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Adapting small-scale CDM sinks projects to low-income communities

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Summary

Given the recent decision to include small-scale sinks projects implemented by low-income communities in the Clean Development Mechanism of the Kyoto Protocol, this paper explores some of the basic conditions that such projects will have to meet if they are to be successfully put in practice. Drawing on the literature on livelihoods and democratic decentralization in forestry, the paper explores how to adapt forest carbon projects to the realities encountered in the local context, and highlights the importance of capitalizing on synergies with other rural development strategies, ensuring stakeholder participation by working with accountable, representative local organizations, and creating flexible and adaptive project designs.

1 Introduction

One of the most serious challenges facing countries today is reconciling the needs to reduce poverty and to protect natural resources, while at the same time meeting an increased market demand for forest products (which has risen dramatically in developing countries in the past 30-40 years). These three apparently conflicting needs are precisely those meant to be addressed by small scale sink projects under the Clean Development Mechanism (CDM) of the Kyoto Protocol - that is, improvement of livelihood conditions in developing countries through a market mechanism aimed at mitigating climate change through sustainable use of natural resources. Yet review of the experience so far shows that most of the pilot sink projects have fallen short of meeting this challenge (Brown *et al*., 2004; May *et al*., 2004; Tschakert, 2004). The weaknesses in every case, like in so many development projects in the last decades, point to a lack of attention to social issues and local reality as a crucial factor.

Various observers have already noted that economic and technical matters have dominated the discussion on sinks in the CDM, with less attention being paid to issues of equity and sustainable development (Boyd, 2002; Boyd 2003; Brown and Corbera, 2003). Yet even the most basic understanding of the nature of sinks projects in developing countries reveals that these issues are of utmost importance, since projects take place in rural areas where the majority of poor people are concentrated, where conflicts over land and resources are not uncommon, and where livelihood conditions are complex, fragile and changing. Throughout the Kyoto Protocol negotiations, many environmental groups resisted the inclusion of sinks in the CDM on the grounds that they would be used by large-scale industries to establish vast mono-species plantations, possibly displacing and further marginalizing local and indigenous populations. This of course would go against any notion of sustainable development and the basic principles of any environmental treaty, and should clearly be opposed. Now the inclusion of small-scale projects in the final decision on LULUCF under Article 12 (Decision 19/CP.9) is meant to assure that low-income communities also benefit from projects under the CDM.

Several studies have pointed to options (such as multi-species community-based reforestation or agroforestry) that are more likely to deliver benefits to those marginal populations, that are true to the goals of the UNFCCC, and that can also be attractive to emerging socially and environmentally responsible markets, given the right design principles (Smith and Scherr, 2003). Although these types of projects often imply higher transaction costs and a higher risk associated with working with multiple stakeholders, we here suggest that by integrating them with other rural development projects and by working with local, representative community-based organizations, it is possible to make sinks projects work for both people and the climate.

We thus argue that it pays to address social issues from the moment of project conception and design and ensure the participation of local communities as project developers and managers –particularly in the case of small-scale projects. This is so not only because it is within the

mandate of the CDM to contribute to sustainable development (which we here take to include improved equity, as per the definition of the World Commission on Environment and Development (1987)), but because given the long term nature of sinks, and the complex conditions in most rural areas where low-income communities reside, projects that don't involve the local stakeholders and compromise their access to much needed resources, stand to fail. A cursory look at existing sinks pilot projects shows that unless social issues are addressed at the beginning, as part of the project design, and further followed throughout implementation, they are likely to remain an appendix and fail on most counts of contributing to sustainable development –if not fail in the long term altogether *(for a review of existing carbon sinks and sequestration projects, see May et al (2004)).*

We also argue that in involving people, one need not start from scratch, since there is a long tradition of communal organization for development in many rural communities. There are thus plenty of opportunities for synergies with other development projects and agencies. This is particularly necessary as the high transaction cost of sink projects and the anticipated low price of emission reduction credits in the market (see Locatelli and Pedroni, 2004) means that they are unlikely to work in isolation, as a new export commodity market. Yet they have the potential to combine efficiently with other productive rural development activities.

This implies that for starters, only certain communities will be able to develop carbon projects, and identifying them will require contact with local organizations and national institutions involved in development projects. Already rules governing sinks projects under the CDM will tend to leave out the poorest of the poor insofar as they lack land tenure rights (with the possible exception of some indigenous communities with nationally recognized and sanctioned customary ownership). Moreover, the definitions of afforestation and deforestation also exclude those marginal populations that live in recently deforested areas (since 1990). We therefore concentrate in this paper on low-income communities most likely to be engaged in small-scale CDM sink projects, that is, low-income communities with some form of secure land titles and some form of communal organization.

In what follows, we review the conditions that project stakeholders will have to consider and attend to in implementing small-scale projects. We first characterize the livelihood strategies and circumstances common to many low-income rural communities in developing countries and highlight some lessons learned from recent attempts at democratic decentralization in forestry. We then outline necessary conditions for adapting small-scale sinks projects to meet the needs of these communities and discuss ways forward.

2. Characterization of rural low-income communities in developing countries

Of the 1.2 billion poorest people in the world (those living on less than one dollar per day), 75% live in rural areas (IFAD, 2001). The areas they occupy are usually the most marginal for agricultural development, far from transportation networks or urban centres. This is the result of a historical process whereby commercial agriculture and development pushes the most disadvantaged continually towards the margins of "the agricultural frontier" –often forested areas and uneven terrains. Sustained low-input agricultural production in these conditions is largely a self-defeating enterprise.

Such marginal conditions oblige people to hyper-exploit their assets to the maximum. This is so both in terms of labour force and natural resources. In areas that allow it, an individual will commonly work for wages, till a small agricultural plot for food, produce export crops under contract to a foreign corporation, and undertake non-agricultural activities such as fishing, hunting, or repairing machinery for extra income as a means of living. The whole family, including children, will commonly be similarly involved in as wide a variety of activities as possible. Their subsistence depends on the combination of all of these activities, since not a

single one –neither agricultural wages, nor agricultural production (whether for subsistence, the market, or under contract) - will be enough to make ends meet.

Most importantly, none of these sources of income can be fully relied upon: agricultural workers in most developing countries have no labour rights -nor resources to pursue them when they do- and particularly not seasonal workers; agricultural production is subject to unpredictable climate conditions and erratic markets over which peasant farmers have no control; contracts for export crops with foreign corporations often don't materialize, and when they do, the corporations have the final say on the price paid, which will depend on the quality of the goods and on competition from other such small-scale producers, as well as on the fluctuating market demand at that time.

The diversity of income-generating activities is thus designed to span various time scales and cover various types of needs. Produce from the garden is meant to cover the everyday basic need for food; wages, which are typically seasonal, provide a steady income every week or fifteen days for a fixed period of time; producing under contract will bring a lump sum twice or three times at year (at most); and selling a chicken, a cow, or a tree is counted on as an insurance in cases of emergency or for important social expenses (such as burials, weddings and other such social obligations, and paying off debts).

This "diversified portfolio" of income-generating activities on which the rural poor depend, relies on continued access to resources such as land, water and forests, as well as other forms of human and social assets. These assets have been described essentially as five forms of capital: natural (land, water and natural resources); physical (infrastructure and tools); social (membership in groups and institutions that assist in securing access to goods and means of living); human (knowledge and skills); and financial (access to credit and savings) (Ellis, 2000).

Given the precariousness of livelihood conditions, natural capital is usually the only thing close to a safety net available to the rural poor, and together with social and human capital, it is vital to recover from unexpected losses and shocks. A project that compromises access to these assets is bound eventually to have problems. Moreover, although always in need of options to increase their lot, the rural poor are also often stretched to the limit. They unfortunately also tend to have more experience with failed or unfinished projects and broken promises than with successful ones. Chances are that they will only put the extra effort needed to develop and maintain a project if it clearly implies a return on their investment. Consequently, any project's life will depend on its ability to assure continued access to these various forms of capital, and its success will be measured according to its capacity to increase them.

Needless to say, this reality implies complex and delicate arrangements. For decades, development projects by international agencies in rural areas have all had to face this reality. Although development projects, even in the best circumstances, sometimes simply don't work, even a cursory review of cases shows that most projects failed for similar reasons: the rural poor are often taken to be "clients" or receptors of other peoples' development strategies; access to markets is not adequately assessed; there is no understanding of what are the critical resources at a certain point in time; and knowledge of how access to those resources is distributed is also lacking. And yet, all literature dealing with development will stress the need to pay attention to these things.

3. Democratic decentralization in forestry

Increasingly recognized as a major trend in natural resource management, decentralization is a useful starting point from which to consider the specific conditions required for

implementing carbon forests by low-income rural communities. With over 60 developing countries currently involved in decentralizing processes with varying degrees of success (Kaimowitz, 2004), the question is no longer whether it should happen, but how to make it work in practice.

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In Bolivia for example, decentralization processes have contributed to improve social equity in access to forest resource, reinforced sustainable practices of forestry management, and strengthened indigenous peoples property rights. Still, many key decisions regarding forest resource allocation are made at the central level, and municipalities often lack institutional capacity to address allocation of property rights in public forest areas, tax collection, and to sanction forest crime (Pacheco, 2004). Other cases in Latin America, Asia and Africa reviewed by Larson (2004) show that absence of local actor empowerment and the failure to recognize the multifaceted and integrated nature of forestry –not just economic but also ecological and social- remain as important causes hindering processes of effective democratic decentralization. Conceived as a top-down process and as a means to cut costs, it often results in highly contradictory policies on the ground that, lead to social conflict and actually increase biodiversity loss (Larson 2004). These and other such examples make clear that to be effective, decentralization has to include not only transfer of decision making responsibility from central government to local authorities, but also the transfer of the necessary resources and benefits too. This can only come about through downwardly accountable and responsive local authorities (Ribot, 2004).

The decentralization story tells us that successful forestry policies and projects are dependent on effective participation, accountability, and empowerment of local actors, along with building synergies between new and old institutions. This is hardly a new lesson drawn solely from the experience with decentralization processes, but has been a recurrent theme in all successful community forestry and development strategies.

3. Adapting carbon projects to the reality of low-income communities

This section turns to discuss how small-scale forest projects can contribute to rural sustainable development. We believe that as long as there is a commitment to do so and projects adapt to the reality of low-income communities it is possible. To do so, we here stress the importance of stakeholder participation and buy-in, flexible and context-specific project designs; and building on synergies with compatible development strategies. This can all be done by working with representative local organizations.

Stakeholder participation, decentralization and local representative organizations

A characteristic of successful development and natural resource management projects has been the active participation of local stakeholders in decision-making (Murray and Bannister, 2004). In contrast, forest carbon projects have tended to fall short of their development objectives by failing to include local stakeholders in decision making and to ensure their buy-in early on in the project design (Brown, *et al*., 2004; May *et al*., 2004). Not unlike decentralization, forest carbon projects have been largely promoted by international donor agencies and initiated by central governments with the stated goal of including local people and improving efficiency in management.

Empirical case studies of pilot projects across Latin America have helped to identify that problems exist between the preservationist mandate of many international NGOs involved in carbon projects and poorly organized local counterparts. This is evident in the lack of local participation in the initial orientation of pilot project objectives, which have tended to focus on carbon and biodiversity conservation priorities (in terms of resources and activities) over development (Boyd, 2003). Furthermore, those international and national NGOs commonly associated with carbon projects tend to favour technical solutions to development problems,

while a greater need exists for the engagement of social or development-oriented NGOs. Pilot projects have illustrated that project developers will have to explicitly address the poor uptake of development assistance and narrow focus of many interventions. The historical context and the heterogeneity at the local level and the underlying institutional dynamics or relationships between different stakeholders are also important to consider. To bridge this gap will require, among other, addressing the roles of stakeholders, project ownership, and explicitly addressing differences in objectives, needs and priorities.

These are problems familiar to critics of conventional development. Unfortunately, it seems resources for integrated projects will always be limited, and the only way of ensuring insofar as possible that important social need is addressed and reach people is the full participation of representative local organizations in decision making. To avoid conflict of interest and the likelihood of increasing transaction costs, it is important to clearly assign rights, responsibilities and ownership (through for example identifying key people with a stake in the project, or establishing intermediary committees) and to include provisions and mechanisms for conflict resolution to address problems as they appear. NGOs or intermediary organizations have a pivotal role to ensure that the rights and needs of their constituents (local communities) are addressed. This can be done through informational and evaluative meetings and public hearings, of for example, establishing an advisory committee, and making information accessible to local communities through, for example, collaboration with primary, secondary and tertiary level educational institutions.

In any case, participation and access to decision making will be greatly enhanced by working with existing community-based organizations that are representative and accountable. Because it would be impossible to have sustained contact with tens or possibly hundreds of individual peasant farmers living in isolated areas, base-organizations, such as cooperatives or producer organizations, are fundamental. Besides, stakeholder participation offers clear advantages. Local people with a stake in the project are likely to ensure against encroachment by outsiders, monitor against pests and fire, illegal harvest and social unrest. In fact, when insuring against fires, pests and illegal logging or encroachment, insurance companies consider good relations and involvement of local communities to be a critical factor (Arm and Mundy, 2000).This should be a major concern for sink projects that depend on the long-term maintenance of carbon stocks for the sale of credits.

In summary, to-date pilot carbon sinks projects have tended to be *ad hoc* initiatives that are top down in design. Project evaluations have illustrated the importance of: local stakeholder engagement at all levels and stages of decision making; local access to information; and local ownership of different project components. The ability of schemes to be inclusive of local community groups and to engage in deliberative processes may be time consuming and costly, however could be more effective if built on compatible development strategies.

Building on compatible development and land use strategies

Although rural development will always be a challenge, there are several positive trends and opportunities for small-scale sink projects to develop in sync with other productive activities. In the case of small-scale commercial forestry for example, studies indicate that there are important prospects opening up given current changes in the forestry sector, including increased and more diversified demand of forest products (such as shorter-cycle wood and wood by-products), more sophisticated supply chains, greater availability of processing equipment and high-productivity forest harvests (Scherr *et al*., 2004). The increasing demand for small-diameter wood could be met by small producers, since in many cases it is financially more attractive and easier for them to supply. In addition, modern saw-mills allow the utilization of a much larger diversity of tree species, and new processing technologies permit the commercial use of various diameter and low-quality woods for higher-value

products. Millions of smallholder farmers are already engaged in tree planting and forest management to compensate for the loss of access to and degradation of natural forests.

Moreover, domestic demand is growing at a much faster rate than markets for export. In developing countries consumption of industrial roundwood production (solid wood and panels) grew by 3.2% per year between 1961 and 1997, compared to only 0.6% in developed countries. This rise is expected to continue and expand dramatically in the next decades as a result of income and population growth. Demand for non-industrial products such as fuelwood, construction material and rough furniture is also projected to be particularly high in countries in early stages of economic growth. This demand could in many cases be met by small producers with knowledge of the local market and flexibility to supply it. Feeding this trend is a gradual positive change in politics, including greater democratization and transparency, increasingly recognized rights of access and legitimacy claims of local people, and a more active role of community organizations and international environment and development organizations.

There are also clearly documented cases of success in agroforestry systems. A study of 56 agroforestry practices in eight countries by Current et al. (1995) found that a majority was profitable, with almost half showing financial returns at least 25% higher than alternative farming practices. Likewise, agroforests were found to be among the most profitable land uses in Brazil (Vosti *et al*., 2001), Cameroon (Gockowski *et al*., 2001) and Indonesia (Tomich *et al*., 2002). In Uganda, 58% of all tree cover is on agricultural lands (Smith and Scherr 2002: 8). Scholars have thus noted the unexploited benefits of agroforestry systems for carbon sinks suggesting that such systems can make significant contributions to greenhouse gas emissions reductions (Nair and Nair, 2002, 2003; Montagnini and Nair, 2004).[i]

Projects that take in a broader scale, integrating development or other productive components in their design, stand a much better chance of succeeding. This was one of the key lessons drawn from the experience of *Fondo Bioclimatico* in Mexico.[ii] The project started with the clear purpose of incorporating carbon as a development strategy, but as the project grew the objective moved away from development to a much more limited market aim. In this shift from sustainable development to market relationships and streamlined services, Nelson and de Jong (2003) argue that "the carbon market could become isolated from its original intent to be an integrated component of sustainable production and conservation." They conclude that "carbon projects that do not make a concerted effort to integrate their systems into broader community development plans will run the risk of creating new problems while trying to solve the very narrow problem of global gaseous carbon."[1] (Nelson and de Jong, 2003)

Flexible and adaptive project designs

As stated earlier, sinks projects are unlikely to work in isolation, given the expected low price for temporary carbon credits and the high transaction cost of inscribing projects (Locatelli and Pedroni, 2004). In the case of small-scale projects developed or implemented by low-income communities, this is even more unlikely since the resources necessary to establish a "carbon plantation" –from land to labour- are scarce, and carbon sequestration is a long term process. In Costa Rica for example, many smallholder peasant farmers complained that the land on which they had established a plantation for the sale of carbon offsets had itself been 'sequestered,' in the sense that they could not use it or derive an income from it at all until the first timber harvest, some years down the line. Many land poor farmers had dropped out of the program -in spite of the penalties- to regain access to their land for other uses that would provide returns in the shorter term (Gutierrez, forthcoming). Assuring continued access to existing natural capital, or effectively compensating for its loss, is crucial to the long-term

[1] In this case, they have tried to overcome this by contacting local organization where farmers are engaged in sustainable projects.

sustainability of the project.

It is therefore necessary to design flexible projects to adapt to changing local needs. This flexibility is needed both in terms of carbon accounting and project design. In terms of carbon accounting, it will be important to apply methods that allow for flexibility in local land use decisions and still meet contracted project responsibilities. Aggregate tree cover and levels of carbon sequestration may remain stable even if there are changes in land use (see Smith and Scherr 2002: 15). In addition, projects could, for example, include "buffer" carbon budgets for replacing carbon stocks lost due to natural or other reasons.

In terms of project design, carbon projects are in fact exceptionally well suited to combine with other productive activities. Other than in terms of the speed at which different trees absorb carbon, carbon offsets are "species blind," and can work with a [almost infinite] variety of species. Combining species has added advantages well suited to the livelihood strategies of rural dwellers, allowing for the sale of products at different time and income scales, for example selling part of the wood at small-diameter in lower-value markets for short-term gains, and reserving an area for potentially higher-value wood in some years time. It also enables responding to changing market conditions given more diverse set of products with more outputs of short rotation. Trees themselves can be multipurpose, such as fruit trees that supply fuelwood and stakes, serve as small-diameter wood, and provide food and produce for sale in local markets. In addition, the patchwork pattern/land mosaic also reduces disease incidence (see Mc Neely and Scherr, 2003). In terms of the project itself, the continued involvement of the farmer might even lower monitoring costs. Carbon sequestration itself is little time consuming, freeing labor for other uses. Thus small-scale farmer peasants can produce tree products for less cost per unit than large scale industries when land use value is low, and employ available hand labour in periods of temporary unemployment and low activity.

Perhaps the most successful agroforestry project in terms of participation and longevity is in place in Haiti. For the past twenty years more than 30,000 peasant households (over a third of the entire population of the country) have engaged in the planting of wood trees as a domesticated, income-generating crop in their holdings. Among the factors responsible for this success, Murray and Bannister (2004) point to the adaptation of the project to pre-existing Haitian land-tenure, tree tenure and market systems; the "elevation of micro-economic over macro-ecological themes"; and "a project management policy that *encouraged farmer induced deviations* from project assumptions in matters of tree deployment and harvesting schedules." (Murray and Bannister 2004: 384) The latter meant guaranteeing peasants of their tree tenure and harvest rights, and although this seems counter to forest carbon projects given the requirements of carbon storage accounting, it is all too often a crucial factor in a projects' success and therefore a challenge for project design that is worth addressing if the benefits of the projects are to be sustained.

5. Conclusion

Small scale afforestation and reforestation projects under the CDM can provide a much needed contribution to livelihood strategies among the rural poor. Because carbon sequestration is something all trees species will naturally do at a slower or faster rate, it can be efficiently adapted to various and changing local needs. The rules are compatible with multi-species plantations and plantations of non-wood products. Thus projects need not impinge on or cancel other productive land uses. The options range from agro-forestry and community forest plantations, to forest gardens and assisted regeneration. Moreover, depending on the project design, they may imply a steady source of supplementary income in a context where these are extremely rare, and thus allow for long term thinking and planning. Providing that, decision making processes embrace the experience of decentralization and encourage participation of local partners at multiple stages of the project cycle.

Yet because of their long term nature, it is essential that small-scale A&R projects are adjusted to local realities. Projects that restrict access to resources without providing for adequate backup are likely to be met with resistance and ultimately fail. Local producers will focus more on the long-term management of resources that they depend on, and it is the interest of the climate community to ensure that sinks projects are developed for the long term. Understanding these links and complementing needs in practice is the challenge, but we believe that these might be overcome with appropriate institutional arrangements and will to make it happen..

In this regard, the history of certification of forest products provides a valuable lesson. Although the Forest Stewardship Council (FSC) was originally developed with precise explicit social standards, only 50 community-owned forests have been certified worldwide - that is less than 10% of entities certified by FSC, and less than one percent of the world's total certified area. The reasons for this lie in the very high economies of scale in certification processes, lack of access to certified chain of custody processes, dependence on external professional technicians, the need to identify special buyers, and the limited price premium for certified wood. As Scherr, Smith and Kaimowitz note, "With many supporters of certification promoting the establishment of certified wood as a global market standard (..), certification is inadvertently serving to erect an additional market barrier for low-income producers." (as if there weren't already enough market barriers for low-income producers). To address this imbalance, FSC had to develop Rules for Small and Low-intensity Managed Forests (SLIMFs), which have recently been approved by the Forest Stewardship Council General Assembly (FSC, 2003). Other certification systems for community forestry are also now being developed (see Scherr et al. 97).

In contrast, rules for small-scale afforestation and reforestation implemented specifically by low-income communities are already contemplated in the Kyoto Protocol mechanism. Providing for simplified modalities and procedures to reduce transaction costs, although necessary, will not alone ensure that projects are sustainable nor that they will deliver the benefits the are meant to deliver. But careful attention to local realities and needs, within project designs that include participation and conflict resolution mechanisms, can make the difference and go a long way in ensuring the sustainable life of projects and the credibility of the Protocol as a tool for promoting real sustainable development.

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[i] It should be noted that although many scientists and extension workers consider agroforestry systems as ecologically sound land-use systems, (Buck et al., 1998; Nair, 2001), other scholars have pointed out that farmers in tropical and subtropical regions rarely adopt these

systems (Carter, J. 1995; Franzel, S. 1999). The adoption of, for example, alley cropping techniques developed on research stations over the last couple of decades is evidently hindered by agroecological, economic as well as management problems. Promising results of on-station research very often could not be confirmed in practice on farmers' fields, due to the high diversity of agronomic and socioeconomic conditions which considerably differs from the relatively homogeneous production environment of research stations, and, partly, due to inadequate research approaches. This again, points to the importance of realistic appraisal of the specific conditions on the ground.

[ii] Nelson and de Jong (2003) examine the Fondo Bioclimatico program, located in the state of Chiapas, in southern Mexico. It was originally set up by a local producers' coffee cooperative (*Union de Credito Pajal Ya Kac-tic)* and four scientists from the *Colegio de la Frontera Sur* (ECOSUR), a federal research institute based in Chiapas. The farmers organized themselves and formed the *Scolel Té* project, which was then retrenched in 1998 when the [43] *Pajal* cooperative members went bankrupt and a new umbrella program called *Fondo Bioclimatico* was formed. Reportedly, local payments were pressured by the highly urgent needs of poor farmers living in the zone. The total amount of estimated carbon contracted has varied from 14,025.2t/C in 1998 to 2,657.5t/C in 2000. Between 1997 and 2001 the total carbon contracted was estimated at 30,585.6 t/C.

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