

# Payment for ecosystem services in South Africa: Prospects for programme development

## INTRODUCTION

The need to address sustained economic growth while simultaneously preserving the natural environment presents important policy challenges for countries such as South Africa. Growing concerns about climate change, a loss of biodiversity, and the poor management of natural resources such as forests and water all indicate that the benefits of growth – and its ability to deliver social well-being – must be increasingly considered in light of environmental costs.

Some of the most innovative instruments focused on balancing growth and environmental impact are originating in developing countries. Payment for Ecosystem Services (PES) is one such instrument, used most commonly in Latin America, which is gaining increased traction.

Through the use of monetary and in-kind payments, PES incentivises landowners and communities to maintain intact ecosystems, restore the natural environments of degraded land, and use natural resources sustainably. PES recognises that landowners and communities face opportunity costs in foregoing certain economic activities to preserve and restore natural environments and that compensation is necessary to make these costs acceptable, particularly for poor people. The justification for these payments is that preserved ecosystems can provide important natural services, such as regulating the hydrological cycle or sequestering carbon.

In South Africa, PES is considered by a number of stakeholders as having the potential to mitigate climate change, as well as promote sustainable land use and the better management of scarce water resources. PES is also viewed as a way of

promoting new livelihoods and generating more sustainable growth. This raises questions as to what a national PES programme in South Africa would look like. Is such a programme economically feasible? How should such a programme be structured and managed? Can PES deliver development outcomes while helping to preserve South African ecosystems?

## RESEARCH FINDINGS

Existing research on PES suggests that the restoration of natural environments and sustainable land use management can bring strong economic returns. A study by Blignaut and Mander (2010), looking at five past watershed restoration and reforestation projects in South Africa, estimates that conservation in these areas has provided a monetary annual return equivalent to R116 to R220 per hectare per year over periods of about 30 years compared to equivalent estimated costs of watershed restoration totaling between R21 to R88 per hectare per year.

## GLOSSARY OF COMMON TERMS

**Carbon sequestration:** A process that removes carbon from the atmosphere and deposits it in a carbon sink, or reservoir, such as restored forest or saline aquifers. Sequestration aims to store carbon and prevent its circulation in the atmosphere, thus mitigating global warming.

**Hydrological cycle:** The process by which water circulates throughout the Earth at varying rates, through different pathways, and in different states of being.

**Watershed:** An area of land containing a set of streams and rivers that all drain into a single larger body of water such as a larger river, lake, or ocean.

These positive returns have been calculated by assigning assumed values to the ecological services provided by conserved watersheds, mainly the ability to regulate the local hydrological cycle, increase the base flow of rivers, reduce levels of soil erosion, sequester carbon, and prevent the loss of rainfall through non-productive run-off.

These estimated net returns are not as strong as what could be generated by intensive irrigated farming. However, they compare favourably with the average net returns provided by the extensive dryland farming that poorer rural communities are forced to engage in due to their inability to access the capital or infrastructure needed to pursue intensive irrigated farming. The average net returns on extensive dryland farming are estimated to be in the range of R35 to R90 per hectare per year.

These findings indicate that providing payments to communities to restore, preserve, and manage the day-to-day well-being of watershed environments is more economically beneficial than having these same communities pursue agricultural practices that are – in the absence of the extra investment needed to increase productivity – inefficient and environmentally damaging. Past South African watershed experiences, however, suggest that policymakers must establish a predictable mechanism, or market, for the valuation of ecosystem services, and that payments for the conservation needed to generate such services become viable in comparison to alternative livelihoods only if a number of services are bundled, together for valuation.

Findings from other countries reinforce the economic and environmental value of PES. In Costa Rica and Mexico, farmers have been offered payments in exchange for setting aside areas on their farms for establishing tree plantations that will help promote forest regeneration. In exchange for establishing and managing these plantations and foregoing additional agricultural income, Costa Rican farmers have received an average annual payment of US\$540 per hectare from a central government environmental fund. Training in agro-forestry has also been offered to farmers in both countries to complement these payments and ensure that farmers are able to secure additional productive livelihoods from the regenerated land. Meanwhile, intact forest ecosystems have helped to preserve the country's biodiversity and have been central to efforts to conserve soil and water.

The Latin American case studies do raise some

concerns about PES. Ecosystems are conceived of as distinct groups of services to which economic values can easily be assigned. In reality, the valuation of ecosystem services is problematic, with ambiguous relationships between supply and demand as well as imperfect information between the buyers and sellers of these services.

Indeed, it is not always clear under PES what is being bought and sold. As a result market-valued payments to landowners or communities may quickly come to be seen as subsidies or bribes aimed at securing conservation and not as tools that will help encourage sustainable changes in land-use methods. Successful PES programmes must present a clear rationale for how each ecosystem service is assigned an economic value based on its contribution to the common good, and this must be balanced with a transparent determination of the opportunity costs of individuals foregoing alternative income to contribute to this common good.

Questions also arise over whether PES can truly be used as a tool for development, particularly in cases where payments are not complemented by adequate training geared towards teaching land-users how to maintain natural ecosystems or how to make a living from them. In spite of these concerns, PES has become a core component of environmental policymaking in both countries, particularly at the local level.

In South Africa, preliminary plans for a national PES programme, building mainly on past experiences in watershed conservation, have been supported most strongly by the South African National Biodiversity Institute (SANBI), Conservation South Africa (CSA), the Eastern Cape Parks and Tourism Authority (ECPTA), the Development Bank of Southern Africa (DBSA), the Department of Environmental Affairs, and the Department for Rural Development and Land Reform. Other initiatives involve non-governmental actors such as the World Wildlife Foundation (WWF) and businesses such as SABMiller, which have signaled support for PES by focusing on the development of a Water Neutral programme that reduces the water use footprint of South African businesses throughout their supply chains.

Throughout 2011, pilot workshops were hosted by SANBI to bring these organisations together into a steering committee that will – with the assistance of a reference group made up of non-governmental organisations (NGOs) and other civil society representatives – guide the optimal development of a



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national PES trading platform that will bring buyers and sellers of potential services together along with intermediary stakeholders. This platform will be rolled out in the period 2012-2013.

Current conceptualisations of a South African PES programme envision a continuing focus on conserving watersheds and pursuing reforestation, with water conservation and carbon sequestration being the main ecosystem services the programme intends to pay for. Additionally, while PES could be rolled-out nationwide, it should also maintain a primary focus on particular geographic regions where there are strong and obvious links between impoverishment, unsustainable natural resource management, and environmental degradation.

A particular thrust of South Africa's envisioned PES programme is that it should assist the poorest – mostly rural – populations by first targeting communities where land is communally rather than privately owned – such as in the former homelands. In doing so, it is hoped that payments will benefit a larger number of people and that as a result, ecosystem conservation becomes something that is bought into at the community level.

The development potential of PES depends on the active support of NGOs and other community-based organisations. Skills development related to forestry management, as well as sustainable agriculture and water use, must be provided alongside payments if communities are to develop viable alternative livelihoods and see conservation as being in their best interests. Challenges continue to exist when it comes to identifying South African organisations with the capacity to provide this community assistance, though preliminary efforts to engage the Department of Environmental Affairs and the Department of Labour have produced tentative plans to make use of the

Expanded Public Works Programme (EPWP) to provide technical assistance to communities engaged in the initial stages of land restoration. The EPWP's Working for Water (WfW) programme, which offered payments to rural communities to remove invasive plant species from their waterways (to increase water flow and availability), could serve as a precedent in using the EPWP within a wider PES framework.

Building on the findings of past watershed conservation projects, current proposals for PES in South Africa recognise that payments to landowners and communities for conservation become economically viable only if ecosystem services are bundled or layered. This means that, rather than providing payments for a single ecosystem service (e.g. biodiversity conservation), *all* of the potential services performed by the ecosystem, such as those relating to water conservation, soil preservation, carbon sequestration, and even tourism potential, need to be valued together in determining appropriate payment levels. Only through this approach can payments be set at levels that are high enough to incentivise land-users to conserve ecosystems and for those funding these payments to receive a meaningful return on their investments.

Funding sources for a sustainable PES programme in South Africa must continue to be identified. In all likelihood, funding for watershed restoration will come mainly from taxes levied on water consumption. Donations and private sector support will likely be less important in the short term, though consideration should be given as to how donor support can be obtained, particularly given the desire of the corporate sector and dedicated environmental funds to focus on supporting particular green causes (e.g. carbon sequestration) but not always the entire set of bundled services that PES supports.

One possible way to generate donor enthusiasm for PES would be to target funding geographically. Those donors interested in contributing to payments for water services can support PES programmes around major watersheds, while those more interested in carbon sequestration can dedicate funds to PES programmes geared towards forest management. Current proposals to establish multiple PES-aligned funds could also allow donors to formally contribute to financing the ecosystem services they are most concerned about, though this would have to be balanced against the costs of administering multiple funds. Alternatively, financing could come through the sale of certifiable tradable offsets (CTOs) to foreign investors as part of a cap-and-trade carbon emissions scheme.

## RECOMMENDATIONS

For a PES programme to be successfully implemented in South Africa, considerable support from all levels of government, the private sector, and NGOs and civil society is needed. Furthermore, these actors must co-ordinate their activities to ensure proper planning and cost-efficiency. At the macro-level, PES should be actively promoted by the state through key government policies such as the National Water Pricing Strategy, the Green Economy Strategy, the National Climate Change Response Strategy, the National Environmental Management Act, and the Biodiversity Act. Environmental conservation should also be incorporated more fully into the EPWP, which include the highly successful Working For programmes.

An institutional home for a prospective PES programme in South Africa has yet to be formally identified, though there is an expectation that the

Department of Environmental Affairs' Natural Resource Management Division (NRM) will play this role. Establishing institutional leadership is vital to develop clear lines of authority between the many private and public organisations deemed willing to participate. Overall governance of PES funding will likely remain in the hands of a variety of organisations, most notably the Department of Environmental Affairs and SANBI. Ideally, the PES programme will be managed by one of these bodies. The administration of PES-related funds, however, should be the preserve of the DBSA, which has experience in managing mandated accounts dealing with incoming and outgoing funds, as well as with standardising financing contracts.

Institutionally, the most pressing challenges are at the micro-level. Identifying intermediaries capable of liaising with the PES programme steering committee, programme managers, and landowners and users, identifying skills development needs in local communities, and putting in place an effective monitoring and evaluation (M&E) strategy, requires sustained planning. M&E frameworks, in particular, must be conceptualised for the effectiveness of PES programmes to be evaluated over time, particularly in relation to their cost-effectiveness. This means conducting baseline assessments along a number of PES-relevant indicators, and ensuring that evaluators with the proper skills are in place to monitor these indicators by using a range of evaluation methodologies, such as scoring systems, environmental benefit indices, and spatial mapping tools.

The NRM is arguably the best placed to co-ordinate all of these activities, though the support of conservation agencies and other NGOs with grassroots connections will be equally necessary.

**This Policy Brief was prepared by Graham Sherbut, Consultant in Economic Development**

The information is extracted from the following sources:

*Building a national payments for ecosystem services programme in South Africa (2011)* The South African National Biodiversity Institute, June 2011, Memorandum

*The value of restoration: Evidence from South Africa (2010)* James Blignaut and Myles Mander (Unpublished)

*Payment for environmental services in Costa Rica: Carbon sequestration estimates of native tree plantations, (2005)* Alvaro Redondo-Brenes. Tropical Resources Bulletin 24 (Spring 2005)



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