

Saving Global Carbon to Benefit Local Communities in the Himalaya

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Forests, soil, oceans, and the atmosphere store carbon. Forests act as carbon sources or sinks at different times. Carbon sources release more carbon than they absorb, while sinks soak up more carbon than they emit. The concept of 'carbon sinks' is based on the natural ability of trees, plants, and soil to soak up and temporarily store carbon dioxide.

The Third UN Conference of Parties (COP 3) on Climate Change held in Japan in 1997 was a landmark event in successfully negotiating the Kyoto Protocol (KP). The Protocol sets a limit on emissions of greenhouse gases and defined reduction objectives for industrialised countries, also known as 'Annex 1 countries'. The KP has set binding targets for industrialised countries to reduce their emissions by an average of 5% below 1990 levels in the period 2008-2012, known as the 'first commitment period'. The Kyoto Protocol came into force on February 16, 2005, after Russia's critical decision to ratify it.

The Protocol has designed three market-based 'flexible mechanisms' to decrease the cost of meeting these reduction commitments: emissions trading (ET), joint implementation (JI), and the clean development mechanism (CDM). While different in operation, the three mechanisms are based on the same principle: that industrialised countries are allowed to reduce emissions wherever in the world those reductions are cheapest, and then count those reductions towards their national target. JI and CDM are called 'project-based' mechanisms because they fund actual projects. JI generally funds projects in Eastern Europe and the former Soviet Union, while CDM projects can only happen in developing countries which do not have an emissions reduction target under the Kyoto Protocol.

Although CDM provides flexibility for developed countries to gain credits from financing emissions reduction projects in countries without emission targets (Article 12), in the context of forests the carbon sink projects under CDM are currently restricted to afforestation and reforestation activities (Marrakech Accord). Community forests are not presently included under the Kyoto Protocol.

How is the carbon market emerging?

Of the three flexible mechanisms of emissions reduction, the provision for carbon trading through CDM and JI mechanisms has led to the development of a global carbon market. The rationale behind emissions trading is to ensure that emissions reductions take place in the most cost-effective manner possible to combat greenhouse gases and therefore prevent climate change. The market created by emissions trading is known as the 'carbon market' as all greenhouse gases are traded at the equivalent of the carbon dioxide tonne (tCO_{2e}). The carbon market functions as a stock market where the price of carbon emission reduction units (CRUs) largely depends on demand and supply. Market intermediaries quote prices for carbon reduction units offered or bid for. The carbon market is emerging as a key instrument in the drive to reduce greenhouse gas emissions, which have the same effect wherever they are emitted.

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A recent World Bank study shows a steady growth in the carbon market globally. In 2004, a total of 107 million metric tonnes of carbon dioxide equivalents (tCO_{2e}) were exchanged through projects, a 38% increase compared to the volumes traded in 2003 (at 78 million tCO_{2e}). The report mentions that the total amount exchanged on all the allowance markets from January 2004 to March 2005 was about 56 million tCO_{2e}. This is mostly driven by the ratification of the Kyoto Protocol and the start of the EU-Emission Trading Scheme (EU-ETS). Volumes traded from January to March 2005 are already 3.5 times higher as the total volumes of European Union allowances exchanged in the whole of 2004. India, Brazil, and Chile lead in supplying emissions reductions.

Certified emission reductions is now purchased at a weighted average price of \$5.22/tCO₂e. The report also mentions an increase in the number of buyers of emission reductions.

How does the CDM promote the common global good?

CDM is the only part of the Kyoto Protocol which directly involves developing countries in reducing greenhouse gas emissions. CDM is different in that the emission reduction credits generated by CDM projects before the period 2008-2012 can be counted as reductions in that five-year period. In addition, CDM has an explicit mandate to promote sustainable development, unlike joint implementation or emissions trading. CDM is also mandated to assist developing countries in achieving sustainable development while helping Annex 1 countries to achieve their targets.

In general, CDM works as follows: an investor or a government from an industrialised country can invest in or provide finance for a project in a developing country that reduces greenhouse gas emissions at a lower cost than in the investor's home country. The investor then gets credits called 'carbon credits' for the reductions and can use those credits to help meet the Kyoto target. If CDM works perfectly it will produce three results: first, the investor gets credits that help meet the reduction target; second, the project executing party from the developing country also achieves some project goals including emissions reductions or saving carbon from release into atmosphere; and third, the project itself helps to promote the global common good through its contribution to a cleaner environment.

For example, a Dutch company needs to reduce its emissions as part of its contribution to meeting The Netherlands' emissions reduction target under the Kyoto Protocol. Instead of reducing emissions from its own activities in The Netherlands, the company provides funding for the construction of new biogas plants in Nepal that would not have been able to go ahead without this investment. This, it is argued, prevents or displaces some quantity of fossil fuel consumption in Nepal, leading to a reduction in its greenhouse gas emissions. The Dutch investor gets credit for those reductions and can use them to help meet their reduction target in The Netherlands.

Forest is defined as a minimum area of land 0.05 ha to 1 ha in area with tree cover of more than 10 % to 30% with trees that have the potential to reach a minimum height of 2 m to 5 m at maturity.

Reforestation is direct human-induced conversion of non-forested land to forested land through planting, seeding, and/or the human-induced promotion of natural seed sources, on land that was forested but that has been converted to non-forested land. Only those lands that did not contain forest prior to 31 December 1989 qualify.

Aforestation is the direct human-induced conversion of land that has not been forested for a period of at least 50 years to forested land through planting, seeding, and/or the human-induced promotion of natural seed sources.

Besides the two parties involved in the project, the reduced emissions may be counted as a contribution to improving the global environment.

The actual pattern of CDM investment and crediting is more complex than the example above portrays, and commonly involves intermediaries such as the World Bank or other carbon credit procurement agencies investing money on behalf of industrialised country governments and corporations. Frequently, there is more than one possible scenario for what would happen, which makes the process difficult. In other cases, developers are self-financing CDM projects and then seeking a buyer for the emissions reductions. But the fundamental premise remains the same: industrialised country governments and companies provide the finances to make possible a project that results in reduced emissions that would not have happened otherwise. The credits for reducing those emissions is claimed by the industrialised country investor and can be used to meet their own reduction target.

What types of project are eligible for CDM?

In principle, CDM finances project activities that fulfill the dual purpose of emissions reduction and sustainable development. Projects that aim to sequester or sink atmospheric carbon are also eligible. Switching from fossil fuel-run technologies to clean energy technologies based mainly on hydropower, solar energy, or wind power are options. For example, a cement factory can earn carbon credits by replacing its coal-fired heating system with hydroelectricity. Similarly, a number of diesel-run agro-processing mills may be run on micro hydropower and thus a project aiming to build a micro hydro can be a CDM project.

The criteria for CDM funding for larger-scale projects are stricter than those of smaller-scale ones. Given the flexible provisions for small-scale

project activities, project developers in the Himalaya can reap benefits from the following types of projects:

- renewable energy projects with a capacity of less than 15 MW,
- energy efficiency projects that reduce consumption by the equivalent of 15 GWh/year,
- projects that reduce emissions and emit less than 15 kilo tonnes of CO₂/year, and
- projects to grow trees on bare land.

Weak aspects of CDM policy

Although, in principle, the policy on CDM aims to promote sustainable development through eligible projects, in practice some serious shortcomings of the policy do not help benefiting communities of the developing world despite their contribution to achieving the goals of the Kyoto Protocol. The millions of communities involved in managing their neighbouring forests are an example of discrepancies in the policy, as their contribution to saving additional carbon and avoiding deforestation have not been recognised.

Creating an enabling environment in which developing countries can reap the benefits from the carbon market is a challenge in the heart of which lies renegotiating a policy that would help developing countries access the international carbon market for their products with proper value addition. Particularly, this means counting their contribution to conserving forests in their natural forms.

In a number of developing countries successful community forestry management programmes are in place. The community forests in these countries have successfully increased biomass fuel supplies to cities and towns, helping to reduce poverty and enhance livelihoods, and involving local people. Their programmes are participatory, often with a high participation rate for women, and work towards the empowerment of rural people. Despite the various benefits of community forests, the carbon sink function of these forests and other local beneficial climate impacts are yet to be recognised. The argument is that since community forestry can save global carbon and generate local beneficial impacts in principle, money should be available from international climate sources.

Deforestation avoidance

Tropical deforestation is the single largest source of CO₂ emission, yet the Kyoto Protocol does not cover deforestation avoidance, which has the potential to enhance conservation efforts, sequester atmospheric carbon, and conserve terrestrial carbon stocks. Projects may be designed to meet the high standards of atmospheric, environmental, and social benefits and generate tradable credits in markets other than Kyoto. During COP9, Brazil, the world's largest forest-rich country, proposed the compensated reduction of deforestation. According to the proposal, average annual deforestation is to be based on satellite imagery of the 1980s. Countries that are able to reduce deforestation below the baselines during a commit-



Bhaskar Karki

*Bhojpatra forest
in Manang,
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Establishment of a baseline and demonstration of additionality

The baseline refers to a 'without project' scenario. Carbon stock changes over time have to be compared to the baseline. It is necessary to demonstrate that changes in the carbon stock can be made only with additional funds and that the activity enhances the community's long-term sustainable development goals. So long as it can be demonstrated that vast areas of wastelands or non-forest lands can be afforested/reforested, additional criteria will not be a problem.

Addressing the permanence of carbon stocks

It is also necessary to demonstrate that the activity will lead to permanent carbon stock as opposed to depletable carbon stock. For instance, if the afforestation or reforestation activity is focused on the plantation of species likely to be harvested for timber production, this threatens permanent carbon stock. Species that are likely to remain as carbon stocks for many years are more eligible, e.g., local species selected by the communities.

Compatibility of the project with sustainable development criteria

Demonstrating that a clean development mechanism project will lead to sustainable development is not easy because of the lack of agreement on the meaning of 'sustainable development' itself. The criteria are left to national decision makers. But measures such as biodiversity conservation, meeting biomass needs, improved hydrological flows, enhanced income and employment, and so on could offer some criteria.

Addressing leakage

Leakage is defined the net change in anthropogenic emissions by sources of greenhouses gases and removed by sinks which occur outside the project boundary, but which is measurable and attributable to the clean development activity. Leakage is therefore failure to capture greenhouse gas changes outside the accounting system that results from mitigation activities within the system.

ment period are authorised to issue a 'carbon certificate'. Countries must also agree not to increase deforestation in subsequent commitment periods. The International Panel for Climate Change (IPCC) proposed the establishment of a baseline and equivalence between deforestation and carbon stocks. It is argued that deforestation avoidance can better minimise leakages and can offer more permanence than temporary credits and would help protected areas in developing countries to provide incentives for conservation.

Need for affirmative action for policy renegotiation

Although influencing global policy in favour of poor communities requires extra effort, several initiatives are in progress. One of them is the 'Think Global, Act Local Project' – an action research initiative to bring community forestry under the regime of the Kyoto Protocol. This is being undertaken by The Netherlands-based University of Twente in cooperation with partners in seven developing countries, including ICIMOD. The initiative aims to resolve the core constraints to bringing community forestry into the Kyoto Protocol through research, capacity building, the application of technological innovations, and advocacy. Constraints identified for making community forestry

projects eligible for CDM include non-permanence, additionality, leakage, other uncertainties, as well as socioeconomic and environmental impacts.

Studies show that specific management practices adopted in community forestry can help to maintain or increase existing carbon stocks, prevent carbon emissions from biomass and soils, and produce net carbon uptake from the atmosphere into biomass and soil. As a positive gesture, the World Bank has taken an initiative through the BioCarbon Fund to promote forestry CDM projects with the aim of conserving biodiversity, combating desertification, alleviating poverty, and improving sustainable livelihoods. Although this is not aimed at recognising community forestry, the Bank's experiences will be valuable in tackling some of the uncertainties in bringing forestry sector projects into mainstream project activities under Kyoto.

Without doubt, the Kyoto Protocol is the first international treaty of its kind negotiated based on principles of equity and sharing the liabilities for improving the global environment. Efforts to identify gaps and propose corrective measures to improve and refine the Protocol would not only broaden its ability to address a number of global concerns, it would also contribute to the global common good.

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