



This newsletter is published as part of the project JIKO – Development phase 2005-2007 at the Wuppertal Institute for Climate, Environment, Energy – Energy, Transport and Climate Policy Research Group

Dear Readers,

The future of the Kyoto Protocol is currently the focus of climate change debate and there are many calls for its retention in modified form beyond 2012. A number of new paths are also emerging which could either supplement the Protocol or counter its aims. For example, while the Asia-Pacific Initiative launched by President Bush relies heavily on bilateral agreements and the development of clean technologies, it does not provide for binding reduction targets. Whether and to what extent such initiatives will take a foothold in the longer term remains to be seen.

New technology is also the focus of the article opposite, in which the author reports on the controversial debate on approval of carbon capture and storage (CCS) as a CDM activity. Read on to enjoy this and other articles in this latest edition of JIKO Info.

Thank you for your interest.

The Editor

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UN Workshop on Carbon Capture and Storage as a CDM Project Activity

At the twenty-fourth Sessions of the Subsidiary Bodies to the Climate Change Convention last May, representatives from national governments, NGOs and industry discussed the approval of carbon capture and storage (CCS) as a CDM project activity. The UN Climate Change Secretariat had been requested to organise the workshop on behalf of the Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol (MOP 1).

Carbon capture and storage takes in the sequestration, transportation and storage of climate-damaging carbon dioxide produced in the burning of fossil fuels. Using CCS technology, carbon dioxide is captured in concentrated form and, rather than it being released into the atmosphere, is then transported for long-term storage in geological formations (see box on next page).

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Can Development NGOs Benefit from the CDM?

Under certain circumstances, it is possible for development NGOs to conduct successful small-scale CDM projects and bring in additional income for their activities. However, the costs involved in the validation process pose an almost insurmountable hurdle to such organisations. This is shown in a recent study conducted by the Wuppertal Institute on CDM projects implemented by two German organisations.

Small-scale CDM projects have gained a reputation of not providing a return on investment. Project developers are invariably confronted with high transaction costs: project validation by an independent validation body can cost 10,000 euros alone. The sale of CDM credits (certified emissions reductions, or CERs) only compensates for the expense in part because by definition, small-scale projects generate just a few CERs whose value bears no relation to a project's transaction costs. Even the simplified rules for small-scale projects agreed in the UN climate change negotiations are often not enough to make projects more profitable.

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UN Workshop on Carbon Capture and Storage as a CDM Project Activity

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Purpose of the Workshop

The purpose of the workshop was to explore whether CCS should be approved as a CDM project activity. By way of a general introduction, Heleen de Coninck (co-author of the IPCC Special Report on CCS) presented a number of issues that could be relevant in integrating CCS into the CDM:

- Storage site selection
- Risks of physical leakage
- Techniques and technologies

Apart from defining key CDM terminology (monitoring, leakage, permanence and project boundaries), the Climate Change Secretariat presented three CCS baseline and monitoring methodologies that had already been submitted to the CDM Executive Board (EB) for approval.

Project Boundaries, Leakage and Permanence

The main focus of the workshop concentrated on the issues of project boundaries, leakage and permanence in relation to carbon storage activities under the CDM.

Most workshop participants agreed that under the CDM, project boundaries should encompass sequestration, transportation, injection and storage. There was some disagreement on current integration into the CDM of CCS activities whose project boundaries would span international borders. Another topic of discussion was whether several different projects should be allowed to share one reservoir.

The issue of leakage, i.e. increased emissions which occur outside the project boundary and are attributable to the CDM project activity, was the subject of critical analysis. Many workshop participants were concerned about the integration of enhanced oil recovery (EOR) into the CDM. The EOR process involves hydrocarbon injection into natural oil reserves to boost oil production. Participants feared that integration of this process could provide an incentive for increased oil production which in turn could lead to increased emissions. They nevertheless agreed to case-by-case project evaluation as the preferred approach.

Carbon Capture and Storage

In September 2005, the Intergovernmental Panel on Climate Change (IPCC) published its Special Report on Carbon Capture and Storage. It was no later than with this publication that this relatively new and as yet untested climate change technology found its official place in the international climate regime negotiation process.

There are basically three different ways to capture carbon in concentrated form during fossil fuel-fired electricity production. These entail pre-combustion, post-combustion and oxyfuel combustion. Pre-combustion capture begins with the reaction of fuel with oxygen, air or water vapour. The carbon monoxide produced then reacts with water vapour in a secondary reaction process. With post-combustion, carbon is separated from flue gas using an organic solvent (an amine wash). The

resulting products are hydrogen and carbon, which are then separated. In the third option, fuel is burned with pure oxygen rather than air. The flue gas contains water vapour and high concentrations of carbon which are then easily separated in a follow-on process. All three processes are particularly suited to power stations and energy-intensive industrial installations.

CCS technology attracts both support and criticism. Many of its critics doubt that long-term storage of carbon is actually possible at acceptable levels of effort and with adequate reliability. Moreover, they believe that end-of-pipe technology hinders development towards a low carbon economy designed to operate with the lowest possible quantities of fossil fuels because CCS technology goes hand in hand with increased concentration on fossil fuels themselves. By way of contrast, proponents of CCS argue that the advancing pace of climate change could make use of the technology indispensable.

Both the overall costs and the timeline involved in the use of CCS technology remain uncertain. According to the IPCC Special Report on CCS, cost estimates vary significantly from country to country. Likewise, the various components of CCS are at different stages of development. A number of studies have been conducted on different carbon capture technologies, methods of transportation (ship or pipeline) and final storage in a range of different storage locations. While there are many comparable technologies already in use in industry, little experience has been gained with the integration of CCS into large power stations which replicate the complexities of the technology at full scale. Thus, in its final report, the IPCC emphasised the gaps in current knowledge regarding large-scale deployment of CCS. Further research, technological advancement and the benefits of mass production could all improve the viability of CCS in the future.

When it came to the subject of permanence in carbon storage, there was evidence of a considerable need for further discussion. Participants were of the opinion that stringent site selection criteria should be applied to prevent physical carbon leakage. This sparked a debate on whether acceptance of long-term responsibility and liability should be required of CCS host countries or from the owners of Certified Emission Reductions (CERs). Some participants called for instruments like liability insurance, temporary credits and a compensation fund to cover claims arising from physical leakage at storage sites. The practicability of the insurance solution immediately came under question because insurance can only be obtained for known and calculable risks. Workshop participants instead called for accurate measurement of physical carbon leakage, though there was still some disagreement about monitoring periods and how such activities might be financed over time. Measures and sanctions to be borne by those responsible in the event of carbon release were deliberately kept out of the discussion for the time being.

CCS Potential under the CDM Limited Until 2012

While many participants praised the workshop's positive and constructive atmosphere, they nevertheless emphasised the limited potential of CCS as a CDM project activity during the 2008 to 2012 period because technology would not be sufficiently mature. In line with its MOP 1 mandate, the Climate Change Secretariat will submit a summary of the workshop alongside the CDM EB recommendations on integrating CCS into the CDM for resolution at MOP 2.

Links for further information:

UNFCCC Workshops on CCS

<http://unfccc.int/meetings/sb24/in-session/items/3721.php>

<http://www.iisd.ca/download/pdf/enb12302e.pdf>

IPCC Special Report on CCS

<http://www.ipcc.ch/pub/reports.htm>

CCS Project Methodologies Submitted to the CDM EB Methodologies NM0167, NM0168 and SSC-038 were submitted to the CDM Executive Board. Their status can be tracked at:

<http://cdm.unfccc.int/methodologies/PAmethodologies>

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Can Development NGOs Benefit from the CDM?

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Nevertheless, many development initiatives and organisations possess vast experience with climate protection projects in countries that are potential CDM host candidates. It is often the smaller projects conducted by these very initiatives that provide the added social value that the Clean Development Mechanism is supposed to create alongside the climate change effects. This is why many development initiatives are now considering whether they should conduct their projects directly under the CDM and use it as a new source of income.

The Example of Solar Cooker Projects

In a recent study, the Wuppertal Institute took a closer look at the small-scale projects of two development initiatives. Both involve solar cookers which burn firewood from non-renewable sources for cooking. The project conducted by Bonn-based Klimaschutz e.V. has provided 1,000 solar cookers to people in the Indonesian province of Banda Aceh. Use of these cookers will save a projected 24,500 t CO₂ over the first seven-year accreditation period. The second project is to be implemented in Ouagadougou, the capital of Burkina Faso. An alliance of development initiatives there plans to provide 1,610 cookers over a period of seven years with the aim of saving some 27,431 t CO₂. The Banda Aceh project has already been registered by the CDM Executive Board. The Burkina Faso project is still in the planning phase and the project design document (PDD) has been drafted. Both projects are designed as pilot projects.¹⁾

In the study, the authors set out the respective transaction costs in detail and compare them with the expected profits from the sale of CERs. This shows that profits from CERs need to be considerably higher than current market

¹⁾ The baseline methodology for this project type is currently being revised by the CDM Executive Board. Observers fear that the planned changes could make projects of this type unviable. The experience gained with the projects presented in the study is, however, largely independent of the methodology used for solar cookers and could be transferred to small-scale projects as a whole.



Source: Ludof Bähr

Using a solar cooker in Bangladesh

prices in order to cover both the costs of actual project activities and transaction costs. The authors thus recommend the use of additional income sources such as donations.

Another problem that arises is that the largest portion of CDM transaction costs must be paid in advance of the project activity. In this regard, Klimaschutz e.V. was lucky enough to benefit from the financial expertise of its staff whose knowledge allowed a private microfund to be set up to assist with project financing. Most other organisations will rarely be in a position to use the CDM without external support to find advance funding.

Project planning can also be of importance to project viability. While the project in Indonesia is largely conducted in rural areas, the Burkina Faso project targets the urban population. Apart from firewood, they also burn charcoal which means additional greenhouse gas emissions over the project life-cycle. This means that despite the phased introduction of the solar cookers, the project actually generates more CERs and is amortised with a lower price per CER than the project in Banda Aceh.

Learning from Pilot Projects

Future projects will benefit from the experience gathered with current ones. Project developers are confident that the

lessons learned from the pilot project will make follow-on projects considerably cheaper. “We will be able to operate using only about 20 percent of the time currently being invested”, says Klaus Trifellner who developed the Banda Aceh project. Learning the specific requirements of the CDM project cycle has been extremely time-intensive, while on-site project preparation has been very work-intensive: “The level of effort involved will be halved in future because the contacts already established can be used and all the requirements of the CDM process are now known quantities”.

The authors of the study report on the experience of other project developers and make general recommendations on how to improve the profitability of small-scale CDM projects. This involves greater networking activities among development organisations and the commissioning of an auditing company located in the respective host country. These are often able to conduct more cost-effective project evaluations. The authors are nevertheless sceptical: unless the problem of advanced funding is solved, the other options for improving project profitability can have no real impact.

The study (in German) is available online at: <http://www.wupperinst.org/Projekte/fg2/1078d.html>

JIKO Info Series on Carbon Funds

FINNDER: The Finnish CDM/JI Programme

The Finnish Carbon Procurement Programme, known as FINNDER (Finnish Drive for Emission Reductions), was launched in 2006. The programme aims to acquire 10 million tonnes of CO₂ equivalent from CDM and JI projects by 2012.

In line with the European reduction target, Finland committed to stabilising its greenhouse gas emissions to match 1990 levels. However, its 2003 emissions amounted to 85.6 million tonnes, some 20 percent above the base year levels of 70.5 million tonnes. Finland has thus decided to meet part of its Kyoto commitments using CDM and JI projects.

In a test phase running from 2000 to 2006, Finland conducted a pilot CDM/JI programme which focused on small-scale projects. The programme was largely aimed at gaining initial experience with the Kyoto mechanisms and at developing small-scale projects. Of the 20 million euros invested, some 8 million euros were placed into the World Bank Prototype Carbon Fund. A further 1.75 million euros were channelled into the Testing Ground Facility which is administered by the Nordic Environment Finance Corporation (NEFCO, see JIKO Info 04/2005). Finland also developed a number of its own CDM/JI projects. All the CDM projects have been registered and are now being implemented. These involve four small-scale hydropower projects in Honduras, of which the Rio Blanco project was the first small-scale CDM project in the world to achieve 'registered' status. In Estonia, four JI projects are underway in the wind energy and biomass sectors.

The new FINNDER programme is jointly operated by Finland's Ministry for Trade and Industry, Ministry for Foreign Affairs and Ministry of the Environment, all of which appoint representatives to the Steering Committee. The state-run Finnish Environment Institute (SYKE) has a dedicated FINNDER team which operates as a service point: it works as the interface between project developers, host countries and the ministries, and also between project developers and the Designated Operational Entities (DOEs) for CDM projects and the Independent Entities (IEs) for JI projects.

Potential FINNDER projects must generate emission reductions of at least 250,000 tonnes CO₂ by 2012. There are hardly any restrictions as regards approved project types: the FINNDER programme is open to all projects whose methodologies comply with the requirements of the JI Supervisory Committee (JISC) and the CDM Executive Board (CDM EB). There is no geographical preference, either. The only requirement is that the host country must have ratified the Kyoto Protocol and the necessary government agencies must be in place to make CDM and JI projects possible. The main selection criteria are cost and the risks involved with potential projects.

Support for Project Developers

Drawing on the experience gained with the pilot programme, the FINNDER team offers technical support to future project partners across the various development phases. This includes the drafting of PDDs. The FINNDER programme supports projects from the validation phase, through registration and on to verification. It also assumes all associated fees. In addition, project developers can apply for advance payments of up to 50 percent on the expected emission reduction.

The FINNDER team gives preference to project proposals received in the form of a Project Idea Note (PIN) accompanied by a Letter of Endorsement from the host country. If a proposal meets with the team's approval, it is placed in the registration pipeline and the project developer is notified of its ongoing progress. Interested parties can download the PIN format from the FINNDER website.

As soon as the project's emission reduction quantities have been determined, an Emissions Reductions Purchase Agreement (ERPA) is signed between Finland and the project developer. This is subject to the provision of a Letter of Approval from the host country, a Statement of Social Responsibility and other necessary documentation. The FINNDER team also provides support in putting the paperwork together.

Further information is available on the dedicated FINNDER website at: www.environment.fi/finnder. E-mail enquiries may be submitted to the following address: finnder@ymparisto.fi

DK

JIKO News in Brief

Germany and Egypt Sign Memorandum of Understanding

Germany has entered into a bilateral agreement on CDM projects with Egypt. The Memorandum of Understanding (MoU) was signed at the Middle East and North Africa Renewable Energy Conference (MENAREC) in Cairo in June. The MoU largely provides for projects involving energy efficiency and renewable energy sources. More information is available at: http://www.bmu.de/pressemitteilungen/pressemitteilungen_ab_22112005/pm/37291.php

EU Reviews Linking Directive

The European Commission is to present its review of the EU Emissions Trading Scheme by 30 June 2006. The report will analyse experience with the ETS so far and list recommendations for possible improvement. This will include the Linking Directive which governs integration of CDM and JI into the emissions trading scheme. The Commission will submit its recommendations to the Council of Ministers and the European Parliament who will then consult on possible amendments.

JIKO Info will issue a special edition in response to the report. It will take up the key issues involving CDM and JI, look at the current status of the consultations and assess the situation in light of the Commission's recommendations.

Brussels Conference on Linking Emissions Trading Schemes

The Wuppertal Institute hosted the international conference "Linking Schemes: Potential Impacts of Linking the European Union Emissions Trading System with Emerging Carbon Markets in other Countries" in Brussels at the end of May. Given that international trading of emissions allowances at installation level does not appear on the Kyoto Protocol horizon, conference participants agreed that linking the EU Emissions Trading Scheme with emerging national emissions trading schemes in other Annex B states is a pragmatic and extremely promising approach to creating an international carbon market in the medium term. More information and conference presentations are available at: www.wupperinst.org/linkingschemes.

Gold Standard for Voluntary Offsets

Gold Standard, the organisation responsible for certifying high-value climate protection projects (see JIKO Info 03/2005), has published its standards for voluntary offset projects. These are projects which, rather than being conducted under the CDM, take the form of voluntary activities such as businesses offsetting their air travel emissions. Project developers can now receive Gold Standard certification for these project activities if they fulfil the new set of criteria. The Gold Standard flyer on voluntary offsets and the new Gold Standard newsletter are available for download at: <http://www.cdmgoldstandard.org/materials.php>

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