

## ***Carbon Markets: important instruments for global environmental policy***

*The emergence of markets to buy and sell carbon credits is evolving from a global push to stop climate change. The Clean Development Mechanism (CDM) and Voluntary Carbon Market provide two paths to achieving greenhouse gas (GHG) emission reductions; however, neither is foolproof. What are the limitations and potential of CDM and Voluntary markets and the role of governance in shaping them?*

Climate change presents a tremendous challenge to sustainable development in the 21<sup>st</sup> century. The latest scientific findings reveal that a rise in global mean temperature and its adverse effects are appreciable and mounting. To limit the temperature rise to a tolerable level of 2° Celsius, which is a goal set by the EU, global greenhouse gas emissions need to be reduced by 50 to 80 percent by the year 2050.

Urgent action is needed to make economic development less dependent on fossil fuels, improve resource efficiency and limit tropical forest degradation. The Clean Development Mechanism (CDM) and Voluntary Carbon Market (VCM) are two such attempts at promoting economic growth and GHG reductions. Through CDM Projects, industrialised countries reduce emissions and transfer climate change mitigation technologies to developing countries. The VCM provides options to people or

businesses seeking to lower their carbon emissions through the purchase of carbon offsets. However, both the CDM and VCM have been accused of failing to reduce emissions.

---

### *Overview of the CDM and the VCM*

---

The CDM was established under the Kyoto Protocol as a tool to help industrialised countries limit or reduce their GHG emissions in the 2008–2012 period. While historically the world's largest GHG emitter, the USA is not a signatory to the Protocol. Developing countries, including industrialising countries, OECD members such as Mexico and South Korea, as well as the Gulf States, which have high levels of per-capita emissions, do not have any emission reduction obligations.

Countries with binding emission reduction obligations have several options. They may choose, for example, to make efficiency improvements to their CO<sub>2</sub>e (carbon dioxide equivalents)

intensive industries, which include large-scale combustion plants, mineral-oil refineries, coking plants, iron and steel works, and installations operated by the cement, glass, lime, tile, ceramic, pulp and paper industries.

Alternately, polluting industries may choose to reduce a percent of their emissions by investing in developing countries, where the same efficiency gains may come at a lower cost than at home. Such activities are implemented according to the rules of the CDM. Projects should both reduce emissions beyond a “business as usual” scenario and contribute to sustainable development. The latter is confirmed as part of the approval process in the developing country.

In order to take part in the CDM, host countries must establish oversight bodies called Designated National Authorities (DNAs) and adopt rules on administrative procedures. Project developers prepare Project Design Documents (PDD) to describe the proposed emission reduction activity and its contribution to sustainable development. The PDD must be approved by an inde-

---

**Anja Wucke**  
**Sallie Lacy**

Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH  
Eschborn, Germany  
climate@gtz.de

*The aim of CDM projects is twofold: reduce emissions “beyond business as usual” and contribute to sustainable development.*

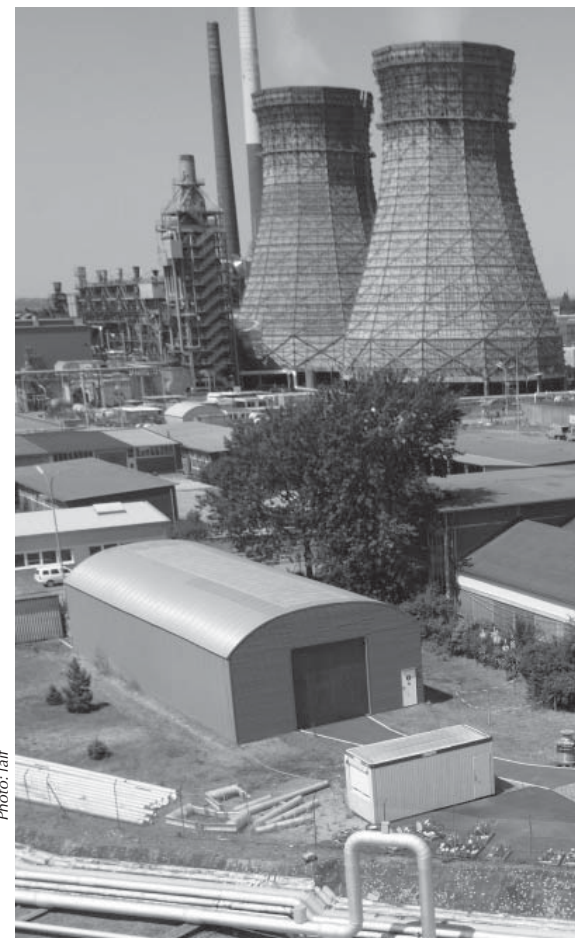


Photo: laif

pendent auditor known as a Designated Operational Entity to ensure compliance with guidelines set forth by the United Nations Framework Convention on Climate Change (UNFCCC) and its CDM Executive Board. The Executive Board is the ultimate authority with regard to the CDM. It gives the final approval for a CDM project and registers it. Once registered, the CDM project developer can start implementation, with the desired outcome being the issuance of Certified Emissions Reduction (CER) certificates upon successful implementation of the emission reduction activities. Each CER represents one ton of CO<sub>2</sub>e that was not released into the atmosphere. The CERs may be traded on the international carbon market.

To date, 1,197 CDM projects are registered, and more than 3,000 are in the pipeline. In 2007, over 25 percent of CERs were generated by renewable energy projects and about 40 percent came from energy efficiency and fuel switching projects. Only one CDM afforestation project has been registered thus far. China, India and Brazil are the biggest markets. All African countries



## Proving Additionality: a key to emissions reductions

The CDM rules aim to ensure that the offset mechanism works. One such rule is to prove *additionality*. If emissions could be reduced in the developing country without the incentive provided by the proceeds of CERs, the transfer of technology, or other benefits, then the reduction would not be *additional* to “business as usual”. Additionality is a point of great relevance to the sustainability of CDM projects, yet recent studies have estimated that 40–67 percent of the projects approved by the UNFCCC Executive Board have not met additionality requirements (Schneider 2008).

Additionality is difficult to prove. Project developers must show that the project would not move forward without the extra incentive of the CERs to provide a return on investment. Insurmountable obstacles, such as the lack of a qualified work force that would prevent a project from moving forward, are another aspect that developers must prove. However, without additionality in place, no real emissions reductions are achieved. While additionality is a rule set up for the CDM, one could also argue that the VCM should abide by the same logic in order to ensure that emission reductions go beyond a “business as usual” scenario.

account for just five percent of the registered projects.

In parallel to the “compliance market”, of which the CDM forms a part, a voluntary market has emerged to provide emissions offsets to organisations and individuals that wish to reduce the carbon footprints they create through daily activities. While guided by the CDM rules, the voluntary market (VCM) is not bound by them. As there is no single registry for the voluntary market, it is difficult to estimate the number of projects developed so far. The estimated market share is about ten percent of the compliance market and less than five percent of its value.

## Potentials and limitations of the CDM and VCM

In addition to its stated objectives, the CDM presents other opportunities for the private sector. Services to identify, plan and monitor CDM projects offer employment opportunities. The co-financing of climate-friendly infrastructure for companies and households in developing countries is also an option. Prospects for developing countries to gain access to credit may also arise through foreign direct investment, which may result from CER proceeds. Potential also exists to broaden the impact of the carbon market through the use of sectoral-based approaches that would cover entire industries or sectors, such as for-

estry, rather than individual projects, in the post-2012 climate regime.

The VCM has the potential to include options not allowed by the compliance market, such as the generation of certificates from avoided deforestation. The Chicago Climate Exchange (CCX) has operated since 2003 and is a voluntary, legally-binding trading system that finances emission reduction projects world-wide for all six major GHGs and represents all sectors of the economy. CCX has developed rules for carbon contracts for agricultural methane from livestock operations, as well as for carbon soil sequestration activities. Eligible methodologies include digesters, covered lagoons, continuous conservation tillage and grass planting. Such initiatives may play an important role in establishing future compliance market processes, especially with respect to the inclusion of agricultural measures in the post-2012 CDM regime.

However, the CDM and the VCM are not without their challenges. The establishment of a new market involves major efforts to improve information, qualification, training, advisory services and institutional development, as well as trial and error through pilot projects. Limited capacity development has hindered the ability of project developers to launch projects in some parts of the world, particularly in countries with weak institutions and untrained human resources.

The VCM, due to less stringent regulations, runs a risk of double counting emission reductions. The quality of the emission reduction projects is also a

## Zusammenfassung

Marktbasierte Konzepte als Antwort auf den Klimawandel bieten die Möglichkeit des Kaufs und Verkaufs von „Carbon Credits“ zur Senkung der Treibhausgasemissionen. Der „Clean Development Mechanism (CDM)“ und der „Voluntary Carbon Market (VCM)“ sind zwei dieser Konzepte, die jedoch beide verbesserungsbedürftig sind. Der CDM steht unter Kritik, weil er nicht wirklich zur Senkung der Emissionen beiträgt und keine gerechte regionale Verteilung der Projekte gestattet. Dem VCM werden doppelte Zählung und schlechte Qualität vorgeworfen. Im Rahmen der Verhandlungen über eine neue globale Klimavereinbarung muss es die Aufgabe der Regierungen sein, die vorhandenen Mechanismen zu verbessern und auszuweiten, aber auch zu gewährleisten, dass unterschiedliche Interessen berücksichtigt, Verantwortlichkeiten gerecht verteilt und Aktionen transparent umgesetzt werden.

## Resumen

Los enfoques para la mitigación del cambio climático basados en mecanismos de mercado ofrecen opciones para comprar y vender créditos de carbono a fin de reducir las emisiones de gases tipo invernadero. Dos de estos enfoques son el Mecanismo de Desarrollo Limpio (MDL) y el Mercado Voluntario de Carbono (MVC), pero ambos necesitan mejorarse. El MDL ha sido criticado por no lograr una verdadera reducción de las emisiones y por no establecer una distribución regional equitativa de los proyectos. A su vez, el MVC ha sido acusado de llevar cuentas duplicadas y de no contar con la calidad suficiente. A medida que los líderes mundiales trabajan en lograr un nuevo acuerdo mundial sobre el clima, el rol de los gobiernos consistirá tanto en mejorar y expandir los mecanismos existentes como en asegurar la consideración de intereses divergentes, la distribución equitativa de las responsabilidades y la transparencia de las acciones.

concern in the VCM due to a wider variety of emission reduction activities.

A problem that both the CDM and VCM face and that impacts project sustainability is variation in carbon credit quality. Quality is defined essentially in terms of the ecological integrity of an emissions reduction project and with respect to the additional benefit that goes beyond greenhouse gas emissions reduction.

Initiatives launched by environmental NGOs and by the private sector to establish standards for the VCM are on the rise. The reason is that the voluntary market is driven by buyers interested in certificates mainly for reasons of corporate social responsibility. Standards of social and ecological integrity that meet the criteria of environmental NGOs are key factors to gaining clients. As a result, various standards have emerged to regulate the VCM and to assess the emission reduction potential of forestry projects and their additional benefits, including biodiversity.

Due to controversy surrounding the ecological integrity of certain emission reduction activities, the EU has excluded CERs generated from CDM projects in the fields of forest management and nuclear power, as well as those from hydropower plants with capacities greater than 20 megawatts if they do not meet the standards of the World Commission on Dams.

## *The role of governance*

The private sector urgently needs signals pointing to the post-2012 climate regime. The international community needs an equitable and balanced climate agreement from 2013 on in order to safeguard the basis for sustainable development.

The 2007 Climate Conference in Bali launched the official negotiation process for a post-2012 climate regime. The goal of the German Government and of the EU is to integrate the USA and selected newly industrialising and developing countries in international emission reduction commit-

ments, while improving and expanding existing instruments, such as emissions trading and the CDM. For a multilateral post-2012 climate agreement to be reached, it is crucial for all parties to feel that the international climate regime does justice to diverse interests, obligations are distributed equitably, and implementation is transparent. For emissions reduction measures to be carried out cost-efficiently, a carbon market which has integrity and encompasses as many companies as possible is advantageous in order to prevent competition distortions and promoting sustainable development. The sooner an agreement is reached, the greater the benefits will be for the international community.

Since a major stumbling block for the CDM is the additionality rule (see Box on page 19), decision-makers should test an approach that focuses on an entire sector, such as forestry or energy supply. By generating CERs for emission reductions across a sector, which are measured against an agreed baseline or benchmark, additionality proving is avoided. Twenty-five developing-country participants of the World Bank's Forest Carbon Partnership Facility are currently preparing national baselines.

## *Looking ahead*

Experience gained to date from the carbon markets reveals a success with flaws. On the one hand, a global movement towards market-based emissions reductions has spurred a race to implement projects, many of which have real benefits for the climate and developing countries. However, cases of abuse that have resulted in nothing more than the sale of hot air and no real benefits for the climate or developing countries also exist. Decision-makers should rethink how carbon markets can advance mitigation goals, while considering the historic responsibility of countries and their capacity to mitigate. It may involve putting a higher value on sustainability criteria than has been done in the past.