biodiversity conservation programming, particularly in difficult programming contexts.

7.0 ANNEX A: REFERENCES

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