

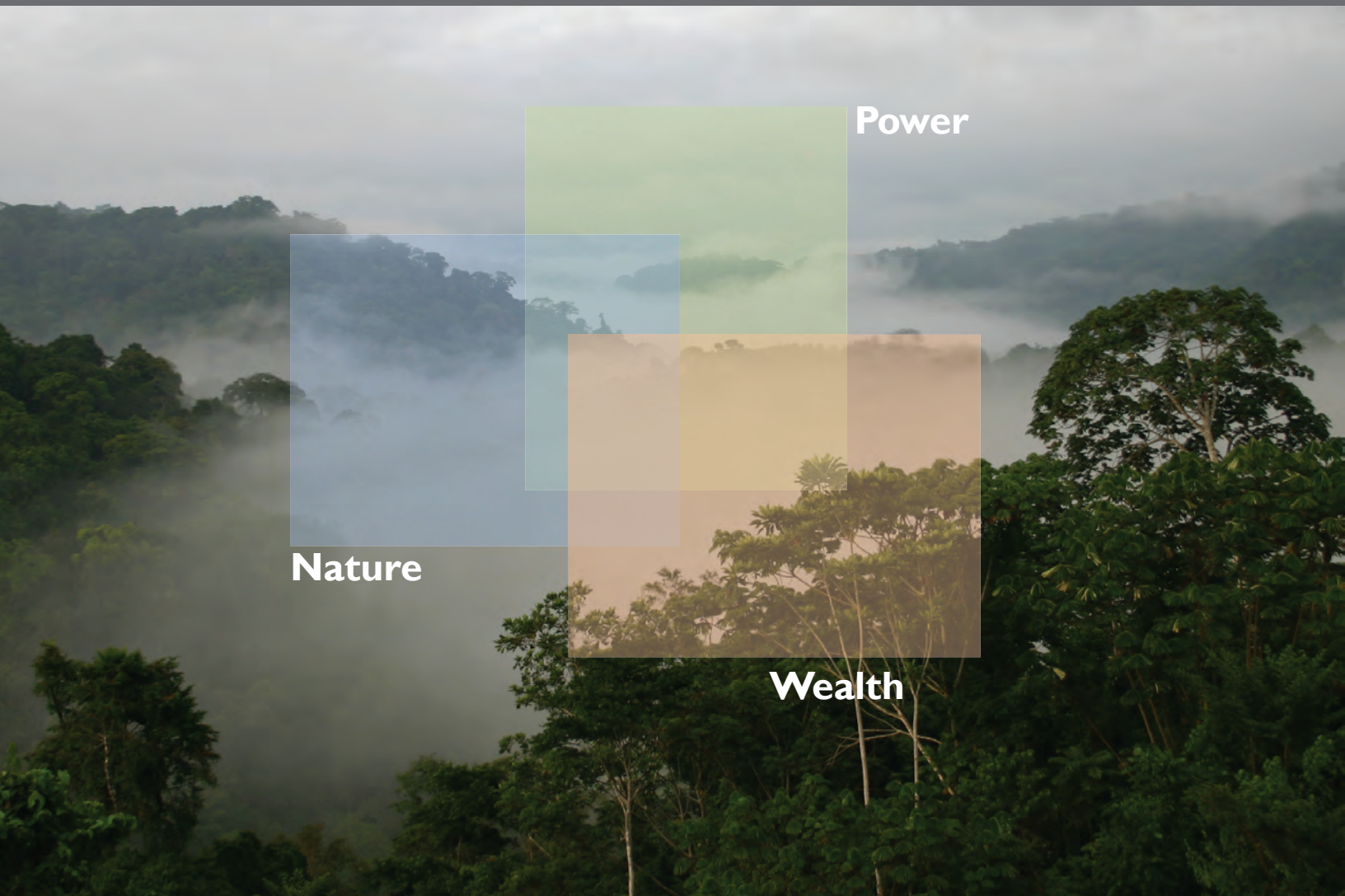


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**Challenges to Establishing Payments for Ecosystem Services (PES) in Gabon:
A Case Study of the Mbé River Basin**



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Case Study

Challenges to Establishing Payments for Ecosystem Services (PES) in Gabon: A Case Study of the Mbé River Basin

Report prepared for WCS TransLinks Program

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August 2009

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Challenges to Establishing Payments for Ecosystem Services (PES) in Gabon: A Case Study of the Mbé River Basin

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Introduction

While Payments for Ecosystem Services (PES) mechanisms have been established in many places in Latin America and Asia, Africa lags behind with only a few schemes in Eastern and Southern African countries. A recent review states that Africa accounts for only 3% of global PES schemes (Ferraro 2009). The concept is still novel in Central Africa, and to date there is very little information about any projects which have been developed in the Congo Basin. The Congo Basin is the second largest forest block after the Amazon and is globally important for biodiversity, fresh water, and carbon storage. It has also been estimated that the hydro-electric generation potential of the Congo Basin amounts to one-sixth of the estimated global total (Debroux et al. 2008). All these factors mean that there is a huge potential for PES projects to develop and yet very few are in development.

WCS is working with the Government of Gabon on a new Payments for Ecosystem Services (PES) initiative to secure long-term protection of the high conservation value of the Mbé watershed in Gabon. These watershed services are currently being provided free by upstream forest managers such as local communities, national park managers and forestry companies.

The project is exploring ways to remunerate these upstream land managers for maintaining their land-use practices to secure the continued provision of a year round supply of high quality water. More broadly, the project also aims to address key barriers to developing sustainable PES mechanisms in Gabon and is being designed to maximize lesson learning and replicability. This initiative will be one of the first in the Congo Basin and would greatly contribute to developing an empirical evidence base for the development of Payments for Watershed Services (PWS) in Africa. The lessons learnt from this initiative are expected to be influential in the direction and speed of development of further PES schemes in the Congo Basin.

Although this initiative is in its early stages, the following case study introduces the background to the work and highlights some of the early challenges that have been faced.

Background to the Mbé Watershed

Gabon has the second largest forest in the Congo basin, which in turn is the second biggest forest reserve in the world after the Amazon. Forests cover over three-quarters of Gabon's territory (more than 22 million hectares) and include an estimated 8,000-10,000 species of plants (20 percent of which are endemic), nearly 200 mammal species (including lowland gorillas, chimpanzees, 10 species of monkeys, forest elephants and even hippos that surf ocean waves) and 670 bird species.

Gabon has experienced relatively low rates of deforestation and forest degradation compared to surrounding countries due to strong forest

governance implemented since the beginning of the 1990s and an underdeveloped agriculture and livestock breeding sector. Anthropogenic drivers of deforestation in Gabon include: development of agricultural activities and settlement of populations near urban areas and development of the mining sector as well as illegal logging for timber and construction. However, these are not well-documented in Gabon and it is therefore difficult to determine the relative impact of each factor on the overall deforestation and degradation. These pressures will continue to impact mainly areas with a lower level of protection (rural forestry domain and small-scale permit concessions for which sustainability is not proven given their small size). Despite these pressures, Gabon has low human population density and therefore it has a higher chance of success in protecting biodiversity than most other tropical countries. Enhancing the conservation of biodiversity in Gabon will therefore make a significant contribution to biodiversity conservation within the Congo basin and globally.

The Mbé River watershed is in the northwest of Gabon and covers a range of forested land-uses including small scale farming, mining, forest concessions, and the Mbé section of the Monts de Cristal National Park (see Figure 1 and Appendix 1). It is one of the most biologically diverse places in Central Africa and is of global conservation significance. The Mbé is also one of Gabon's most economically important watersheds, providing electricity for the capital city, Libreville, with 60% of the country's population. This source of electricity is a hydroelectric plant on the Mbé that is owned and operated by Société d'Énergie et d'Eau du Gabon (SEEG), a subsidiary of the French multi-national Véolia.

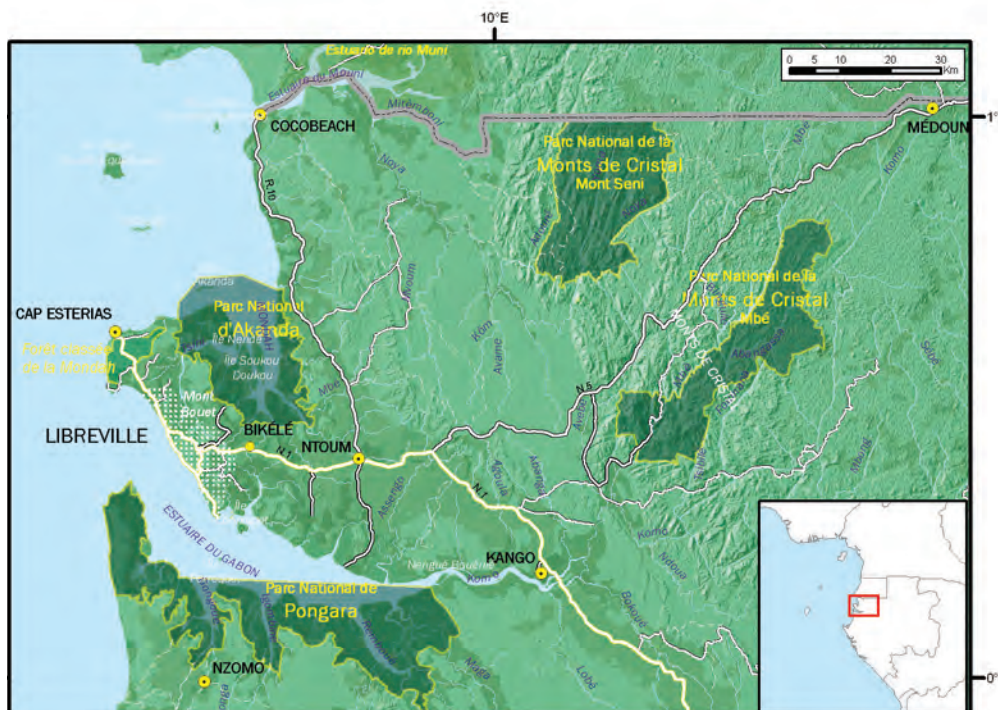


Figure 1. Map of the Mbé watershed.

Its unique status within the region comes from the unusual topography, high-rainfall and position between major biogeographical regions. These factors have isolated the landscape and ensured habitat stability throughout the last ice-age when most forests of the region dried out and became savannahs. As a result of its long period of isolation and stability, the Mbé watershed is one of the oldest forests in all of Africa harboring a unique assemblage of species with extremely high endemism. Surveys over the last four years rank the area as having exceptional regional and global significance for plant species and highlight its importance in resisting on-going and future climate change (Sunderland et al. 2004).

The watershed is of similarly high global and regional importance for the conservation of wildlife. Although covering a relatively small geographical area, the watershed is of disproportionate importance for large mammal conservation due to its relative isolation. Although impacted by poaching, the gorilla and chimpanzee populations in the watershed have been unaffected by the Ebola hemorrhagic fever pandemic that has almost eradicated ape populations in neighboring areas. The Mbé watershed, thus, continues to act as a refuge and a key source in helping contiguous wildlife populations recover, and this role is likely to grow in importance with ongoing climate change and human-wildlife disease transmission.

Rationale for the Project

Although a favorable policy and legislative framework for environmental protection and biodiversity conservation exists in Gabon, the Mbé watershed remains threatened. This is largely due to weak law enforcement capacity and the lack of a system for coordinated land-use planning.

Current threats to the watershed include forestry and hunting:

Forestry: There are four logging concessions in the watershed, all of which present a large threat to its integrity. The soils in the watershed are fragile (JP Van de Weghe, *pers. comm.*) and removal of forest cover, especially on steep slopes and near rivers, leads to increased sedimentation and a reduction in water quality. Although the Forestry Code of 2001 requires concession holders to have a management plan within 3 years of obtaining the permit, none of the 4 companies in the watershed have begun to develop these, and none have plans to become FSC certified or use reduced impact logging (RIL) techniques. Companies do not abide by the law in part due to the high costs in developing the management plans, but also due to the fact that there is currently little national capacity to enforce the forestry regulations. There is also pressure to increase logging intensity to compensate for declining oil revenues. Lastly, poor governance of the forest estate leads to non-transparent allocation of concessions with insufficient consultation with local people who have traditional claims to these forests.

Hunting: Subsistence and commercial hunting threatens the biodiversity of the Mbé watershed. A recent survey (Aba'a 2006) showed an average hunting sign (cartridges and snares) encounter rate of 0.74/km in the National Park (relatively high in comparison to other National Parks in Gabon), with hunting concentrated within 5km of villages. Hunting is carried out by local people as well as workers of the forestry, mining and hydroelectric companies, and the military stationed at the military base. It is also thought that hunters also come across the border from Equatorial Guinea to hunt in the area. Unsustainable hunting is driven by weak property rights for wildlife resources, and very little law enforcement in the park or its periphery, leaving wildlife effectively as an open access resource. The companies operating in the watershed do nothing to ensure that workers do not hunt. Commercial hunting pressure is high because the watershed is only a short distance (3 hours) on reasonably good roads to the urban centers of Libreville, Medouneu, Ntoun and Kango. This area is the primary source of bushmeat for these markets. For the local communities living in the watershed who have little access to alternatives, bushmeat is an important source of protein and income. The results of the 2006 survey show that wildlife presence is negatively correlated with human presence and that wildlife populations have been depleted in the lowland areas of the watershed and along the national road. There are also reduced wildlife populations within the Mbé sector of the park around the sites of the two hydroelectric dams.

Future threats to the watershed also include mining and agriculture:

Mining: the Mountains of Monts de Cristal are rich in minerals including large deposits of gold, diamonds, iron and platinum. The entire watershed is covered by two exploratory mining permits (one for iron and one for platinum). Gold is currently being exploited by artisanal gold miners from outside of the region. All mining activity risks impacting biodiversity and watershed services. In particular, gold mining increases sediment load in rivers, which has a negative impact on the hydroelectric dams and on aquatic biodiversity. Other negative impacts result from deforestation, road building and industrial and domestic pollution. The potential threat from mining activities is high and results largely from a lack of transparency in the attribution of permits. Permitting is often done without consultation with the relevant wildlife/protected areas authorities and results in exploitation in biologically sensitive zones. Mining is seen as a new source of national treasury income and there is, therefore, weak political support for retracting mining permits in favor of biodiversity conservation. There is also a lack of capacity to ensure that all companies abide by existing, relatively stringent, environmental regulations including conducting an environmental impact assessment.

Agriculture: Local people practice subsistence farming mainly for family consumption of manioc, bananas, pineapple, peanuts, yams, and sweet potato. Today, agriculture is currently small-scale but there is the threat that larger commercial farms will be cleared given the

watershed's proximity to large urban markets. In other areas of Gabon, the pattern has been for agricultural development to expand into logging concessions, once the smaller forestry companies have left after removing the few commercially viable tree species. This pattern leads to a fragmentation of the forest, particularly along roads.

As Gabon has a low human population density in rural areas, these threats, while serious have not yet pushed natural resource impoverishment to the point of "no return" as has occurred in many once forested areas in West Africa. Gabon is therefore in the unusual position of being able to act before it is too late. However, as pressure on natural resources increases and environmental protection remains largely funded over the short term by external donors, there is a high risk that forest degradation for agriculture will be exacerbated in the future. Wunder (2007) notes that PES arrangements will often be "best suited to scenarios of moderate conservation opportunity costs on marginal lands and in settings with emerging, not-yet-realized threats."

If no action is taken, the "business as usual" scenario is likely to result in:

- Continued lack of awareness of the value of ecosystem services.
- Continued short term interventions in the Monts de Cristal National Park.
- Little engagement of the private sector in natural resource management.
- Continued difficulty in changing management practices of logging and mining companies in the watershed.
- Increasing pressure on the natural resources in the watershed, through hunting, agriculture, logging and mining.

The long-term solution for the conservation of the Mbé watershed's biodiversity and other ecosystem services is to ensure that sufficient financial resources are available to cover management costs and remunerate the various actors (including local communities) that help in maintaining ecosystem services. Valuing the ecosystem services in the watershed will also help to influence cost-benefit calculations underlying land-use decisions in the watershed, thereby preventing the potential for future degradation of these services if the watershed is converted to alternative forms of land use such as mining and large-scale agriculture. For example, Article 12 of the National Parks Law states that if mineral resources are found in the national park, the park can be declassified so that the resources can be exploited. According to article 8 of the same law, this declassification can only be carried if the gains are of a national interest and compensation should be made. Taking into account the value of ecosystem services is crucial in these kinds of trade-off decisions.

While there are many ecosystem services provided by the Mbé watershed, the project will initially focus on watershed services. Unlike carbon and biodiversity that provide intangible and more global benefits, there is a clear local beneficiary of the watershed services of the

Mbé, particularly in terms of water quality and quantity, and regulation of the flow. The hydrological services provided by the Mbé watershed, therefore, represent an opportunity to test the potential of PES as a way of linking conservation and development in Gabon and providing a sustainable source of revenue for the National Park.

How Would Payments Work?

SEEG (Société d’Energie et d’Eau du Gabon) is the operator of two hydroelectric dams and electricity turbines, one at Kinguélé (58MW) and a second at Tchimbélé (69 MW). The utility company is partly owned by the Government of Gabon and partly by the French group, Veolia. WCS is working with both SEEG and the Government to explore ways in which payments could be transferred to upstream land users to maintain or change their land use practices. This will help control water quality by reducing sediment loads into rivers. SEEG will benefit primarily through reduced operating costs, as lower sediment loads in the rivers will reduce the need for dredging of the reservoirs and reduce the damage caused to the turbines. Lower sediment loads will also extend the working life of the dam. The potential recipients of the payments will be the various upstream forest managers including the National park, local populations and private logging companies who have management rights over parts of the river basin. Forest managers who can demonstrate good forest governance with long term management plans are more likely to be able to benefit from the PES mechanism. The system will not only produce global environmental benefits, but will also help secure electricity production for SEEG and its customers in Libreville.



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Mbé River during the dry season

Challenges

Some of the key challenges that have been faced in developing the project are the following:

1. Lack of Technical Capacity for PES

PES is still new and unknown in Gabon and there are very few operational PWS projects in Africa to draw upon for guidance. Considerable effort has been required to introduce, promote and explain the concept to the various stakeholders and project partners who are unfamiliar with the potential of such innovative mechanisms. It has also been difficult to recruit national counterparts to work on certain pre-feasibility studies. The legislative and policy foundation for supporting financial payments to providers of ecosystem services is lacking and information, knowledge and expertise on payment for ecosystem services does not exist among protected area managers and other management bodies. There is also a lack of institutional capacity to design, manage/implementation and monitor PES schemes.

As such, developing a PWS project in Gabon must include considerable time, effort and patience in building a constituency for PES. Often, one-on-one consultations with key individuals from Government and the private sector are essential as a precursor to wider education and awareness workshops or meetings.

2. Defining the Services: Lack of Existing Data

The Mbé watershed is one of the most botanically studied locations in Gabon, partly due to its close proximity to Libreville, but also due to the SEEG infrastructure in the heart of the mountains, which offers accommodation to biological researchers. Wildlife and socioeconomic surveys have also been carried out. However, there are very little existing hydrological data which would allow us to measure the watershed



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SEEG offices at the Kingele dam in the Mbé watershed

services. For example, SEEG measures neither the quality of water passing through their turbines, nor the levels of sedimentation in the reservoirs. It has therefore not been possible to evaluate the trends or establish a baseline of these factors. While the baseline is not essential to establishing the project, it will be necessary to set up an effective monitoring system capable of monitoring these factors over time.

There have also been no studies carried out in the Mbé watershed, or elsewhere in Gabon to show the impacts of different land uses on watershed service provision. The public perception is that forests are good for the water environment, that they increase rainfall and runoff,

Box 1: Water in Gabon: Public Good or Private Commodity?

In 2002, the United Nations Committee on Economic, Cultural and Social Rights issued a statement declaring access to water a human right and stating that water is a social and cultural good, not merely an economic commodity. There is often a debate around the ethics of increasing the costs of water for the end user as a result of privatization of water utilities or from PWS schemes. This is particularly true in developing countries where end users may be poor and not able to pay costs for accessing water. The protests against privatization of the water supply and the increase in rates during the “Cochabamba water wars” in Bolivia in 2000 are an example of this issue. More recently there has been a similar situation in Vietnam where consumers were frustrated by the increase in water tariffs to protect upstream forests (www.thanhniennews.com).

In Gabon, water was privatized in 1996 and SEEG is now owned by the French group Véolia. The “new, private” SEEG signed its 20 year concession with the Government of Gabon in 1997, and has exclusive rights over all water and electricity production, transport and distribution in Gabon until 2017. Does this demonstrate that Gabon views water as a private commodity? The situation appears to be more complex. SEEG produces water for domestic and commercial consumption and for hydroelectricity. SEEG has three different categories of electricity user: Large users, low users and poor low users and the rates they are charged differ. For domestic uses of water there are two categories: poor and non-poor. Therefore, the pricing scheme for water and electricity is set up to subsidize the poor by charging industrial and larger, middle-class users higher rates. Interestingly, as the Government of Gabon sets electricity and water prices, SEEG is required to use electricity profits to subsidize the cost of water production to keep water tariffs low. Gabon is technically a middle-income country and the differential pricing scheme, in a sense, avoids some of the ethical issues linked with PWS schemes resulting in increased rates for poor consumers. However, from initial discussions with consumers in Libreville, and learning from the Vietnam experience, there will need to be a considerable amount of awareness raising done if the *Librevilleois* are going to be “willing to pay” for protection of the Mbé watershed.

regulate flows, reduce erosion, reduce floods, and improve water quality (Calder 2007). However, the links between land use changes and watershed services are complex and vary with types of forest (Calder 2007). One review of links between land uses and hydrological services (Kiersch 2000) also highlights the fact that impacts will vary according to the scale of the river basin; generally, the larger the basin, the smaller the impact.

For the Mbé watershed case study, the ecosystem services of most interest to the potential buyer are water quality (sediment load) and quantity (a year round flow sufficient to meet peak demand for electricity throughout the year). Cloud forests have an overall positive effect on water quantity as they are capable of capturing atmospheric moisture (Bruijnzeel 1990 in Kiersch 2000). Forests' leaf area, understory vegetation, leaf litter, and root network all serve to minimize erosion of soil in areas of high precipitation. Forest cover is particularly important on steep slopes, helping prevent soil slumps and landslides (Bruijnzeel 1990 in Kiersch 2000) that can massively increase river sediment loads. Improper road construction during timber harvesting operations is also a major cause of erosion. In the USA, forest roads are estimated to account for 90 percent of the erosion caused by logging activities (Bruijnzeel 1990 in Kiersch 2000). The steep slopes in the Mbé watershed, coupled with the fragile soil, suggest that any loss of forest is likely to lead to increased sediment loads in rivers and increased sedimentation of SEEG's reservoir and abrasion of electricity generating turbines.

These explicit links between forest state, forest use, and sediment loads in rivers will be important when it comes to negotiating with SEEG and assessing the value of these services. Assessing the impacts of different land uses will also be crucial when determining the way contracts with upstream users should be designed, both in terms of the spatial distribution of payments and in terms of the value of the contracts.

3. Institutional Complexity

The institutional framework for forest management in Gabon is highly centralized and characterized by a strong State presence, which exclusively owns all forests, including soil and subsoil, rivers and streams (Law 016/01, Article 13).

Watersheds are not recognized as management units and therefore they are under the jurisdiction of various government agencies and ministries, and are managed by various public and private sector and community-level actors. In the case of the Mbé, in addition to SEEG, these land users are the forest and mining concessions, a national park and a number of local communities. There are, therefore, numerous stakeholders who have an interest in the establishment of a PWS program, both at a national level and at the local level. Each stakeholder has different interests and levels of political and economic power and, thus, needs to be engaged in different ways.

Though the State is the sole owner of the forests, there are several different government departments who have jurisdiction over various parts of the forest domain. This jurisdictional complexity is a barrier to effective coordination, and weak communication between the various departments means that roles and responsibilities often remain unclear at best, and undecided at worst. Today, in Gabon, there is no entity that fills the role of facilitating inter-sectoral coordination, which our initial legal and institutional analysis shows will be crucial to the success of the Mbé PWS project.

State ownership clearly has implications for who has the rights to benefit from payments for water services. Although the importance of ecosystem services is recognized in certain policy documents, they are not defined in national legislation and, as such, it is unclear who has the right to buy and sell them. For example, the local communities in the watershed do not have land tenure but do have customary user rights over forest resources. It is currently unclear whether they will have the rights to sell the services provided by their custodianship of the forests. If they do have the rights, given they do not own the land, will they be able to exclude activities by other actors in the rural forest domain that have a negative impact on flows of watershed services? The same is true for the logging concessions that have been given the right to manage an area of forest and sell timber for a certain period. Will they also have the right to sell the ecosystem services they provide through good forest management? If they do not, what kinds of mechanisms will the State be able to put in place to ensure service provision that are different from existing command and control measures that are currently not being enforced?

Box 2: “We do not know the value of water as long as the well isn’t dry” (Fuller 1732)

An interesting aspect of this project in Gabon will be how to value something that is not yet scarce. Gabon has one of the lowest population densities in Africa with an estimated 1.5 million people and an urban population that is 85% of the total. Gabon also has an abundance of natural resources, including forests, water, petrol, manganese, iron, gold, platinum and fish. This abundance of natural resources, coupled with a low population density, has led to a situation where environmental services have not been degraded significantly in Gabon. This is true in the case of the Mbé watershed, where the high rainfall, low human population density, and low historical levels of forest clearing ensure that the reservoirs behind the Tchimbélé and Kinguéle dams remain full of high-quality water (SEEG, personal communication). There is concern that the current high quality and quantity of the water services in the Mbé watershed and low levels of forest degradation, at present, constitutes a barrier to developing a PWS scheme with SEEG, who may not see a clear threat to their business during the remaining 12 years of their concession.

Table 1. Roles and responsibilities of key stakeholders in the sustainable management of the Mbe watershed and its ecosystem services.

Stakeholders	Roles and Responsibilities
<i>Government of Gabon</i>	
The Ministry of Forest Economy, Environment, Waters and Fishing	The department for the environment within the ministry will be responsible for the overall coordination of the project and main beneficiary of project activities. It will also be the president of the steering committee and the main government representative. The Ministry for Forest Economy, Environment Waters and Fishing will be a member of the steering committee and responsible for negotiations with the forestry companies.
Ministry of Mines and Hydrocarbons	The Ministry of Mines and Hydrocarbons governs the mining and hydrocarbon sectors and will therefore be responsible for negotiations with the mining companies. It will be on the steering committee.
The Ministry of Agriculture, Animal Husbandry, Food Security and Rural Development	The Ministry of Agriculture, Animal Husbandry, Food Security and Rural Development will oversee any activities relating to agriculture and rural development.
<i>Agence National des Parcs Nationaux (ANPN)</i> , Gabon's National Parks Agency	The National Parks Agency (ANPN) is responsible for the management of the national park network. As park manager, it will potentially be a beneficiary of the revenue that is generated by a PES scheme.
Ministry of Energy, Hydraulic Resources and New Energies	The Ministry of Energy, Hydraulic Resources and New Energies assures the distribution of water and electricity for the nation and is the ministry responsible for negotiating and overseeing the SEEG concession.
Ministry of Economy, Finance, Budgets and Privatization	The Ministry of Economy, Finance, Budgets and Privatization will be a key member of the steering committee given its responsibility over contracts between the private sector and a public administration and also for environmental taxation.
Local Authorities	Local authority representatives will be members of the steering committee and responsible for overseeing activities carried out with the local communities.
<i>Private Sector</i>	
SEEG	As operator of the hydroelectric dam, and beneficiary of the watershed services, SEEG will be an important stakeholder and potential buyer of the ES.
Forestry Companies	Forest companies are potential providers of the ES. Their role in the watershed is important as their activities have a large environmental impact. They will be part of the steering committee.
Mining Companies	Mining companies are potential providers of the ES. Their role in the watershed is important as their activities have an environmental impact. They will be part of the steering committee.

Table 1, continued.

Stakeholders	Roles and Responsibilities
<i>Civil Society</i>	
Local communities	Inhabitants of the villages within the selected pilot project areas will be made aware of the issues and invited to take part in the decision making process. They will be represented in the local committees by village headmen and actively involved in the project activities. Their cooperation will be sought in implementing project activities including resource protection, alternative income development (ecotourism, organic agriculture), awareness raising, etc. The village headmen will be the main counterparts in linking the project objectives and activities to the needs of the people in the project area.
Local elites	These are influential people who have vested interests in their region of origin, but who are often not permanently resident there. Often have strong influence over local resident populations. Will be involved in the project through the same avenues as local authorities.
Local associations	Local associations based in the selected pilot project area will be invited to local committees and they will be encouraged to take active role in implementing project activities.
International NGOs (WCS)	International NGOs such as WCS will provide technical support through the duration of the project as necessary and act as the “honest broker” during the negotiation of the contracts.
Research Institutes/ Universities	Relevant regional research institutes such as CENAREST, IRET and ENEF will contribute to project during scientific surveys and educational activities as necessary.
<i>Other</i>	
USAID	USAID provided funds for this initial assessment.
GEF	GEF is the funder of the project, funding initial feasibility studies and start up costs of the scheme. They are also a potential buyer of the global environmental services such as biodiversity.
UNDP-Gabon	<p>The roles and responsibilities of UNDP-Gabon will include:</p> <ul style="list-style-type: none"> • Ensuring professional and timely implementation of the activities and delivery of the reports and other outputs identified in the project document; • Coordination and supervision of the activities; • Contracting of and contract administration for qualified project team members; • Establishing an effective networking between project stakeholders, specialized international organizations and the donor community.

Next Steps

The project is still in an early phase of development and funding has been requested from GEF to develop the project further. If funding becomes available, the next steps will focus around the following two principal areas of work: strengthening the enabling environment for PES and developing a pilot PES scheme for the Mbé forest.

1. Strengthening the Enabling Environment for PES

This will include supporting and enhancing Gabonese capacity to conduct PES assessments and design PES projects; to establish the legal, institutional, and land-tenure frameworks necessary for PES projects to work at national and local levels.

a. Legal Aspects

As mentioned above, the legal framework exists for biodiversity and environmental protection but not specifically for watershed protection and, although ecosystem services are mentioned in some strategy documents, the legal framework required for an effective PES scheme to be piloted is missing. The project will work towards getting recognition of ecosystem services in the various laws governing land use. It may also be necessary to create legal obligations for water users to contribute to watershed management, ensure that payments and compensations are possible, and define who has the right to buy and sell ecosystem services. In addition, the project will work with existing initiatives in Gabon to work towards clarifying land tenure. WCS will review the recent

Box 3: The State: Service Provider, Beneficiary or Simply Regulator?

Given that the state is involved in forest governance and management in Gabon, they will be key to this project. However, there are several roles that the state might assume: (1) As owners of the land and potential implementers of strong environmental legislation and enforcement mechanisms to control the impacts that actors in the watershed have on the environmental services, should they be considered a provider of those services? (2) As owners of the dams and all electricity infrastructure, as well as being responsible for providing electricity to Gabon, should the state be considered a beneficiary of the watershed services? Or, (3) should the role of the state be to facilitate and regulate a PES mechanism, set up between SEEG and local actors such as the national park managers, logging and mining companies and local communities?

Another consideration which has been highlighted by McNeely (2006) is the danger of governments taking advantage of PES once environmental services become marketable assets: “As governments live to tax, it will seek opportunities to take their perceived fair share of the benefits and what starts out as a pro-poor program may become less so as governments attempt to capture the rents.”

national PES policy developed by Vietnam, with technical assistance from Winrock and the financial support of USAID, to identify language that might be useful when encouraging policy reform in Gabon.

b. Organizational Arrangements

Designing a PES program requires navigating through a complex regulatory maze created by multiple government agencies responsible for environmental regulations, policies, and programs. Clarifying the relationships between these entities is essential to PES program design. Each agency has its own regulatory mission, and none include the design of novel, market-like solutions to environmental problems. Finding a way through this kind of regulatory maze is essential to reduce the risks for both the agencies and private sectors, reduce transaction costs, and ensure broad participation in any PES program. The project will therefore work towards the development of organizational arrangements that will be able to provide effective support services to PES deals. The CNDD (Conseil National de Développement Durable) is an existing structure which offers an inter-sectoral platform and could be well-positioned to address PES issues. Experience from this initial assessment of a PES scheme for the Mbé shows that PES in Gabon



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Low flow in the Mbé river during the long dry season

will likely involve many government departments, with overlapping jurisdictions. An inter-sectoral platform like the CNDD will be essential to ensure effective coordination and information exchange among government agencies and key private sector, civil society and local community stakeholders. The CNDD is not yet fully operational, and both technical and financial support will be needed to ensure that it has the ability to identify and set up future PES schemes and the technical capacity to design and facilitate contract negotiations, and is capable of monitoring and evaluating the schemes.

c. Capacity Building

In both the public and private sectors in Gabon, there is a general lack of awareness and understanding of PES mechanisms and their potential benefits. The project will work with key government departments and other stakeholders who will be involved in the scheme to build technical capacity in PES. These will include the Ministry of Environment, Ministry of Finance, Ministry of Energy, SEEG and local NGOs working at the site level. Capacity will be built through short training courses and workshops covering key aspects of PES project design and implementation. Another approach will be to conduct one or more study tours for government officials and private sector managers. Such tours would



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Kimbele falls in the Mbé watershed during the dry season

help participants learn: 1) how PES has been successful at generating revenue for natural resource protection; 2) the different roles played by public and private sector and civil society actors within PES projects; and 3) how legislation, policies and organizational arrangements can either enable or militate against successful PES schemes.

2. Developing a Pilot PES Scheme for the Mbé Forest

a. Building a Constituency for PES in the Mbé

Work has begun to build a national constituency for PES in Gabon and there is now growing political support for PES. That said, there is still much work to do engaging potential buyers and sellers within the Mbé watershed to ensure all stakeholders are aware of the concept of PES and how it could be used in the Mbé. Raising awareness and developing a common vision will require stakeholder meetings, workshops and the development of educational and promotional materials. A forum of private businesses (utility, hydropower, beverage and mining) will also be set up to discuss approaches to PES that bring on board the marketing and financial expertise of the private sector.

b. Detailed Ecosystem Service Assessment

A watershed assessment will be carried out to identify and measure, in detail, the ecosystem services of the Mbé watershed (carbon sequestration, watershed services and biodiversity). Though the focus will be on watershed services, the potential for bundling other services will also be explored. The likely impacts of different land uses on ecosystem services will also be more thoroughly evaluated. Lastly, a series of economic scenarios will be developed, based on assessments of consumers' willingness-to-pay and sellers' willingness-to-accept. These scenarios will determine revenue likely to be generated from a PWS in the Mbé and assess whether the funds raised would be sufficient incentive for land users to either maintain or adopt desired practices.

c. Designing the Payment Mechanism

Assuming that future work with government, private sector and local stakeholders clarifies who will pay for ecosystem services (SEEG with no change in electricity prices; or SEEG with an increase in electricity prices) and who will receive payments (protected area authority, logging concessions, local community members), much has yet to be done to determine: 1) the size of payments; 2) how payments are transferred from buyers to sellers; and 3) how contract performance will be monitored and enforced. One of the most challenging aspects of implementing a PES within the Mbé watershed is determining how to allocate payments to the different sellers – for example, the park management agency, local communities, and logging companies. Should payments be made based on the area of the watershed under each seller's management jurisdiction – equivalent to precipitation and the volume of water flowing into the reservoir? Or should payments be made based on the volume of sediment generated by each seller at present, or the volume of sediment each seller can claim to

prevent flowing into the reservoir? To answer this, one also needs to ask whether buyers should pay to stop bad practices or to maintain good practices, or both; and do both warrant the same or different payments? One also needs to determine if sediment loads are a result of land use practices or a natural process such as stream bank erosion.

d. Measuring Success to Ensure the Sustainability of the System

Assuming that a contract can be developed between a willing buyer and willing sellers, one would also assume that the buyer would only be willing to make payments after determining that sellers have met their obligations to halt undesired practices, maintain desired practices, or both.

If sellers are being paid to minimize sediment flowing into the reservoir, the watershed needs to be subdivided by seller and their sediment entry and exit points must be identified. Baseline sediment levels entering and exiting each seller's subdivision would need to be determined during rainy and dry seasons. Alternatively, if sellers are being paid to adopt certain practices, such as retaining a 30m natural vegetation barrier in riparian areas, then monitoring would focus less on assessing sediment loads in rivers and more on documenting compliance with such land use practices.

Most importantly, for both buyers and sellers, is for monitoring not to be undertaken by either party involved in the contract. This means that a credible third party will most likely need to be engaged to conduct whatever monitoring is needed to assess and report contract compliance.

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Intact dense tropical rain forest covering the Monts de Cristal within the Mbé watershed

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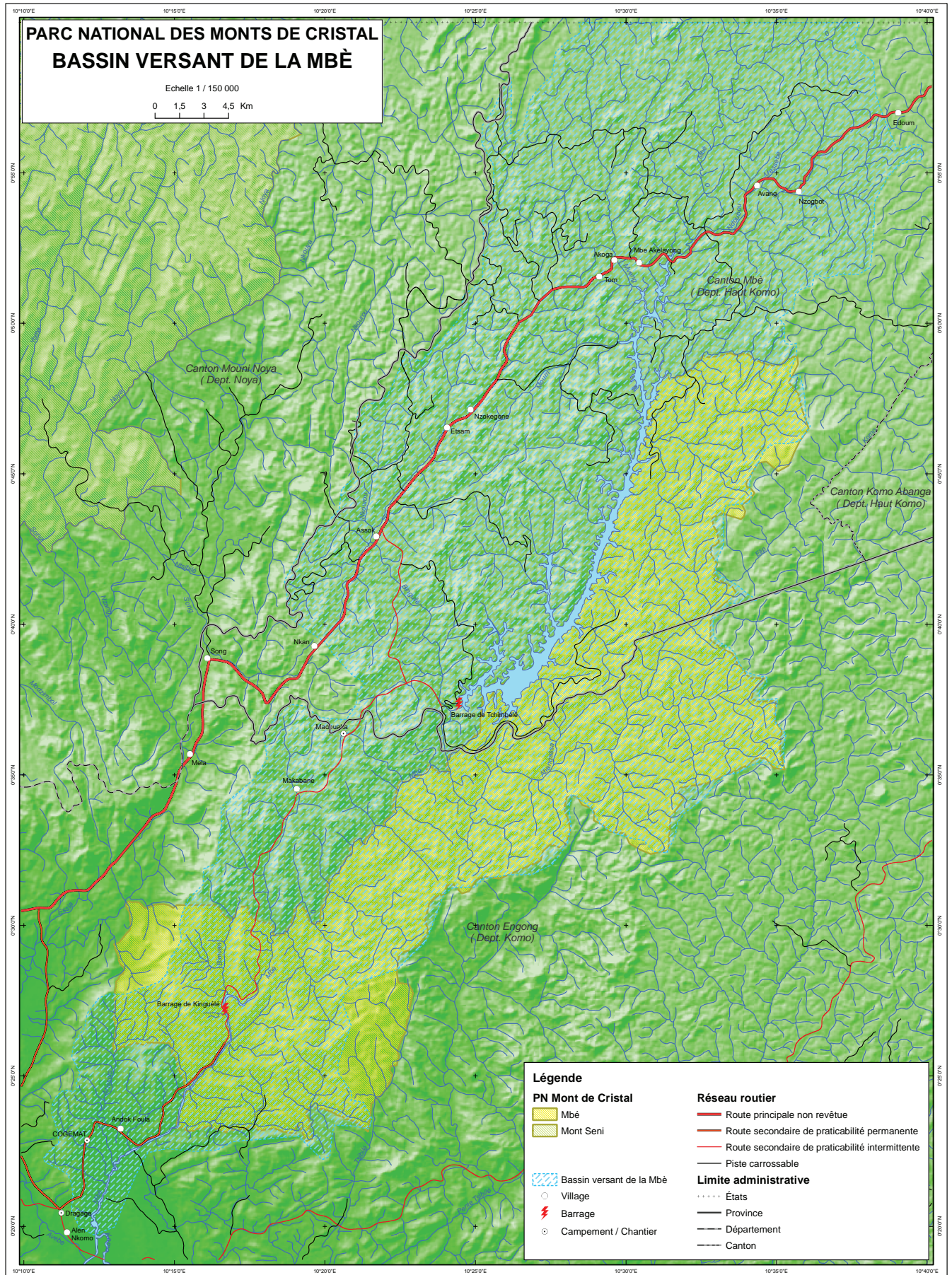
Case Study

Challenges to Establishing Payments for Ecosystem Services (PES) in Gabon: A Case study of the Mbé River Basin

Appendix 1: Map of the Mbé Administrative District

Appendix 2: PWS Project Development Question Checklist

Appendix 1: Map of the Mbé Administrative District



Appendix 2: PWS Project Development Question Checklist

Site-Level Considerations	No	Yes
1. Knowledge of site		
1.1. Do you already have a good knowledge of the project site?		
1.2. Is the site of conservation interest?		
1.3. Do you already work with local partners/stakeholders to be involved?		
1.4. Are local stakeholders supportive of the project?		
2. Defining the watershed service		
2.1. Is there existing data which will help evaluate the watershed services?		
2.2. Can the value of the ecosystem service be measured (or quantified)?		
2.3. Do you have an understanding of the threats to the watershed?		
2.4. Is there evidence of a strong link between land use actions and watershed services?		
2.5. Is there a potential to change those land use actions having a negative impact on the water quality/quantity?		
2.6. Are there other ecosystem services that would be maintained or enhanced by watershed protection?		
2.7. Is there a possibility of bundling services?		
3. Finding a buyer		
3.1. Is there a potential buyer for the service?		
3.2. Is there a private operator in the watershed? Is the private operator willing to pay for the service?		
3.3. Is the economic activity linked to the ES relatively important or potentially so? <i>Or</i> – Is the ES an essential input into the buyers business (i.e., water is essential to a hydropower plant, clean water to a beer manufacturer)		
3.4. Are there substitutes for the ES?		
3.5. Are substitutes expensive or unavailable?		
4. Developing the scheme		
4.1. Is there a source of start up funds which can provide support for initial assessments required, capacity building and negotiation?		
4.2. Is there a technical assistant with the capacity to develop the project?		
5. Considering Transaction Costs		
5.1. Is there more than one buyer of the service?		
5.2. Can the service providers be organized into groups/associations?		
5.3. Can simple monitoring programs be established to monitor service provision and contract compliance?		

Continued on next page...

National-Level Considerations (<i>Enabling Conditions</i>)	No	Yes
1. Technical Capacity		
1.1. Is there an existing level of understanding and capacity for the potential of PWS amongst project partners?		
1.2. Is there existing national technical capacity available for identifying and establishing PES projects?		
1.3. Is there an existing expertise in PES project monitoring and evaluation in-country?		
1.4. Are there other pilot projects in the country/region to learn from?		
2. Regulatory Framework		
2.1. Are there existing national policies/regulations in place which acknowledge and support PES?		
2.2. Are there laws and rules regulating watershed protection?		
2.3. Are there laws and rules regulating water and electricity provision?		
2.4. Are there well defined property and land tenure rights?		
2.5. Do community organizations or concessionaires have rights to sell/ approve/reject deals?		
3. Institutionalization of the scheme		
3.1. Is there a good level of support from relevant government agencies?		
3.2. Is there a political will to carry out necessary policy/regulatory reforms to support PES?		
3.3. Is there a will to build technical capacity within government agencies?		
3.4. Are there existing national institutions in place that can regulate and manage PES, including governance structures for financing, payment and monitoring mechanisms?		
3.5. Are there existing platforms to facilitate inter-sectoral coordination?		
3.6. Are there existing platforms that can facilitate negotiation of contracts?		
3.7. Are there existing national institutions/mechanisms that ensure stakeholder involvement in natural resource management?		
Grand Total *		

** If the majority of the answers to these questions is no, it is advised to consider carefully whether the project would be feasible.*

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TransLinks is a 5-year Leader with Associates cooperative agreement that has been funded by the United States Agency for International Development (USAID) to further the objective of increasing social, economic and environmental benefits through sustainable natural resource management. This new partnership of the Wildlife Conservation Society (lead organization), the Earth Institute of Columbia University, Enterprise Works/VITA, Forest Trends, the Land Tenure Center of the University of Wisconsin, and USAID is designed to support income growth of the rural poor through conservation and sustainable use of the natural resource base upon which their livelihoods depend.

The program is organized around four core activities that will be implemented in overlapping phases over the life of the program. These are:

1. Knowledge building including an initial review, synthesis and dissemination of current knowledge, and applied comparative research in a number of different field locations to help fill gaps in our knowledge;
2. Identification and development of diagnostic and decision support tools that will help us better understand the positive, negative or neutral relationships among natural resource conservation, natural resource governance and alleviation of rural poverty;
3. Cross-partner skill exchange to better enable planning, implementing and adaptively managing projects and programs in ways that maximize synergies among good governance, conservation and wealth creation; and
4. Global dissemination of knowledge, tools and best practices for promoting wealth creation of the rural poor, environmental governance and resource conservation.

Over the 5-year life of the program, TransLinks aims to develop a coherent, compelling and, most importantly, useful corpus of information about the value of, and approaches to, integrating Nature, Wealth and Power. To do this, TransLinks is structuring the work around two core issues – 1) payments for ecosystem services and 2) property rights and resource tenure.



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A partnership of NGOs, Universities and USAID led by The Wildlife Conservation Society, dedicated to finding and sharing practical ways to generate benefits from conserving natural resources that are of global importance, and that serve as the supermarkets, bank accounts and insurance for many of the poorest people on earth.

This publication is made possible by the generous support of the American people through the United States Agency for International Development (USAID), under the terms of the TransLinks Cooperative Agreement No.EPP-A-00-06-00014-00 to The Wildlife Conservation Society. TransLinks is a partnership of WCS, The Earth Institute, Enterprise Works/VITA, Forest Trends and The Land Tenure Center. The contents are the responsibility of the author and do not necessarily reflect the views of USAID or the United States government.

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