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Clean Development Mechanism**

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Cover photo: Iguazu Falls, Brazil
 Johan Kuylenstierna



Using mobile sawmills in a collective community forest management project, Brazil.

Photo: Duncan Macqueen

Sustainability and the CDM

Stefan Raubenheimer reflects on the requirement within the Clean Development Mechanism to promote sustainable development.

Back in 1997, apparently in the early hours of the morning, United Nations Framework Convention on Climate Change (UNFCCC) negotiators agreed to the terms of ‘the Kyoto surprise’: The Clean Development Mechanism (CDM) contained the rather famous reference to assisting parties “not included in Annex one in achieving sustainable development”. The origin of this idea appears to be in the Brazilian proposal (accepted by the Group of 77 and China) for a fund financed by contributions from countries failing to meet their Kyoto targets, which would assist developing countries to achieve sustainable development. When America jumped on this idea and cleverly turned it into carbon trade, the move from a fund driving promotion of sustainable development to a market-driven concept was complete.

Readers of the UNFCCC Article 12, prior to the fifth Conference of the Parties (COP5), may

have been surprised to find a trade instrument that incorporated sustainable development as a kind of limiting factor. This was definitely unusual and exciting. Clearly the negotiators believed deeply in sustainable development, but equally clearly it was going to be a tough issue to define and apply. This was left to the member states themselves, particularly the non-Annex one countries. They

MAIN POINTS

- **The author describes** the introduction of requirements for sustainable development under the CDM, and how these requirements have been interpreted.

- **He argues** that robust sustainable development criteria are unlikely to restrict deal

flow, and that risk is a more important factor for most investors.

- **He concludes** that assessing country reactions to sustainable development requirements will improve understanding of whether this has yielded genuine benefits.

had to form Designated National Authorities (DNAs) to define and apply sustainable development requirements. Now, some five years later on, we can evaluate whether this bright idea is actually working.

Sustainable development is mentioned only once in the body of the Modalities and Procedures, at article 40:

40. The designated operational entity shall:

(a) Prior to the submission of the validation report to the executive board, have received from the project participants written approval of voluntary participation from the designated national authority of each Party involved, including *confirmation by the host Party that the project activity assists it in achieving sustainable development*;

A determination under section 40 has the force of domestic law and must therefore be based on clear and legally robust rules.

Setting these rules has been a serious challenge for fledgling DNAs around the world. And establishing more than 100 DNAs has not been cheap. The results of all this work are not yet mature enough to merit deep comparative study, but so far, a brief analysis reveals a wide range of approaches. Morocco and Brazil, for example, have simple sets of rather open and vague 'must haves'; while in contrast, Uruguay has a complex set of tests which result in quantitative scores being reached. What is the effect of all this work? Which is the best route to follow? And what are the motivating factors?

If one goes back in time a little, another large gathering also touched on this issue. During the World Summit on Sustainable Development in 2002, the issue of sustainable development in the CDM arose as a good case study at one side event. Some participants, mostly from the Annex one investor community, appeared to be pushing for the watering down of a (South African) definition of

ment was being 'achieved'. The fact that all CDM projects would necessarily do this in any case escaped notice. No-one asked why scores of DNAs were being establishing – to do absolutely nothing.

It is obvious that Certified Emission Reduction (CER) purchasers want the lowest price and the least resistance. But what of the project developer community? What do they want? There appears to be some division here. There is some interest on the part of project developers to consider a conservative threshold to distinguish sustainable development from business-as-usual. But it may be that for most, there is not. For them, sustainable development is business-as-usual. And the governments? This is where some comparative studies would reveal a lot. Is there much 'looking over the shoulder' to ensure that one country's barriers are not higher than another's? Is it investment at all costs? Are there any states that are prepared to set higher standards? Are they penalized

Business, both from the investor community and from the project developers (i.e. the buyers and the sellers) seems to have a primary interest in ensuring that deals will be unencumbered by the rules which apply to the CDM. Pressure is undoubtedly placed on governments to ensure that the sustainable development test is as unrestrictive as possible; effectively ensuring that all projects that mitigate greenhouse gases are deemed automatically to promote sustainable development.

The key question is whether restrictions would negatively affect deal completion? The perception that robust sustainable development criteria will restrict deal flow is probably overstated. Both arguments discount or ignore certain realities associated with the CDM. These realities relate primarily to risk.

Enforcing some sustainable development requirements, notably job creation or protection, may well force out some projects, but this may be appropriate in employment challenged economies. A robust review may well force project developers to consider creative ways to deal with new technologies, which result in job losses. But most other robust rules will simply force project developers into more innovative and contemporary approaches, which most progressive companies are supportive of anyway. What project developers do not mind is strict rules; what they do mind is a cavalier approach to time, transparency and above all, certainty.

“Enforcing some sustainable development requirements, notably job creation or protection, may well force out some projects, but this may be appropriate in employment challenged economies”

sustainable development. They made it clear that as long as the project reduced carbon dioxide emissions and brought in Foreign and Direct Investment, sustainable develop-

ment was being 'achieved'. The fact that all CDM projects that shed jobs, just to help some Annex one countries to reach their targets? Will anybody care?

PRINCIPLES FOR SUSTAINABLE DEVELOPMENT RULES WITHIN CDM

1. The sustainable development rules must assist DNA government officials with approving or rejecting projects under section 40 of the Modalities and Procedures for the CDM, within the context of speed and certainty.
2. The rules must effectively permit the DNA to refuse projects, and not simply be an 'open gate', thus implying that no rules would be just as good. The rules do not imply ratification of business as usual, but do imply some higher standard.
3. They must promote CDM projects by creating an enabling environment for the project developer, providing certainty for future purchasers of CERs, and providing an attractive investment platform for bilateral projects. Certainty means the extent to which the project developer can assess the likelihood of application success against a set of rules.
4. The rules must be accompanied by certainty in the areas of ownership of CERs, share of proceeds, levies and other transaction costs which government may institute.
5. The rules must furthermore be applied within a set procedure, which is primarily aimed at ensuring pace and transparency.
6. The rules should be borne of the process: close consultation with users in industry, the energy sector and other project developers.
7. The rules must be legally robust and capable of withstanding legal challenges.

Whilst on the one hand, the DNA acts as an adjudication authority in every sense of administrative law over the project developer's proposal, on the other hand it is also a service provider for the project developer. It should encourage project developers to spend the considerable transaction costs required to present the final validated Project Design Document, by presenting the developer with swift, open and clear rules. The wider the definitions retained by the DNA on what is already a vague set of parameters (sustainable development is notoriously difficult to define), the

greater the uncertainty for the developer, the higher the 'country risk', and the cooler the buyer's enthusiasm. See the table above for some proposed guiding principles.

In short, some study of country reactions to the provisions of Article 12 of the Kyoto Protocol will reveal much, and will improve understanding of whether inclusion of the sustainable development provision has yielded benefits to participating developing countries or has merely been empty rhetoric. ■

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FURTHER INFORMATION

● **In the Cyberlibrary:** A listing of web-sites covering various aspects of the CDM issue can be found at www.tiempocyberclimate.org/floor0/theme/t53web.htm

● **Newswatch:** For weekly news and weather events worldwide, visit Tiempo Climate Newswatch, www.cru.uea.ac.uk/tiempo/newswatch/

Small-scale carbon projects

Emily Boyd and Maria Gutierrez describe important issues to consider when adapting carbon markets to small-scale projects for low-income communities.

One of the biggest challenges facing poor countries today is reconciling the needs to reduce poverty and protect natural resources, whilst also meeting an increased market demand for forest products (which has risen dramatically in the past 30-40 years). These three apparently contradictory needs are precisely those meant to be addressed by forests and land use change carbon projects under the Clean Development Mechanism (CDM), that is, improvement of livelihood conditions in poor countries through a market mechanism aimed at mitigating climate change through sustainable use of natural resources. Alas, experiences to date show that pilot sinks projects have usually fallen short of meeting this challenge. Like so many development projects in recent decades, weaknesses are due to a lack of attention given to social issues and the importance of the local reality.

Political and technical matters have tended to dominate the discussion on sinks in the CDM, with social issues receiving less attention. Yet even the most basic understanding of sinks projects in poor countries reveals that social issues are of utmost importance, since projects occur in rural areas where many poor people are concentrated, where conflicts over land and resources are not uncommon, and

MAIN POINTS

The authors argue that successful adaptation of carbon markets to benefit small-scale producers requires:

- overcoming decision-making barriers,
- ensuring that project stakeholders have clear roles,
- considering the im-

pacts of institutional change on decision-making,

- developing synergies with development strategies.

They stress that greater and earlier consideration of social issues is key to project success.

where livelihood conditions are complex, fragile and changing. Throughout the United Nations Framework Convention on Climate Change (UNFCCC) negotiations, many environmental groups resisted the inclusion of sinks in the CDM on the grounds that they would be used by large-scale logging industries to establish vast single species plantations, possibly displacing and further marginalizing local populations. This would go against any notion of sustainable development and the basic principles of any environmental treaty, and should clearly be opposed. The inclusion of small-scale projects in the final decision on Land Use, Land Use Change and Forestry (LULUCF) under Article 12 (Decision 19/CP.9) adopted in Milan in December 2003, is meant to ensure that low-income communities also benefit from CDM projects. To reduce transaction costs, these projects will be subject to simplified modalities and procedures yet to be agreed.

Some options (such as multi-species community-based reforestation or agroforestry) can deliver benefits to low-income rural populations, remain true to UNFCCC goals and attract emerging socially and environmentally responsible markets given the right design principles. However, such projects are often viewed with suspicion by investors because they imply higher transaction costs and risk. Indeed, studies on the future market for carbon credits from sinks under the CDM show that it is unlikely that such projects will constitute a thriving demand-driven market, since the price of carbon credits only covers the costs of developing and certifying projects at a scale beyond the reach of most small-scale projects. Still, there is interest from various quarters to develop socially and environmentally sound projects for reasons other than cost-effective investment in carbon credits. The challenge is to creatively tap into existing resources and arrangements that can ensure socially and environmentally sustainable carbon projects in the context of rural development.

In this context, perhaps the most important lesson learned from experiences to date is that it pays to address social issues from the moment the project is conceived and designed, and it pays to ensure local communities participate as project developers and managers, particularly in small-scale projects. This is because the CDM is supposed to contribute to sustainable development, and because given the long-term nature of

sinks and the complex conditions in most rural areas where low-income communities reside, projects that do not involve local stakeholders and compromise access to much needed resources stand to fail.

Processes involving local people need not start from scratch, since there is a tradition of communal organization in many rural communities. There are also plenty of opportunities for synergies with other development projects and agencies. This is important as the high transaction costs of sinks projects suggest that they are unlikely to work in isolation, but should rather combine with other productive rural development activities.

In this article, we review the main issues requiring consideration when implementing small-scale projects, and highlight the need for appropriate institutions operating across different decision-making levels.

Overcoming barriers to decision-making

One key pilot project feature is the tendency to forego pre-project social impact assessments due to a lack of time. This is despite the fact that the importance of pre-feasibility and feasibility studies for avoiding bottlenecks is well known. The Indigenous Peoples' Forum has requested (at the UNFCCC negotiations) that such studies are a prerequisite for project approval and has proposed that communities themselves select social scientists to undertake these evaluations. Such appraisals will possibly require some supporting finance

from non-government organizations (NGOs), overseas development assistance, low-cost loans to meet start-up costs, or public-private partnerships.

To ensure that benefits reach individuals, project developers face the challenge of providing a well designed project based on sound knowledge of the local social, political and institutional context. Several factors can influence relations between local and external agents, such as the history of forestry extension work, or past failures to fulfil promises. Moreover, it is important to recognize that local development priorities may differ from carbon sequestration or conservation priorities. Resources and provisions will be required to ensure that participatory processes are followed through.

Early involvement of local organizations in project development can be key. Community-based organizations, when representative and accountable, can help articulate stakeholder needs. The success of the Fondo Bioclimático project in Chiapas, Mexico, for example, owes much to a local coffee producer's cooperative that incorporated people's concerns and ensured their participation, particularly in project monitoring. In the Noel Kempff Mercado Climate Action Project (NKMCA) in Bolivia, project developers supported capacity building by developing forest management plans with the indigenous community organization. Moreover, local people with a stake in the project will discourage encroachment by outsiders, and monitor



Community reforestation, Belize.

Photo: Duncan Macqueen

pests and fire risks, illegal harvesting and social unrest. Insurance companies consider good relations and involvement of local communities to be a critical factor when insuring forests. This should be a major concern for sinks projects that depend on the medium and long-term maintenance of carbon stocks for the sale of credits.

Assigning roles and responsibilities

Ensuring that project stakeholders have clear roles and responsibilities is key for effective

local participation. It also reduces transaction costs and promotes long-term project sustainability.

This points to the increasingly pivotal role of NGOs as facilitators in the global carbon market. Studies of existing Latin American pilot projects reveal that problems exist between the preservationist mandate of many NGOs involved in carbon projects and poorly organized local counterparts. Moreover, international and national NGOs commonly associated with carbon projects tend to favour technical solutions to development problems, when engagement of social or rural development NGOs may be more appropriate. This is evident in the lack of local participation in the initial choice of pilot project objectives, which have tended to focus on carbon and biodiversity conservation priorities rather than development.

Unfortunately, resources for rural projects are always likely to be limited. Thus, participation of representative local organizations in decision-making is often the only way of ensuring key social needs are addressed.

Civil society and NGOs also have an important role to play in developing 'ethical' market niches for high environmental and social project standards (for example, the World Wide Fund For Nature's Gold Standard for energy projects). This is something that governments and businesses will not do, and is critical for establishing best market practices and credibility. More than other projects, small-scale forest and land use change projects

will need the oversight of third parties to set good precedents and further attract funds for sustainable rural development.

Considering impacts of institutional change across levels of decision-making

Adapting small-scale projects to the reality of the market requires reducing transaction costs. This requires identifying, understanding and tackling key institutional arrangements governing resource regimes. These include, in particular, rules and customs, property rights and governance mechanisms.

Institutional change can result from shifting property rights. Complex land tenure is a common feature of carbon projects, and subtle cultural attachments to landscape, political kinship issues and the interaction between social structures and landscape often remain poorly understood. Development interventions commonly bring about changes to local institutions. Pilot carbon projects in Latin America, such as Peugeot and the NKM-CAP, have led to changes in property rights affecting rules regarding land ownership or timber harvesting, and in the latter project, access to non-timber forest products, forms of money exchange and corruption patterns. Local institutions may also be determined or driven by entrenched customary rules, as demonstrated by the *habilito* in Bolivia, which is defined as a set of rules (written or spoken) that govern the advance cash pay-

ment or provision of goods, in return for labour (such as rubber collection or harvesting palm or timber) provided in the future. Some feel that introducing new systems may have implications for poor households that rely on provision of goods. Conflicts may also result from misunderstandings or lack of trust about the implications of institutional change. Such conflicts can delay implementation and further increase transaction costs.

Ensuring continued access to capital may be problematic where elite have greater access to project development or carbon benefits. Access to incentives may alter community dynamics, for example when elite families dominate access to project financial credit. It may be worthwhile tackling this issue, for example by mapping out different community groups that may or may not benefit from project resources. This requires addressing political issues within communities, but also provides an opportunity to discuss potential benefits that carbon sinks could provide to different community groups.

Developing synergies with compatible development strategies

Small-scale sinks projects are unlikely to work in isolation, not only because transaction costs are high, but because the land and labour required to establish a 'carbon plantation' are scarce, and carbon sequestration is a long-term process. In Costa Rica, for example, many smallholder 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 until the first timber harvest several years later. Many poor farmers dropped out of the programme, in spite of the penalties, to regain access to land for other uses that would provide more short-term returns. Assuring continued access to existing natural and financial capital, or effectively compensating for its loss, is therefore crucial to long-term project sustainability. Projects that integrate such issues into their design stand a much better chance of succeeding.

Carbon projects are particularly well suited to combination with other activities. Other than in terms of the speed at which different trees absorb carbon, carbon offsets are 'species blind', and can work with a variety of species. This 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

wood and food for sale in local markets. In addition, use of mixed species and ages often reduces disease incidence. Aggregate tree cover and levels of carbon sequestration may remain stable even if there are changes in land use. The process of carbon sequestration itself takes little time, freeing labour for other uses. Thus, small-scale farmers 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.

Fortunately, opportunities exist for small-scale sinks projects to develop in conjunction with other activities. Prospects for small-scale forestry activities are opening up as a result of changes in the forestry sector, including increased and more diversified demand for forest products (such as shorter-cycle wood and wood by-products), more sophisticated supply chains, greater availability of processing equipment and high-productivity for-

“Carbon projects are particularly well suited to combination with other activities”

small-diameter wood in lower-value markets for short-term gains and reserving an area for potentially higher-value wood in the future), and allowing a flexible response to changing market conditions. Trees themselves can be multipurpose, for example fruit trees can supply fuelwood, stakes, small-diameter

est harvests. Moreover, domestic demand is growing at a much faster rate than markets for export. This demand could, in many cases, be met by small producers with knowledge of the local market and flexibility to supply it. Gradual positive political changes complement this trend, including greater democ-

ratization and transparency of governance, increasingly recognized rights of access and tenure by local people, and a more active role for community organizations and international environment and development organizations. 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.

Successful agroforestry systems also exist although farmers in tropical and subtropical regions do not always adopt these systems as often as researchers and extension workers would like. The reasons for this often relate to unrealistic appraisal of the specific conditions on the ground.

Land use options will depend on the specific context and market access, but making the carbon market an integrated component of rural sustainable production is key. This can be achieved by combining activities to 'integrate vertically', such as seed or seedling production, logging operations, transport, pre-processing, wastage, packaging, etc. There are many sustainable development projects with long and instructive histories to tap into in this context. Otherwise, as experiences from the Fondo Bioclimático project show, carbon projects that do not try to integrate objectives into broader community development plans run the risk of creating new problems while trying to solve the very narrow problem of global carbon dioxide emissions.

Final thoughts on ways of adapting institutions

Institutional 'fit' must extend beyond national institutions and legal frameworks to address project fit with local institutions. The primary focus of project developers has been on national institutions and state project approval as stipulated in the CDM rules. Global institutions such as the World Bank and United Nations special agencies such as the Food and Agriculture Organization primarily adopt a technical and overriding bilateral approach to carbon sequestration projects, while conceptual thinking on social issues remains under explored. This is in part due to the political nature of global institutions.

We propose a shift in thinking to encompass complex micro-level social and political organizations and associated land tenure issues. This will require project developers to explicitly address the poor uptake of development assistance and narrow focus of many interventions. Historical context and local level heterogeneity, as well as underlying institutional dynamics and relationships between different global and local stakeholders, is important. Some degree of conflict or tradeoff between property rights and carbon benefits is likely to occur between global and local levels, and one key challenge is bridging the gap between global and local decision-making. This requires challenging the concept of 'experts' and addressing the role of local stakeholders and differences in scale, objectives, authority, needs and priorities. ■

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FURTHER INFORMATION

● **In the Cyberlibrary:** A listing of websites covering various aspects of the CDM issue can be found at www.tiempocyberclimate.org/floor0/theme/t53web.htm

● **Newswatch:** For weekly news and weather events worldwide, visit Tiempo Climate Newswatch, www.cru.uea.ac.uk/tiempo/newswatch/

TECHNOLOGY

An analysis by Princeton University scientists, published in the journal Science, has shown that existing technologies could stop escalation of the global warming problem for some 50 years.

"It certainly explodes the idea that we need to do research for a long time before getting started", stated Stephen Pacala, one of the study's authors. The technologies studied ranged from renewable energy, through nuclear power, to energy conservation techniques. The research is part of the Carbon Mitigation Initiative, a Princeton University programme supported by BP and Ford.

Read more:
www.princeton.edu/pr/news/04/q3/0812-carbon.htm

AUSTRALIA/CHINA

Australia and China have agreed to a bilateral programme on climate change.

"Closer engagement with China is a positive development and one that reflects the government's active programme of bilateral climate action partnerships", said Australian Foreign Minister Alexander Downer. Six new projects will be undertaken, including measurement of greenhouse gas emissions from farms using satellite imagery, national- and project-level carbon accounting and the development of a national climate strategy for China. A major workshop will be held in Beijing in September 2004.

Read more:
www.news.com.au/common/story_page/0,4057,10460656%255E1702,00.html

KYOTO PROTOCOL

The Russian Cabinet has approved ratification of the Kyoto Protocol, thus removing the final obstacle to implementing this phase of the United Nations Framework Convention on Climate Change.

There does, however, continue to be opposition. The Russian Prime Minister Mikhail Fradkov warned of a "difficult debate" when the issue comes before the State Duma, the lower house of parliament, before the end of the year. With a majority of Putin loyalists in the Duma, however, the house will likely follow the President's lead.

Read more:
www.terradaily.com/2004/040930213935.1939f9c.html

JAPAN

The Japanese Environment Ministry is to establish a market so companies can trade greenhouse gas emissions.

Next year the market will support Japan's efforts to meet its obligations under the 1997 Kyoto Protocol. Participating companies will set their own targets for cutting emissions and performance will be assessed by an independent body. Subsidies will be available for investment in equipment, but these will be reclaimed if targets are not met. The Protocol requires Japan to cut emissions by six per cent.

Read more:
www.japantimes.co.jp/cgi-bin/getarticle.pl5?nb20040804a2.htm

BRAZIL

Scientists have warned that the amount of greenhouse gases released through forest destruction in the Amazon may have been seriously underestimated.

Previous work failed to take full account of the contribution of rotting vegetation, for example, in areas flooded by hydro-electric schemes. According to Philip Fearnside, of Brazil's National Institute of Amazon Research, around 400 million tonnes of carbon dioxide-equivalent were released during 2003. This would place Brazil in the world's top five greenhouse gas contributors.

Read more:
http://jenn.com/news/2004-07-30/s_26314.asp

Forest carbon sinks in Brazil

Manyu Chang describes research on how forest carbon sinks projects differ in their contribution to sustainable development.

The Clean Development Mechanism (CDM) requires projects to contribute to sustainable development of the host country. But this calls for the country to have some form of development strategy and a clear view of how CDM projects might support it. Without transparent and explicit national development goals and policies, any project can claim that it is making a contribution towards sustainable development. Explicit development priorities are necessary to provide criteria for project selection, and measures of project performance and objectives are needed for judging the degree to which any project meets those criteria.

This article describes research into four forestry carbon sequestration projects in Brazil, and how well each project meets various sustainable development criteria. The four projects were ongoing when research began in 2001.

As background, it is important to realize that the Kyoto Protocol originally considered four types of carbon sink by forests: (1) forest conservation and protection to avoid emissions from deforestation; (2) sustainable forest management to sequester carbon and avoid emissions; (3) reforestation and afforestation to sequester carbon; and (4) substitution of fossil fuels by renewable bio-

MAIN POINTS

- **The author shows** that forest carbon projects favour different aspects of sustainable development.
- **She demonstrates** that commercial projects that fix the most carbon do less than other project types to ad-

vance ecological or social objectives.

- **She concludes** that forest carbon projects may be less effective than energy projects at mitigating climate change, but have greater potential for promoting sustainable social development.

mass. This original range of options has been trimmed down so that today only the third and fourth project types are allowed within the CDM.

This paring down of allowable projects is the result of prolonged debate over what environmental and development benefits should be expected from such projects. These differences can be clearly seen when we look at the attitudes of environmental non-governmental organizations (NGOs).

Several NGOs based in Europe, such as Greenpeace, Friends of the Earth, World Wide Fund for Nature, Birdlife International and the World Rainforest Movement, oppose inclusion in the CDM of all types of forestry project except the fourth. Their basic argument is that CDM forestry reduces the pressure on industrialized countries to reduce their own emissions from fossil fuel combustion. They believe that far-reaching changes to the world's energy system that eliminate

fossil fuel use are the only reliable solution to global warming.

In contrast, a group of international NGOs based in the United States support forest carbon sinks, but only if they are restricted to forest conservation or the restoration of degraded forest ecosystems. Industrial-scale reforestation is rejected. Prominent defendants of this position include Conservation International, the Nature Conservancy, the Environmental Defense Fund and the Natural Resources Defense Council. They see in forest conservation and restoration an opportunity to preserve biodiversity, the hydrologic cycle and the sustainable use of forest resources. Avoided deforestation also reduces carbon dioxide emissions and helps to reduce the greenhouse effect.

Similar differences are found in Brazil. One group of NGOs opposes forest projects, particularly forest conservation, as a measure to mitigate global warming. Like the European NGOs, they argue that emissions reduction by industrialized countries should be prioritized, but also that for developing countries, carbon sequestration does less than clean emission-reducing (energy) technologies to promote sustainable development. Officially, the government of Brazil shares their reasoning but also recognizes that forest conservation should be part of an overall environmental strategy to minimize future deforestation. For this and other reasons, the government has not endorsed forest conservation in the CDM but has instead made clear

its preference for clean emission-reducing technologies.

On the other hand, another group of Brazilian NGOs, together with a number of civil society groups, researchers and government officials, support the inclusion of forest conservation in the CDM. Their main argument is that current deforestation is a huge source of avoidable carbon dioxide emissions: two thirds of Brazil's total greenhouse gas emissions originate from deforestation.

This brief review of NGO attitudes underlines the point that both the perceived objectives of CDM forestry projects and interpretations of sustainable development can differ greatly. This provides the methodological underpinning to the analysis of four Brazilian forest carbon projects presented here. The figure on page 14 depicts three types of forest carbon project and the way they relate

- development forest projects supported by ecodevelopmentalism, which cares most about social sustainability.

Commercial type projects prioritize the generation of CDM benefits to compensate for carbon dioxide emissions and to improve the environmental image of the corporation for market competitiveness. Environmental benefits are subordinate to the commercial interest of the investors. Brazilian examples include the Peugeot and Plantar projects.

Conservation type projects take advantage of CDM resources by adding carbon fixation to the forest conservation agenda of the implementers. This may be socially legitimate if an important and threatened ecosystem is being protected but, more generally, can be considered socially sustainable only if project actions attend effectively to the socio-environmental needs of the local population

“Current deforestation is a huge source of avoidable carbon dioxide emissions: two thirds of Brazil's total greenhouse gas emissions originate from deforestation”

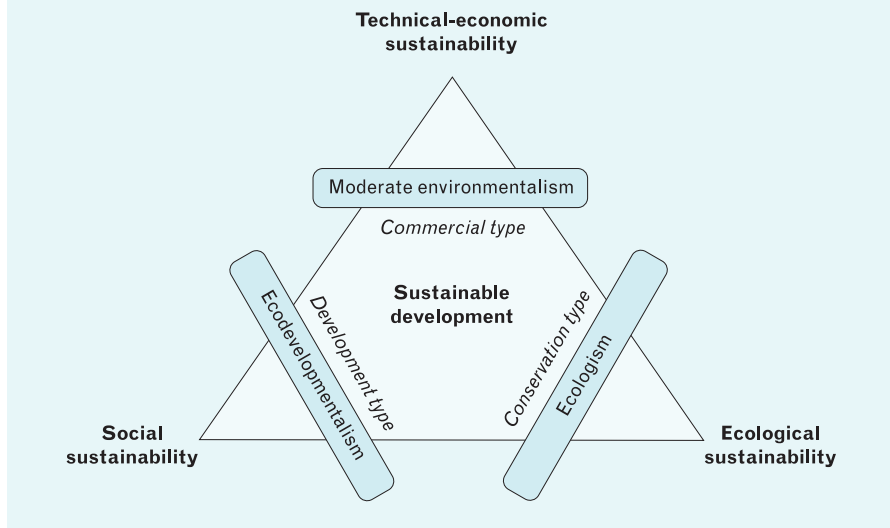
to various ideological positions and aspects of sustainable development. It shows:

- commercial forest projects supported by moderate environmentalism, which prioritizes technical-economic sustainability;
- conservation forest projects supported by ecologism, which prioritizes ecological sustainability; and,

through genuine local participation. These projects are often mediated or implemented by environmental NGOs. The Brazilian example described here is the Climate Action Project.

Development type projects prioritize social and environmental objectives while fixing carbon. They are usually financed by

FOREST PROJECT TYPES AND SUSTAINABLE DEVELOPMENT



corporations interested in improving their social responsibility image, or by international development grants, or sometimes the government might be the investor. In Brazil the closest example is the Bananal Island Carbon Sequestration Project described below.

The Peugeot Project

The Peugeot Project is primarily commercial. It seeks to create an environmentally friendly image as a way of reversing the negative image of intensive greenhouse gas emis-

sions from automotive industries. Located in the northeast of Mato Grosso state, in a region known as 'The Deforestation Arc' in the Amazon Basin, the project was timed to coincide with the inauguration in 2000 of Peugeot's factory in the state of Rio de Janeiro. The project is implemented by ONF (Office National de Forêts, a French government organization that manages public forests in France) in partnership with IPN (Pró-Natura Institute, a Brazilian socio-environmental NGO which has worked in the region for ten years).

The very ambitious schedule originally involved planting ten million native and exotic trees in three years in a 5000 hectare area culturally and ecologically unfamiliar to ONF. This plan soon ran into serious problems, primarily the low survival rate of seedlings, which were planted amidst a vigorous native grass known as *brachiária*, aggravated by the application of herbicides to control the native grass. This control method plus accusations of biopiracy forced the project implementer to adopt a more cooperative relationship with Brazilian public institutions, particularly those related to forest research and management.

Major changes included the substitution of herbicide application by manual weeding; reduction of the reforested area from 5000 to 2000 hectares; forming of a Scientific Consultative Committee with the participation of regional universities and public research and development institutions; replacement of foreign equipment and techniques with local resources; integration of the local population in the project through an environmental education programme; and distribution of seedlings to small neighbouring landholders.

In terms of ecological contributions, the revised reforestation area lowers the original sequestration estimate of two million tonnes of carbon to be achieved in 40 years, to 500,000 tonnes of carbon in 100 years. Another ecological impact is a new public awareness of the importance of forest re-

sources brought on by extensive reforestation in an agricultural frontier where deforestation is common practice.

Regarding social benefits, the project's most significant contribution occurred during the early reforestation phase. The project created income opportunities for the local population through collection of native tree seeds and tree planting. It also benefited the local municipality by increasing its service tax collection. During the maintenance phase, which started in 2003, employment opportunities and levied tax fell sharply, and the large nursery that supplied the project was deactivated. The new integrative approach also led to more promotion of the project to local communities. An environmental education programme was adopted, introducing the project to local students.

The Climate Action Project

The Climate Action Project is a forest carbon conservation project, located in the Environmental Protection Area of Guaraqueçaba, Paraná state. It is financed by American Electric Power and implemented by a local environmental NGO, Sociedade de Pesquisa em Vida Selvagem e Educação Ambiental, in partnership with the United States-based Nature Conservancy. The project has two primary objectives: generation of carbon credits for the investor, and ecological conservation, which is the executor's mission.

The carbon components of the project comprise reforestation, forest restoration

and protection of areas degraded by buffalo ranching and logging companies. It is expected that approximately one million tonnes of carbon will be fixed during the project lifetime of 40 years. The project also envisions two other important activities that complement and reinforce the carbon component. They are control of carbon leakage (the indirect effects of emission reduction activities that lead to a rise in emissions elsewhere) through the adoption of more intensive buffalo husbandry, and the support of economic activities considered socially and ecologically sustainable by small landholders in the vicinity of the project.

In terms of carbon contributions, the project baseline that counts on a great amount of avoided deforestation is a questionable concept. Deforestation is already strictly forbidden within such protected areas and the most degrading activity – buffalo

ranching – has been declining in the region. However, the ecological impact has been positive with definite improvements in biodiversity conservation within the project area.

Socio-environmental contributions of the Climate Action Project to local communities include: support for producing dried organic banana for export; creation of 80 jobs in the three carbon projects; donation of environ-

mental books to local school libraries; and support for obtaining title deeds for small land parcels bordering the project reserve. The timeframe of these impacts tends to be medium to long-term, consistent with the environmental protection mission of the NGO.

The Plantar Project

The Plantar Project is another commercial project. Plantar S.A. is a reforestation company founded in the late 1960s, when there were tax incentives for eucalyptus plantations. Later, to increase the value of its forest products, the company integrated industrial pig iron production into the Plantar Group. The annual revenue in 2001 from reforestation services, metallurgy, and the sale of charcoal and eucalyptus seedlings was around R\$136.5 million (US\$85 million).

The project is located in the central savannah of Minas Gerais state, the traditional

“The project will generate credits equivalent to 3.5 million tonnes of carbon”

charcoal-supplying region to the state's metallurgy industries. The rationale for CDM qualification is based on the continued use of charcoal in the production of pig iron, instead of converting to coal. The project will generate credits equivalent to 3.5 million tonnes of carbon during its 28 year life, including 1.2 million tonnes of carbon from the reforestation of 23,100 hectares with eucalypt-



Rainforest, Iguazu Falls, Brazil.

Photo: Johan Kuylenstierna

tus. Twelve percent of the carbon sequestered by the project (0.4 million tonnes of carbon) has been negotiated with the World Bank's Prototype Carbon Fund at us\$12.8 per tonne of carbon, giving an advance of us\$5.25 million to finance reforestation.

In terms of ecological impact, the project sequesters carbon and avoids emissions, as it prioritizes the issuance of carbon certificates. The project adopted a series of ecologically pro-active measures to mitigate the negative ecological impact of extensive plantation of exotic species.

The main social benefit is the maintenance of 1270 direct jobs, which would be lost if the company closed down due to the lack of financing for reforestation. The project presents several deficiencies regarding its contribution to local sustainable development, particularly regarding strengthening local livelihoods. Given the regional interest

in reforestation and the long experience of Plantar in the production of cloned seedlings with cutting edge technology, there is considerable potential to extend benefits to local farmers through outgrower schemes in which farmers contract to grow trees for the project. However, the company, claiming that this might interfere with its competitiveness, carries out neither such commitment nor any other social promotion effort. The company has limited its actions to a modest environmental education programme and a 'child friendly' certification by complying with the law that forbids child labour. In addition, due to the purchase of large plots of land for reforestation and the high project replicability, there is a risk of unleashing a process of land ownership concentration in the region.

The Bananal Island Carbon Sequestration Project (BICSP)

The BICSP Project is experimental. It does not claim carbon certificates, so the executor has more freedom to define project activities. The project was financed by the AES Barry Foundation, a philanthropic organization associated with a British energy generation company, and implemented by Instituto Ecológica, a local socio-environmental NGO. One of the central project objectives is to learn how to design and implement forest carbon projects that could be both competitive and have a strong social component.

The project location covers three important Brazilian biomes: savannah, marshland

and the Amazon forest. The project was originally conceived as a conservation project, in partnership with federal and state environmental agencies, comprising the protection of 200,000 hectares of mature forest in a National Park; regeneration of 60,000 hectares of degraded savannah in a State Park; and establishment of 3000 hectares of agroforestry systems in smallholdings. The total carbon sequestration was estimated at 25 million tonnes. However, the partnership did not materialize as planned, so the project restricted itself to social and research activities.

The project has introduced the concept of 'social carbon', meaning carbon fixation with a primary focus on social issues, and has employed participatory sustainable livelihood approaches to assess the impact of interventions on local livelihoods. This project is thus the closest to the development type described in the project typology. The research component is centered on the development of carbon monitoring methodologies and studies of regional biodiversity.

The project's social contributions include: environmental education for school students, teachers and the community; capacity building for small farmers; support for ecologically sustainable income-generating activities; establishment of agroforestry systems; and distribution of seedlings to land reform settlers, communities and indigenous groups. Unfortunately, tangible results such as increases in income and jobs are still limited.

Conclusions

Analysis of the case studies leads to the conclusion that all the projects, whatever they do by way of sequestering carbon, also have some positive social or ecological impacts, because they all operate within the concept of sustainable development. Although priority is given to one of the dimensions of sustainability, all take other dimensions into consideration. What distinguishes the projects are the different priorities, which limit the achievement of the secondary objectives.

The effort to include social or ecological components is more evident if the project's priority is to generate marketable carbon certificates, as the CDM rules require that the host government approves a project only if it is judged to contribute to its view of sustainable development. However, if governments impose requirements for social development that are too stringent, they risk losing the country's competitiveness for CDM projects.

This dilemma needs to be seen against the background of a much weaker demand for forestry carbon projects than was expected when the idea was launched under the Framework Convention on Climate Change. This is partly because the United States, potentially the source of greatest demand for CDM forest projects, has chosen not to abide by the Kyoto Protocol. It is also because forest projects have lost their competitiveness in view of the strict regulations required by the Kyoto Protocol and the higher risks involved. Although it is explicitly stipulated that the

CDM should contribute to sustainable developments of the host country, competition for CDM funds tends to minimize the importance of this requirement.

Simultaneously, forest projects must not only compete with each other but also with other types of CDM project. This fact raises important trade-offs in terms of aspects of sustainable development. It is unquestionable that energy and other CDM projects that reduce emissions from the source are more effective for the mitigation of global warming than forest carbon offset projects. However, in developing countries, such energy projects might not necessarily maximize contributions to sustainable development. Carbon sink projects can promote rural development and the sustainable use of forest and land resources in ways that non-forest projects cannot. This research therefore concludes that forest carbon sink projects can provide more opportunities for sustainable development, provided they are aligned with national development strategies. Development type carbon projects, in partnership with government, may better serve this end.

In conclusion, carbon sinks projects present limitations regarding the mitigation of global climate change. However, it is important to emphasize that from the national perspective of a developing country such as Brazil, such projects could further sustainable development objectives, provided the promotion of social justice and benefits for the poorest people are prioritized. ■

ABOUT THE AUTHOR



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FURTHER INFORMATION

● **On the web:** For a government site with links to other aspects of climate and forests see: www.mct.gov.br/clima/ingles/brasil/forum.htm. Local NGO viewpoints are available at www.sinkswatch.org

● **Newswatch:** For weekly news and weather events worldwide, visit Tiempo Climate Newswatch, www.cru.uea.ac.uk/tiempo/newswatch/

CONFERENCES

6th EGU Plinius Conference on Mediterranean Storms Mediterranean Sea, Italy 17-10-2004 to 24-10-2004

Organized by the European Geosciences Union, the subtitle is "Catching Storms in the Mediterranean". Will take place on board the Mediterranean Shipping Cruises' vessel "Opera" which is the newest addition to its fleet and is comparable to the highest quality hotel with all expected facilities. Four main topics in dealing with extreme events are: observation; diagnosis; modelling; and, risk assessment, disaster management and mitigation strategies.

Details: Luca Ferraris, CIMA - Università di Genova and Basilicata, Via Cadorna 7, I-17100 Savona, Italy. Fax: +39-01-9862612. Email: plinius@cima.unige.it

Web: www.copernicus.org/EGU/top-conf/plc_head.htm

Making Connections: Cross-boundary Coastal Management Dunedin, New Zealand 18-10-2004 to 20-10-2004

Organized by the New Zealand Coastal Society. Conference will incorporate a LOICZ workshop in association with the NZ IGBP Committee. Discussion topics will focus on: state of the coast environment reporting and coastal monitoring; coastal hazard management methodologies; regional coastal plans and aquaculture management areas; and the impact of port operations on coastal communities.

*Details: Mike Hilton, c/o Department of Geography, University of Otago, PO Box 56, Dunedin, New Zealand. Email: mjh@geography.otago.ac.nz
Web: www.cae.canterbury.ac.nz/nzcs/conference2004.htm*

5th Aarse Conference on Geoinformation Sciences in Support of Africa's Development Nairobi, Kenya 18-10-2004 to 21-10-2004

Organized by the Regional Centre for Mapping of Resources for Development. Conference will look at the current development status of Geoinformation technologies. Discussion will focus on the application of this in the assessing and management of: agriculture and forestry; geology; water resources; coastal marine resources; climate change and variability and other topics.

*Details: Ambrose Oroda, AARSE Conference Secretariat, RCMRD, PO Box 18118, Nairobi 0500, Kenya. Fax: +254-020-802767. Email: aoroda@rcmr.org
Web: www.itc.nl/%7Eaarse/aace/index.htm*

World Rice Research Conference Tokyo, Japan 04-11-2004 to 07-11-2004

This conference will be one of the most important scientific events in this, the International Year of Rice. Main themes will be: innovative technologies for boosting rice production; perspectives on the place of rice in healthy lifestyles; adaptable rice-

based systems to improve farmers' livelihoods; and, the role of rice in environmentally sustainable food security.

*Details: K Toriyama, Japan International Research Centre for Agricultural Sciences, Ohwashi, Tsukuba, Ibaraki 305-8686, Japan. Fax: +81-29-8386342. Email: wrrc2004@ml.affrc.go.jp
Web: www.irri.org/wrrc2004.htm*

7th Asian Fisheries Forum Penang, Malaysia 30-11-2004 to 04-12-2004

The theme for the triennial meeting is "New Dimensions and Challenges in Asian Fisheries in the 21st Century". Conference to include special symposia, plenary sessions, technical sessions, plus five post-conference field visits. Forum topics will cover all related issues such as technology needs, participation of the poor, aquatic ecosystem health, and management of small-scale fisheries.

*Details: The Secretariat, 7th Asian Fisheries Forum, School of Biological Sciences, Universiti Sains Malaysia, 11800 Minden, Penang, Malaysia. Fax: +60-4-6565125. Email: 7aff2004@usm.my
Web: www.usm.my/7AFF2004*

Tenth Session of the Conference of the Parties to the UNFCCC Buenos Aires, Argentina 06-12-2004 to 17-12-2004

Intended that the Tenth Conference will take place at the "La Rural" exhibition and conference centre in Buenos Aires. No further details on the

agenda are available at present.

*Details: Climate Change Secretariat, PO Box 260 124, D-53153 Bonn, Germany. Fax: +49-228-8151999. Email: secretariat@unfccc.int
Web: www.unfccc.int*

The Tropical ENSO Teleconnection: Observations & Mechanisms San Francisco, USA 13-12-2004 to 17-12-2004

Organized by Atmospheric Sciences of the American Geophysical Union (AGU). The El Niño-Southern Oscillation (ENSO) is the dominant source of climate variability on interannual timescales, with impacts throughout the globe. ENSO significantly impacts tropical regions outside the equatorial Pacific and the mechanisms for such teleconnections are poorly understood. Participants are invited to discuss all aspects of this problem for further understanding.

*Details: AGU Meetings Department, 2000 Florida Avenue NW, Washington DC 20009, USA. Fax: +1-202-3280566. Email: meetinginfo@agu.org
Web: www.agu.org/meetings/fm04/*

International Statistical Conference Peradeniya, Sri Lanka 28-12-2004 to 31-12-2004

Purpose of conference is to bring together statisticians from developed and developing countries to present their latest research findings in statistics and to interact and exchange ideas. It is hoped that such a forum will initiate

interaction and networking and stimulate research. The conference will be held at the Post Graduate Institute of Science.

Details: Conference Organizer, Post Graduate Institute of Science, PO Box 25, Peradeniya, Sri Lanka. Fax: +94-81-2389026. Email: info@pgis.lk Web: www.pgis.lk

2nd World Conference on Disaster Reduction

**Kobe-Hyogo, Japan
18-01-2005 to 22-01-2005**

The first conference on natural disaster reduction was held in Yokohama in 1994. This 2nd world conference will focus on results of the on-going review of the past ten years with the intent to increase international commitment for the implementation of disaster reduction at all levels. It is intended that avenues will be identified that will fully integrate disaster reduction strategies into development planning.

Details: WCDR Secretariat, Palais des Nations, CH-1211 Geneva 10, Switzerland. Fax: +41-22-9170563. Email: isdr-wcdr@un.org Web: www.unisdr.org

1st International Conference on Environmental Science & Technology

**New Orleans, USA
23-01-2005 to 26-01-2005**

Intended to provide a multidisciplinary forum for environmental scientists, engineers and management pro-

fessionals to discuss developments in environmental research and applications. Main topics will include: water pollution and water quality control; air pollution and air quality control; ecosystem restoration; wetlands; global change; and, GIS, database, statistics and remote sensing.

Details: EST Conference Secretariat, American Academy of Sciences, 6464 Avenue B, New Orleans, LA 70124, USA. Email: conference@AASci.org Web: www.AASci.org/conference

8th International Conference on Solar Energy & Applied Photochemistry - SOLAR'05

**Luxor/Aswan, Egypt
20-02-2005 to 26-02-2005**

SOLAR05 conference will be held in conjunction with the 5th Training Workshop on Environmental Sciences and the 2nd International Workshop on Nanotechnology. It is intended that these combined scientific events will give a broad overview on the various fascinating and emerging aspects of phototechnologies. Fundamental aspects and present and future applications will be discussed.

Details: Sabry Abdel-Mottaleb, Director, Photoenergy Centre, Ain Shams University, Abbassia, Cairo 11566, Egypt. Fax: +202-4845941. Email: solar05@photoenergy.org Web: www.photoenergy.org

International Conference on Applications of Geographic Information Systems in Climatological Studies

Isfahan, Iran

01-03-2005 to 03-03-2005

Conference to be held at the Research Center for Geographical and Social Sciences Studies. Intended to provide a forum for discussion on applications of geographic information systems and geostatistical tools as used in climatological studies.

Details: Seyed Abolfazl Masoodian, Department of Geography, University of Isfahan, Iran. Email: porcista@geog.ui.ac.ir Web: www.ui.ac.ir/red/RCGSSS

European Pellets Conference Wels, Austria

02-03-2005 to 03-03-2005

Held in conjunction with the World Sustainable Energy Days. Pellets are a clean, CO₂-neutral and convenient fuel with a rapidly growing market. Conference aims to provide in-depth information on pellets technology, innovation and market trends. Will also offer a platform to discuss the generation of customer interest in the use of pellets. Deadline for abstracts on papers is 20th October 2004.

Details: Christiane Egger, O O Energiesparverband, Landstrabe 45, 4020 Linz, Austria. Fax: +43-732-772014383. Email: office@esv.or.at On the Web: www.esv.or.at

4th International Conference of Renewable Energy, Energy Saving & Energy Education

**Havana, Cuba
25-05-2005 to 28-05-2005**

Conference is jointly organized by the Technical University of Havana (CUJAE), the University of Matanza, the University of Pinar del Rio and the Central University of Las Villas.

Aimed at energy professionals as well as universities and research centres. Forum topics include renewable energy technology, energy efficiency, energy education, and business, market and policy in renewable energy.

Details: Conrado Moreno, Technical University of Havana, CUJAE, Marianao 19 390, Ciudad Habana, Cuba. Fax: +537-2671644. Email: cier2005@ceter.cujae.edu.cu Web: www.cujae.cu/eventos/cier

3rd International Conference on the Oceanography of the Ross Sea Antarctica Venice, Italy

10-10-2005 to 14-10-2005

Conference intends to identify methods and tools which will assist in implementing observation systems, models and new technological methods of exploration in high-latitude oceans. Participants will identify research questions that would benefit from new tools and methods developed for polar regions and collaborative work to stimulate interdisciplinary research and further understanding. *Details: Ross Sea 2005 Conference, CNR-ISMAR, San Polo 1364, 30125 Venice, Italy. Fax: +39-041-2602340. Email: rosssea@ismar.cnr.it*

Developing CDM in Vietnam

Nguyen Tien Nguyen and Tatiana Bosteels describe the difficult path towards developing the Clean Development Mechanism in Vietnam.

The Vietnamese government is very concerned about climate change, and is willing to engage in international debates, as it is aware of the threat of national climate impacts. Vietnam has a varied geography, with a coastline of more than 3000 kilometres, thousands of small islands, the Mekong delta in the south and high hills in the north. Its monsoon tropical climate results in high temperatures, high humidity and frequent typhoons and tropical cyclones. It is among the group of countries most vulnerable to the impacts of climate change.

The Vietnamese government's stated position on climate change policies recognizes and supports the need to look for shared solutions across nations, while ensuring that industrialized countries should take initiatives first. It also encourages political debate to facilitate a better balance between international efforts on mitigation and adapta-

tion measures and policies. The Vietnamese government recognizes the need for action and is willing to contribute to global environmental protection while looking for additional investment and for technology transfer through, among others, its contribution to the Clean Development Mechanism (CDM).

MAIN POINTS

- **The authors describe** the development of the CDM in Vietnam and note that only one project has been approved to date.
- **They observe** that small economies face many challenges, such as identifying sustainable development criteria, attracting investment, high transaction costs and demonstrating 'additionality'.
- **They conclude** that confidence in global climate policy processes, improved stakeholder capacity, and transparent processes are needed to attract investment.

Since 1998, several studies have assessed the potential for greenhouse gas abatement and the development of a CDM market in Vietnam. The latest on-going programme focuses on 'Capacity Development for the CDM in Vietnam'. According to the CDM National Strategic Study, finalized in 2003, Vietnam's main strengths and potential lie in its rapid and stable economic development; the major change in its economic orientation, moving from a central to a more market oriented economy; and the fact that environmental protection and sustainable development are already major constituents of Vietnam's central economic programmes. While the current changes present opportunities, Vietnam is in the first stage of developing its market. Average annual income is currently only about US\$400 per person. Vietnam faces general difficulties with developing its economy, and more particularly with realizing benefits from the CDM. Expert and public knowledge

on climate change and the CDM is very low, slowing this process.

The CDM institutional framework was established in 2003 taking into account a specific characteristic of the Vietnamese government: in Vietnam, the roles of ministries include not only regulation, policy and planning but also managing businesses, especially state-owned enterprises. This means that different ministries are responsible for various economic sectors. It was decided that a National Executive and Consultative Board should be created in addition to the required Designated National Authority in order to ensure the inclusion and support of all relevant ministries in the CDM process. This Board comprises representatives of all relevant government ministries. Its role is to ensure ministry support for the CDM and thus accelerate the approval of CDM projects.

The National Office for Climate Change and Ozone Protection, located in the Ministry of Natural Resources and Environment, was designated as the Vietnamese CDM National Authority. Its role is to conduct the administrative functions of the Board; to liaise with the Board, project partners, the UNFCCC secretariat and the CDM Executive Board; and to act as a 'one stop shop' providing CDM related information to interested parties.

Potential CDM projects and barriers to implementation

As a result of the CDM National Strategic Study, 23 potential CDM projects were iden-

tified in late 2002. These included energy efficiency in power plants, energy saving in industrial installations, use of gas from oil fields, landfill gas recovery, renewable energy projects and tree planting projects. From these, only one has been developed and its baseline methodology approved by the CDM Executive Board (in March 2004).

The Rang Dong project, offshore from the Baria-Vung province, aims to recover and use gas from the Rang Dong oil field previously disposed of by flaring. Part of the gas will be converted into liquid petroleum gas for the domestic market, and part will be used as octane enhancer in gasoline. This is the first gas flaring recovery project to have its baseline methodology approved by the CDM Executive Board.

One important role of the CDM is to promote sustainable development in host coun-

their potential to promote wider development objectives, environmental protection and technology transfer.

Defining clear sustainable development criteria for CDM projects has proved more difficult than expected. In the CDM National Strategic Study, national experts avoided defining specific criteria, and instead suggested that projects should (i) be congruent with national sustainability objectives, and (ii) meet sectoral and provincial strategic objectives. In practice this means that the CDM Designated Authority must clarify the meaning of sustainability for CDM projects. This could lead to project-by-project decision-making, making the approval process less transparent. However, during the CDM National Strategic Study, a multi criteria analysis was conducted with government officials to assess potential CDM projects identified in

“One important role of the CDM is to promote sustainable development in host countries”

tries. In practice it is often difficult for host countries to determine how best to achieve this. This is particularly relevant for smaller economies such as Vietnam. The CDM National Strategic Study found that the limited economic benefits from the CDM should not be the main motivation for governments deciding whether to join. Rather, CDM activities in Vietnam should be recognized for

the study. During this process, participants agreed potential criteria for sustainability (see table on page 22).

The Rang Dong project contributes to sustainable development by: providing clean burning natural gas to support development needs in Vietnam; reducing dependency on oil imports; and reducing atmospheric pollution and greenhouse gas emissions. The

SUSTAINABLE DEVELOPMENT CRITERIA FOR CDM IN VIETNAM

Economic sustainability	National income generation	Returns on factors of production/ certified emission reduction revenues
	Economic externalities	Technology transfer
Environmental sustainability	Greenhouse gas effect	Greenhouse gas emissions
	Non-greenhouse gas air pollution	Non-greenhouse gas air pollution emissions
	Effect on water quality	Waste water quality
	Effect on ecosystem	Percentage change in forest cover, soil erosion and biodiversity
	Waste	Rate of hazardous waste generation
Social and institutional sustainability	Rural development	Rural employment/infrastructure
	Public participation	Degree of project acceptability
	Public health	Risk to public health
	Readiness of implementing agencies	Public/private sector readiness

project provides the first interpretation of acceptable sustainability criteria for CDM projects in Vietnam.

Other potential CDM projects have been identified, and for some, project design has begun. The most advanced of these is the wind-diesel hybrid electricity supply system for Phu Quy Island in Binh Thuan Province. However, several barriers are hindering the development of such projects. These are barriers that are typically faced by smaller countries, which are less attractive for external

investors due to their size and higher perceived risks, and where it is difficult for local investors to enter the CDM market.

One important barrier is the low awareness and interest of policy makers and stakeholders. Information dissemination is weak, and government officials and industry are pessimistic following the United States' rejection of the Kyoto Protocol and Russia's hesitation over ratifying it. This has meant that there has been little or no discussion at cabinet level.

Vietnam has limited investment capac-

ity. Transaction costs are high, particularly project design costs, and this is aggravated by the risk of policy uncertainties and low carbon prices. These issues are all major barriers for local CDM project development. Transaction costs worry investors considering small or medium size CDM projects; many believe that the potential revenue is not worth the time required for CDM project development. Foreign partners in collaboration with international carbon funds therefore develop the most progressive CDM project proposals. For example, the Rang Dong project is large and financed by international partners. In such CDM projects, local contractors have limited involvement with project development, which means that effective capacity development is not taking place.

The concept of 'additionality' has also proved problematic for CDM National Authority approval. Vietnamese developers have limited financial resources and therefore tend to add a CDM component onto ongoing projects to minimize risk. And yet CDM projects must demonstrate that "the project activity would not have occurred in absence of the CDM". Demonstrating additionality requires analysis of complex barriers, which further increases transaction costs.

Future prospects

Climate experts in Vietnam are looking to the future, and are aware of the various barriers. They see the most important steps in developing an attractive CDM market in Vietnam

as: increasing the knowledge and capacity of local officials, industry, and civil society on CDM; and developing a transparent process with clear rules to attract foreign investors to the CDM market.

Several areas are being targeted as part of the on-going capacity building process. The main ones include: building stakeholder awareness and providing public access to information; institutional development; and development of technical knowledge and skills. Vietnam is going through a major economic restructuring process and it is important to raise interest in and knowledge of climate change and the CDM among policy makers and experts participating in the CDM. Experts in Vietnam recommend that CDM should be linked with the government's main priorities such as economic development and poverty alleviation.

The CDM is a multi-sectoral multi-disciplinary issue, requiring technical experts from several disciplines. Developing the technical knowledge of local and national experts on the process and on practical issues relating to the CDM market and CDM projects is therefore necessary. One way to develop CDM is to promote technology transfer programmes with international agencies and parties to the Kyoto Protocol. Experts and the private sector must identify relevant technologies and the government must promote multilateral agreements.

Taking a longer-term perspective, climate change and the CDM should be incorporated

into education. This will improve general awareness and enhance the policy and technical knowledge of experts at an early stage. Improved language skills, a common weakness of Vietnamese experts, are also important. There is a huge amount of relevant documentation and information, almost all of which is only available in foreign languages.

The ongoing Capacity Building Programme, funded by the United Nations Environment Programme, addresses these issues. However, developing an attractive CDM market for relatively small economies such as Vietnam is a challenging long-term task. It can only occur with increased confidence in the global climate policy process, through the adoption of the Kyoto Protocol and the provision of clear rules thus reducing transaction costs. Major challenges include successfully promoting sustainable development in developing countries, and ensuring a wider geographical distribution of projects. This in turn requires clear processes and low transaction costs. ■

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FURTHER INFORMATION

● CDM National Authority, Department of International Cooperation, Ministry of Natural Resources and Environment, 83-Nguyen Chi Thanh Street, Hanoi, Vietnam.
Fax: + 844 8352191

● **In the Cyberlibrary:** A listing of websites covering various aspects of the CDM issue can be found at www.tiempocyberclimate.org/floor0/theme/t53web.htm

SouthSouthNorth Projects

CDM PROJECTS

The SouthSouthNorth Project (SSN) is a network of organizations, research institutions and consultants grouped into one developmental organization with considerable expertise to help public and private stakeholders develop the necessary confidence for dealing effectively with the Clean Development Mechanism (CDM).

The following brief profiles describe projects in the SSN portfolio. All are eligible under the World Wide Fund for Nature's Gold Standard (apart from the Indonesian project, which has not yet been assessed, and the South African Mondi project). This provides some guarantee of their contribution to sustainable development in host countries. It is expected that these projects will be implemented in 2005, subject to financing being confirmed.

Brazil

1. Biodiesel in the transport sector

- Certified Emission Reductions (CERS):

39,000 equivalent tonnes of carbon dioxide over a ten year crediting lifetime

- Project Participants: Hidroveg, private company; Comlurb, municipal company

This project is designed to partially replace fossil fuel (diesel oil) with biodiesel in the



Low-income housing in Khayelitsha.

Photo: Lester Malgas, SouthSouthNorth Project

transportation sector. Biodiesel is a methyl ester obtained from transesterization, and in this project it is produced from used vegetable cooking oils.

2. Energy generation using urban solid waste from a university

- CERS: 154,000 equivalent tonnes of carbon dioxide over a ten year crediting lifetime
- Project Participants: UsinaVerde S/A, private company

Construction of a power plant fuelled by urban solid waste produced by the Ilha do Fundão campus of the Federal University of Rio de Janeiro (former University of Brazil). The benefits are electricity generation for the campus and reduced quantities of garbage that the University must send to sanitary landfills. The proposed plant will consume 30 tonnes of garbage a day.

3. Use of biogas and biodiesel for power generation at a landfill site

- CERS: 35,000 equivalent tonnes of carbon dioxide over a ten year crediting lifetime
- Project Participants: Comlurb, municipal company; Hidroveg, private company

The installation of a 180 kVA power generator driven by biofuel ensures the self-sufficiency of the Jardim Gramacho Sanitary Landfill, Duque de Caxias, Rio de Janeiro, managed by the Rio de Janeiro Urban Cleaning Company - Comlurb. This project generates electricity

from biogas produced by the decomposition of organic solid wastes in sanitary landfills, and biodiesel produced through the transesterification of used vegetable (cooking) oils.

South Africa

1. Energy provision in low-cost urban housing

- CERS: 132,000 equivalent tonnes of carbon dioxide over a 21 year crediting period
- Project Participants: City of Cape Town, municipal council

This project aims to reduce fossil fuel based energy consumption, and hence carbon dioxide emissions, by means of interventions aiming to improve the thermal performance of low-income housing units in Khayelitsha, and by providing energy efficient lighting and solar water heating in these households. Benefits include energy poverty alleviation, employment creation, improved homeowner health and replication potential across similar housing developments in South Africa.

2. The recovery and use of landfill gas

- CERS: 1,200,000 equivalent tonnes of carbon dioxide over a ten year crediting period
- Project Participants: City of Cape Town, municipal council

This project relates to the capture and recovery of gas from the Bellville South landfill site that would have otherwise been emitted into the atmosphere, and use of this gas as a fuel. The project will gradually transform an 'end of life' landfill into a renewable energy/waste



Bellville South landfill site. Photo: Margie Orford

recovery park which can generate energy for the adjacent industrial community.

3. Recovery of biomass waste to generate steam

- CERS: 746,000 equivalent tonnes of carbon dioxide over a ten year crediting period
- Project Participants: Mondi Kraft, private company

This project relates to the recovery of biomass waste consisting of wood chips, logs et cetera presently used as landfill at a Richards Bay Municipal landfill site. This biomass waste will generate an alternative power source to the coal currently used to generate steam at Mondi Kraft (Richards Bay).

Bangladesh

1. Solar Home Systems in rural households

- CERS: 230,850 equivalent tonnes of carbon dioxide over a 21 year crediting period
- Project Participants: Grameen Shakti, private company

In order to provide energy services to rural households using photovoltaic technology this small-scale project will install 30,000 Solar Home Systems over five years in three different geographic regions including offshore islands, coastal districts and floodplain areas of rural Bangladesh. This will provide facilities for lighting, television and radio.

Indonesia

1. Utilization of renewable energy sources for agro-processing

- CERS: 2815 equivalent tonnes of carbon dioxide over a ten year crediting period
- Project Participants: Center of Research on Engineering Application in Tropical Agriculture (Bogor Agricultural University), Academic Research Centre

An integrated renewable energy system, which uses solar, wind and biomass energy, will be used to operate a small agro-processing unit. This processing unit will increase the value of agricultural and marine products and simultaneously initiate industrialization processes in rural areas. Other benefits include technological capacity building and potential for replication across the region.

• **For more details** about SouthSouthNorth projects, contact Stefan Raubenheimer, SouthSouthNorth, Loft 5, 138 Waterkant Street, Green Point, Cape Town, 8005 South Africa. Fax: +27 21 425 1463 Email: stef@southsouthnorth.org Web: www.southsouthnorth.org

World Bank Carbon Funds

CDM FUNDING

The World Bank has established several funds to support Clean Development Mechanism (CDM) projects that emphasize sustainable development benefits.

Prototype Carbon Fund

In 1999, the World Bank approved the establishment of the Prototype Carbon Fund (PCF). The PCF aims to combat climate change while promoting sustainable development and demonstrating the benefits of public-private partnerships. It offers its stakeholders a 'learning-by-doing' opportunity. The PCF will pilot production of Emission Reductions (ERs) within the framework of Joint Implementation and the CDM. The PCF will invest contributions made by companies and governments in projects designed to produce ERs consistent with the Kyoto Protocol and the emerging framework for Joint Implementation and the CDM. The PCF will not compete in the ER market. It is restricted to US\$180 million and is due to end in 2012.

The Community Development Carbon Fund

In 2002, the World Bank launched the Community Development Carbon Fund (CDCF) to provide carbon finance under the CDM. The CDCF links small-scale projects seeking investment with companies, governments, foundations, and non-government organizations seeking to improve the livelihoods of local communities and obtain verified ERs. These 'development plus carbon' ERs (ERs with the added value of development benefits) may be recognized under emerging global, national and regional programmes. The target size for the CDCF is US\$100 million.

CDCFplus

CDCFplus provides governments, foundations, and corporations with an opportunity to build local capacity to prepare small-scale CDM projects in Least Developed Countries and poorer communities in all developing countries. Many small-scale projects, such as mini- and micro-hydro, wind energy, small municipal and agricultural waste, energy efficient appliances and clean transport, can benefit local communities and reduce green-

house gas emissions. But carbon investors often bypass such communities due to proportionately higher business costs and risks. CDCFplus will work in parallel with the CDCF, and participants will contribute either financial resources or technical expertise. Through targeted technical assistance, CDCFplus will help to build the local capacity needed to make the CDM a reality for more developing countries.

BioCarbon Fund

The BioCarbon Fund will use the PCF and CDCF model to expand the reach of carbon finance to forestry, agroforestry and other land management projects. It will ensure that developing countries benefit from carbon finance. The BioCarbon Fund has US\$15 million. Projects that deliver cost effective ERs, local environmental and biodiversity benefits and improved local livelihoods are being prepared.

● Further information:

<http://prototypecarbonfund.org>
<http://communitycarbonfund.org>
<http://biocarbonfund.org>

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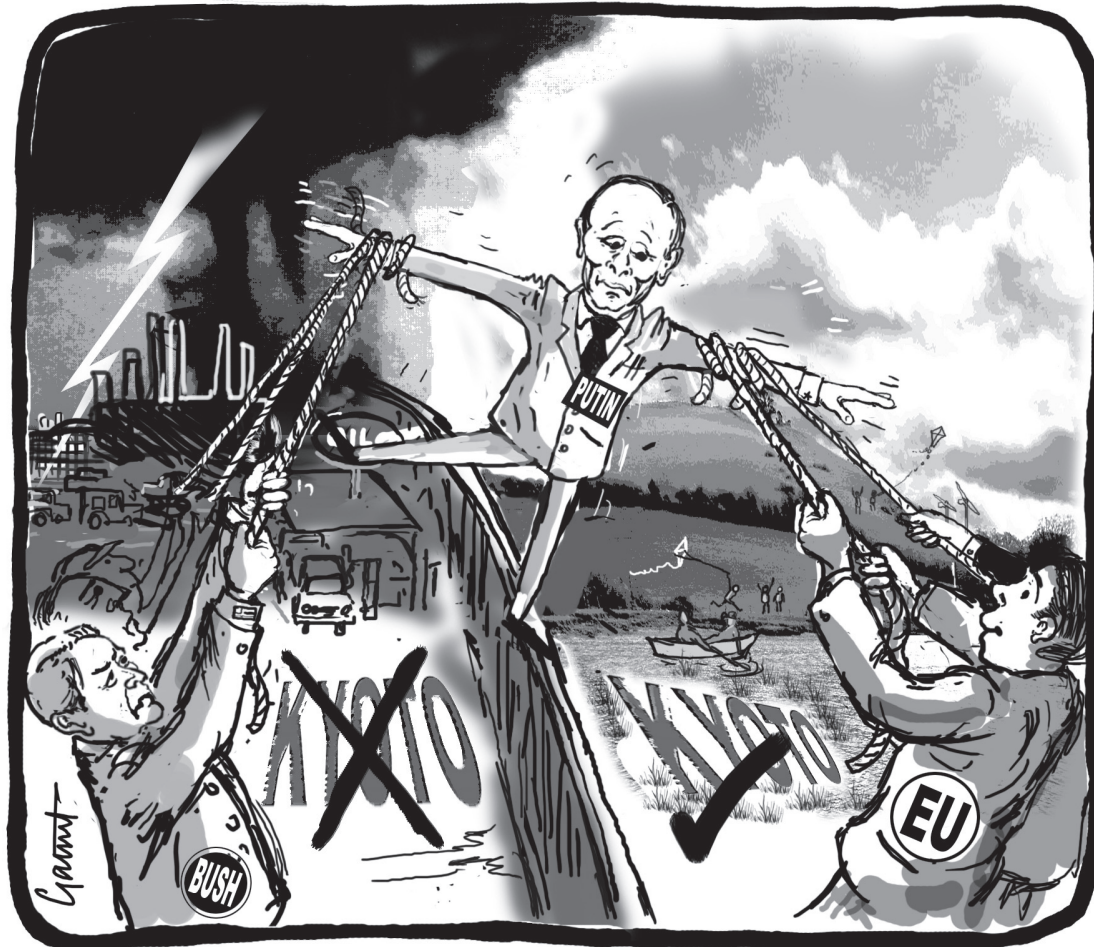
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Climate and equity – a business view

In Tiempo issue 52, two articles on the basic human right of equity illustrate that, like other virtues, it is difficult to implement. Neil Adger *et al.* in “Justice and equity in adaptation” address this ambiguity and consistently stress the need for justice in addition to equity. This is a universal condition for legislation, and it is clear that principles without justice have less value. However, to add “and justice” to all principles – ‘the polluter pays and justice’ and ‘strict liability and justice’ – would be impractical. Despite this, it is clear that equity must be legally implemented and its offenders brought to justice.

Meyer and Hanmbock’s article discusses equity as a principle behind the Contraction and Convergence model. This has a logic: the Framework Convention on Climate Change requires global contraction of emissions below harmful levels. ‘Convergence’, meaning

the coming together of two flows or levels (like Nobel Laureate Jan Tinbergen predicted for global welfare levels of rich and poor), sounds fair, but how should convergence occur? Does this imply the coming together

THE FINAL WORD

Paul Metz argues that the Kyoto Protocol should be built on rather than discarded in the context of incorporating key equity issues.

of annual emission allocations using the ‘grandfathering’ approach (based on past emissions in a base year) culminating in per capita equal allocation? I believe principles cannot converge; only a shift to a new principle is possible.

I strongly agree with the authors that the shift from ‘grandfathering’ to equity is attractive and necessary. But I am convinced that this shift does not require rejection of the Kyoto Protocol. Equitable allocation could be operational in the commitment period starting in 2012. In addition, keeping all other Protocol components alive would enable smoother introduction of ‘equity’ without the loss of valuable accrued knowledge and invested time.

From a business perspective I add this proposal. The Kyoto Protocol allocates to states, and Meyer and Hanmbock see states as the trading entities representing their citizens. Developing countries will be sellers, generating state incomes much like oil royalties. However, oil royalties often feed bureaucracies and corruption and do not empower citizens or benefit the economy. A better alternative would be to allocate the annual quota to individuals. A reliable system, such as the Alaska Oil Fund or Bangladesh Grameen Bank, should organize this trade and pay annual ‘rents’ to each citizen, family or local community. In this way the ‘global common’ atmosphere could generate a dividend for everyone from ‘fair emissions trade’.



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