

Notes From The Field

Linking community well-being, climate compatible development and a Payment for Ecosystems Services (PES) pathway: Insights from Madagascar

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Key Messages

- Ecosystem services approaches to development have the potential to improve community well-being while contributing to climate change mitigation and adaptation. This presents an excellent opportunity for 'triple-wins'.
- Community well-being, however, is determined to some extent by local culture and unique socio-economic circumstances, rather than income alone.
- To achieve the triple wins of mitigation, adaptation and improved well-being, Payments for Ecosystem Services (PES) projects need to understand local values and contexts. This requires a participatory approach that goes beyond traditional income-based targets of well-being to address the development priorities identified by the community.
- Vulnerability indicators are needed alongside these development priorities to 'climate proof' community well-being in the face of climate change.

Ecosystem management policy has real potential to enhance human well-being, as it controls the flow of ecosystem services and products that are essential to our survival (Iftikhar et al., 2007). But the link between well-being and the environment goes beyond the direct delivery of ecosystem services and natural resource use. Payment for Ecosystem Services (PES) is a management tool that enables policy-makers to make use of the environment indirectly by compensating communities for acting as ecosystem guardians.

What is often missed in the development of PES schemes, however, is that poverty and well-being are relative concepts, unique to every community. Compensation mechanisms should be designed, therefore, to be equally unique. At present, PES schemes rarely take into account community-specific circumstances and values, and, as a result, they lack effective measures to improve communities' quality of life. Consequently, the schemes often fail to incentivise good environmental stewardship (Tallis et al., 2008).

It is also important to recognise that ecosystem-dependent communities are often the most vulnerable to the impacts of climate change, lacking the socio-economic means to adapt to its impacts. First, it is often

the poorest and most disadvantaged communities that tend to depend most heavily on natural resources for their livelihoods. Second, these natural resources on which ecosystem services depend are often degraded or under significant stress and are, therefore, particularly sensitive to climate change (Mooney et al., 2009). Third, PES has the potential to contribute to climate change mitigation through managing natural carbon stocks. In some cases mitigation will be a primary objective of the PES scheme, but in many cases this is a merely a co-benefit of 'better' ecosystem management.

In summary, while community well-being is determined by various factors, two factors are noticeably absent from current PES designs. The first is local cultural values; the second is climate change vulnerability. The distinct set of socio-economic circumstances that affect the ability of each community to cope with climate change impacts needs to be taken into account, in order to secure future well-being.

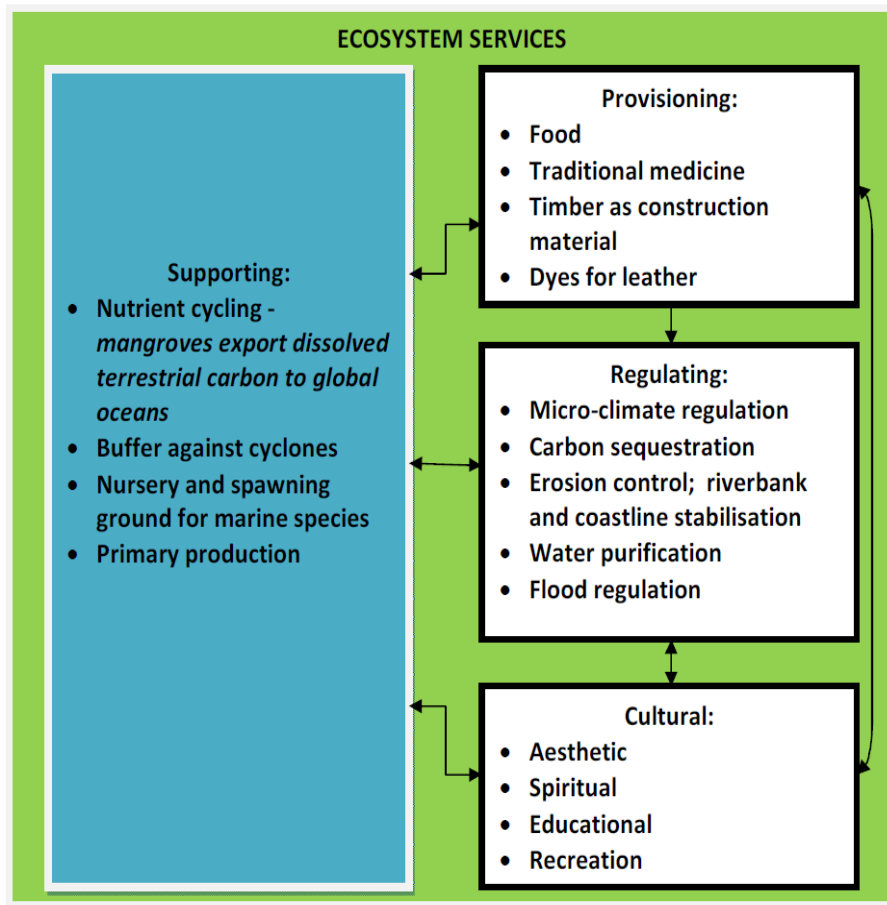
In practical terms, this requires decision-makers to adopt a new two-tiered approach: defining local elements of quality of life and then testing the resultant development priorities against indicators of vulnerability. This policy brief calls for a move away from the standard PES design based on a uniform template of poverty alleviation to a policy that is grounded in the contextual nature of well-being. Ultimately, this new approach will bring about the triple wins of mitigation, through better ecosystem management, adaptation, and community well-being.

The brief draws on a case study of carbon sequestration in Ampasimandroro, a fishing village in the Maintirano district of Madagascar, to show that ecosystem management policies do have the potential to contribute to community well-being. Unlike other approaches used in PES to value ecosystem services and products, which assign monetary value to these non-market (or public) goods, the approach used in the case study site was participatory in design and focused on community values. The study revealed that it is essential to take the values of the community into account, beyond monetary values, and to use participatory processes, to ensure that PES schemes contribute to both community well-being and effective ecosystem management. In addition, an in-depth evaluation of self-expressed development choices revealed the need to build a vulnerability assessment into PES design in order to support community adaptation to climate change.

Linking well-being with ecosystem services

Ecosystem services are the benefits humans derive from ecosystems, such as food, flood protection and carbon sequestration. The landmark Millennium Ecosystem Assessment (MEA, 2005) defined the various benefits as provisioning, regulatory, cultural and supporting services. Provisioning services refer to the flow of goods provided by ecosystems, whereas regulating and supporting services act as 'life-support' for humans and/or other components of the ecosystem or related ecosystems (Figure 1). Cultural services are the non-material values of the environment. It is this last group that is crucial when defining perceptions of well-being, as it recognises the relationship between culture, land and resources that exists between local communities and their environment (Woodley et al., 2009).

Figure 1: Mangrove ecosystem services (adapted from Iftikhar et al., 2007)



Compensatory mechanisms in PES design

Financial rewards are the traditional means of PES compensation in a market-based system. However, isolated communities in developing countries typically have ideas of wealth that are far removed from the income-based measures used in the developed world.

For example, rural pastoralists in Kenya may have little money, but may not see themselves as poor if they are part of a social structure with common property grazing rights (Anderson and Broch-Due, 1999). Therefore, PES projects designed to provide a group of herders with monetary compensation alone may fail to grasp their real needs, and may well have only a limited impact on their lives. Even where communities are more market-orientated, the amount of money that reaches the people on the ground is often chipped away by high transaction costs and distributive inequity.

One alternative is to provide in-kind compensation, but this needs to be culturally appropriate. It should not be restricted to a uniform template of development, such as the provision of healthcare and education, but should include cultural elements of well-being such as access to sacred sites, the practice of traditional occupations and the use of traditional medicine. Policy-makers should recognise the fact that communities are unique, and encourage them to express what is important to them: what it really means to have a good quality of life. Long-term objectives for PES compensation should be based on those elements.

Box 1: Madagascar case study: Incorporating perceptions of well-being in Ecosystem Management Policy

When residents of Ampasimandroro, a fishing village in Madagascar, were asked to define what quality of life means to them, they based their well-being on the ability to catch and sell fish. They take pride in this, and build their social structure around it. One elder suggested that the very morality of his people is based on the fact that “there are fish in the ocean”. The idea of not being able to fish is to them an unthinkable concept, and development that ignores their fundamental cultural identity as a community that fishes is no development at all.

The results of a survey, in which households were asked to define ways in which quality of life in the village could be improved, provide evidence of how important fishing is to the community. A total of 92% of respondents prioritised development options that were related to fishing. These included the fishing equipment, freezers to keep their catch, development of local markets, and the need for more buyers. Priorities that were not related to fishing included healthcare, education and improved access to clean water (see Table 1).

Knowledge of locally expressed desires creates an ideal opportunity for PES planners to outline relevant incentives. However, this community’s dependence on fishing means they are dependent on environmental factors. Development options focussed purely on catching more fish, while being culturally satisfactory, might not be compatible with climate change. Therefore, final decisions should evaluate the potential of proposed incentives to have long-term benefits. To this purpose, a vulnerability assessment of the community’s ‘wish-list’ was devised (see Box 2).

Development option	Frequency (percentage of respondents that raised this option as a priority)
Priorities related to fishing:	92%
Fishing equipment	59%
Freezer to keep fish	38%
Closer market to sell catch	13%
More buyers for products	11%
Storehouse	10%
Basin	8%
Patrolling of coastal waters	3%
Healthcare	41%
Education	35%
Improved water	19%
Toilet facilities	6%
Electricity	5%
Repair of bridge	5%

Table 1: Subjective development priorities

Socio-economic vulnerability in development planning

The Intergovernmental Panel on Climate Change (IPCC) has defined climate vulnerability as a function of exposure and sensitivity to climate change, and capacity to adapt to its impacts (Torresan et al., 2008). Exposure represents the sheer physical threats, while sensitivity and adaptive capacity correlate more closely with indicators of development, incorporating the economic ability, infrastructure and institutional tools that allow communities to cope with and recover from stresses. While most vulnerability assessments use objective indicators to evaluate sensitivity and adaptive capacity, a top-down approach to resilience can undermine local values. Instead, a bottom-up approach addresses vulnerability in real time and in the places where it is being experienced.

Vulnerability affects the ability of any individual or community to achieve well-being in the future, especially marginal populations that rely on their natural resources for their livelihoods. Dependence on natural resources makes communities far more vulnerable to factors that threaten essential ecosystems, including extreme climate events and unsustainable anthropogenic exploitation. Safeguarding these ecosystems is one of the first steps in adaptation planning, helping communities themselves to preserve – rather than over-exploit – their natural resources. Effective ecosystem management can also contribute to climate change mitigation by reducing emissions from natural carbon stocks.

Communities that rely on natural resources are often unwilling or unable to buy into protectionist approaches that limit their access to traditional lands, such as national parks (a type of protected area) that aim primarily at environmental conservation and do little to support local communities to develop. Policy-makers could instead focus on incentives for environmental stewardships. In other words, they would encourage the sustainable use of ecosystem services that enhance a community's well-being and adaptive capacity, such as the provision of flood protection.

PES schemes should also seek to address factors that contribute to socio-economic vulnerability and community marginalisation to increase adaptive capacity and reduce pressures on natural resources. For these schemes to achieve maximum effect, compensatory mechanisms should be designed in the light of local values and vulnerabilities. Such an approach will shift the focus from short-term satisfaction or results towards a more long-term perspective of well-being.

Box 2: Madagascar case study: Addressing climate change vulnerability through ecosystems management

In the village of Ampasimandroro (Box 1) a comprehensive vulnerability assessment was carried out to evaluate the capacity of the community to deal with climate threats such as cyclones and sea level rise. Problems with food security, poor sanitation and healthcare, inadequate government support in times of disaster, poor infrastructure, and unsafe water sources were some of the main issues identified.

Matching culture-specific priorities with climate compatible development under a PES pathway is not an easy task. In Ampasimandroro fishing is the basis of community livelihoods. As this is an occupation that is highly dependent on natural resources it is particularly sensitive to climate variability and change. In fact most people reported food insecurity as one of the major impacts of recent cyclones. An assessment of fishing as a livelihood system indicated that the ownership of expensive equipment was no guarantee of food security, especially in years affected by acute weather events. Therefore, although fishing equipment was listed as a development priority by 59% of respondents (see Box 1), it is questionable to what extent investing in equipment and infrastructure can enhance community well-being in the face of longer-term climate change.

However, rather than simply discarding fishing as a development priority, it is important to determine the reasons why people remain food insecure. Regulating fishing practices and market activity may be a more appropriate mechanism to address community vulnerability and protect ecosystems, rather than merely providing equipment in an insecure or unsustainable system. In addition, simple measures such as providing freezing facilities will address short-term food shortages caused by cyclones and other disaster events. In short, a PES scheme that looks at fishing holistically as a livelihood sector will not only address cultural aspirations, but also socio-economic needs.

Box 3: Six steps for effective PES design

Based on the methodology used in the Madagascar case study, six steps can be identified for effective PES design, which incorporate local definitions of well-being and climate change vulnerability assessment.

- 1) Use participatory processes to define local well-being, such as focus groups and key informant interviews. It is important to urge respondents to explain deeper meanings, for example “What does fishing mean to you? If it is a mere food source, can it be replaced?”.
- 2) Use ranking tools to identify the importance of various elements of well-being that have been identified.
- 3) List the development priorities identified by the community based on these elements of well-being. Focus on each element individually to determine various development options, for example focussing on ways to improve and diversify livelihoods.
- 4) Conduct a vulnerability assessment to determine the potential of the proposed development options to affect future well-being, incorporating climate change considerations.
- 5) Match the cultural model of well-being with results of the vulnerability assessment, in order to select the development options which satisfy both the community’s development needs as well as capacity-building requirements. Reject options that have no impact (or negative impact) on adaptive capacity.
- 6) Create community awareness of appropriate development actions that are ‘climate proof’, thus moving the focus from increased resource exploitation to longer-term sustainability.

Conclusion

Modern PES mechanisms should go beyond market-based strategies to protect a specific ecosystem service. They should be designed to conserve and manage ecosystems, incentivise environmental stewardship, contribute to community development, and build resilience to climate change. They represent an opportunity to achieve triple wins for adaptation, mitigation and well-being. To achieve such a seemingly grand ideal is only possible by focusing on elements of well-being that are both culturally unique and locally relevant. At the same time, vulnerability to climate change needs to be integrated into PES design. Ultimately, policy-makers can design better PES projects by involving local people to create the triple-win scenario.

Recommendations

Evidence emerging from the Madagascar case study provides six broad lessons and recommendations to inform policy decisions around PES approaches.

1. PES compensation mechanisms provide an ideal opportunity to satisfy needs that are unique to the local community.
2. PES planners should use participatory processes to encourage the inclusion of local values and development priorities in the design phase of PES.
3. Identified local needs should be matched with vulnerability factors, taking into consideration the impact of climate change on the set of priorities defined by the community.
4. A bottom-up assessment of vulnerability indicators will enable developers to focus on all factors affecting the well-being of climate-sensitive communities.
5. All stakeholders should be aware that well-being is determined by cultural factors and resources that are sensitive to climate change, not just income.
6. PES provides an opportunity to use climate financing mechanisms to address the issues that matter to people and the specific vulnerabilities of local communities.

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