Women planting a tree under PRESA project in Tanzania. Photo: Rohit Jindal

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CHAPTER 22

Analyzing gender and social equity in payments for environmental services projects: lessons from Southeast Asia and East Africa

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Highlights

- Lessons on gender equity dimensions in Payments for environmental services (PES) in East Africa and south-East Asia.
- Social equity is a multidimensional concept, with distributive, contextual and procedural dimensions.
- Equity considerations need to be an explicit goal, defined at the onset of a PES project.
- Equity outcomes need to be evaluated throughout the lifecycle of a PES project.
- PES projects need to adopt specific procedures to enable equity.

22.1 Introduction

Payments for Ecosystem Services (PES) have attracted increasing interest as a mechanism to conserve landscapes. The dominant theory behind PES assumes that ecosystem services are undersupplied because of market failures and therefore valuing and paying for these services to land stewards will help ensure landscape conservation and provision of ecosystem services[1]. By directly linking payments with opportunity costs of conservation, PES is claimed to be more economically efficient and environmentally effective than previous regulatory approaches to conservation[2]. It is also argued that PES can also help alleviate land-holder poverty[3]. The potential for these win-win options has made PES programs attractive as efficient conservation policy tools[4]. This vision is evidenced in the growing number of PES programs around the globe. For instance, the United Nations' Reducing Emissions from Deforestation and Forest Degradation (REDD+) program has proposed to channel millions of dollars through a PES approach for forest conservation in the tropics.

At the same time, the efficiency framing within PES has come under critique as it overshadows social, political and institutional dimensions of landscape conservation[4]—most notably social and gender equity[5,6]. Distribution concerns become important in context of developing countries where PES is framed as part of broader rural development interventions that target socially vulnerable groups[5]. Further, social equity considerations are important in PES-based conservation as there are instrumental links between equity and ecological outcomes[4], as poor upland farmers in rural areas of developing countries perform stewardship functions in the landscape that are crucial for ecosystem service provision.

A PES scheme that focuses only on efficiency leads to an inequitable distribution of costs and benefits among stakeholders either by excluding the smallholders and landless from participating in PES projects[7,3], by limiting the access of poor and marginalized groups to land that is crucial for their livelihoods[8] or by reconfiguring non-monetary values held by marginalized people and replacing these by monetary and exchange values[9]. In addition, PES schemes with inequitable outcomes have a lower chance of acceptance[10], and as a result affect the long-term performance of PES[11].

Gender is an important component of social equity in PES. Feminist approaches to the study of gender and environment demonstrate how gender-based interactions with nature structure men and women's knowledge about nature, gendered access to and control over resources, and gendered effects of environmental change and responses to it[12]. This body of research also highlights that power relations at household, local and higher levels keep women subordinated in decision making[13]. While women may have the responsibility to provide for household needs of fuelwood or water, they may also remain excluded from decision making in environmental management programs[14]. Women may not own land in certain societies and only have usufruct rights over communal or family land. Commodity-oriented agricultural development initiatives have led to the erosion of women's rights to these lands[15,16]. If PES projects are not attentive to local gender differences in land ownership it may affect the ability of women to participate in PES programs and receive incentives[12]. As the number of PES projects is increasing worldwide, there is a need to assess the gender and social equity implications these projects may have. In this chapter, we analyse the gender and social equity aspects of five case studies drawn from PES pilot projects in southeast Asia and East Africa.

22.2 Defining Social Equity

In the PES literature, there is broad acknowledgement that PES schemes should be fair and equitable[17]. However, there is no guidance on what constitutes equity. In the conservation literature, some define equity as the distribution of costs and benefits[10]; others posit equity as a complex, multidimensional concept that needs to be understood within a given context[18]. In this paper, we use the three-dimensional equity framework[18] to analyse the equity implications of selected PES case studies. According to this framework, the three core dimensions of equity are procedural, contextual and distributive equity.

Procedural equity refers to fair inclusion in the political processes that allocate resources and resolve disputes in a project. It involves recognition, inclusion, representation and participation in decision-making by actors[a]. Contextual equity is the surrounding social conditions (e.g.: access to information, power dynamics, gender, knowledge, networks, education) that influence the ability of actors to participate in the decision making in a conservation project. Distributive equity refers to distribution among actors of the costs and benefits, burdens and rights derived from a land management or conservation program.

22.3 Methods

The five PES case studies included for analysis in this paper are drawn from three pilot PES projects implemented by the World Agroforestry Centre (ICRAF) in southeast Asia and East Africa. The three pilot PES projects examined were: 1) Rewarding upland poor for

[a] 'Actors' refers to the stakeholders who are affected directly or indirectly by a natural-resource management project.

environmental services (RUPES) in the Philippines and Indonesia; 2) Reducing emissions from all land uses (REALU) in Viet Nam; and 3) Pro-poor rewards for environmental services in Africa (PRESA) in Kenya and Tanzania. These pilot PES projects focused on developing prototypes of rewards and institutional arrangements that can be applied to foster environmental conservation. An overview of the sites is presented in Table 22.1, with characterization of the main environmental services, the providers and buyers of environmental services, incentives offered, and environmental conservation activities undertaken.

ICRAF staff at each of these sites have undertaken research to document the process of project implementation, including identifying the type of environmental services and their providers, what kinds of incentive are feasible, who should get the incentives, and who should pay. In this chapter, we analyse the case studies developed through this research component with an aim to find out to what extent gender and social equity were considered in the pilot projects, whether measures that promote gender and social equity were included in the project design and implementation processes, and whether social and gender equity were promoted or hindered.

Meeting with community members in Ba Be National Park, Viet Nam. Photo: Rohit Jindal

Table 22.1 Comparative profile of PES case studies

Case Study	RUPES, Sumberjaya, Indonesia	REALU, Ba Be National Park, Viet Nam	RUPES, Bakun, the Philippines	PRESA, Mt Uluguru, Tanzania	PRESA, Mt. Kenya, Eastern Kenya
Ecosystem services	Watershed rehabilitation for the District Forestry Service and water quality for hydropower	Carbon sequestration	Water quality for hydropower	Carbon sequestration and hydrological services	Carbon sequestration and hydrological services
Conservation activities	Soil conservation, agroforestry, planting grasses & trees to reduce sedimentation	Forest patrol soil erosion control on slopes & tree planting	Sustainable horticultural practices	Agroforestry, woodlot establishment	Agroforestry, tree planting in riparian zones
Environmental service providers	Migrants and residents in Sumberjaya watershed	Tay villages in the core and buffer zone	Indigenous tribe in Bakun	Farmers of Waluguru tribe	Farmers (both migrants and indigenous settlers belonging to different tribes)
Environmental service buyers	Hydropower company, District Forestry Service	Provincial government	Four hydropower plants	PRESA to link with Dar es Salaam Water Supply Company and voluntary carbon market	PRESA to link with municipal water supply company and voluntary carbon market
Rewards	Conditional tenure rights (HKm) to farmer groups, cash rewards and electrification for the Rivercare group	Cash	Cash from the power company to the municipal government for infrastructure development	Cash (0.20 USD), for each surviving tree six months after planting, from the PRESA project	Cash for surviving trees from PRESA project
Implementing agency	RUPES and local government	Provincial government	RUPES, provincial and municipal government, hydropower company	PRESA project	PRESA project
Gendered participation in PES	Men: planning, implementation and monitoring Women: marginal role in decision making, presence in information meetings, cooking meals	Separate workshops with men and women identified gendered priorities for design, choice of incentives under a proposed forest conservation project	Men: tree planting, soil water conservation activities Women: attendance in information meetings	Men and women involved in bidding for PES contracts offered to men and women farmers	Women and men within a family allowed to submit bids for PES contracts; women and men awarded contracts

22.3 Case Studies

22.3.1 Case Study 1: Sumberjaya Watershed, Indonesia

The Sumberjaya watershed in Sumatra's West Lampung district has an area of 45,000 ha of which 40% is protected forest. The area has a history of land conflict, including forced evictions of coffee farmers by the local forestry department because they were believed to be degrading the forest. The RUPES project was established in 2004 to facilitate negotiations

among local stakeholders to manage forest degradation in the watershed and improve water quality. The project enrolled farmers into two types of conservation activities: first, planting and maintaining a specified number of trees to rehabilitate the watershed for the District Forestry Service, and second, collective rehabilitation of the watershed through slope conservation measures to improve water quality for the hydropower reservoir downstream. A community group called Rivercare was organized to manage slope conservation efforts and monitor sediment flow in the reservoir. RUPES linked with *Hutan Kemasyarakatan* (HKm/People's Forest), a social forestry program operating in the area since 2001 to reward conditional land tenure to farmers as a reward for mitigating environmental damage on slopes. The hydropower company and RUPES also rewarded members of the group for reducing sedimentation through direct payments on a sliding scale starting at 250 USD for a sediment reduction of 10% to a maximum of 1000 USD for a reduction of 30% or more[19]. The land management concessions were signed between the forestry department and the men. Women were involved in Rivercare's watershed management through their participation in activities such as community sensitization, cooking meals and other light work such as planting grasses on slopes and carrying stones to the fill the ditches. One woman was also represented in the RUPES Rivercare group as a secretary. However, her role was more of a bystander than that of an active decision maker[20].

22.3.2 Case Study 2: Ba Be National Park, Viet Nam

Ba Be National Park in Viet Nam's Bac Kan province is a demonstration site for the REALU project under which PES initiatives were piloted. The Park provides valuable environmental services, such as biodiversity, carbon sequestration and hydrological services. Since 2003, the Park and the adjacent villages have been part of the five-million-hectare reforestation program (Program 661) of the national government that provides cash rewards (200,000 VND or approximately 10 USD per hectare per year) to community groups for forest protection. Communities in and around the park participate in monthly forest patrols. Community leaders collect payments on behalf of their groups after the forest protection work is verified by the park management. PES funds come from the provincial government under Program 661 and also from levies by the park management on tourists and lodges.

ICRAF is engaged in the development of a REDD+compliant forest management program with local communities. As part of developing a forest management plan, ICRAF researchers organized separate structured decision-making (SDM)[21] workshops with men and women from adjacent forest communities to elicit their objectives and preferences with regards to program design (bottom–up or top–down), types of benefits (cash or in kind), mechanisms for distribution of benefits (group or individual) and monitoring (top–down or participatory). The workshop deliberations revealed gender differences in preference for incentives under the proposed REDD+ compliant program. Women and men both favoured a benefit structure that included a mix of cash and in-kind benefits (e.g. the provision of goods such as fertilizer, seeds, and building materials such as bricks) paid to individuals, and in-kind benefits paid to communities (e.g. improved roads, improved irrigation drainage channels, new schoolrooms, medical facilities etc.). Additionally, women also showed a strong preference to allow limited household use of forest resources (e.g. for fuel, food, or livestock)[22]. The outcomes in terms of community preferences and learnings in terms of using a bottom–up design tool from these community-level SDM workshops were shared with the REDD+ national team in Viet Nam to serve as a model for designing a bottom–up plan for forest management under REDD+.

22.3.3 Case Study 3: Bakun, Philippines

The RUPES project site in Bakun is part of the Bakun municipality in northern Luzon. The watershed of 21,129 hectares in area is drained by four major rivers. The watershed supplies water for domestic, agricultural, and industrial uses as well as hydropower in the nearby and downstream communities. However, the area is experiencing environmental change due to a shift in land use practices where forests are being replaced by annual crops. The RUPES project was initiated in Bakun in 2002 to promote sustainable farming practices and improve water quality for hydropower.

Under RUPES, a management plan was developed to rehabilitate the watershed through sustainable horticultural practices. The local municipality has signed royalty contracts with the hydropower electric company and receives 166 million Philippines Peso annually from the government through taxes levied on the four hydropower companies. This money has been used for local infrastructure development projects.

ICRAF researchers carried out an analysis of women's and men's roles in productive, reproductive, community and environmental management domains in Bakun. The analysis revealed that women are active mostly in the reproductive and community domains while men have control over the productive activities of agriculture. Both men and women are active in environmental management domains, however, tasks such as land preparation, laying rock walls on slopes, conducting group patrols and apprehending forest violators are undertaken by men, while women do weeding, hilling up (or covering up the base of growing plants with soil and fertilizer), and maintenance of plants. The analysis also elicited gendered preferences as regard incentives under PES. The men expressed a preference for PES payments to be made directly to concerned communities through the community organizations so more pressing local needs can be met. The women expressed a preference for improved access to social and infrastructure services which can occur when more medical missions are conducted in upland communities, uplanders get more free medicines, upland roads are well maintained, and host communities of power plants get electricity subsidies; and (2) granting of cash or non-cash awards from lowland beneficiaries to recognize the uplanders' efforts in forest management and protection.

22.3.4 Case Study 4: Uluguru Mountains, Tanzania

The Uluguru Mountains in the Eastern Arc Mountain Range of Tanzania are a global biodiversity hotspot and the catchment for the river Ruvu, which provides water to Dar es Salaam, the commercial capital of the country. Forests in the area have been converted to agricultural land. ICRAF launched the PRESA project in 2009 to establish pro-poor rewards for planting trees on woodlot to reduce sedimentation in the Ruvu and sequester carbon.

Local communities belong to the Waluguru, a matrilineal social group, in which the women traditionally hold land rights. The main economic activity in the area is subsistence rice agriculture and plantation crops, such as pineapples, vegetables and bananas. PRESA developed a prototype payment mechanism using 'reverse' auctions with 268 farmers. Each farmer was to plant a mixture of 80 fruit, timber and fuelwood tree species on 0.5 acres of their farm land. Tree-planting contracts were initially offered to 32 successful bidders. The contract included free tree seedlings, training in tree planting and maintenance, and a cash payment of 300 TZS (0.20 USD) a year for each surviving seedling. The project expanded in 2010 and new contracts were offered to 200 households for planting 20,000 trees. PRESA acted as the interim buyer by supporting tree plantations. However, there are plans to link farmers to international markets to sell carbon sequestration credits and to invite the Dar es Salaam Water Supply Company to become a buyer of improved hydrological services.

22.3.5 Case Study 5: Kapingazi catchment, Mt. Kenya, Kenya (PRESA project)

ICRAF launched the Mt. Kenya PRESA project in eastern Kenya in 2009. The mountain provides much of the water for Kenya. Local communities are mostly of the Kikuyu group and cultivate tea and horticultural crops. Under PRESA, action research was undertaken in collaboration with Bonn University and the Mt. Kenya Natural Resources Management Pilot Project to promote tree planting along the riparian zone of the central and lower parts of the Kapingazi River. Conservation auctions were used to award two types of contracts to farmers depending on the level of conservation effort: 1) action-based: farmers were to keep the soil moist around the trees and payment was conditional on monitored results; 2) outcome-based contracts: no actions were specified, and payment was conditional exclusively on tree survival rates after six months. Both contracts were for six months and stipulated planting 30 trees in the riparian zone. A total of 114 men and 118 women participated in the conservation auctions. 16 men and 29 women were offered action-based contracts and 28 men and 26 women were offered outcome-based contracts. The contracted farmers were paid in cash based on the lowest bid level. PRESA acted as the buyer for the period of the contract. There are continued efforts to bring in a local water supply company as a potential buyer of watershed services.

22.4 Findings

22.4.1 Procedural equity

Since poor and marginalized people often lack political power and avenues for representation, procedural equity measures require that a PES project allow for inclusion, representation and participation of these groups in decision making. The PES projects in Viet Nam and Kenya allowed for the representation and inclusion of women by following specific procedures. Both these projects recognized at the onset of the project that 1) women are particularly disadvantaged in making decisions about the management of environmental resources; and 2) there is a need to employ methods to ensure that women are included in decisions around project design and implementation.

In Viet Nam, the project piloted the use of SDM approaches to seek views of community members in design of forest conservation programs under Viet Nam's National REDD program. Twelve SDM workshops were organized with community groups in various villages proposed under the National REDD+ program. These workshops with women and men created conditions for procedural equity by enabling women to participate in extensive deliberations in the program design process and voice their opinions about their preferences in program design and choice of incentives. The outcome of enabling procedural equity was that the project managers could elicit a marked difference in the preference of men and women. The women favoured regulated forest access for fuelwood and a moderate level of cash as incentives for conservation; whereas men were willing to settle for low or no forest access and higher amounts of cash incentives.

The PRESA project in the Mt. Kenya site in Kenya showcases another example of specific methods followed to ensure procedural gender equity in project design. Discriminatory price auctions were used with men and women farmers in the Kapingazi catchment to select the most efficient providers of environmental services. The project managers made a special effort to invite women to participate in the auction. 114 men and 118 women participated in the auctions. The auction results revealed that women's bids for the action-based contracts were lower than the men's. Thus, 55% of the action based contracts were offered to women. The special provisions made to invite women to the auction gave a chance for women to participate alongside men thereby ensuring procedural equity. The fact that women were low-

cost providers makes the project efficient too. On the surface, women planting trees under PES contracts and receiving payments may look gender equitable but this may not be so straightforward. Women are low-cost bidders because they may lack information about the true costs they face. However, loading the project onto women's shoulders because of efficiency considerations amounts to an antiquated Women in Development approach where projects appropriate women's labour and participation in project activities which prove not to meet their needs or whose benefits they may not control[13].

22.4.2 Contextual equity

Contextual equity or 'equity of access' refers to the factors that influence the ability of individuals and community groups to derive benefits from resource distribution. These include access to capital, labour, market networks, technology and information[23]. For instance, lack of property rights is a key contextual constraint to participation by poor people in PES projects, leading to negative equity outcomes[24]. With regards to gender equity in PES, contextual factors such as a lack of voice, power, information, capital and land can constrain the participation of women.

The RUPES projects in Indonesia and the Philippines undertook several participatory analyses of gender roles and gendered access to, and control over, resources to understand the contextual factors that determine women's participation in PES projects. Theses analyses revealed that women and men had distinct gender roles which mediated their access to, and control over, resources. For instance, in both Indonesia and the Philippines, the men interacted with external agencies on matters of environmental conservation whereas women had limited opportunity to do so because of their gender roles. At the same time, women were active in community associations—such as women's savings groups—where they spent considerable amount of time sharing information. In addition, men were involved in heavy work related to environmental conservation such as digging, carrying stones and constructing dams.

The RUPES projects in these countries used the information gathered from gender analyses to enlist the participation of women in conservation tasks that complemented their traditional gender roles. The projects in Indonesia and the Philippines used these women-dominated community forums as platforms to inform women about PES and encourage them to share the information with other women. During project implementation, the heavy tasks associated with carrying stones, planting and construction of dams were delegated to men. Women on the other hand were involved in tasks that conformed to stereotypical gender roles, such as planting of grasses on slopes in Indonesia, horticulture gardens in the Philippines and cooking meals for workers in both Indonesia and the Philippines.

While identification of contextual factors around women's participation in PES allowed for women to be assigned gender-appropriate tasks, the RUPES project in Indonesia did not address the issue of greater inclusion of women in decision-making bodies or including women in non-traditional roles. In the Rivercare group in Sumberjaya, women's representation in management board was only symbolic with only one woman attending, even though gender analysis found that women's educational achievements in the area are higher compared to men. Also, none of the women were trained to conduct technical tasks, such as monitoring sediment flows in the river. In addition, despite women traditionally having rights to coffee lands, they were not invited as co-signatories along with men on the land ownership contracts under the HKm program (with which RUPES had partnered). Thus, while gender analysis in the initial phases of the RUPES projects in Indonesia and the Philippines allowed the project managers to understand the contextual factors around women's participation, restricting women's participation to stereotypical gender roles

hindered progress in questioning traditional gender roles and strengthening women's strategic position, a finding that is confirmed in other PES projects[25]. This is because PES projects continue to be rooted in a women-in-development paradigm in which projects demand women's participation by appropriating women's labour (often unpaid) without advancing their gender needs[13]. At the same time, it is also a reminder that addressing social and gender equity issues takes concerted and focused effort over the long range, which is often outside the mandated focus of PES projects that are bound by time and resource constraints.

22.4.3 Distributive equity

Distributive equity involves an evaluation of how costs, risks and benefits from a project are distributed between men, women, poor and marginal members of a community. An assessment of distributional equity outcomes is crucial to understand whether women or poor are excluded from benefiting from an intervention while bearing disproportionate costs and risks. Research has shown that the introduction of market arrangements for natural resource management as part of development projects risks the erosion of resource rights of women making them worse-off[12,15].

The PRESA project in the Uluguru Mountains of Tanzania is a case in point, where the introduction of PES has the potential to accelerate the ongoing process of erosion of women's customary land rights thereby creating negative distributive equity outcomes. The project intervened in a socio-cultural context where rights to land resources were in flux. Traditionally, Waluguru women owned land in their parental village. Marriages were uxorilocal, meaning that upon marriage the husband resided in the wife's village and worked on the land of the wife's clan. However, this matrilineal social organization is being replaced by a patrilineal one in which women are marrying virilocally, wherein upon marriage they reside in their husband's village. The right to land (in their parental villages) of these virilocally married women is meant to be upheld by their male relatives. However, growing population pressure has resulted into land shortages in the area. This has meant that people try to maximize land productivity by planting intensively and acquiring additional land. The local customs create proprietary rights to lands on which the trees are planted. Thus, tree planting has been used traditionally by men to acquire property rights to land. More recently, male relatives holding custodial control over lands of their virilocally married women kin have been invoking this customary rule and planting trees on the land of their absent female kin. This de-facto claim to women's lands threatens women's land rights in the area and is an arena of conflict.

Given this context, it is feared that if projects such as PRESA promote tree planting without regard to local customs around land ownership and tree planting, conflicts around women's land rights may deepen. Under PRESA, reverse auctions were conducted with men and women selecting farmers who would be offered the PES contracts for tree planting. The use of reverse auctions identifies the lowest-bidding farmers who can provide the environmental service at the lowest cost. While this selection process fulfils the efficiency criterion of PES, it does not consider the equity aspects. Since the selection process did not account for the status of land rights and the cultural norms around tree planting in the area, it ended up not having any mechanisms to screen for farmers with clearly defined land rights or to ensure that farmers do not plant trees on contested lands. As a result, tree-planting activities under PRESA hold the potential to exacerbate conflicts around women's land in the project villages and could lead to negative distributive equity outcomes.

In Indonesia, RUPES used the HKm (*Hutan Kemasyarakatan* or People's Forest) program to negotiate secure tenure rights for farmers who were formerly considered illegal users of

government forestland. By providing tenure rights to these landless people, RUPES ensured positive distributive equity outcomes in that the families were not evicted and made to bear the costs of environmental conservation. The communities in Sumberjaya are matrilineal, where women have traditionally had rights to coffee lands. Nevertheless, women were not included as signatories to the HKm contracts. Thus, on one hand RUPES created positive distributive equity outcomes at the community level by establishing conditions for former illicit users to become land owners but on the other hand, it failed at promoting intra-household equity by excluding women from being joint holders of HKm titles along with their husbands. In Viet Nam, the SDM workshops with men and women revealed their preferences with respect to incentives for forest management. While women expressed interest in non-cash incentives for forest protection (such as access to forest for subsistence purposes), men were interested in cash incentives. However, cash continues to be the most common incentive offered to communities. By being members of forest patrol groups, men benefited directly from such cash rewards. The inability to follow up on gender-specific incentives in Viet Nam or to enrol women as joint signatories on HKm contracts in Indonesia represents negative distributional outcomes for women. At the same time, these examples also highlight the need to incorporate equity considerations into each phase of the project design from planning to implementation rather than involving women as one-off participants in gender analysis or planning workshops during the initial phases of the project.

Table 22.2 A synthesis of equity dimension in PES case studies

	Dimensions of Equity		
Project	**Distributive Equity**	**Procedural Equity**	**Contextual Equity**
RUPES, Indonesia	Women not enlisted as co-signatories on HKm contracts even though women traditionally hold land rights in the area	Women's participation in project activities was sought through gender analysis. Women's participation limited to traditional gender roles such as cooking meals. Women not involved in technical aspects of sediment monitoring. Token representation of women on management board	Contextual barriers to women's participation identified through gender analysis. However, project did not challenge traditional gender norms and enlisted women's participation in stereotypical gender roles
Ba Be National Park, Viet Nam	Limited incorporation of women's voices in choice of incentives can potentially create negative distributive equity outcomes	Separate consultation organized with women to ensure their voice is incorporated in program design and choice of incentives	Contextual barriers to women's participation identified through separate workshops
RUPES, Philippines		Women were consulted in project planning through gender analysis workshop but their participation conformed to traditional gender roles	Contextual barriers to women's participation identified through gender analysis
PRESA, Tanzania	Neglect of contextual factors around tree planting and women's land rights creates conditions for erosion of women's land rights	No special procedures adopted to identify issues that women face with respect to natural resource ownership and management	Social context, situation of women's land rights and cultural norms around tree planting not assessed adequately. This neglect creates potential for negative distributive equity outcomes for women
Mt. Kenya, Kenya	Women's bids honoured, and women awarded contracts. However, since women bid lower, the women may not benefit entirely and may bear the burden of the responsibility of tree planting under the project	Women invited to PES auctions	Barriers to women's participation identified and incorporated into procedures to include their participation

22.5 Discussion

Having reviewed the five cases along the three equity dimensions, a question that arises for PES practitioners is how to incorporate equity in a holistic manner. The four lessons that emerge from the review of cases present pointers to answer this question.

Lesson 1: Equity is a complex, multidimensional concept

As illustrated by the cases in this chapter, equity needs to be conceptualized along three interrelated dimensions: procedural, contextual and distributional equity. There is value in conceptualizing equity along these axes rather than viewing it simply as a distribution of costs and benefits. This is because the three dimensions are related to each other in complementary ways.

A project that fails to incorporate procedural or contextual equity factors will necessarily lead to adverse distributive equity outcomes. This is illustrated in the case study of the PRESA project in Tanzania, which did not consider the contextual factors of women's land rights and thereby created the potential for women to be alienated from their land rights.

Another related lesson is that if a project satisfies any one equity dimension, it does not necessarily mean that other equity dimensions would be addressed automatically as observed in the PRESA project in Mt. Kenya. This project followed specific methods to enlist women in auctions. While this ensured procedural equity, it did not entirely lead to conditions where women enjoyed positive distributional equity outcomes. Here women's participation in the auctions resulted into women being allocated PES contracts. However, contract allocation to women is not a sufficient condition for distributive equity as it fails to recognize the lower opportunity costs that women face or the limited information that women may have. Thus, allocation of PES contracts to women may lead the project to enlist women's participation and labour in activities which may not benefit them entirely and may even add to their intra-household work burdens.

An equity-conscious approach on the other hand would review the broader relationships between different equity dimensions, intra-household information, property rights and benefit flows between actors and their wellbeing.

Lesson 2: Define equity beforehand and consider it as an explicit goal at the onset of a project

It is important to set in advance the content and goals of equity[18]. This is because there are conflicting conceptions of equity prevailing within societies and cultural contexts. A PES project must rely on prior establishment of who will define the values at stake, for whom and how. This helps PES project managers to develop explicit equity objectives and criteria to monitor progress as well as to resolve trade-offs. For instance, during the SDM workshops in Viet Nam, a discussion on equity with local communities resulted in a rich understanding of how participants defined equity. This discussion enabled the project managers to formulate objectives for equity and other social goals in a manner that was fitting for the participants. Women articulated equity in distribution of cash incentives as equal payments to all households in the village while men—whose job it was to patrol forests—defined equity in terms of equal payments to all members of the patrol group. While these local understandings of equity could not be incorporated fully into the project, they nevertheless point to the value of eliciting local understandings of equity to avoid conflict at any time during the lifecycle of a project.

Following from lesson 1 above, the cases reviewed here suggest that equity needs to be considered as an explicit goal right at the initial stages of a project. For instance, if the equity goal is to do no harm or to make sure that no-one is made worse off, PES managers would strive to achieve this by adopting procedures that ensure all stakeholders are represented and their concerns addressed.

Not all the cases reviewed here started with an explicit consideration of what equity in the project should look like. For instance, in PRESA Tanzania, there was no explicit equity goal. Therefore, the project did not pay much attention to the contextual factors around the situation of women's land rights. This neglect in the early stages meant that the project continued to promote practices that could undermine women's land rights, thereby creating negative distributive equity outcomes.

On the other hand, the case studies from Viet Nam and Kenya illustrate situations where, if equity is identified as an explicit goal, women's participation in PES design can be enhanced. These projects acknowledged that women were often not consulted in the design of PES projects. Thus, they established safeguards to allow for women's participation by adopting methods such as auctions and SDM workshops that allowed for women's voices to be heard and incorporated in project planning. By specifically targeting women, these projects ended up ensuring procedural equity. This illustrates a very important lesson: if equity in PES projects is to be achieved, it needs to be incorporated as an explicit project goal.

Lesson 3: Equity outcomes need to be continually evaluated throughout the lifecycle of a project

The three-dimensional view of equity allows equity to be analysed not as a one-off consideration but rather as a continuous goal that needs work at each stage of the project. For instance, the RUPES project in Sumberjaya ensured procedural equity by creating space for women's participation in specific project activities, but forwent opportunities to question existing gender norms around land ownership and to enrol women as co-signatories in HKm contracts by restricting equity to procedural dimensions of participation and not evaluating the other dimensions at subsequent stages of the project.

A related lesson is whether it is realistic to expect a PES project to tackle all three dimensions of equity through the project lifecycle. While the procedural equity dimensions of a project fall within the scope and control (at least initially) of its proponents, the capacity to achieve long-term distributional equity depends on contextual factors that are not amenable to control by project managers. Contextual factors such as existing inequality and social marginalization may only be transformable with time, and resources and focused effort and may not be under the immediate focus of a PES project. Nonetheless, the inclusion of a gender perspective early in the project can create conditions for distributive and procedural equity and may to some extent mitigate the constraining impact of contextual inequity.

Lesson 4: Projects need to adopt specific procedures to ensure equity

A final lesson that emerges from the review of cases is that project managers (given that they have an explicit equity goal and understand the interrelated dimensions of equity) can adopt specific procedures and methods to incorporate gender in PES projects. For instance, procedures such as SDM workshops with men and women in Viet Nam, gender analysis of women's and men's roles in Indonesia and Philippines and targeting women farmers for reverse auctions in Kenya did create enabling conditions for women's participation in the project. However, as stated earlier, the project managers also need to adopt measures that allow for equity at later cycles of the project. One point of caution for PES managers is to keep

in mind that these activities to incorporate equity are not costless and incorporating equity at each phase of a project may increase program cost.

Payment being made under PRESA in Tanzania. Photo: Rohit Jindal

22.6 Conclusion

PES arrangements have the potential to reinforce the deep-rooted structural causes of poverty and exacerbate inequity as they operate in a social context with unequal distribution of asset ownership, voice, information and avenues for participation. Therefore, it is imperative to consider gender and social equity outcomes of PES projects. In this chapter, we use the three dimensional framework to review cases studies of five PES projects and examine the extent to which projects were gender equitable and draw lessons on how to incorporate equity into the design and implementation of PES projects[14].

Four useful lessons for PES practitioners emerge from this review. First, it is important for project managers to consider the interrelated dimensions of equity and analyse deeply-rooted norms and traditions that spur inequity. Second, gender equity can be built into mainstream practices only when it is articulated as an explicit goal at the start of a PES project. Third, multiple equity outcomes should not be considered as a one-off consideration but need to be evaluated continually during the lifecycle of a project from planning to implementation. Doing so ensures that the project addresses all the dimensions reasonably. A constraint that emerges from this lesson is that while an understanding of multiple dimensions is helpful for project managers, PES projects may remain limited in their capacity to alter traditionally embedded forms of gender exclusion due to limitations on project scope, time and resources. Fourth, the analysis also indicates that adopting certain procedural measures, such as gender analysis of roles and responsibilities within a PES project, women as participants in auctions and separate structured decision-making workshops with women are a good start for equitable inclusion. However, the review also cautions that incorporating equity is not a costless exercise and needs devoted project resources, else the projects may continue to address equity symbolically.

References

[1] Engel S, Pagiola S, Wunder S. 2008. Designing payments for environmental services in theory and practice: An overview of issues. *Ecological Economics* 65:663–674.

[2] Ferraro P, Kiss A. 2002. Direct payments to conserve biodiversity. *Science* 298:1718–1719.

[3] Pagiola S, Rios AR, Arcenas A. 2008. Can the poor participate in payments for environmental services? Lessons from the Silvopastoral Project in Nicaragua. *Environment and Development Economics* 13(3):299–325.

[4] Pascual U, Phelps J, Garmendia E, Brown K, Corbera E, Marrtin A, Gomez-Baggethun E, Muradian R. 2014. Social Equity matters in Payments for Ecosystem Services. *BioScience* 64:1027–1036.

[5] Muradian R, Corbera E, Pascual U, Kosoy N, May PH. 2010. Reconciling theory and practice: An alternative conceptual framework for understanding payments for environmental services. *Ecological Economics* 69:1202–1208.

[6] Kosoy N, Corbera E. 2010. Payments for ecosystem services as commodity fetishism. *Ecological Economics* 69:1228–1236.

[7] Grieg-Gran M, Porras I, Wunder S. 2005. How can market mechanisms for forest environmental services help the poor? Preliminary lessons from Latin America. *World Development 33*(9):1511–1527.

[8] Corbera E, Kosoy N, Tuna MM. 2007. Equity implications of marketing ecosystem services in protected areas and rural communities: Case studies from Meso-America. *Global Environmental Change* 17:365–380.

[9] Sullivan S. 2009. Green capitalism and the cultural poverty of constructing nature as service-provider. *Radical Anthropology* 3:18–27.

[10] Pascual U, Muradian R, Rodriguez LC, Duraippah A. 2010. Exploriing the links between equity and efficiency in payments for environmental services: A conceptual approach. *Ecological Economics* 69:1237–1244.

[11] Clements T, John A, Nielsen K, An D, Tan S, Milner-Gulland EJ. 2010. Payments for biodiversity conservation in the context of weak institutions: Comparison of three programs from Cambodia. *Ecological Economics* 69(6):1283–1291.

[12] Meinzen-Dick R, Kovarik C, Quisumbing AR. 2014. Gender and Sustainability. *Annual Review of Environment and Resources* 39:29–55.

[13] Cruz-Torres ML, McElwee P. 2012. *Gender and Sustainability: Lessons from Asia and Latin America*. Tucson: The University of Arizona Press.

[14] Agarwal B. 2001. Participatory exclusions, community forestry and gender: An analysis for South Asia and a conceptual framework. *World Development* 29(10):1623–1648.

[15] Carney J. 1993. Converting the wetlands, engendering the environment: The intersection of gender with agrarian change in the Gambia. *Economic Geography* 69(4):329–348.

[16] Schroeder RA. 1997. "Re-claiming" land in the Gambia: Gendered property rights and environmental intervention. *Annals of the Association of American Geographers* 87(3):487–508.

[17] Van Noordwijk M, Leimona B. 2010. Principles for fairness and efficiency in enhancing environmental services in asia: payments, compensation, or co-investment? *Ecology and Society* 15(4):17.

[18] McDermott M, Mahanty S, Schreckenberg K. 2013. Examining equity: A multi-dimensional framework for assessing equity in payments for ecosystem services. *Environmental Science & Policy* 33:416–427.

[19] Leimona B, Joshi L. 2009. Can rewards for environmental services benefit the poor? Lessons from Asia. *International Journal of the Commons* 3(1):82–107.

[20] Purnaningsih P, Purnomo AM. undated. Gender Issues in Rewards of Environmental Services in Buluh Kapur, Sumberjaya, Lampung.

[21] Gregory R, Failing L, Harstone M, Long G, McDaniels T, Ohlson D. 2012. *Structured decision making: A practical guide to environmental management choices*. Hoboken, NJ: Wiley-Blackwell

[22] Kenney L, Arvai J, Vardhan M, Catcutan D. 2014. Bringing Stakeholder Values into Climate Risk Management Programs: Decision Aiding for REDD in Viet Nam. *Society and Natural Resources* 28(3):261–279.

[23] Larson AM, Ribot JC. 2007. The poverty of forestry policy: double standards on an uneven playing field. *Sustainability Science* 2(2):189–204.

[24] Wunder S. 2005. Payments for environmental services: some nuts and bolts. CIFOR Occasional Paper 42. Bogor, Indonesia: Center for International Forestry Research.

[25] Boyd E. 2002. The Noel Kempff Project in Bolivia: Gender, power, and decision-making in climate mitigation. *Gender and Development* 10(2):70–77.