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Afforestation and reforestation projects in South and South-East Asia under the Clean Development Mechanism: Trends and development opportunities

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ABSTRACT

This paper contributes to identification of key trends, opportunities and constraints for development of afforestation/reforestation projects (AR) under the Clean Development Mechanism (CDM). It reports on analysis of survey results particularly addressing CDM-AR projects in South and South-East Asia (SSEA), and on knowledge obtained from both (i) experts in SSEA countries and (ii) developers, investors and consultants in the Annex I countries. Despite a wide variety of opinions, respondents from both groups expressed a number of similarities in their vision. For example, availability of land suitable for tree planting in host countries, and the development of community-based forestry were considered by experts as major strengths of CDM-AR. There was a consensus between the two groups of experts regarding certification and developing standards for CDM-AR. Community participation, with a focus on local livelihoods and biodiversity conservation, were identified as the basic criteria for success. The similarities and differences revealed in the attitudes of experts make it possible to identify and explain areas of potential conflicts between the CDM-AR developers/investors and local communities, and therefore, to assist in managing conflicts that could arise, as well as to enable better targeting of CDM-AR within land use changes in host countries in order to provide more effectively the co-benefits to end-users, both at a local level and internationally.

Introduction

Background

Since the Sixth Conference of the Parties (COP 6) in 2001, the Annex I countries have been able to meet certain parts of their emissions reduction targets through Land Use, Land Use Change and Forestry (LULUCF) sinks. However, they can only use up to 1% of their required Certified Emissions Reductions (CERs) from Clean Development Mechanism (CDM). This ceiling discourages the Annex I countries from engaging in CDM-AR. Also, while it is permissible to trade CERs from CDM within the EU Emission Trading Scheme (ETS), forestry CERs are excluded from ETS. During the first commitment period, forestry projects under CDM are restricted to afforestation and reforestation (AR).[1] The CDM context excludes any forest conservation, rehabilitation, revegetation, enrichment planting, and natural regeneration that did not involve the conversion of non-forest land to forest in the developing countries (UNFCCC, 2007a).

Forests in developing countries are a means of carbon sink and storage, a pool of genetic resources and a source of wellbeing for local communities. The world's forests take up 2.4 billion tonnes of carbon, which is roughly a third of the carbon dioxide emitted from burning fossil fuels each year. But deforestation in the tropics sends about half that amount (1.1 billion tonnes of carbon) each year back into the atmosphere (Kurz, 2011). Much attention is therefore paid to combating of deforestation, with the REDD+ mechanism drawing particular attention to the activities related to conservation and enhancement of terrestrial carbon stocks (UNFCCC, 2007b). Moreover, REDD+ simultaneously addresses climate change and rural poverty. It seeks to promote biodiversity conservation and sustain forest ecosystem services (Parker et al., 2009; Rayner et al., 2010).[2]

However, the rapid expansion of tree plantation activity on land in line with CDM/REDD+ could have a number of negative impacts

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[1] Afforestation is defined as the direct human-induced conversion to forest of land that has not been forested for a period of at least 50 years. Reforestation is a similar term, but refers to land that was once forested, but did not contain forest on 31 December 1989.

[2] There are also arguments in support of the inclusion of net negative changes in carbon stocks across all lands and land uses (including agriculture) expressed as reducing emissions from all land uses (REALU) (van Noordwijk et al., 2009).

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on community rights, access and local livelihoods (Karumbidza and Menne, 2009). It could also endanger the provision of ecosystem services other than climate change mitigation (CCM), e.g. of natural habitats, biodiversity and non-timber forest products (Miles and Kapos, 2008; Pistorius et al., 2010). Thus, demonstration that CDM-AR activities will contribute to sustainable development and biodiversity conservation in a host country is often a challenge.

Difficulties of CDM forestry projects also include assurance of project eligibility; complicated financial rules, property rights and legal arrangements; valuation of the baseline emissions, and of CER establishment and certification (Nijnik, 2010). CDM-AR schemes require accurate measurement of carbon and of the costs; reliable monitoring, verification and reporting of carbon sinks; addressing of additionality and durability (permanence) of forestry projects, and alleviation of carbon leakages. The AR project proponent must prove and have verified that the emissions reductions are real, measurable and additional to what would have occurred in the absence of the project (IISD, 2010).[3] CDM-AR project cycle compliances are much more complex than those of a non-sink CDM project. Therefore, Annex I countries find it difficult to register and implement CDM-AR projects, and primarily due to asymmetric information and high transaction costs, the forestry projects under CDM are lagging behind (Chomitz, 2000; Thomas et al., 2010).

In mid-2009, the number of registered CDM projects was 1665 (with 181 in South and South-East Asia), of which only 4 were CDM-AR projects (with one in South and South-East Asia) and two more CDM-AR projects awaiting registration (UNEP, 2010). In May 2011, there were 3072 registered CDM projects. Growth in the mechanism remains steady – projects entering validation in the first quarter of 2011 increased by 17% in comparison with the same period in 2010. The number of CDM-AR projects has risen to 22. However, the share of forestry projects in total expected CERs remains less than 1% of total (UNFCCC, 2011).

The most important benefit from adhering to the CDM criteria is minimization of the risks of project failures, and that only projects accepted by the communities in host countries can be undertaken. However, consider for example India. It is the second largest producer of CDM carbon credits in the world, whereas its expanding industries are heavy GHG emitters. In the near future, their emissions would likely annihilate any genuine gains made through CDM activities or even through the six million hectares of carbon 'forests' (eucalyptus plantations) that the Indian government plans to plant on community land, without paying attention to other ecosystem services and to the trade-offs foreseen, in particular, between carbon role of plantations and their negative influence on biodiversity or on soils (Karumbidza and Menne, 2009).

CDM-AR projects involve large areas of land, gradually decreasing land availability in host countries. This circumstance raises ethical, legal and financial issues associated with available and eligible land, as well as with investment in CDM-AR (Manguiat et al., 2005; Khatun et al., 2010). The acceleration of global economy, imbalances between the availability and demand for land, tenure rights and inter-sectoral competition, and various resource based conflicts contribute to the scarcity of land, whereas population growth and climate change threaten to worsen the effects of its environmental degradation (e.g. desertification and pollution), putting the livelihoods in developing countries at an even more risk. Therefore, it is important to identify projects that advance sustainable development benefits and generate these benefits for local people, in addition to combating climate change (von Braun and Meinzen-Dick, 2009).

Furthermore, the challenges of CDM-AR include enabling land use, environmental and climate policies, and economic and political conditions, as well as institutional capacities in host countries. Implementation of CDM and REDD+ within the framework of sustainable development requires broad governance reforms and wider institutional developments at various levels.

Research scope, objectives and rationale

This research was designed to examine strengths, weaknesses, opportunities and threats (SWOT) associated with developing CDM-AR projects as these are perceived by experts from both, Annex I and host countries. The purpose was also to find similarities and differences in the opinions of experts from Annex I and host countries on the key issues and trends related to the tree-planting on land under CDM. An improved understanding of similarities and differences in the attitudes of experts from the two groups seek to provide insights into the areas of potential consensus and/or conflicts between the CDM-AR developers/investors and local communities. Research findings could therefore assist in preventing and/or resolving the conflicts that could arise, and in better targeting of CDM-AR projects, in order for them to provide multiple co-benefits to end-users more effectively, both at a local level and internationally.

The current paper takes a representative sample of South and South-East Asian (SSEA) countries, including Bangladesh, India, Indonesia, Malaysia, Nepal, Philippines, Thailand and Vietnam. These countries have been experiencing degradation of forest land due to fires, transfer of forest for other land uses, encroachment, grazing, pests and diseases (FAO, 2010). Land tenure is dominated by state control. Local communities manage about 12% of public forests either through joint forest management agreements, longer-term community forestry agreements, or individual/household leases, while 13% are granted to private companies, mainly through logging concessions (FAO, 2006). Unproductive land is now common and can be brought into CDM-AR (ADB, 2003).

There is huge potential for CCM through land use change projects (Niles et al., 2002) and by slowing deforestation and forest degradation under REDD+ (Rayner et al., 2010). However, the challenges of CDM-AR should be not be underestimated. In Indonesia, for example, by clearing land for oil palm plantations, and setting fires that destroy peat beds, far more CO_2 is released than CDM-AR could alleviate (Karumbidza and Menne, 2009).

The paper is built upon the analysis of knowledge on CDM development derived from the literature, analysis of documents produced by international organizations, and our communications with stakeholders. Two web based surveys presented in this paper were conducted using questionnaires for the SSEA and Annex I country experts. Then, we analyse the primary data from our surveys, linking the results with the literature findings. Individual country level analysis is beyond the scope of this research; however, through the vision of experts from the two groups, and in addition to SWOT analysis, this paper suggests on some of the criteria needed to evaluate viability for successful CDM-AR projects in SSEA.

Theory and methodology

Theoretical foundation

Literature on CDM-AR opportunities and challenges in the countries considered in this paper are relatively scarce. Several studies

[3] In order to account for non-permanence of carbon storage, terrestrial carbon credits are considered to expire after a pre-defined period and the buyer needs to replace them. Temporary CERs (tCERs) and long-term CERs (lCERs) emission offsets have been established (UNFCCC, 2007a).