CHAPTER

7

ENABLING CONDITIONS AND COMPLEMENTARY LEGISLATIVE TOOLS FOR PES

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CONTENTS

ABSTRACT

In order to ensure the sustainable provision of ecosystem services and to deter their further degradation, economic and market-based mechanisms, such as Payments for Ecosystem Services (PES) schemes, provide new policy instruments. PES schemes aim at creating positive attitudes and stimulating proactive behaviour towards the development and utilisation of nature-based solutions, which means a considerable shift from the application of classic 'command-and-control approaches' that aim at discouraging certain environmentally harmful behaviours.

The following chapter will explain why, depending on the type of PES scheme and the scale at which it is developed (local to international), legal frameworks play an increasing role in supporting successful PES development and how they provide a key instrument to ensure good PES governance. At the same time, experiences from around the world are provided in order to show that a lack of or inappropriate legal frameworks have the potential to obstruct effective PES implementation.

Furthermore, some of the greatest challenges in the development of PES initiatives will be addressed. Flexible approaches in dealing with unclear or inexistent property rights have to be taken in order to ensure a minimum of legal certainty and thus effectiveness when developing PES initiatives. Also, the creation of an enabling legal environment will be discussed which can stimulate a more efficient use of PES financial resources and promote the integration of different PES or ecosystem services related activities.

INTRODUCTION

Human well-being generally requires basic matters necessary for a good life, starting with food, water and shelter. Beyond that, people need to be healthy, feel secure in their social networks and have the freedom to make their own decisions. The Millennium Development Goals (MDGs) reflect these prerequisites for human well-being.

Many of these needs involve the environment in general and ecosystems in particular. Especially poor people living in a rural environment depend on fertile soils and regular rainfall, natural pollination and natural regulation of pests for successful agriculture. Their survival also requires the existence of wild plant and animal species for gathering and hunting food or traditional medicines, access to freshwater for drinking, the availability of firewood for heating and energy and the maintenance of 'green infrastructure' in general as a natural platform for resilience (e.g. mangroves and coral reefs as a natural protection from storms and floods). Even outside rural communities, human health and safety is closely related to the environment and nature. For example, even in developed countries a considerable number of diseases, casualties

and deaths are clearly linked to poor water quality, natural disasters, or new pandemics (such as the avian influenza or swine flu). Nature and its biodiversity provide effective and often cost-efficient response instruments in these regards, including water filtration and climate regulation systems and pathogens for vaccination and medication.

These instruments are based on and provided by ecosystems. As they improve human conditions, the term 'ecosystem services' has been created. The environment and its different ecosystems provide a wealth of services. "These include provisioning services, such as food and water; regulating services, such as regulation of floods, drought, land degradation and disease; supporting services, such as soil formation and nutrient cycling; and cultural services, such as recreational, spiritual, religious and other non material benefits" (MEA, 2005). However, due to increasing rates of environmental degradation and to the greater demand for ecosystem services, the environment is now faced with a limited capacity to produce such services. In order to ensure the durability of ecosystem services and to deter their further degradation, the standard legal approach is the so-called 'command-and-control'. Most environmental law falls into this general category of command-and-control laws, which typically involve three elements: (a) identification of a type of environmentally harmful activity, (b) imposition of specific conditions or standards on that activity, and (c) prohibition of forms of the activity that fail to comply with the imposed conditions or standards, coupled with sanctions to deter such activity in the future. In short, command-and-control laws aim at discouraging certain environmentally harmful behaviours. However, they do not encourage positive attitudes which lead to proactive behaviour.

Instead of sanctioning violations of environmental standards, economic incentives are created to promote the sustainable delivery of ecosystem services

As a consequence, economic and market-based mechanisms, such as Payments for Ecosystem Services (PES) schemes, have lately become popular as they present 'new' or alternative approaches for the conservation of ecosystems and their services. Instead of sanctioning violations of environmental standards, economic incentives are created to promote the sustainable delivery of ecosystem services. The PES concept is based on the idea of establishing appropriate prices on ecosystem services and using financial incentives combined with legally-binding agreements for promoting their conservation. The common denominator across such PES schemes is that payment arrangements are made where those who pay are aware that they are paying for an ecosystem service that is valuable to them or their constituencies; and those who receive the payments engage in meaningful and measurable activities to ensure the sustainability of the ecosystem in question (Gutman, 2007). PES schemes, thus, differ considerably from command-and-control laws in that they:

- Are based on voluntarism and negotiation, instead of strict obligation and top-down imposition;

- Reflect the paradigm of internalising externalities by creating market mechanisms for exchanging ecosystem services between providers and beneficiaries;
- Involve property rights holders and recognise their interests, instead of simply restricting their rights;
- Have the potential to achieve additionality, as they usually promote conservation activities which go beyond the pre-existing, mandatory environmental standards.

The focus of this chapter is on legal frameworks that can either enable the successful development of a PES scheme or obstruct its effective implementation. Indeed, according to the different types of PES schemes (private, public or trading schemes) and the scale at which they is being established (local, regional, national or international), the legal basis and requirements will differ greatly.

TYPES OF PES SCHEMES AND THE IMPORTANCE OF LEGAL FRAMEWORKS

As mentioned before, three types of PES schemes are generally distinguished: private schemes, public schemes and trading schemes (Table 9). While the objective of all of these schemes is the protection, conservation or restoration of ecosystem services, each type differs substantially from the other in view of actors, development, setup and also complexity.

Private PES schemes

Private PES schemes are driven by the market and can be developed independently of any governmental support

Private PES schemes are driven by the rule of supply and demand. If a person has a demand for ecosystem services to be provided and another private person is in a position to offer such services, a private PES contract can be developed independently of any governmental support. An example of this is the private PES scheme in the Vittel (Nestlé Waters) case (Perrot-Maître, 2006). Thus, private PES schemes can be developed without a specific PES legal framework. Instead, they only require:

- Basic contract law which provides contracting parties with sufficient legal remedies to enforce contract rights in cases of non-compliance with contract obligations;
- A legal system based on the legal principle of *pacta sunt servanda*, meaning that agreements must be kept, as well as general respect for the rule of law;
- Absence of any legal provision which could be interpreted as prohibiting PES contracts and their subject matter.

Table 9
Legal complexity of different PES schemes

Type	Development/Actors	Set-up	Complexity
Private	❊ Self-organized ❊ Providers and beneficiaries are private entities (individuals, groups of individuals, private companies) ❊ Government/public entity only as intermediaries (if at all)	❊ Direct payments by service beneficiaries to service providers ❊ Cost-sharing among involved private parties ❊ Purchase of land and lease back to former owner ❊ Purchase of development rights to land which are separated from property rights	Low
Public	❊ Government-driven ❊ Involving private and public entities ❊ Government/public entity either as provider or beneficiary	❊ User fees ❊ Fiscal instruments (taxes or subsidies) ❊ Land purchase ❊ Granting of rights to use land and resources	Medium to high
Trading	❊ Government- and market-driven ❊ Involving private and public entities ❊ Government sets up a real market	❊ Cap (aggregate maximum amount) for pollution or conversion of ecosystems, or extraction of natural resources ❊ Allocation of permits (for pollution, conversion or extraction) which divide allowable overall total among users ❊ System for banking permits and their trading between those who do not need permits and those who need more than their allocation	High

However, it has to be noted that such private PES schemes that are developed without a specific PES vision and legal regime are usually limited to the local scale where they only address specific environmental problems or undertake individual, stand-alone activities. Thus, their objective is not to have an impact at a greater, national, regional or global level. Yet, they have the potential to contribute to the conservation or provision of ecosystem services at larger scale, if a nested approach is being applied which will connect the different local activities. Such a nested approach, again, requires an enabling framework comparable with public PES and trading schemes.

Public PES schemes

In contrast to private PES schemes, public PES schemes require at least a clear legal basis for the respective public entity to enter into a PES contract. Private individuals or entities are generally free to take action. They also automatically become contractually capable if certain prerequisites are fulfilled (e.g. a certain age of an individual, or a certain legal status of a private company). In contrast, public entities must be legally empowered to become active and a contracting party.

Such legal bases for public-private PES schemes can be found in many countries. For example, the German Federal Nature Conservation Act (*Bundesnaturschutzgesetz*), as amended on 29 July 2009, aims at improving cooperation between nature users and conservationists by strengthening the role of contract-based nature conservation. In its Article 3.3, the German Federal Nature Conservation Act foresees that one priority of governmental authorities will be to determine whether nature conservation measures can be implemented more effectively through contractual agreements (e.g. between nature conservation agencies and landowners), rather than through regulation. This provides a clear mandate for public authorities and encourages them to enter into PES contracts. Furthermore, this provision could even be interpreted as giving a preferential treatment to PES, as compared to command-and-control regulations. Furthermore, if good governance is taken seriously in public-private PES schemes, a number of other requirements should be fulfilled:

Public PES schemes require at least a clear legal basis for the respective public entity to enter into a PES contract

- **The general process for engaging in PES contracts should be clear:** Public entities have different possibilities to take action, including the 'classic' legal instrument of an administrative act, but also the instruments of public-private or private contracts. The requirements and the process for entering into such contracts in general and into PES contracts in particular have to be clarified in order to improve coherence and legal certainty. For example, when developing PES contracts, the public entity might require a specific application process for interested service providers, which helps to screen potential contracting partners. At the same time, eligibility criteria for PES participants have to be defined. Based on these criteria, the public entity will be obliged to comply with the general rule of non-discrimination, which means that it must not discriminate between equal partners in the application process.
- **The public funds and/or goods should be collected and invested on the basis of clear legal and procedural frameworks:** Laws and regulations have to decide how to generate financial resources for public PES investment. Collecting such resources (e.g. through taxes, fees, levies, trust funds, government bonds, etc.) requires a legal basis. At the same time,

it has to be decided whether to create a special PES fund to manage the resources and, if so, rules have to be established on how to govern this fund. Furthermore, clear regulations have to be developed on how to invest the resources. For example, a maximum or minimum amount for PES payments can be set, it can be decided whether to allow only payments in cash or also in kind, etc. Finally, it has to be determined how to use public goods in general (e.g. publicly-owned land) as part of PES schemes.

- **Transparency should be ensured by monitoring public PES investment and management through an independent authority:** A legal framework is also particularly important to avoid potential corruption and mismanagement of public resources. A system of checks and balances has to be developed in order to supervise PES investment and implementation. The supervising authority again should be given clear rights and responsibilities established by laws and regulations.

Fulfilling such good governance requirements will help to build trust between service providers and beneficiaries, at the same time contributing to a greater acceptance of PES as a policy instrument within society.

Trading schemes

Trading schemes (cap-and-trade) can relate to different ecosystem services, including carbon emissions reduction, biodiversity conservation, etc. (see also Chapter 3 "Opportunities and gaps in PES implementation and key areas for further investigation"). They generally require a specific legal framework as they are rather complex.

Such a complex cap-and-trade scheme can be found, for example, in the USA where the Clean Water Act (last amendment in March 2008) introduces a wetland mitigation banking scheme. The overall objective of the Clean Water Act is to restore and maintain the chemical, physical and biological integrity of the waters of the USA. To do so, the Clean Water Act prohibits the discharge of dredged or fill material into the country's waters unless a permit issued by the Army Corps of Engineers or approved state under Section 404 of the Clean Water Act authorises such a discharge. For every authorised discharge, the adverse impacts to wetlands, streams and other aquatic resources must be avoided and minimised to the extent practicable. For unavoidable impacts, compensatory mitigation is required to replace the loss of wetland and aquatic resource functions in the watershed[1].

Trading schemes require specific and rather complex legal frameworks

1 For further information, see the USA Environmental Protection Agency "Mitigation Banking Fact Sheet" at http://www.epa.gov/owow/wetlands/facts/fact16.html.

Compensatory mitigation for unavoidable wetland impacts may be accomplished through distinct mechanisms, including mitigation banking. Such mitigation banking allows land developers to meet their mitigation obligations by purchasing 'credits' from a third-party entity that has created or enhanced wetland resources elsewhere. If well developed, it can have a number of advantages over traditional compensatory mitigation as it has the potential to:

- Reduce uncertainty over whether the compensatory mitigation will be successful in offsetting project impacts;
- Assemble and apply extensive financial resources, planning and scientific expertise not always available to many traditional compensatory mitigation proposals;
- Reduce permit processing times and provide more cost-effective compensatory mitigation opportunities;
- Enable the efficient use of limited agency resources in the review and compliance monitoring of compensatory mitigation projects because of consolidation.

Amongst others, the following issues should be addressed in the legal framework while setting up trading schemes:

- Clear definition of those activities that have a negative impact on ecosystem services and, thus, trigger the mitigation obligations;
- Transparent standards to quantify the unit of exchange (e.g. based on their actual value and/or function, or based on the size and/or geography of the concerned land);
- Determination of units of restored, created, enhanced or preserved ecosystem services which will be converted into tradable credits;
- Procedural frameworks for opening, managing and closing mitigation banks, for ensuring fair trade and for sustainable protection of the resulting ecosystem services;
- Creation of insurance and liability systems to guarantee long-term offsetting and stewardship success.

This means, a clear legal framework for cap-and-trade schemes is not only building an enabling environment, but it is rather a prerequisite for their development.

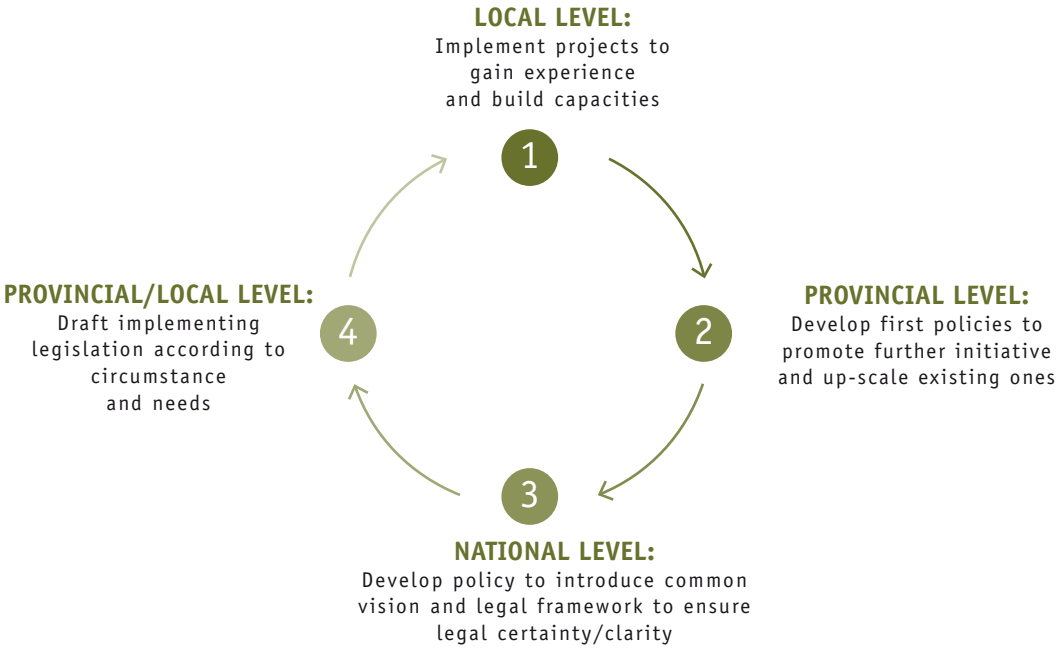
DIFFERENT SCALES AND THE IMPORTANCE OF LEGAL FRAMEWORKS

The importance of appropriate legal frameworks for the development of PES schemes also depends significantly on the scale of the scheme. This becomes evident when taking a closer look at the development of policies and laws related to water PES schemes on the one hand and the setting up of PES schemes related to REDD (Reducing Emissions from Deforestation and Forest Degradation) on the other.

Water-related PES schemes are usually developed at a more local level. Such local schemes generally require less legal guidance from the outset as they are usually focused on very specific water problems. However, by taking a 'learning-by-doing' approach, these local PES schemes, if successful, can trigger the development of policies and laws at the national and even at the regional level. The following four steps (Figure 28) can lead to the development of legal and policy frameworks in a bottom-up approach: firstly, PES projects at the very local level are developed and implemented in order to gain experience and build capacity. In the next stage, lessons learned are drawn from successful PES experiences in order to duplicate these success stories in other local areas and, if possible, at a larger scale. In order to promote such up-scaling, a preliminary PES policy at the provincial level can be a useful tool. Then, national framework legislation can be developed to ensure a common PES vision and understanding, to create legal certainty and to facilitate a coherent and efficient PES approach across administrative and according to ecosystem boundaries. Finally, implementing laws and regulations can be developed at the provincial and local level in order to regulate the necessary details and to steer the next generation of PES projects and schemes.

The importance of appropriate legal frameworks for the development of PES schemes also depends on the scale of the scheme

Figure 28
Water-related PES and its bottom-up policy development process



Adapted from Greiber, 2009

As an example of such a law and policy development process, the case of Bolivia can be cited (Wichtendahl, 2009). Here, PES initiatives were first developed locally with the involvement of local communities, municipal authorities and NGOs. For instance, Fundación Natura, a local Bolivian NGO, developed the Los Negros–Santa Rosa pilot project and later the Mairana, Comarapa and Pampagrande seed fund projects. Thus, PES initiatives were first started at very small and local scales, without either national or departmental PES legislation. Later, these initiatives were replicated and expanded geographically involving more actors. The success of these schemes initially promoted the issuance of a departmental PES policy in Santa Cruz, the 2007 Policy for the Recognition of Ecosystem Services (*Política Pública Departamental para el Reconocimiento de los Servicios Ambientales del Bosque*), followed by the development of the 2008 National Policy for the Integral Management of the Forests (*Política Nacional para la Gestión Integral de los Bosques*). Both instruments helped to formalise the already existing PES initiatives and support the development and implementation of future PES schemes in the country.

A mixture of framework legislation and implementing regulations has the greatest potential for PES

In contrast to water-related PES schemes, the envisaged international REDD regime can be described as a top-down multiple-level PES scheme (Costenbaden, 2009). Here, PES investment would flow first from international public or private sources to national or sub-national level authorities (Figure 29). Such payments need to be managed and coordinated at the national level (e.g. through a national fund and a national REDD Designated National Authority). Subsequently, PES payments would be made between the relevant national or sub-national authorities and project-level participants.[2] This structure already indicates the complexity of the future REDD PES scheme. It would be based on an international agreement setting the overall framework (e.g. determining baselines and safeguards). Furthermore, it would require implementing laws, regulations and policies at the national and sub-national level, in particular clear and equitable rules for benefit-sharing. The general advantages of top-down/centralised or bottom-up/decentralised PES policies and legal frameworks are compared in Table 10.

In practice, the importance of centralisation or decentralisation in PES policies and legal frameworks depends on different factors, such as the overall objective of the PES scheme (dealing with global problems, such as climate change, or with more local problems, such as water supply and quality), or the political structure of a country (centralised or federal state). However, it is important to note that in any case a mixture of a centralised approach through framework legislation and a decentralised approach through implementing regulations at the provincial and local level has the greatest potential to build an enabling environment for PES development.

2 Of course, this schematic is rudimentary and does not fully encompass the spectrum of potential design options still undecided in a future REDD regime, which, depending on the chosen finance mechanism and management scheme, may include direct international to sub-national payments.

Table 10

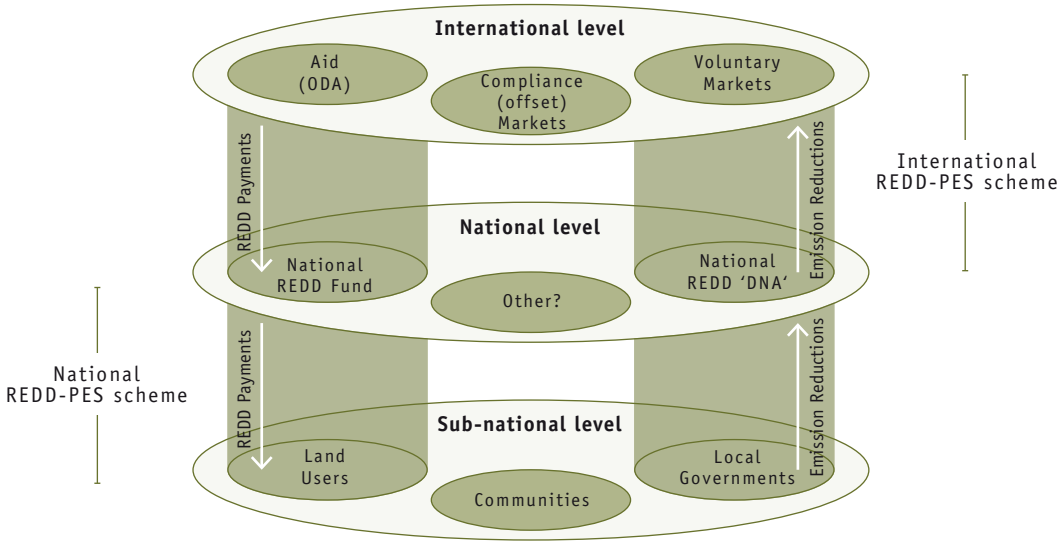
Advantages of centralisation and decentralisation in PES policy development processes

Centralisation	Decentralisation
❊ Support of PES programmes in line with national priorities	❊ Individual responses to regional and local problems
❊ Adoption of unified standards and procedures for effective implementation of PES activities	❊ Adjustment of standardised criteria and procedures according to local circumstances
❊ Coordination of initiatives at inter-regional and international scale	❊ Participation of stakeholders in PES project formulation and decision making
❊ Identification of synergies between different regional and sectoral initiatives	❊ Effectiveness of PES project execution due to information-based decision making
❊ Allocation of human and financial resources according to standardised criteria	❊ Flexibility and efficiency in programme operation, due to less bureaucracy

Source: Greiber, 2009

Figure 29

REDD and its top-down and bottom-up policy development process



Adapted from Angelsen and Wertz-Kanounnikoff, 2008

POSSIBLE LEGAL FRAMEWORKS

Different legal instruments have the potential to create a legal environment which enables or hampers PES development, as outlined in the sections below.

Constitution

While there is no need for constitutional regulation of PES, the constitution must not prevent the development of PES schemes. As the constitution is normally given supremacy over ordinary statutory law, it is crucial that it does not include any provision that directly or indirectly imposes obstacles for the development of PES schemes. Instead, the constitution has a great potential to recognise the value of nature and/or ecosystem services and thereby indirectly promoting the concept of PES.

In Ecuador, for example, the 2008 Political Constitution (*Constitución Política*) recognises the inalienable rights of nature, called ecosystem rights. At the same time, it recognises the right of people to benefit from the environment and from natural resources. Finally, the production, provision, use and exploitation of ecosystem services shall be regulated by the state.

On the one hand, the concept of granting rights to nature and the explicit recognition of ecosystem services are progressive constitutional developments, which have the potential to support the conservation of ecosystem services in the future. On the other hand, it is not yet clear how these ambitious goals can be reconciled and realized in practice, which has lead to a situation of legal uncertainty in the country where the further development of PES may be hampered, rather than facilitated. In addition, the strong role of the state in managing ecosystem services might be interpreted as prohibiting any private engagement through PES.

Specific (P)ES laws

An enabling legal framework for PES could also be created through a specific PES or ecosystem services law. Such laws have the potential to anchor PES cross-sectorally into national or provincial legislation.

In Brazil, for example, promising legal and financial frameworks to support PES development have been created at the state level (Valladares, 2009). The state of Espirito Santo adopted Law No. 8960 in July 2008 which establishes a State Water Resources Fund (*Fundágua*). This fund collects money from different sources, including petroleum royalties, water fees or fines. These can then be invested, amongst others, into PES rewarding rural property owners for the expansion, conservation and/or preservation of forest cover and adequate soil management in

areas of relevance for water resources. While other states, such as Amazonas, were also able to develop PES-related legislation in the past, it has proven to be much more difficult to agree at the national level. Here, a number of bills have been proposed by different Representatives of Parliament since 2007 without finding the necessary majority and approval so far (as of January 2011). In the EU, discussions at the academic level have started again regarding the possibility, including advantages and disadvantages, of an Ecosystem Services Directive. Apart from technical legal questions, such as whether to build an umbrella directive compiling and streamlining all existing directives, or to develop an additional 'stand-alone' directive, the key question addresses the effectiveness and efficiency of this approach. In other words, it still has to be proven that such an Ecosystem Services Directive has the real potential to promote nature conservation instead of creating a legal and bureaucratic 'monster', which could abolish the considerable progress made so far through sectoral ecosystem-related legislation.

Eventually, specific PES laws should be harmonised and integrated with existing legal and institutional frameworks

If a specific PES law was created, special attention would need to be paid to its integration in the existing legal and institutional frameworks, in particular those sectoral laws that already regulate the different ecosystems.

SECTORAL ENVIRONMENTAL LEGISLATION

An alternative to the development of a specific PES law is the amendment of pre-existing sectoral environmental legislation. Introducing specific PES provisions through such amendments requires less legal drafting and synchronisation work and it provides an opportunity to clarify or further develop existing economic instruments. For example, in Brazil again, the 1997 Water Law (Law No. 9433) foresees under Article 5 that charges for water utilisation can be applied. Such water usage fees are already collected in residential, commercial, public and industrial sectors. However, they are mainly imposed to fund water infrastructure, operations and maintenance. The allocation of these funds to support water-related PES schemes is yet to be put in practice (Valladares, 2009).

An alternative to the development of a specific PES law is the amendment of pre-existing sectoral environmental legislation

In the European Union, as another example, one key element of the Water Framework Directive (Directive 2000/60/EC) and its river basin management planning process is the requirement for an economic analysis (Article 5.1. and Annex III). Such economic analyses shall assess current levels of recovery of the costs of water services: this concerns water service provision and the extent to which financial, environmental and resource costs are recovered, how cost recovery is organized and the way in which key water users

contribute to the cost of water services. However, in order to tap the full potential of the Water Framework Directive for the development of PES schemes, it needs to be clarified that ecosystem services should be used for the achievement of environmental objectives and, therefore, need to be considered by the economic analysis and in river basin management decisions. Furthermore, it needs to be clarified that ecosystem services are 'water services', as defined in Article 2 (38) of the Water Framework Directive and, therefore, part of the principle of full cost recovery.

Table 11 provides an excerpt of the possible content of PES regulatory provisions.

Indirectly relevant laws[3]

Indirectly, relevant laws may support perverse incentives that clash with PES programmes

An enabling legal framework for PES schemes requires compatibility with indirectly relevant laws. Such indirectly relevant laws need to be carefully assessed as they may introduce perverse incentives which clash with the objectives of PES. At the same time, these laws might also include certain provisions with a great potential to support PES initiatives. In Colombia, Law No. 99 of 1993 requires the investment of a certain amount of money coming from water-use projects, the energy sector or irrigation districts into watershed conservation activities. Such mandatory investments, thus, provide a potential source of funding for PES projects (Navarrete Le Bas, 2009).

CHALLENGES LINKED TO THE IMPLEMENTATION OF PES SCHEMES

One of the greatest challenges in the development of PES initiatives can be related to the issue of property rights. Property rights are crucial in the context of PES for different reasons: contracting parties are generally free to decide upon the object of a PES contract. As a consequence, they can agree that payments should be made for a specific ecosystem service, or more likely for a particular land-use/management practice. In both cases, property rights questions come into play. In the latter case, the contracting party must have sufficient property rights, i.e. the necessary control and/or use rights which allow him to legally fulfil the obligations of the contract.

In the first case, the party obliged to provide an ecosystem service should also have the right to sell the particular ecosystem service. As the right over a natural resource (e.g. a tree) and the right over an ecosystem service provided by this natural resource (e.g. storing carbon)

3 Indirectly relevant laws are those related to natural resources management in general or financial issues, such as land laws, agricultural laws, mining laws, planning or land development laws, fiscal laws, etc.

Table 11
Possible content of a comprehensive legal framework for PES

Type of regulation	Content
General regulations	❊ Definition of purpose and scope of PES ❊ Terminology: ecosystem services vs. environmental services; different types of ecosystem services; different types of PES ❊ Cross-cutting issues
Financing regulations	❊ PES funding sources ❊ Percentages to be dedicated to PES ❊ Establishment of specific funds/accounts
Institutional regulations	❊ Supporting project development (e.g. scientific support) ❊ Fundraising (e.g. collecting and managing funds) ❊ Management (e.g. access to information, participation, etc.) ❊ Monitoring compliance ❊ Enforcement of laws and PES contracts
Implementing regulations	❊ Application requirements ❊ Contractual issues ❊ Property and tenure issues ❊ Additionality requirements ❊ Safeguards for benefit-sharing ❊ Land-use planning ❊ Compliance and enforcement

can differ and belong to different people or entities, it can be important to create legal certainty by clarifying the property rights over ecosystem services in the national legislation.

The 2009 Bolivian Constitution recognises private property rights over land, but it is not absolutely clear whether this also extends to 'all' the natural resources above the land, i.e. the Constitution expressly states that it does not recognise private property over 'other' natural resources. For those, people can only be granted use rights. The question therefore is whether such 'other natural resources' only refer to non-renewable natural resources, like oil and gas, or if this limitation of property rights also applies to renewable natural resources, including their ecosystem services. Such legal insecurity regarding the rights over ecosystem services has the potential to hamper the development of PES schemes (Wichtendahl, 2009).

In Peru, for example, according to the 1993 Constitution, all natural resources are the natural heritage of the nation which, according to the Organic Law for Sustainable Management of Natural Resources, is managed by the state. The 2008 Forestry Law provides different instruments to grant rights over forest resources to individuals, such as through different types of concessions to use the timber and/or the non-timber goods, to use the forest land for ecotourism purposes, etc. After a concession is granted, a management plan has to be developed (subject to the

approval by the Forestry Division of the Ministry of Agriculture), which has to indicate all the planned activities on the forest land. While the Forestry Law clarifies that the holder of a timber concession can include PES activities in his management plan so that he can sell the forest-related ecosystem services, it lacks such clarification with regard to other types of forest concessions. As a consequence, the holder of an ecotourism concession does not have the explicit right to sell, for example, the carbon-related ecosystem services provided by the forest which is subject to his concession. This limits the possibilities of such concession holders to bundle services and participate in PES (Sandoval and Capella, 2009).

Furthermore, payments to landowners or users will be a source of conflict if property rights are disputed. There are different potential sources of conflict over property rights, including clashes between statutory and customary law. While statutory law is the written or codified law of a country, customary law refers to traditional rules and norms that may exist at a very local level and for specific groups of people. A conflict arises, if the regulation of property rights according to customary law is not legally recognised by the statutory law, though still applied in practice. Further disputes may exist over property rights legislation. As mentioned before, in many countries, property rights over ecosystem services are not yet defined by law and are, therefore, controversial. In addition, it is sometimes not entirely clear, if existing property rights will still be recognised if the land and/or the natural resources are not utilised, but 'only' conserved in the future.

Property rights are often uncertain due to a conflict between statutory and customary laws

In several countries, such as Bolivia, agricultural legislation aims at redistributing and clarifying land rights (Wichtendahl, 2009). At the same time, however, incentives are created that lead to further deforestation. The Bolivian National Service of Agricultural Reform Law (INRA Law No. 1715) has the objective to redistribute land and to carry out the land's regularisation process. It conditions the maintenance of the property right over rural lands to their so called 'socio-economic function'. The previous constitution of Bolivia (a new constitution was enacted on 7 February 2009), which considered natural resources as purely economic goods, giving priority to extractive and industrial uses over conservation activities, led to a misconception of this socio-economic function requirement of the land. It created the general understanding that the maintenance and acquisition of rural lands was linked to active work, meaning deforestation. Such an understanding, of course, clashes with the core objective of forest-related PES schemes.

Ambiguous property rights registration on the ground might pose an additional problem. Uncertainty regarding property rights titles may occur, if their granting is subject to a complicated, costly or bureaucratic process.

Even if a formal title exists, the precise size and borders of the respective land might be still unclear sometimes. Such insecure tenure is often directly related to over-exploitation of natural resources and degradation of ecosystem services. Without appropriate property rights regulations, the prospect of joining a PES initiative and get paid may attract increased numbers of resource users to an area.

Finally, attempting PES initiatives without adequately addressing inadequate land tenure could even exacerbate existing wealth and power imbalances in a given society. Where tenure is weak, complicated or conflicts exist between statutory and customary law systems, wealthier 'elite' members of society may monopolise payments. In many areas of Africa and Asia and in indigenous communities of Latin America, traditional tenure systems may vest rights in entire communities or in multiple users via hierarchies of overlapping rights. Such systems can pose a challenge for PES systems modelled on Western-style property systems based on title vesting in a single owner with official title to a well-defined area of land. Should developing country PES systems not adjust for non-Western tenure systems, poorer elements lacking access to information, connections or financing for upfront costs to register their lands could lose the ability to participate in PES initiatives.

The above challenges require flexible solutions in the development of PES initiatives. Amongst others, such solutions could include:

- Referring not only to land or natural resources ownership as a PES requirement, but also **allowing for participation of holders of use rights**;
- Taking advantage of ongoing registration processes, but **not making registration a prerequisite for participation in PES**;
- Accepting alternative ways for establishing property rights, such as **recognising so-called 'de facto' rights** (i.e. opportunity to prove that the land was peacefully held for a considerable period of time);
- **Allowing for informal land registration**, rather than only formal cadastral and land titling systems, which generally take too long to be worthwhile for PES initiatives;
- **Making payments in the form of in-kind municipal services** benefiting locals generally without the need for property ownership determinations, where PES programmes depend on the engagement of entire communities.

There can be many flexible solutions to resolve property rights issues that might adapt to different levels of legal certainty and convenience found in different contexts where PES are implemented (Figure 30). The following diagram explains the differences in legal certainty and convenience when developing PES initiatives.

FUTURE CHALLENGES: THE IMPORTANCE OF SUSTAINABLE DEVELOPMENT PLANNING

Another challenge in the future development of PES schemes will be the creation of an enabling legal environment, which can stimulate a more efficient use of PES financial resources and promote the integration of different PES or ecosystem services related activities. For example, although designed to limit harmful climate change, REDD has the potential to provide additional ecosystem services, such as the conservation of biodiversity. Yet, without specific consideration of other ecosystem services, REDD is likely to protect only forests that are most cost-effective for reducing carbon emissions. At the same time, REDD schemes or other PES projects have the potential to compliment and/or strengthen other ecosystem related conservation activities, such as the designation of protected areas or ecosystem-based adaptation projects.

Enabling legal environments promote integration and bundling of ecosystem services and more efficient use of financial resources

Thus, the question is how to ensure a balanced approach in the development of PES initiatives. Appropriate laws and regulations need to build a comprehensive framework which will:

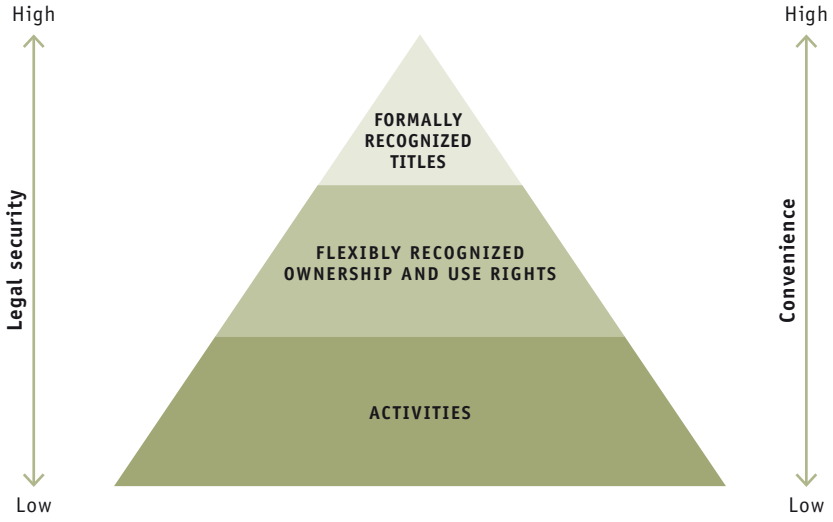
- **Promote a holistic ecosystem services approach**;
- **Facilitate efficient bundling of different types of PES at different scales**, as well as other policy instruments focusing on ecosystem conservation (such as protected areas or ecosystem-based adaptation projects);
- **Strengthen the ecosystem services approach in different planning processes** (from land-use planning and spatial planning to environmental impact assessments and strategic environmental assessments);
- **Adjust institutional frameworks to improve governance of ecosystem services** across sectors and across administrative boundaries.

In particular, sustainable development planning has a huge potential to facilitate cross-sectoral ecosystem considerations and, thus, to integrate and harmonise different ecosystem services related activities, such as climate change mitigation projects, adaptation activities, biodiversity and watershed-related PES schemes, designation of protected areas, etc. In this context, it will be crucial to create a legal framework, which not only balances infrastructural and economic development priorities with ecosystem services concerns, but also prioritises ecosystem services according to clear rules and indicators and provides for permitting processes including trigger clauses which can re-open and re-evaluate land-use decisions.

Figure 31 indicates the cost-efficiency of PES and other conservation-related activities with or without sustainable development planning.

Figure 30

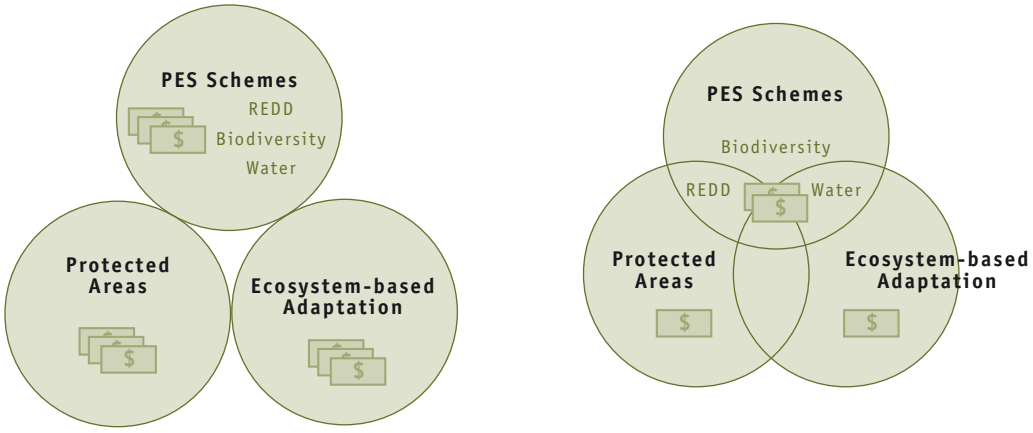
Pros and cons of taking a flexible approach when solving property rights issues



Adapted from Greiber, 2009

Figure 31

Cost-efficiency with or without sustainable development planning



CONCLUSIONS

The above discussion gives an overview of the importance of legal frameworks for the development of PES initiatives. For the further promotion of PES, it is crucial to properly take into account the challenges linked to the setting up of legal frameworks for such schemes and to consider guidance on their development. Such guidance is necessary when choosing the appropriate legal instrument(s) for PES promotion (constitution, PES law, sectoral legislation, etc.), the basic content of these instruments or their right scope. Ensuring such adequacy also implies taking into account and responding to potential challenges on the ground, for example, issues related to good governance in general or property rights in particular. Finally, the further promotion of PES will also depend on the development and utilisation of land-use planning instruments. Such instruments will be crucial to ensure bundling and integration of existing PES initiatives in order to secure efficient financing and effective provision of different ecosystem services.

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PLAN VIVO: A VOLUNTARY CARBON SEQUESTRATION PES SCHEME IN BUSHENYI DISTRICT, UGANDA

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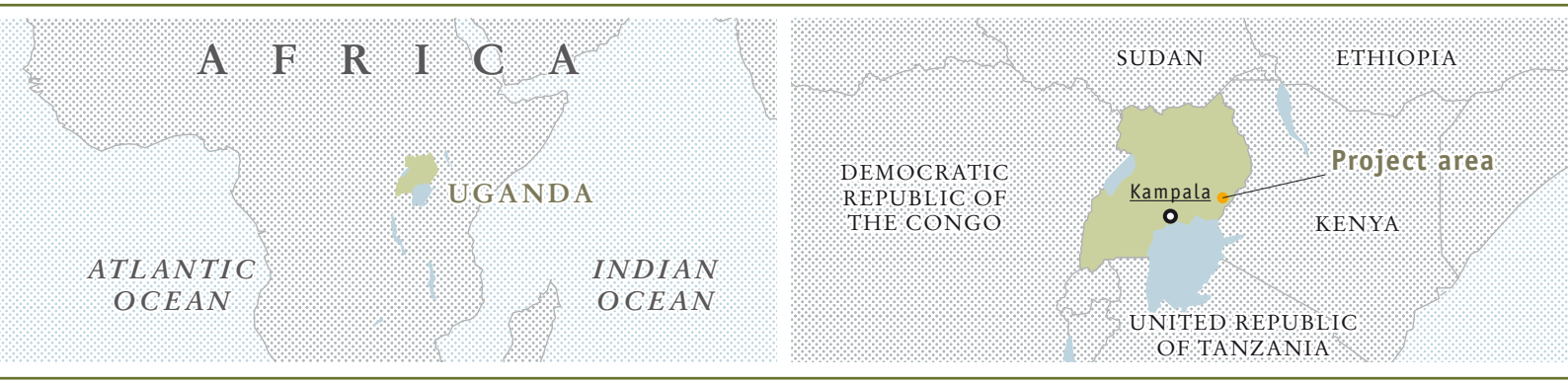

Uganda does not have legally-binding targets to reduce or limit its GHG emissions during the Kyoto Protocol's first commitment period (2008-2012); however, the country should take advantage of the emerging carbon markets to attract international investment and join the international community in mitigating emissions. High priority should be given to those mitigation options that bring direct socio-economic benefit and are in line with the national policy on poverty eradication and sustainable development (UNFCCC, 2002). Indeed, one of the strategies proposed in the Uganda National Forestry Plan (2002) to increase investment in the forest sector is the implementation of carbon sequestration projects. This case study illustrates a carbon sequestration project implemented in Bushenyi district, Uganda.

The Plan Vivo Foundation developed a system for managing community-based land-use projects that result in long-term carbon storage and generate livelihood and ecosystem benefits. Project participants are smallholders and forest-dependent communities in developing countries. Currently, the Foundation has registered projects in Mexico, Mozambique, Nicaragua, Tanzania and Uganda. The Plan Vivo System works through projects by following four key steps: (a) project design, (b) definition of a land-management plan (i.e. Plan Vivo), (c) establishment of sales and agreements, and (d) monitoring and payments. Plan Vivo works with local NGOs that function as project developers and coordinators.

In the first phase, communities decide through participatory consultations which land-use activities (e.g. afforestation, reforestation, agroforestry, forest conservation) will best address threats to the local ecosystems and reflect their own needs, priorities and capabilities. In the second phase, each farmer writes his/her own plan vivo, which is essentially an annotated map showing which species will be planted, where and how many (Figure 32). Each plan vivo is evaluated by the project coordinator for its technical feasibility, social and environmental impact

and carbon sequestration potential, according to approved technical specifications developed by internationally recognised research institutions, such as the University of Edinburgh, the World Agroforestry Centre (ICRAF) and the Edinburgh Centre for Carbon Management (ECCM). In the third phase, farmers or farmer groups enter into sales agreements with the project coordinator, who agrees to make staged payments and provide continued technical support and training. As the farmers implement the activities according to their plan vivos, the project coordinator monitors whether the targets are met and makes the payments accordingly. The emissions reductions are sold on behalf of the farmers or community in the form of carbon offset certificates.

The implementation of the Plan Vivo System in Uganda is managed by Ecotrust, a local conservation NGO in the Bushenyi District. This administrative unit is a patchwork of subsistence farms planted with bananas, corn, coffee, sugarcane, sweet potatoes and other crops (Figure 33). The key objective of the project is to enable communities of farmers to access the emerging voluntary carbon market by combining carbon sequestration with sustainable rural development. A group of carbon buyers[1] supports the project; they were informed about the possibility of purchasing carbon offset certificates through resellers and brokers, such as the Carbon Neutral Company, U&W in Sweden, Climate Path in the USA, Climate Action in China, Plan Vivo and Ecotrust websites and through their occasional presence at international conferences. Around 500 farmers joined the project and were informed about carbon sequestration and trading through workshops and training events. Farmers are advised to plant according to three systems: boundary planting, agroforestry or woodlot planting. Forest technicians also guide farmers in designing their plan vivos and provide training in good silvicultural practices during the various stages of implementation.

1 DFID, Tetra Pak UK Ltd., the Carbon Neutral Company, the International Network for the Availability of Scientific Publications (INASP), the Katoomba Group and others.


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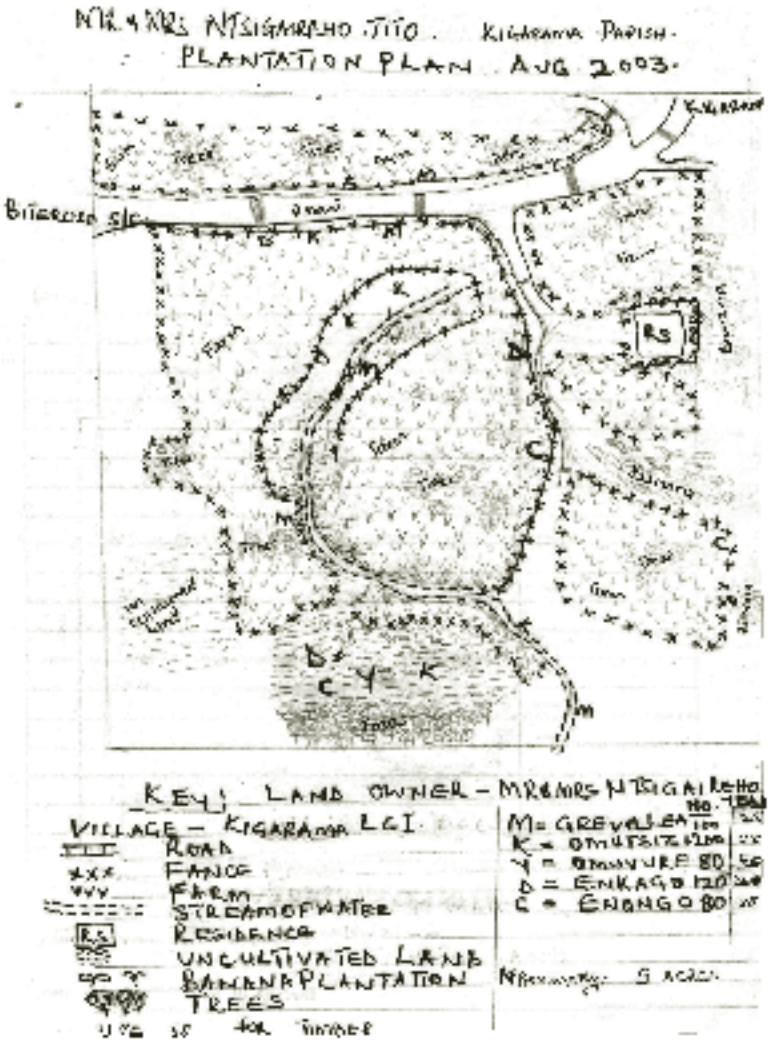
Current pages (from left to right):

→ Under a Plan Vivo project, carbon can be sequestered and certified through afforestation, reforestation, agroforestry and forest conservation activities.

→ Mosaic of small fields and forest patches in Bushenyi district.

Figure 32

Example of a plan vivo made with a farmer for agroforestry and reforestation on his farm



Source: ECOTRUST, 2004

The technical specifications developed for this project are woodlots of *Maesopsis emini* and mixed native species woodlots composed of *Prunus africana* and *Grevillea* spp., among others. One hectare planted with 400 trees sequesters 226 tonnes of carbon dioxide over 25-50 years, depending on the farming systems (e.g. 25 years for a woodlot of *Measopsis* spp. and/or 50 years for mixed native species woodlots). These land-use systems were chosen because *Maesopsis* spp. is a native tree found in tropical ecosystems of East, Central and West Africa, is one of the fastest growing timber trees in the country and can thrive in a wide range of rainfall and altitudinal conditions. Other features, such as germplasm availability, ease of propagation, compatibility with most agricultural crops and superior timber products make the species suitable for tree planting. The primary objective of the woodlot system is to produce high-quality timber at the end of established rotations, as well as fuelwood obtained through thinning and pruning. The technical specifications take into account that the removed branches are used to produce charcoal and that the combustion of the wood will release a part of the carbon sequestered. To avoid a situation in which planting trees on agricultural land leads to further deforestation as farmers encroach on forests to cultivate crops, the plan vivos are approved only if farmers can set aside a minimum of one hectare for tree planting. Farmers now manage 692 ha of land for an emission reduction capacity of 80 000 tonnes of carbon dioxide per annum. The project has been validated and verified by a third independent party: the Rainforest Alliance.

The Plan Vivo System ensures that an average of 60 percent of the carbon offset purchase income goes directly to communities through instalments disbursed over a decade. Payments are released according to specific time-bound targets: (a) percentage of the plot planted (in years 0 and 1), (b) survival rate (in year 3), and (c) growth rate (in years 5 and 10). The payments to farmers or the community are released through microfinance institutions located in the villages. It has been estimated that the average number of trees planted on farms is 600, thus farmers receive on average of USD 900 over ten years.

Current pages (from left to right):

→ Engaging the community in the activities of a Plan Vivo project.

→ Participatory resource assessment, which is part of the Plan Vivo project introduction process.

→ Participatory consultation of the communities on possible suitable land use that will increase carbon sequestration, while taking into account local farming priorities and household needs.

Figure 33
Land cover of Bushenyi district in 2000-2001

LEGEND

- Forest plantation and tree plantation
- Shrub crop
- Herbaceous crop
- Forest, woodland and woody vegetation
- Thicket and shrubland
- Savannah and grassland
- Vegetation on flooded land
- Bare soil and sparse vegetation
- Artificial surface
- country boundary
- district boundary
- park boundary

Adapted from Cecchi *et al.*, 2008. *Source*: Africover (http://www.africover.org)

This amount is not negligible, considering that farmers in the Bushenyi district live on about two dollars a day (USD 720 per year). The project will thus result in increasing farmers' income but, most importantly, it will result in increased productivity and food security as a result of improved understanding of agroforestry principles and land management techniques. Short-term benefits include the opportunity of improved availability of medicinal and non-timber forest products, such as extracts from some indigenous trees, e.g. *Prunus africana*, fruits, fodder, manure, fuelwood from branches and support for honey production. Farmers also receive training and capacity-building in tree planting and agroforestry.

Long-term benefits are watershed protection and the reduction of flooding risk as water enters river systems with decreased speeds in the catchments area of Lake Victoria, as well as the restoration of environmental and ecological functioning in heavily degraded areas. Such functions include runoff and soil erosion control, microclimatic stabilisation and increased terrestrial biodiversity, e.g. birds. Some farmers are using *Maesopsis* to provide shade in coffee and banana plantations. There is evidence that shaded coffee grown in the proper conditions yields better and is of superior quality to conventional unshaded coffee. Other benefits are expected to derive from the sale of high-quality timber harvested at the end of the rotational period. The timber extracted by 400 trees is expected to be worth at least 80 million Ugandan shillings (equivalent to USD 48 600) for species such as *Maesopsis eminii*.

Conservation and community benefits seem high, yet standards of this type usually remain small because they are very costly compared to cheap carbon options available on a globally traded carbon market. The costs of generating one tonne of carbon dioxide through the Plan Vivo system in Uganda is approximately USD 6. Table 12 provides an analysis of the overall costs by tonnes of carbon dioxide sequestered. One of the main constraints on scaling up the project in Uganda is the lack of buyers. In addition, this system sells carbon offsets that are projected to be produced in the future (ex-ante credits), although these credits cannot guarantee that actual emissions reductions will be realized.

Current pages (from left to right):

→ Bamboo forests in Uganda can be considered a multipurpose crop and being one of the fastest-growing plants on earth, bamboo has a high potential for carbon sequestration.

→ Women's participation can be hampered by local perceptions about gender roles and rights, but focus groups led by Plan Vivo aim to narrow this gender gap.

Table 12
Costs of generating one tonne of carbon dioxide

Payment to farmers (60%)
Certification costs (certificate issuance including registry) (6%)
Verification costs (4%)
Administrative, community engagement and recruitment, local technical assistance and monitoring (30%)

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PES AND THE KAGERA TRANSBOUNDARY AGRO-ECOSYSTEMS MANAGEMENT PROJECT, EASTERN AFRICA

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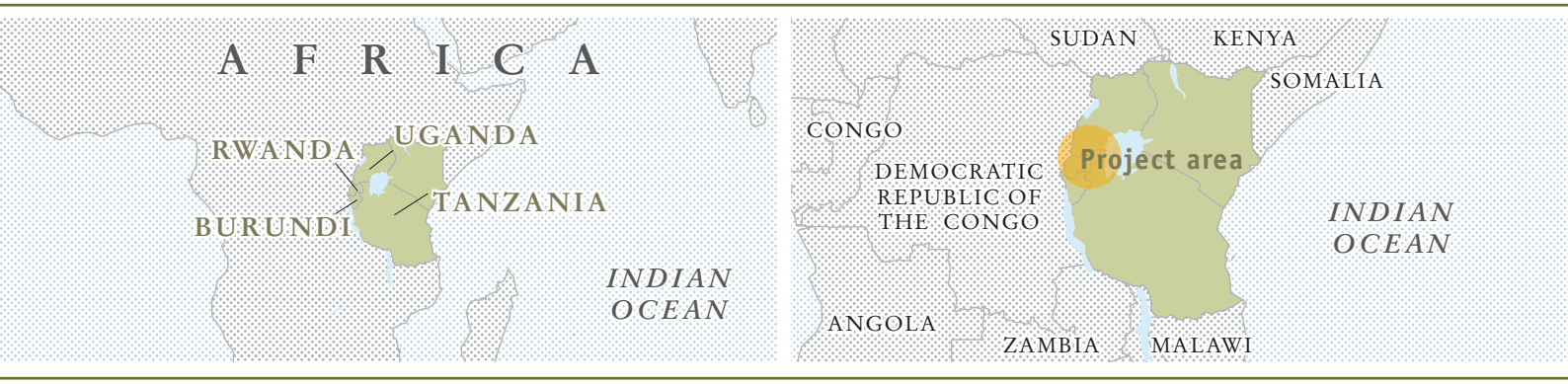

The Kagera River basin is located in East Africa and is shared by four countries: Burundi, Rwanda, Tanzania and Uganda (Figure 34). The basin covers a surface area of 59 700 km^2 and occupies a strategic position in the region, contributing to almost a quarter of the inflow into Lake Victoria. The basin's agro-ecosystems are facing increasing pressure as a result of rapid population growth, agricultural and livestock intensification characterised by progressive reduction in farm sizes, and unsustainable land-use and management practices. The land and freshwater resource base, and associated biodiversity and populations' livelihoods and food security are threatened by land degradation, declining productive capacity of croplands and rangelands, deforestation and encroachment of agriculture into wetlands. Climate change and variability aggravates these threats.

The Kagera Transboundary Agro-ecosystems Management Project (Kagera TAMP)[1] was launched to adopt an integrated ecosystems approach for the management of land resources, aiming to generate local, national and global benefits, including: restoration of degraded land, carbon sequestration, climate change adaptation and mitigation, protection of international waters, agro-biodiversity conservation, sustainable and improved agricultural production, and increased food security and improved rural livelihoods.

1 http://www.fao.org/nr/kagera/en/

Figure 34
Kagera basin and TAMP project areas

LEGEND

- basin boundary
- country boundary
- administrative boundary

Project areas

- Uganda
- Burundi
- Rwanda
- Tanzania

Adapted from original map by Monica Petri (FAO)

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Current pages (from left to right):

→ Lowland section of the Kagera River Basin, which covers an area of about 60 000 km² extending across Burundi, Rwanda, Tanzania and Uganda.

→ The Kagera River is the largest incoming river of Lake Victoria, providing a quarter of its inflow, but also carries high quantities of soil sediment and nutrients washed from the land.

→ The Kagera Project (TAMP) works with a range of stakeholders and aims at increased food and livelihood security through integrated natural resource and ecosystem management.

The Kagera TAMP has four central components paying attention to gender issues, resource access and conflict resolution:

a. Enhanced regional collaboration, information sharing and monitoring;
b. Enabling policy, planning and legislative conditions;
c. Increased stakeholder capacity and knowledge at all levels for promoting integrated agro-ecosystems management;
d. Adoption of improved land-use systems and management practices generating improved livelihoods and ecosystem services.

Within the Kagera TAMP project area, there are two ongoing PES initiatives: the Small Group and Tree Planting Project in Uganda and the Emiti Nibwo Bulora Project in Tanzania.

The PES scheme carried out by the Emiti Nibwo Bulora Project (Tanzania) in the Bugene and Kaisho zones, located in the Karagwe district and within the Kagera province (Tanzania), is focused on rewarding farmers for carbon sequestration in soil and perennial plants achieved through agroforestry and agronomic practices. This initiative is being promoted by the Swedish Cooperative Centre (SCC) together with the Swedish Vi Agroforestry Programme (ViAFP), which, as from January 2006, are integrated into one regional organization, SCC-Vi Eastern Africa. The Emiti Nibwo Bulora Project also involves Plan Vivo which independently assesses the reduction of carbon emissions and generates Plan Vivo certificates that are sold exclusively on the voluntary market. This project was initiated in 2008 and the first carbon reduction certification was carried out by Plan Vivo in 2010. The PES agreement for carbon sequestration requires improved soil management and agroforestry systems. Farmers design their personal management plan, including boundary planting, woodlots, fruit orchards and dispersed inter-planting. Grazing and tree-cutting during the contract period is not allowed.

Currently, the project covers an area of 15.9 ha with 23 small-scale farmers participating with individual landholdings of between 0.06 and 1 ha. All participants are males due to the land ownership structures, yet the project is considered to contribute on the household level and gender mainstreaming is taken into account in the process.

Payments to participants are in cash, distributed over five instalments (in the 1st, 2nd, 3rd, 5th and 10th years) during the 10-year contracts. In total, the pilot group will receive Tsh. 11 166 000 (equivalent to USD 7 360) in the contract phase. The first payment was in June 2010, according to the Plan Vivo offset standard system. In total, 14 farmers have qualified for the first payment, amounting in total to Tsh. 1 848 400 (equivalent to USD 1 218). In order to qualify for payments, farmers must have fulfilled a certain percentage of their individual management plans. Payments depend on the individual participants' land-use management plans and technical specifications for carbon sequestration, based on the adopted technologies. The buyer at this pilot stage is the Vi Agroforestry Programme, yet private companies (primarily in Sweden) are the target group in the future, also for potential internal upscaling of the project.

The total emissions reduction capacity of the project is estimated to be 40 000 tonnes of carbon dioxide per year. Annual monitoring is planned measuring the annual (stem) volume increments (m^3 per year) of trees, as well as adopted land-use changes by participants. The PES scheme is also embedded within a larger regional land management project, the Lake Victoria Regional Environmental and Sustainable Agricultural Productivity Programme (RESAPP). This programme features components on sustainable land management, capacity building, organizing farmers into strong farmer groups, encouraging enterprises (e.g. beekeeping, fish farming, wine production) and promoting a savings and loan scheme based on farmer groups.

Current pages (from left to right):

→ The Kagera basin supports over 16 million people, whose livelihoods are threatened by population growth, agricultural intensification and unsustainable land practices.

→ Rwandan farmers at a Farmer Field School, a participatory empowerment and learning approach by Kagera TAMP for promoting sustainable agro-ecosystem management.

→ The initial phase of PES for carbon sequestration involves capacity building for nursery establishment and tree planting and management.

Targeted co-effects of the scheme are: soil conservation through higher organic matter content, improved water management (infiltration and soil retention) and water quality (less erosion and siltation), capacity development, and enhanced resilience to climate variability and change. Economic benefits will be based on: (a) increased yields and productivity, and (b) additional income sources due to payment for ecosystem services. The central principles applied in the scheme are participatory community engagement in the whole development process, transparency, acceptance of customary ownership of land and close cooperation with the local and district office of the Ministry of Natural Resources.

One of the major advantages of this project is its long-term duration; many lessons are to be learned and a significant benefit is expected for the conservation of the ecosystem and the improvement of livelihoods of local people.