

ENVIRONMENTAL SERVICES PAYMENTS AND MARKETS IN DRY REGIONS OF MAHENYE CAMPFIRE, ZIMBABWE

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ABSTRACT

In Zimbabwe, the concept of payment for environmental services (PES) has arisen from the recognition that those who protect the environment require compensation for the services they provide to the wider community. New opportunities for adding value to sustainable rural land resources management are being created, under the rubric of payments for environmental services. Such opportunities have arisen from the growing perception that ensuring nature's services in the long run requires not only that they should be valued by society, but also that these values inspire compensation to those who protect the environment. The study used both qualitative and quantitative research methodology. The study noted that PES schemes implemented to date have not been beneficial to the poor. PES have attracted service providers who hold titles, own larger areas, and obtain income outside the production unit. The study further noted that the creation of environmental services markets and payment schemes is a viable option and it offers opportunities for equitable and efficient provision of public goods. Environmental services markets function best when they provide measurable benefit to the environment; beneficiaries and providers agree on compensation amounts and terms; services provided are contingent on payment (that is, one should not have to pay for what one would probably receive anyway), and a regulatory framework should establish limits within which negotiations can occur. Devising workable PES schemes in the dry region of Mahenye lies in the interrogation of incidence of costs and benefits, and new conservation and development efforts should be tailored to the site specific ecological and socio-economic conditions to achieve effective and sustainable preservation and management of threatened natural habitats.

Keywords: Payment for Environmental Services, Poverty Reduction, Collective Action, Welfare Effects, Zimbabwe

BACKGROUND OF THE STUDY

The last decade has witnessed increased interest in payments for environmental services such as biological diversity conservation, carbon sequestration and watershed protection. A number of experimental programs have been initiated with seed finance from private institutions and support from developing agencies such as the International Fund for Agricultural Development (IFAD) and United States Agency for International Development. Environmental service rewards mechanisms in Zimbabwe have entailed some shift in attitude towards rural people whose resource use affect the environment. Traditionally the rural people living in or near protected areas have been viewed as 'troublesome squatters' and evicting them or simply curtailing their land use activities (through 'fines and fences' approaches) were seen as the best way to improve land management. In Mahenye, rewards for environmental services represents a fundamental shift in perspective, with rural land users treated as land stewards who should be compensated for providing positive externalities.

The major challenges facing farmers in Mahenye are poverty and degradation of the ecosystem, which provide valuable livelihood options for a growing population. Farmers in Mahenye rely upon the local ecosystem for the provision of food and are often affected by unavailability of environmental goods and services such as clean water, firewood and food supplies. The degradation of the ecosystem which provides water, cultural services, climate regulation, food, medicines and fibre has presented negative ramifications for the rural poor in Mahenye. The unprecedented increase of population in Mahenye further makes the area a hotspot of poverty, reduced life expectancy and malnutrition. Thus, PES represents a new and more direct way to promote environmental stewardship (Appleton, 2004). Connecting PES with resource deprived farmers could present an opportunity to reduce poverty in Mahenye

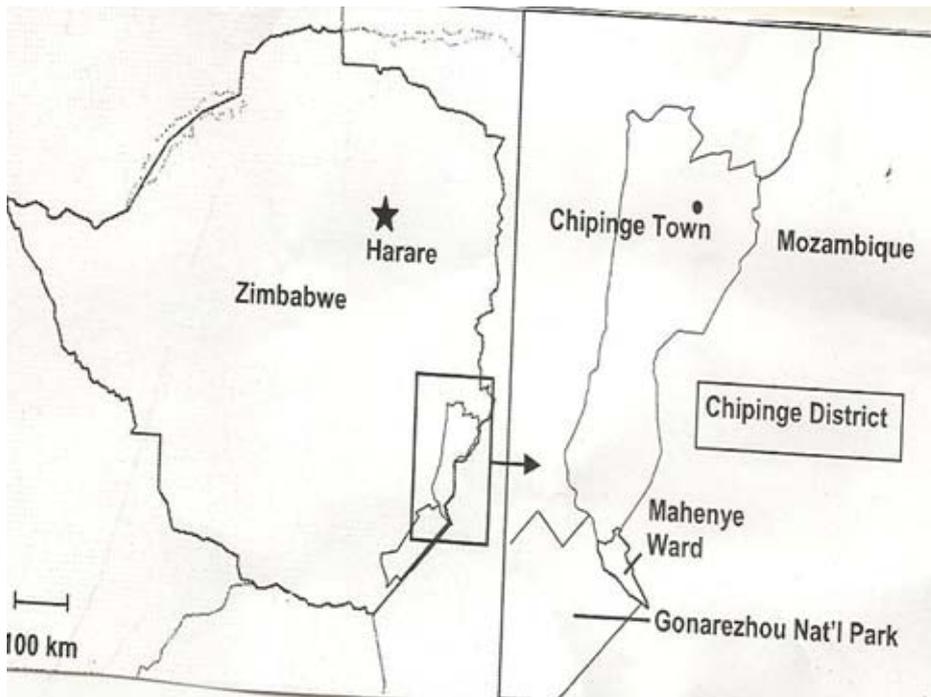
The increase in combined effects of land use and excessive climate events in Mahenye has generated considerable enthusiasm on the part of those who hope that PES might provide income streams or other benefits to poor people. However, experience to date indicates that this is far from assured. Also, another factor that constrains the ability of the poor to participate in environmental services mechanism is lack of access to sufficient resources to devote to environmental service provision. Smallholder farmers in Mahenye face a high opportunity cost in setting aside a substantial portion of their land which they need to live on. This has resulted in a situation where only people with large land are willing to dedicate part of their holdings to conservation. Furthermore, climate variability in Mahenye has undermined the efforts in the sustainable management of natural environment. Climate variability has changed the rainfall patterns, and amplified the drought cycle. The impact of climate variability has derailed farmers' efforts to sustainably manage agricultural lands. Thus, confronted with these challenges one of the most important requirements for smallholder farmers in Mahenye is the need to raise income for household consumption.

THE STUDY AREA

Mahenye is located about 1020 km south of Harare in Chipinge district in Manicaland province. The ward lies at the southernmost tip of Chipinge district. Mozambique lies to the north and east of the ward with the Save catchment to the south and west. Save river separates Mahenye from Zimbabwe's Gonarezhou National Park. In addition to the land set aside for settlements and agriculture, Mahenye includes land allocated for wildlife. Part of the land reserved for settlements and livestock is still predominately managed and used by wild animals, including giraffes, elephants and buffalos that move between the national park and Mahenye ward. (Wunder, 2005; Brunner and others, 2001; Brandon and others, 2008 and Berkers, 2004)

The low average rainfall of about 450-500 mm per year makes the ward generally unsuitable for agriculture or commercial; ranching (Bawa and others, 2004 and Bayon, 2004). Despite the unfavourable conditions, local communities in Mahenye keep livestock and grow some crops for subsistence use. The ward has relatively low population density of about 20 persons per km². The total population is about 5, 000 people constituting about 1050 households (Balmford and Whitten, 2003). The customary leadership of the ward consists of Chief Mahenye and 31 kraal and village heads. Mahenye villages are far removed from the main urban centres, and this isolation contributes to the ward's low socio-economic status. Figure 1 shows the boundaries of Mahenye, where the study was carried out.

Figure 1: A Map Showing the Boundaries of Mahenye Ward.



Source: Ministry of Lands, 2011,

STATEMENT OF THE PROBLEM

PES in Mahenye lack sustainable financing and a general lack of awareness or understanding of the concept of PES. Apart from challenges of fundraising and awareness, certain types of conflicts are common. These include how to share the benefits, issues over land tenure, and problems with project outsiders engaging in or near the project area that ran counter to the objectives of the project. Furthermore, stakeholders such as government, non-governmental organisations and local authorities are overlooking the role of PES in contributing to household food security. Without urgent prioritisation of environmental stewardship through PES communities in Mahenye will remain deprived of valuable food, medicine and income which can be derived from, sustainable utilisation of the environment.

JUSTIFICATION

The research was carried out in response to information gaps regarding PES projects in Mahenye. The research gathered information on the importance of PES and markets in alleviating poverty in dry regions. The research further proposed recommendations to practitioners in PES schemes. This information is important to stakeholders in PES schemes. The stakeholders include government, intermediary institutions such as Non-Governmental Organisations and farmers. The research will assist stakeholders to see the importance of PES in alleviating poverty in dry regions, and measures which can be adopted to introduce, monitor and evaluate PES schemes in the study area.

CONCEPTUAL FRAMEWORK

Stakeholders in Payment for Environmental Services Schemes

The state often plays a critical role in the orientation of PES schemes. The state can expand and protect the rights of rural communities to access, use, and control natural resources, or it can undermine these rights. A policy framework that revalues rural communities and the landscapes they manage can support community strategies to improve environmental practices. The state also generally defines the framework and rules for PES schemes. It is important that the institutional framework supports PES project development (e.g., scientific research and project planning); fundraising (e.g., collecting and managing financial resources); managing access to information, participation and conflict resolution (e.g., capacity building, stakeholder dialogues, facilitation of negotiations); monitoring compliance (e.g., contractual obligations, management of public funds); resolve conflicts; and enforce laws, regulations and contracts (Bawa and others, 2004). Since rules made by local power holders tend to eliminate poor rural communities, state intercession is often desirable to strengthen the participation of rural communities in rule-making processes.

Local authorities are also imperative stakeholders in PES initiatives (Brandon and others, 2008). It should be borne in mind that PES schemes are initially established at the micro level in order to solve existing ecological problems. Local environmental authorities are naturally key players in the PES institutional set up due to the geographical propinquity to the underlying ecological problem and their social interrelation with relevant stakeholders. They are best placed to identify and respond to local realities for example clarifying and dealing with insecure property rights.

International donor agencies can also play a critical role (Almeida and Uhl, 1995). To minimize the risk of compensation strategies leading to social segregation or vicious environmental effects, donor-supported initiatives should build upon community perspectives and priorities, and avoid preconceived objectives. NGOs can play a crucial role in establishing and implementing PES initiatives. NGOs have different capacities that support the creation of PES, including their potential to raise awareness about the actual value of ecosystem services; evaluate explicit requirements and ways to safeguard or improve ecosystem services; identify existing opportunities to ascertain PES schemes; provide independent (scientific, legal, social, etc.) technical proficiency for their design; and participate in schemes as PES buyers (paying upstream landowners), sellers (owning and conserving upstream ecosystems to provide their services to others) and intermediaries (creating trust) (Adams and others, 2004). It is vital to also note that external 'cooperation' can turn into another obstacle to be overcome by communities.

International donors play a positive role when they support the strengthening of social capital and negotiating platforms which enable rural communities to participate effectively in defining PES strategies, mechanisms, and ground rules. Intermediaries at the local, national, and at times international levels are needed for activities such as research, training, certification, funds management, and market access (Bayon, 2004). Support organizations also can have a negative influence. Large numbers of intermediaries can reduce the benefits received by producers and communities. Conflicts can arise when there are differing approaches to compensation strategies between support organizations and communities (Brandon and others, 2008). Again, it is essential that support organizations respect communities' agendas and concerns, working collaboratively with local actors, acting transparently, and respecting community decisions regarding management of the resources under their control (Berkers, 2004).

Implementation of PES schemes also involves the participation and acceptance of private entities, such as local water cooperatives, as well as indigenous groups, irrigators, and other ‘rural’ associations. In Bolivia for example, water cooperatives have played an important role in the establishment and management of public-private seed funds for watershed protection in Mairana, Comarapa and Pampagrande (Dasgupta and others, 2002). The cooperatives contribute a monthly amount to the PES fund on behalf of their members, who again pay monthly fees for the protection of their watershed. They are also in charge of opening and managing ecosystem service bank accounts, which provide the financial resources for all the activities needed to protect the ecosystems.

Payment for Environmental Services and Poor Communities

If given opportunities and technical resources to do so, the rural poor can not only reverse environmentally degrading impacts of past land-use practices but also invest in the enhancement of valuable environmental services. PES schemes are a potential strategy for bringing about these changes. From a pragmatic perspective, it often makes sense to focus these schemes on indigenous and peasant communities who inhabit, manage, and use ecosystems of importance for conservation and environmental services provision. In particular, many countries in the Americas have now adopted legal provisions that recognize and protect the rights of indigenous peoples to their land, resources, cultural identity, self-government, and participation in national affairs (Ferraro and Kiss, 2002). Rural communities typically have a deep relationship to the lands they occupy not only as the basis for their economic subsistence but also as a central element of their cultural identity, social organization, and belief systems. These same lands often provide important environmental services. In some cases, as in the conservation of agricultural biodiversity, these services depend on the labor and knowledge of community members.

From an environmental justice perspective, PES schemes that fail to integrate the social objective of benefiting poor communities with the environmental objective of securing environmental services can turn into instruments of social exclusion, resulting in deeper and broader poverty (Calder, 1999). In such cases, environmental goals still may be met, but at a high social cost. In contrast, compensation strategies planned and implemented in concert with the needs of poor communities can improve both rural livelihoods and environmental management.

If coupled with a concern for equity and poverty reduction, compensation for environmental services can be an important tool for building natural assets in the hands of the poor. PES schemes can involve all four ‘routes’ for natural asset building: the *redistribution* and *(re)appropriation* of natural assets to secure the rights of low-income communities and individuals; *internalization* to reward them for providing benefits to others through natural resource stewardship; and further *investment* in natural assets induced by the resources and incentives that PES schemes provide (Brunner and others, 2001). When implemented as an element of natural asset-building strategies, PES mechanisms thus can help to improve rural livelihoods while advancing environmental goals. In so doing, PES schemes can be ‘consciousness-raising’ in two respects. First, they can catalyze local efforts by rural communities to construct shared visions that revalorize the landscapes they manage. Second, they can raise awareness among policy makers and the public of the key roles that indigenous and peasant communities play in managing complex ecosystems that are critical for the provision of environmental services (Donald, 2004).

Rural communities rely heavily on the natural resource base. Producers manage ecosystems with an eye toward meeting their basic needs, including food, firewood, water, and spiritual well-being (Level 1); earning incomes by selling products (Level 2); and pursuing new alternatives linked to environmental services provision, such as water or power generation for urban areas, biodiversity conservation, and carbon sequestration (Level 3). Relationships at each level are crucial when considering PES schemes from the perspective of rural communities. At the first level, where relations are internal to the community and not dependent on transactions with outside actors and markets, the key concerns are the rights of access to and control over natural resources (Rossa and others, 2003). Closely connected with these are the management norms established by communities to ensure the continued flow of basic necessities. PES mechanisms can fail or prove detrimental if they fail to incorporate an understanding of how rural communities themselves value key environmental services for their own basic subsistence, identity, and spiritual well-being (Calder, 1999).

The concept of payment for environmental services emerged from economists' concepts of how to internalize 'positive externalities' in the production process. Mirroring the discussion on the use of economic instruments to curb negative externalities such as pollution by internalizing costs, PES instruments aim to maintain and expand the flow of positive externalities by internalizing benefits. Possibilities include direct payments to those responsible for maintaining certain land uses, and the development of markets for certain environmental services. Taxes and charges on consumers of environmental services can be useful for mobilizing financial resources. Payments can be targeted in exchange for specific activities that ensure the provision of environmental services.

Such economic instruments can be powerful tools for achieving environmental objectives in a cost-efficient manner. But if they are to promote equity and poverty reduction, economic instruments need to be harnessed through rules that ensure that the benefits also flow to poor rural communities (Rossa and others, 2003). These rules relate to the requirements to participate in the PES schemes. Since these schemes involve government, non-governmental organization (NGO) interventions, international agreements and national, state, and local governance structures, typically define the framework for applying economic instruments. In so doing, they largely determine the potential for inclusion or exclusion. When economic instruments turn out to be effective tools for strengthening the livelihoods of poor rural communities, this is usually because the governance structures ensure this outcome (IIED 2001). In general, the rules tend to be established by more powerful and wealthy actors. Hence an explicit and deliberate effort is required to ensure the participation of rural communities and the inclusion of their interests in the rule-making process; expand, defend, and secure their rights over the resource base; enhance their technical capacities and increase their market power; and strengthen their organizations (Bayon, 2004). The equity or inequity of rules is not only a matter of who receives compensation for the provision of the environmental services, but also who consumes these services and who is required to pay for them. If PES schemes create additional costs to consumers who are already in a highly disadvantaged position, they can result in greater inequity, including perverse arrangements where low-income communities end up paying large landowners for environmental services flowing from their lands (Balmford, 2002).

Social capital can be understood as the organizational capacities within a locality, and the ability of community members to secure resources (knowledge, public services, access to markets, etc.) as a result of engagement in social networks or other structures beyond the locality (Donald, 2004). Key elements are relations of confidence; reciprocity and exchanges; common rules, norms, and sanctions; and connections and networks. Thus, social capital is crucial for the provision of

environmental services, since producers and land managers within a landscape mosaic need to act in a concerted fashion in order to ensure the provision of environmental services. Social capital accumulation is also essential to ensure that PES mechanisms effectively benefit poor rural communities. Without strong internal organization and external linkages, poor communities cannot influence the rules of PES schemes, nor can they effectively conduct struggles to expand, defend, and secure their rights to the resource base (Balmford, 2002). Social organization is required to negotiate successfully with intermediaries and external agents, so that their proposals contribute to the diversification and strengthening of livelihoods strategies.

The control and use of natural resources are determined to a large degree by property rights. Traditional conservation schemes seek to ensure the provision of environmental services by restricting the rights of rural communities to access and use natural resources. In recent years, the expansion of community rights has emerged as an alternative strategy. This reflects growing recognition that turning resource users into partners is a better way to ensure the provision of environmental services than seeking to restrict their access. The expansion of community rights also can be an effective way to advance poverty reduction objectives, because it puts assets into the hands of the poor (Bruijnzeel, 2004).

Examples of Payment for Environmental Service Schemes in Latin America

The outcomes of recent PES initiatives in Latin America have been shaped by their national and local contexts, and by the interests of the different stakeholders engaged in these initiatives. The following experiences in Costa Rica, Mexico, Brazil, and El Salvador furnish valuable lessons that need to be taken into account in designing PES schemes that benefit rural communities.

Costa Rica's Experience

The Costa Rican PES system implemented in 1996 emphasized global environmental services (biodiversity conservation and carbon sequestration). It was funded primarily from a domestic tax on fossil fuels. Originally, four categories were eligible for payments on a per hectare basis: forest protection, forest management, reforestation, and tree plantations. Between 1997 and 2002, the program covered more than 300,000 hectares and total payments exceeded US\$80 million with 70% going for forest protection (Donald, 2004). Large and medium-sized property owners were the main recipients of these payments, an outcome favored by the emphasis on conservation, the forestry orientation of the scheme, the requirement of property titles, and the use of stringent technical criteria. Over time, however, internal criticisms and pressure from indigenous and small-scale producer organizations led to more inclusive rules. The participation of indigenous reserves increased, and in 2002 agro forestry systems were made eligible for compensation. Payments for agro-forestry systems (on a basis of US\$0.60 per tree) began in 2003 (Bruijnzeel, 2004). Seen from the perspective of poor rural communities, the Costa Rican experience, offers several lessons:

First, it shows the importance of broad participation in the early stages of PES schemes to ensure their long-term legitimacy and sustainability. An accelerated institutionalization of PES schemes, without adequately including the interests of small producers and indigenous communities, generates restrictions that are difficult to overcome later.

Second, without strong and representative organizations of small producers and indigenous communities, it is difficult to ensure participation that will result in truly inclusive schemes.

Third, the global orientation, eligibility criteria, and operational rules largely determine the capacity for inclusion in the PES schemes.

Fourth, a broad focus on a wide range of practices for the provision of environmental services can be important for improving, diversifying, and strengthening the livelihood strategies of rural communities (Sanderson and Redford, 2003). The impact of PES schemes can be enhanced when they promote environmentally improved productive activities such as agro-forestry, agro-tourism, ecotourism, non-timber products, and sustainable agriculture.

Finally, the incorporation of local-level perspectives, priorities, and visions can empower local communities and promote participatory management.

Mexico's Experience

The most striking feature of the Mexican context is peasant and indigenous communities' access to and control over natural resources. They control half the country's land and 80% of the forests. This resource base has fostered community-based initiatives in biodiversity protection, carbon sequestration, ecotourism, and environmentally friendly production. In the southern state of Chiapas, for example, more than 300 farmers participate in the Scolel Té project in which they plant, on average, one hectare of their individual 4-5 hectare parcels with trees to absorb carbon in exchange for direct payments (Rossa and others, 2003). The Paris-based International Automobile Federation, the organizer of Formula One racing events, purchased the first 5,500 tons of carbon at a price of US\$10 per ton (later raised to US\$12), (Brandon and others, 2008). The payments represent modest additional income for the farmers, but more important incentives are associated with the possibilities to penetrate the timber market and integrate carbon sequestration into organic coffee production or other agro-ecological initiatives. The following lessons can be drawn from the Mexican example:

First, when communities have broad access to the resource base, organizational capacity becomes the crucial factor for establishing agreements, complying with norms, managing conflicts, dealing with external actors, and applying territorial management strategies for environmental services provision (Berkers, 2004).

Second, it is essential to develop participatory territorial planning and management instruments at different scales: from the plot or farm level, up to the landscape level where it may be necessary to harmonize different land uses.

Third, peasant and indigenous communities rely heavily on the support of NGOs that assist with research, technical assistance, certification, seeking financial support, promotion, and marketing. Yet the different visions and approaches of NGOs and communication can create conflicts (DTZ Pieda Consulting, 2000).

Finally, existing production strategies provide the most convenient starting point for meeting the demand for environmental services, through diversification (as in the case of farmers who expand their agro-forestry activities for carbon sequestration or water regulation), or by means of marketing environmental services associated with their existing crops (as in the case of biodiversity-friendly shade-grown coffee) (Bayon, 2004). Rather than focusing on a single

environmental service, communities can supply integrated services, and combine markets for environmental services with fair trade markets or solidarity markets for products of peasants and indigenous people.

Brazil's Experience

Compared to Mexico, indigenous and peasant communities in Brazil have much less secure access to natural resources, which generates more precarious social conditions. For those reasons, the prime lessons of Brazil relate to the expansion, innovation, and defense of the rights of communities. The traditional conservation perspective, which aims to protect natural resources by excluding people, has had a major influence in Brazil. For instance, in Vale do Ribeira, the poorest region in the state of São Paulo, more than 50% of the valley is being protected in an effort to preserve the Mata Atlántica coastal forest (Escobal and Torero, 1999). To compensate municipalities for foregone revenues, the Ecological Tax on the Circulation of Markets and Services (ICMS) distributes a fraction of state sales tax revenues to municipalities in proportion to the area under conservation. In 2001, Vale do Ribeira received 37% of the Ecological ICMS collected in the state (Calder, 1999). The experiences in Brazil provide further lessons:

First, a traditional conservation focus can have negative impacts on communities dependent on access to the resource base.

Second, expanding access and usufruct rights, and compensating communities for their stewardship role can strengthen livelihoods while guaranteeing the flow of environmental services.

Third, the use of a wide range of compensation mechanisms geared towards supporting the productive activities that preserve or enhance environmental services provision can provide the greatest benefits.

Finally, it is crucial to integrate environmental objectives with social and equity objectives in the design and implementation of PES schemes, to ensure that they operate in favor of communities.

El Salvador's Experience

El Salvador provides an interesting set of features relevant to the design of PES schemes. These include the predominance of anthropogenic landscapes, the influence of traditional conservation discourses, strong social organizations, and a remittance-driven economy in which accelerated urbanization is accompanied by the collapse of agricultural activities in rural areas. During the 1980s and early 1990s, one-fifth of the country's territory was redistributed in a series of land reforms, broadening rural access to the resource base (Rossa and others, 1999). The potentially beneficial effects of this greater access were undermined, however, by the profound crisis in the agricultural sector driven by falling real prices for basic grains and an unfavorable policy environment. In this context, local initiatives are emerging that seek to identify and reinforce synergies between production, conservation, and environmental restoration in rural areas (Calder, 1999). The experiences in El Salvador provide several lessons:

First, seeing beyond the forests, and transcending traditional conservation perspectives, is crucial for the development of PES schemes. Improved practices in agro-ecosystems can enhance environmental services while strengthening rural livelihoods.

Second, strong social organization is a key precondition for success. Managing heterogeneous and fragmented landscapes for environmental services requires effective collective action that can be achieved only through local negotiating processes for environmental and territorial management. Social organization is also essential for negotiating the terms of PES schemes and ensuring an equitable distribution of benefits.

Third, favorable policy environment for rural areas is a must. Recognizing and rewarding the role of rural communities as providers of environmental services requires an institutional framework for the management of anthropogenic landscapes, and the agricultural sector that goes well beyond the scope of traditional policies in both agriculture and conservation.

Finally, genuine participation is needed to define policies and rules. Public policies and PES schemes can and should build upon local initiatives that attempt to integrate environmental objectives into development strategies.

AIMS AND OBJECTIVES

Aim

The aim of the study is to assess the impact of PES in reducing poverty in dry region of Mahenye

Specific Objectives

The following specific objectives guide discussion in this study: to identify the PES programmes implemented in the study area; to assess the impact of PES programmes on poverty alleviation; to evaluate factors which affects success of PES programmes in the study area and to give recommendation on scaling up PES schemes in Mahenye.

MATERIAL AND METHODS

Method

The study was a qualitative, descriptive study based on in-depth semi-structured interviews using open ended questions. Individual interview were the most appropriate method to gain an in-depth understanding of the impact of indigenous people, and their adaptive mechanisms. The research obtained consent from Gokwe traditional leaders and was approved by the Great Zimbabwe University Research Board committee.

Sampling of Participants

The research was purposive aiming to capture farmers, Non- governmental Organisations employees, and extension officers. The initial participants were recruited during the first trip made by the researcher to Mahenye District. After that the researcher conducted village heads to reach potential participants. Some of the participants were found through snowballing technique, where participants were requested to suggest other relevant participants. Participants were conducted by phone and if they agreed to participate, were asked to choose the time and place for the interview.

Data Collection

The interviews were conducted during four month in the summer of 2011. Interviews were conducted at convenient places chosen by interviewees. The interviews were digitally recorded and lasted for between 45 and 60 minutes. An interview guide was used and respondents were asked to reflect upon: what they knew about climate change; experience of changes in their environment over time; their thoughts about these changes; and the future of farming activities in the

study area. Through the entire process of interviewing, the interview guide was evaluated and developed further several times using an emergent design. The researcher wrote brief notes to preserve thoughts emanating during the interviews.

Data Analysis

Data was analysed using qualitative content analysis as described by Graneheim and Lundman (1999), a method similar to one described by Krippendorff (2001). In the systematic analysis, both the manifest content and the latent meaning of the content were captured, aiming at comprehending participants’ experience of climate change. Each interview was transcribed verbatim by the researcher. Interviews were read many times to get a sense of the whole.

The analysis then proceeded with detailed analysis of each interview and an open coding process with the use of the Open- code software (10, 11). The data was grouped into meaning units that were then labelled with codes, capturing the content of the units. A meaning unit comprised words, sentences or paragraphs containing aspects related to each other through their content and context. After coding the interviews, another coding was done, refining codes to make sure that the latent meaning is captured. The codes were evaluated so that they did not refer to the same aspects in-between interviews. The researcher requested a fellow lecture in the department of Rural Development to code the data, and this ensured that concordance in the interpretations and thereby increasing trustworthiness

RESEARCH FINDINGS

Age- Sex Profile of Respondents

Respondents were drawn from all sexes and varying age groups. Their ages ranged from slightly below 20 and 60 years. Female respondents were slightly more than their male counterparts as they constituted 58 % as compared to 42 %. Those who were below the age of 20 were aging 18 and 19 years. All participants in the research area were drawn from people who had attained the 18 years, legal age of majority. Participants below the age of 20 constituted 19 % of the total sample. All respondents who participated in the research were of the economically active group as they ranged from the age slightly below 20 to 60 and none was above the retirement age or a minor. Table 1 shows the age-sex composition of the sample.

Table 1: Age Sex Composition of Respondents

AGE GROUP	FEMALES	MALES
Below 20 years	11	7
20-30 years	27	14
31-40 years	10	8
41-50 years	4	3
51-60 years	6	7
Total	58	3

Source: Survey, 2011

Marital Status of Respondents

The group was composed of people from all marital status as both single, married, widowed and divorcees were included in the sample. Majority of them were married and they constituted 51% and of this, 32% were females. The single also constituted a significant figure as they constituted 28% of almost equal males and females, (15% and 13% respectively).

The widows constituted 14% equally divided between two groups and divorcees constituted 7%. The research noted that households with poor economic resource base usually rely on the exploitation of forests to meet household requirements. Thus, poverty is a factor which should be urgently addressed if the objective is to integrate forests in sustainable economic development.

Educational Qualification of Respondents

The study showed that participants had attained varied educational levels, which ranged from illiterate through semi-literate to holders of tertiary education. The sample indicated that there were few participants who were in the illiterate group, as they were only 3% and all of these were women. There was also glaring evidence that women were of relatively lower educational qualifications compared to their male counterparts. The majority of them (39%) were of relatively lower educational qualifications as they had only attained Ordinary level and below. Very few, (9%) had managed to attain tertiary education. On the other hand their male counterparts were the majority in the in the higher levels of education as 40% had attained at least Ordinary level education and of this 18% had tertiary education. Generally females are still found at the lower levels of the education ladder and males dominate on the other part. The majority (97%) of participants were literate and if capacitated can participate in the conservation of forest resources to prevent cases of food shortages and environmental degradation.

PUBLIC – PRIVATE PES SCHEME AND EMERGING PROBLEMS IN MAHENYE

Mahenye communal area has a population of 9 300 inhabitants, and the area depends on water that originates in upstream forests and grasslands. Between 1999 and 2005 an agricultural cooperative, Mahenye Trust, acquired 638 ha of forest, upland prairie and agricultural land in the upstream watershed. Further encroachment of forests and upland prairie would put the area's water supply at risk.

In 2010, Mahenye District Council and Mahenye trust signed a cooperation agreement with the two fold aim of preserving forest cover and upland prairie and protecting the water sources that supply Mahenye with water for domestic and animal use. The District Council's unit on Environment and Tourism makes contracts with cooperatives, based on their land management plans, and pays compensation for the land uses that promotes water provision. The scheme was established with an internal grant of US\$ 3 000. Conserving primary forest and upland prairie attracts the highest payments, of US\$0.8/ha/month, while secondary forest earns US\$ 0.5/ha/month, and intervened primary forest or upland prairie US\$ 0. 35/ha/month. The research noted that most households have between 5 and 10 hectares and as a result they receive between \$4. 00 to \$8. 00 per months for conserving primary forests and prairies and between \$ 2. 50 to \$5. 00 per month, for conserving secondary forests. Agricultural land receives no payment. Payments are made after inspection by the District authorities every five month. In cases of repeated non compliance, providers are excluded from the scheme. However the payments are far below the poverty datum line, which currently at US 1.00 per individual per day.

PES in Mahenye involves various stakeholders who include District Council, local communities, and Non Governmental Organisations. The communities constitute the majority (85%) but none of them hold a significant position in the management of the project. The existing structures have limited space for local people and local empowerment. The District Council retains all important post such as chairmanship, treasurer and secretary. The existing structures permit the convening of important meeting on PES to go ahead with or without local people. Communities are asked to follow

religiously decisions which are made somewhere else. Decisions on how much dividends should be given to participating communities are all made without the involvement of the local communities. Mahenye PES programmes do not auger well with the empowerment thrust that these community projects are supposed to achieve. The situation is obtaining under the background of existence of people with capacity to take such responsibilities but they are denied the chance to do so because PES programmes had failed to empower local people.

The research noted that rewards are sometimes distributed to project participants in the form of payments, services, or in kind contributions. In kind contributions took the form of seedlings or fertilizers, while services are usually given as professional support and training, capacity building, or education. Sometimes a combination of these is offered to participants. However, the research noted that whenever rewards are offered they are usually captured by the elites who dominate decisions in the running of the projects. Furthermore, whenever rewards are distributed in kind the assumption is that project participants would benefit financially from the sale of products derived from the sale of products derived from them, but often farmers in Mahenye have been affected by other variables such as climate variability and market uncertainties.

The District authority has committed itself to directing less than two percent of its revenue into the fund, and this amount is barely sufficient to pay the compensation on 638ha and the administration, oversight and technical costs. To cover all the upstream area that provides water, a total of 4 285 ha would have to be included in the scheme, implying a six-fold increase in compensation payments, which is currently out of the reach of Mahenye local authority.

Furthermore, the research noted that contracts are renewed after every five months. These contracts are entered into by a group on behalf of projects participants. These groups take many forms, including farmers, cooperatives, community associations and village councils. In one case the decision was taken to contract with the community association because land owners were worried that entering into a contract individually may negatively affect their entitlements. However benefits were given to the group which then decided to distribute them. In some cases benefits are given to a group members based on the amount of land distributed to the project. In one instance, the group did not distribute rewards but used them to benefit the community as a whole by rehabilitating roads which pass through Mahenye. However conflicts ensued because participants thought that the project benefited the elites who had vehicles and not the poor farmers who participate in the project.

The research noted a number of challenges on the administration of PES scheme in Mahenye. Major emerging challenges in Mahenye in the implementing of PES are concerned with the identification of potential service buyers (demand side), scientific knowledge regarding the provision and generation the provision and generation of environmental service, institutional requirements as well as political-economic and ethical issues.

The research noted that there are a number of emerging problems in Mahenye CAMPFIRE. If one goes to the market and buys a loaf of bread, one knows in advance what he/she buys. The research noted that when buying an environmental service, it is much less self evident what is being paid for because environmental services are provided over time. One always needs to have a clear idea about what would hypothetically happen without the PES schemes. Unfortunately, PES

in Mahenye CAMPFIRE do not include clear, explicit framework for monitoring and evaluating the degree of their success.

Sceptics in Mahenye CAMPFIRE fear that PES will affect farmers by delinking conservation from development and communities risk being deprived of their legitimate land and development aspirations by asymmetrically powerful conservation consortia. Farmers fear that business type conservation may erode culturally rooted not – for – profit values. Furthermore, very few farmers in Mahenye are prepared to pay and very little is known about the supply side dynamics. Of the various challenges highlighted by respondents, nearly half cited lack of sustainable financing and a general lack of awareness or understanding of the concept of PES, and benefit sharing. The research noted that the degree of receptiveness of a Mahenye community to the project is dictated by project location. A common strategy for overcoming this issue was for the project developers to engage community representatives, such as Mahenye community traditional chiefs, or village councils in an attempt to build trust in the community (Bayon, 2004). Furthermore the project surveyed was not able to progress well from planning or pilot stage due to financial and political constraints.

In addition to the challenges of funding and raising awareness, certain types of conflicts appeared in the project. These included how to share benefits, issues over land tenure, and problems with project outsiders engaged in activities in or near the project area that ran counter to the objectives of the project. When asked who mediates in conflict situations, roughly one third of respondents cited community council and traditional elders. However, conflicts resolution mechanism often arises from an insufficient understanding of the intricacies of customary institutions with their emphasis on differentiated access rights (Beukema and van Noordwijk, 2004). With this wrong perception interventions have frequently resulted in unintended, but disastrous outcomes.

Potential buyers of ecosystem services (consumers, businesses, utilities, government agencies and even conservation NGOs) are unaware of their dependence on ecosystem service payments and do not know how to find potential buyers (Berkers, 2004). In Mahenye there is shortage of service providers and project developers to assist with nascent PES deals. Lack of awareness also impacts the ability to find willing and able buyers of environmental services in Mahenye CAMPFIRE. Few stakeholders in Mahenye are knowledgeable about the policy requirements and implications of payment for ecosystem services. Addressing problems affecting communities in Mahenye CAMPFIRE requires specific technical skills to bring the right kind of information on the value of the ecosystem service and what benefits it will deliver to participants.

The research further noted that projects in Mahenye are *ad hoc* decentralised and do not follow any uniform guidelines. There is need for designated national institutions that can serve as repository of information on guidelines, regulations, national priorities, and other key issues (Climate, Community and Biodiversity Alliance, 2004). Awareness programmes for the private sector, financial institutions and government departments are also needed

There is a general lack of individuals and organisations with the requisite knowledge to organise design and implement PES effectively. In Mahenye, the technical skills such as experience with methods for calculating the financial value of these services and assessing the price that buyers should be willing to pay and sellers willing to receive are usually not

available. In addition, 'best practices' have not been established through intensive on the ground experience (Brandon and others, 2002).

The research further noted that the local authority in Mahenye, policymakers and regulators often have inadequate understanding of PES to determine where, when and in what forms are they appropriate, particularly in relation to local and national priorities for conservation and development. Furthermore, prospective PES service providers and project developers lack the technical and business skills and knowledge specific to PES, including market analysis, and enterprise analysis (DTZ Piedaco Consulting, 2004).

The research further noted that property rights in Mahenye CAMPFIRE are ambiguous and rarely enforced. A further complication arises from the fact that the land users are often not owners. In Zimbabwe women do not own land, despite the fact that they usually carry out activities which lead to environmental stewardship. They are therefore not in a position to negotiate PES schemes, let alone benefit from their activities. Furthermore land in Mahenye CAMPFIRE is communally owned, which makes it difficult in identifying, potential buyers of environmental services (Bruijnzeel, 2004).

The research noted that farmers in Mahenye CAMPFIRE lack the prerequisite for participation in PES, they do not have secure land tenure, rewards are easily usurped by the elites, and farmers lack assets (human, capital, and natural resources) to provide the level of service needed to yield the desired impacts. Part of the solution to this dilemma may be to eschew PES schemes that simply seek market creation (Calder, 1999). Furthermore, farmers in Mahenye lack technical capacity to implement the required land use practices, and are unable to bear the upfront costs of implementing land use practices that require substantial initial investment or not have access to the necessary inputs.

Participants raised the concern regarding the effects of PES on the poor households. People can only benefit from the market if they have access to them, especially for the poor and uneducated members (Balmford and others, 2002; Appleton, 2004). Also few companies in the area try also to reap the benefits of payments under the PES schemes which can be particularly problematic if land users do not own clear property rights for their land. Furthermore another concern in Mahenye is that PES system have resulted in reduced access to forest lands for local communities who depend on gathering non- timber products from the forests.

It was further noted that opportunity cost of land and alternative economic activities such as cash crop farming is high in Mahenye. Some landowners would like forest conservation to be their main activity but they believe the payments from the programme would be insufficient to cover the opportunity cost of land. Some landowners specified that delays in payment were a serious limitation of a serious limitation of the programme and it affected its credibility. The research further noted transaction costs in terms of waiting time are high and could prevent small landowners from participating in the reforestation scheme, as they cannot afford to leave the property idle while waiting for a decision. The programme specifies that no activity can take place between submission of the proposal and its acceptance.

PES programmes in Mahenye have been affected by high transaction costs, institutional weaknesses, and information gaps about PES, lack of secure tenure and property rights and transparent regulatory systems, and lack of willing buyers. Intervention strategies should try to address these weaknesses

RECOMMENDATIONS FOR SCALING UP NATURAL RESOURCE STEWARDSHIP THROUGH PES IN MAHENYE

The research noted that in Zimbabwe the experience with the establishment of PES schemes is quite new. Calculating the value of benefits arising from specific land use practices is a gray area subject to great uncertainties. PES will be more effective, for example, if they are directed at water quality supply associated with enhancement of forest cover, because conventional wisdom and scientific proof diverge a number of ways regarding the water flow regulation functions of forests (Brunner and others, 2001; Climate, Community and Biodiversity Alliance, 2004).

At the outset of programme design, it is best to begin with services for which a clear established demand exists (for example improvement in water quality associated with discharge of animal residues) and for which a relationship between the change in practices and the condition of ambient water quality supplied is relatively easy to prove. Furthermore, best results are obtained by promoting practices that offer multiple benefits, such as restoration of stream bank vegetation, which can simultaneously reduce sedimentation of water courses, sequester carbon, and establish biological connectivity between forest fragments.

The research recommends that rather than invest in complicated procedures to calculate environmental benefits, PES should be estimated initially on the basis of opportunity costs associated with adoption in comparison with a baseline scenario(for example, the net income forgone from land retired from production to permit registration). It is not always necessary to cover the full opportunity costs of such practices to attract an adequate number of service providers (Ferraro, 2002).

PES schemes in the study area involving market creation should be linked to a regulatory system that establishes specific limitations on productive activities and that creates the need for those who possess environmental liabilities to negotiate trades with those who exceed the stipulated norms. Without this regulatory framework, there is very little hope of creating markets for environmental services.

The study noted that the PES implemented in the study area has not been beneficial to the rural poor. They have attracted service providers, who hold titles, own larger areas, and obtain incomes from sources outside the production unit (thus making land retirement from production represent little in terms of opportunity cost to the land owners) (Balmford and Whitten, 2003; Donald, 2004). To improve equity requires that schemes restrict or differentiate payments to low-income households.

As noted in the findings one obstacle to effective PES include demand side limitations and lack of supply-side know how regarding implementation. The design of PES programmes can be improved by explicitly outlining conservation opportunity costs and targeting agents with credible land claims and threat to conservation (Donald, 2004). Expanding of PES can occur if schemes can demonstrate incremental conservation effects vis-a-vis predefined baselines, if PES recipients' livelihood dynamics are better understood (Escobal and Torero, 1999; Adams and others, 2004).

PES in Mahenye cannot function without having the necessary institutional capacity in place. This is important at the local and national levels. The government has to play a role to create the necessary legal framework, while international institutions and Non-governmental Organisations may be needed for brokering, monitoring and evaluation tasks. This

would also include identification of leading institutions relevant for PES design and implementation and distributing responsibilities among them according to capacity (Rossa and others, 2003).

If payment and trading platform schemes are to be used more intensively in Mahenye, political support needs to be increased. For this, the relevant local government institutions and policy makers need to be more familiar with the concept of ecosystem services and how it can be used as an environmental policy tool (Sanderson and Redford, 2003). Furthermore gaining government support is essential to the functioning of PES schemes for various reasons. Firstly the corporation of institutions that provide ecosystem services is needed when implementing projects PES projects in Mahenye. Their support is necessary to clarify issues of property rights and legal framework, and existing government institutions and agencies (Dasgupta and others, 2002; Almeida and Uhl, 1995).

CONCLUSION

PES schemes implemented in Mahenye Campfire have not been favourable to the poor. They attract service providers who hold titles, own large areas, and acquire incomes from sources outside the production unit (thus making land retirement from production present little in terms of opportunity cost to the land owners). To improve equity requires that schemes differentiate payments to low-income households. PES schemes involving market creation should be linked to a regulatory system that establishes unambiguous limitations on productive activities and that creates the need for those who possess environmental liabilities to negotiate trades with those who exceed the stipulated norms. Without this regulatory framework, there is little hope of creating markets for environmental services. Despite the promise of PES, a number of perils and pitfalls encumber those who seek to set up PES

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