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Wuppertal Institute for Climate, Environment and Energy

NEWSLETTER OF THE PROJECT "JIKO DEVELOPMENT PHASE 2007–2009" · WUPPERTAL INSTITUTE · RESEARCH GROUP ENERGY, TRANSPORT AND CLIMATE POLICY

Editorial

Dear Readers,

Just a few weeks from now, the Climate Change Summit will begin in Copenhagen where it is hoped that agreement will be reached on an ambitious climate regime for the 21st century. Although negotiations are rather sluggish, a roadmap was actually agreed in Bali back in 2007. Therefore, what is needed from Copenhagen is not another negotiation roadmap, but a ratifiable climate change agreement. This will include decisions on the future of the Kyoto Protocol's project-based mechanisms. On the one hand, the stringency of future targets will determine the depth of the market. On the other, negotiators have presented detailed proposals for a reform of the mechanisms.

This issue of JIKO Info looks at the future emissions trading market and ponders how a harmonised carbon market might be structured. It explores opportunities for a joint EU-US emissions trading scheme, reviews the current geographical distribution of CDM projects and evaluates how existing reduction commitments help in achieving the 2°C target and boosting demand for CDM/JI certificates. Finally, it assesses the CDM's potential role in developing a sectoral mechanism.

On behalf of the JIKO team, I wish you an interesting and informative read.

The Editor

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In the US, the debate on the creation of a US emissions trading scheme is soon expected to reach a decisive phase. For the EU, linking the EU Emissions Trading Scheme with the US is a strategic goal. It is expected, however, that the US system will differ from the EU ETS in a number of fundamental aspects. JIKO Info looks at the debate as it stands to date and at possible next steps.

Since the adoption of the Kyoto Protocol, the establishment of a harmonised international emissions trading scheme has been a key strategy in international climate policy. Up to now, only a mosaic of national and sub-national schemes has evolved, with many design elements differing from one another – sectoral coverage, cost-limitation mechanisms and recognition of external certificates and price ceilings.

Since President Obama took office, the US appears to have set about developing the biggest national emissions trading scheme in existence. The House of Representatives has already approved draft legislation (the Waxman-Markey proposal). Obtaining Senate approval is the next step, although it is likely that Senate debate on the proposal will drag on into next year.

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CDM Market Still Undeveloped: Only Industrialised Nations Can Improve Geographical Distribution

If we are to believe the words of UNEP Director Achim Steiner, the CDM and the carbon market are among the biggest success stories in the international climate regime. Compared with around 60 CDM projects in 2004, there are now over 5,000 projects in the project pipeline. For the future, Steiner says the task at hand is to make the CDM more streamlined and overcome barriers that stand in the way of CDM use in key emissions sectors. At the end of the first commitment period, UNEP's annual report forecasts 8,000 CDM projects with an overall value of USD 30 billion. Despite this excellent outlook, the CDM still attracts considerable criticism. One fundamental point of contention involves the geographical distribution of CDM projects. This article thus assesses the CDM's success outside the big five host countries and sets out the prospects for better geographical distribution of CDM projects.

A well-functioning mechanism ought to result in the broadest possible geographical distribution of CDM projects. This is certainly the case if a global secondary objective of the offsetting mechanism is to foster climate change awareness in as many states as possible and to boost climate change capacities using specific project models.

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Poor Outlook for Transatlantic Emissions Trading Scheme
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With the prospect of emissions trading schemes operating on both sides of the Atlantic, the question arises as to whether they might be linked. According to economic theory, linking the two would increase their economic efficiency because a bigger system would provide for greater diversity in emission sources and allow more reduction options than two stand-alone systems. This would lead to greater liquidity in the market and better allocation of resources using the most cost-effective reduction options, thus lowering the costs involved in meeting emissions targets.

'Linking' means that the certificates generated by one system can be used either directly or indirectly to fulfil commitments under another.

A *direct* link means that the participants in one system can purchase certificates from another and use them to meet their targets. This can be achieved using one of three mechanisms:

- Linking could take the form of a formal, binding agreement between the respective governments. This would no doubt require a long-winded process of negotiation and ratification, but would provide a high degree of legal security and transparency. Once the agreement was signed, the partners' national emissions trading laws would need to be aligned to enable the purchase and use of certificates from the other's scheme.
- Governments could reach an informal agreement to amend their legislation to allow linking of the schemes. This could take the form of a memorandum of understanding.
- If no formal linking is agreed, private-sector market players could use private contract law to trade between the two systems. For example, an exchange took place between participants in the then Danish and British emissions trading schemes back in 2002.

Indirect linking occurs when two systems (A and B) are linked with a third (C) but not with each other. If, for example, the EU ETS were to be linked with the US and Japanese systems, then the trends in the two countries would also impact on each other even if no formal agreement had been signed between them. It is expected that most new systems will be linked with one another via the CDM because most will allow use of the CDM.

Linking the new national systems could also affect international policy because as a bottom-up process, it would provide a back-up for the top-down approach used in the international climate regime. Creating a global emissions trading system is thus a major objective in EU climate policy. As an interim step, the EU wants to establish an OECD-wide market by 2015 and a link with the US is seen as a key element in this endeavour. Together, the EU and the US are responsible for around 60 percent of current Annex I emissions. Among the

The coal-fired power plant at Jaenschwalde, Germany, is one of the installations covered by the EU Emissions Trading System
Photo: © Andreas F., Photochase.de

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Annex I nations, Australia, Iceland, Japan, Canada, New Zealand, Norway, Switzerland and the US have all discussed emissions trading schemes or have already implemented them. Of these, the EU and the US are responsible for about 80 percent of emissions. In addition, the EU and the US will no doubt make for a significant share of demand for the CDM because Russia and the Ukraine are unlikely to become buyers in the near future. If a combined EU-US market is established, then 'global emissions trading' will largely become synonymous with this transatlantic market and this in turn would form the backbone of the international regime. The European Commission has therefore proposed setting up an EU-US working group on the carbon markets.

These possible advantages are, however, based on an optimal scenario in which all sides establish compatible systems and link them with each other. There are signs, however, that the emerging systems will differ greatly from one another. Such differences can result in considerable negative effects. These include:

- At least in the near future, the emissions targets in the US could be significantly lower than those in the EU and this could lead to differing, autonomous prices. Linking the US system to the EU ETS would thus result in rising emissions and energy prices in the US – a situation that would naturally meet with opposition in the US. Also, linking the EU ETS with a less-ambitious US system would be rejected by the EU because the EU would become a net purchaser by default.
- The US system is likely to contain price control mechanisms, such as the issuance of additional certificates if a specific price level is achieved or even a maximum price. Such mechanisms would, at least in the short term, push emission target compliance into the background in favour of cost control. Further, by linking with the US system, the EU would allow an element of control regarding prices in the EU.
- A US system is expected to recognise certificates from land and forest management activities and from avoided deforestation, which the EU has excluded thus far. By linking the systems, these certificates could be used indirectly in the EU: American businesses could use them in place of US allowances and then sell the resulting surplus US allowances in the EU. This would circumvent the policy decision not to recognise these certificates in the EU.

Given these differences, it appears unlikely that the OECD-wide market planned by the EU can actually be established by 2015.

Using targeted measures, it would be possible, however, to achieve a gradual price alignment and so create the conditions for an eventual complete linkage between the two systems. In this way, for example, price control mechanisms in the US could be made dynamic and in the medium term meet the projected price level in the EU. In the longer term, price controls in the US could probably be done away with altogether.

The development of coordinated standpoints is also thinkable in respect of recognising external certificates. Both in the EU and in the US, there is great dissatisfaction regarding the existing CDM mechanism and there is considerable interest in sectoral mechanisms. If agreement can be reached on the criteria for external certificates, it would eliminate one obstacle to the establishment of a linked emissions trading system.

The two systems should also have mechanisms to allow regular recalibration, by aligning targets, prices or both. This would allow both sides to adjust to new scientific and technological advancements, respond to policies in other countries and learn from one another. In the longer term, it would also allow them to strive for greater convergence, by means of system linkage, harmonised prices or a transition from harmonised prices to system linkage.

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CDM Market Still Undeveloped
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In reality, though, this objective has not yet been reached: the CDM is not infrequently labelled as the China Development Mechanism and the lack of CDM projects in Sub-Saharan Africa is often criticised. It is not surprising that the Chinese government treats such criticism with reserve and presents its national climate change efforts in such a way that they significantly exceed the value of the CDM. But China also points out that the CDM host countries have it within their power to develop attractive CDM-fostering policies. While other countries with large numbers of CDM projects would have no problems in signing up to this counter-criticism, only few developing countries can report any significant successes in the CDM market – India and Brazil, for example.

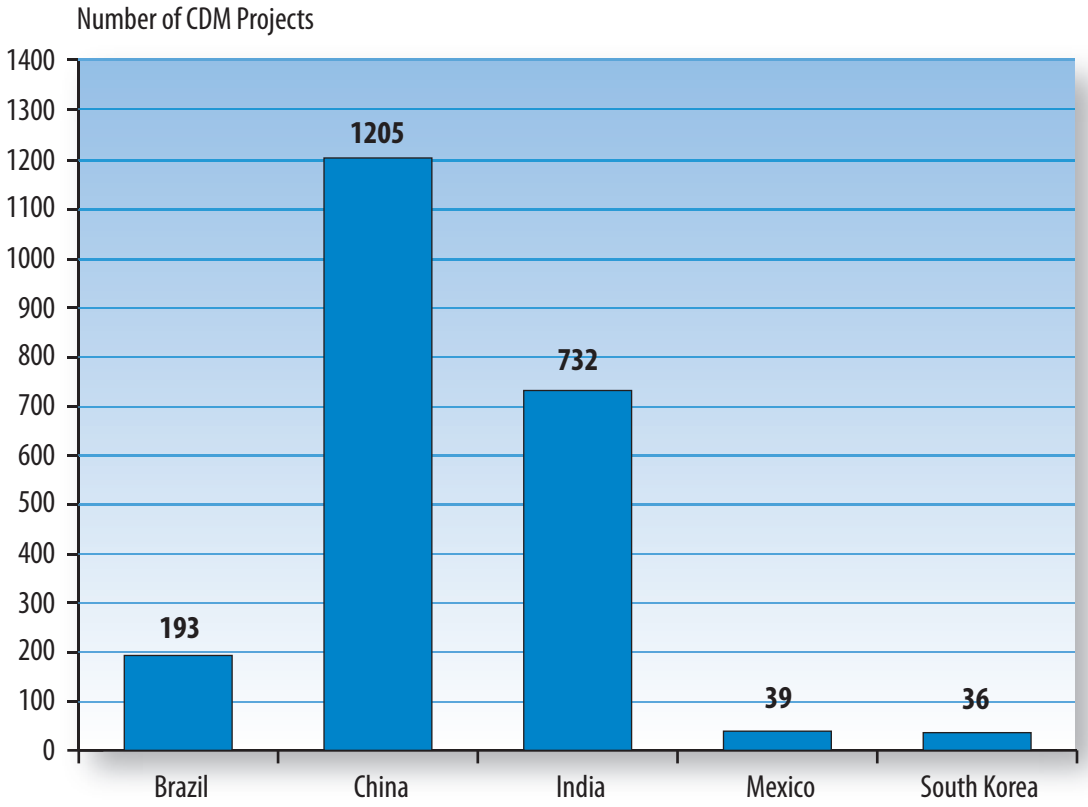
For more on the rules for the third trading period, see www.jiko-bmu.de/414 (in German only)

Another question is whether the criticism regarding the lack of projects in least developed countries (LDCs), and particularly Sub-Saharan Africa, should not to a large extent also be directed at the Annex I states. On the one hand, the LDCs are free to develop a proactive CDM structure. On the other, use of the CDM will hardly help them improve their economic situation or their standing in international trade relations. Switching the focus to the Annex I states, it becomes evident that they have directed hardly any of their potential demand towards the LDCs.

Third EU ETS Trading Period Promotes Projects from LDCs

An initial, serious step was taken by the EU under the EU Emissions Trading Scheme during the third trading period: CERs from projects conducted in LDCs and registered after 2012 can be used, while use of 'conventional' CERs is subject to restrictions. The EU has thus delegated responsibility for exercising this option to company level. This should have the desired effect as regards project developers, intermediaries and carbon funds. A further step was also taken by the EU in the effort sharing decision: a range of EU states may use higher CER quotas if those CERs were generated in LDCs.

Nonetheless, it would appear necessary for Annex I states to boost capacities in host countries and to ensure long-term commitment from industry. The purchase of certificates is not enough in itself. But what is the scale of this challenge and which countries should such support be offered to?



The CDM pipeline for projects awaiting validation and registered projects in the 'big five' host countries

Source: UNEP RISOE / own calculations

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Almost five years after the start of the great CDM boom, another question that arises is whether the initially observed trend towards the 'big five' host countries (see Figure 1) will be maintained in future or whether new trends will come to light which indicate an increase or intensification in the involvement of CDM host countries that have been less involved so far. In other words, is it 'simply' the case that it takes some countries longer to recognise the benefits of the CDM and for the CDM market to develop in those countries?

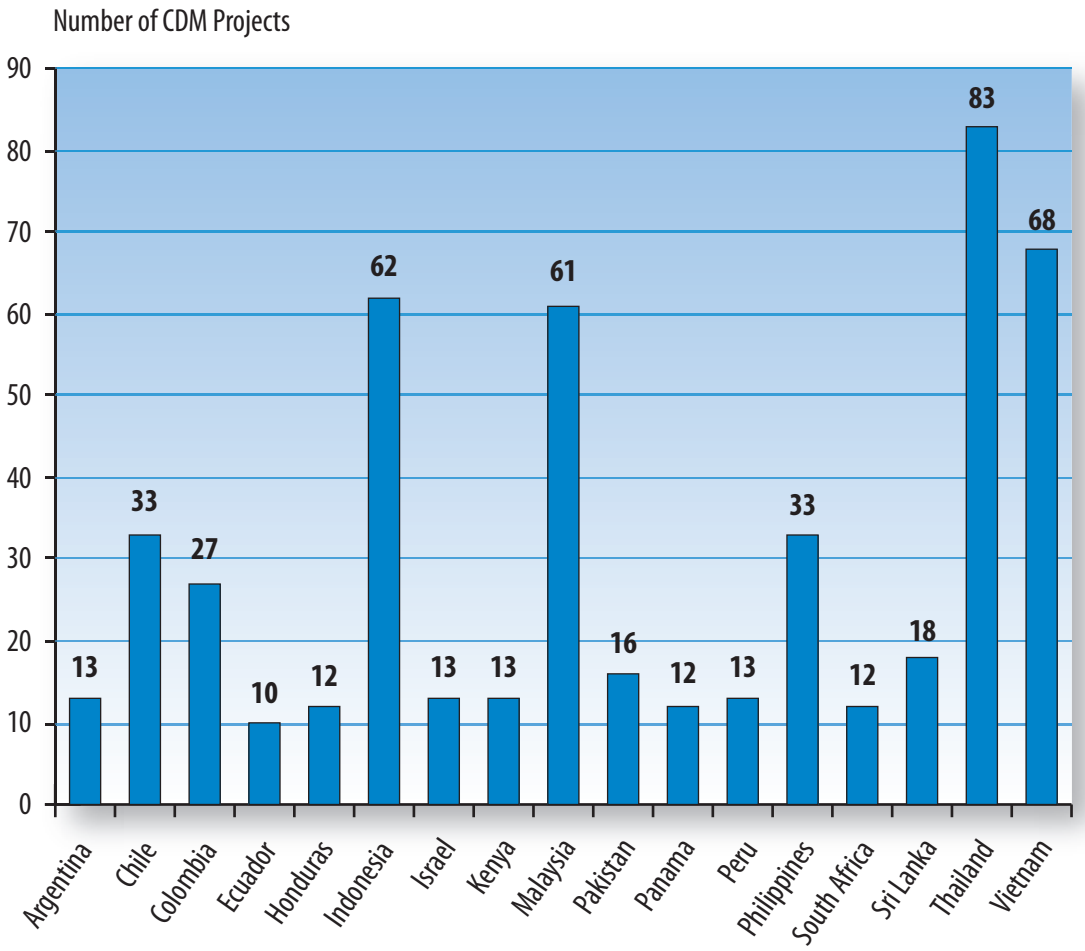
Statistics Highlight 'Second-Most Important Host Countries'

A look at the CDM statistics provides an initial answer. Firstly, the number of projects and emission reductions in the biggest CDM host countries of Brazil, China, India, Mexico and South Korea were excluded (data source in each case is the UNEP Risoe Pipeline). The size of the project pipeline is considerably reduced, by about 77 percent in terms of project numbers and by 84 percent as regards the expected volume of certificates. This leaves only 445 registered projects and 634 projects in the segment containing projects awaiting validation or registration.

A closer look at the remaining project portfolio shows that other countries are very active in the CDM (see Figure 2). A small group of South East Asian and Latin American states with more than 25 projects each make for a total of 367 of the 634 projects, i.e. some 58 percent. These countries include Indonesia, Malaysia, Philippines, Thailand and Vietnam along with Chile and Colombia.

Looking at the group with more than 10 but less than 25 projects, then Pakistan, Sri Lanka, Argentina, Ecuador, Honduras, Panama, Peru, Kenya, South Africa and Israel have a combined total of 132 projects (21 percent).

The pipeline for CDM projects awaiting validation and registered projects, excluding Brazil, China, India, Mexico and South Korea



Source: UNEP RISOE / own calculations

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For another 40 countries with less than 10 projects, there remains a share of 21 percent or 135 projects. Looking solely at registered projects would suggest a significantly weaker outcome. Plus, there are no CDM project activities reported in over 70 other Non-Annex I states. Still, the projects in the validation list, taking into account the risk of failing and the time these projects will retain this status, give a good indication of the dominant trend in the CDM market.

A more detailed analysis of project development and validation periods would provide useful indications for specific countries and for cases where single CDM projects have been registered but there is obviously no capacity yet available to develop a project pipeline. These analyses would not change the current overall picture, however.

What Can Host Countries Do to Boost their Attractiveness?

Further information on Chinese CDM policy is available at www.jiko-bmu.de/482

A more detailed analysis would need to assess the strategies adopted by the CDM host countries. One of the most important questions in this respect would be whether the host countries have made the CDM a priority issue or whether they see it as more as an unwanted international obligation.

Again taking China as an example, along with the binding approval practice there is also taxation and pricing policy: China taxes CERs at between two and 65 percent depending on project type, and by prescribing a minimum CER price it ensures that the agreed purchase price more or less matches the price at international level.

Although both aspects serve to regulate the free carbon market, they each have their positive traits: while pricing policy works at minimum as a brake to stop CER prices plummeting, it also secures the viability of many project types. Plus, taxation of highly lucrative project types naturally involves China's financial participation which in line with the Chinese CDM fund is designed to lead to further climate change activities. Seen as a whole, it can be said that all elements of the mechanism are fully developed, making China a robust CDM country.

Even so, China is extremely interested in international cooperation to advance use of the

The energy-saving light bulb project in Andhra Pradesh, India: A CDM project in one of the 'big five' host countries.
Photo: RWE/Osram

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CDM with as yet market-unready project types in relevant emission sectors such as building and construction. China's recommendation to other developing countries to follow its example has two implications that must be addressed. Firstly, it is a call to compete for a scarce resource in the form of certificate demand. Secondly, many developing countries are nowhere near as attractive as China in terms of economic potential. These countries have neither the capacities nor the resources to develop their emission reduction potential, nor can they consider taxation options that place CDM investment in an even shadier light than it already is in some countries.

Conclusion

A look at the statistics shows that if there is any trend towards involving more countries in the CDM, then the trend is too weak. In trying to explain the reasons for this weakness, reference would be made to the fact that the Annex I states (either as states or via industry) must do considerably more to boost both the demand for and geographical distribution of CDM projects. This essentially concerns the direct demand for certificates, promotion of suitable project types, improving methodological requirements and boosting institutional capacity.

To achieve success, support for the CDM should be coupled with strategic goals to advance climate change policy in the respective host countries. The programmatic CDM can serve as a bridge between the two: more than with single projects, with the programmatic CDM it is necessary to address the limitations of national policy instruments, enhance them and expand them. There is hardly a better place to more clearly define the additionality of CDM projects. If this approach is taken, the cooperative nature of the flexible mechanisms and the international climate regime are far more apparent than if the focus is placed on individual, 'conventional' CDM projects.

To achieve greater use of the CDM and of the reformed CDM, the task in Copenhagen will be to demand practical use of the CDM in bilateral and international climate change cooperation activities. Why not formulate the objective: A country is involved in the CDM market if it has the qualities to develop CDM projects and match them with buyers. This will hardly be the case with only a handful of CDM projects; even 10 projects is likely to be too low a number. Until the country groups are integrated into the carbon market in a qualitative way, the Annex I countries should not only commit more expertise and financial resources to capacity building, but also increase their demand for CERs from these countries.

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2°C Target at Risk

In international climate change negotiations, the 2°C target is increasingly seen as the upper limit of the tolerable rise in temperature. The targets and measures announced so far remain far behind what would be necessary to reach that target. The target debate also has direct relevance regarding the future of the flexible mechanisms, because the target level decides the scope of CDM and JI credits that can be demanded beyond 2012. JIKO Info reports on the current status of the debate.

The 2°C target is increasingly turning into a shared objective of international climate policy. While the EU has maintained this standpoint for years, the Major Economies Forum at its last meeting in the Italian town of L'Aquila also seems to have moved a long way towards this target. Many developing countries, especially the small island states and the least developed countries, are now even calling for the increase in temperature to be kept to 1.5°C.

Up to now, the debate on what this means for specific emissions targets for the next commitment period has largely been based on the famous 'ranges' table in the fourth IPCC Report. This looks at stabilisation of global greenhouse gas concentrations at various levels, including 450 ppm CO_2-equivalent. To achieve this concentration level, the table indicates the need for a 25 to 40 percent reduction in industrialised countries compared with 1990 levels and a "substantial deviation from baseline" in developing countries by 2020.

However, this table is only of limited use in complying with the 2°C target: a stabilisation of greenhouse gas concentrations at 450 ppm CO_2-eq is not equivalent to 2°C. It merely represents the lowest stabilisation scenario assessed by the IPCC so far. The IPCC actually expects these scenarios to result in a temperature rise of between 2°C and 2.4°C.

This means that if the 2°C target is to be achieved with relatively high probability, significantly greater reductions would be necessary than are shown in the ranges table. More recent studies present the challenge in the form of a cumulative climate budget: because the concentration in the atmosphere is the result of all inflows and outflows over time, it is possible to calculate the quantities of emissions that would, for example, be acceptable by 2050 in order to reach a given stabilisation level. In line with recent studies, if the 2°C mark is to be complied with with a probability of 75 percent, then a maximum 1,000 Gt CO_2 may be

The range of the difference between emissions in 1990 and emission allowances in 2020/2050 for various GHG concentration levels for Annex I and non-Annex I countries as a group[a]

Scenario category	Region	2020	2050
A-450 ppm CO_2-eq[b)]	Annex I	–25% to –40%	–80% to –95%
	Non-Annex I	Substantial deviation from baseline in Latin America, Middle East, East Asia and Centrally-Planned Asia	Substantial deviation from baseline in all regions
B-550 ppm CO_2-eq	Annex I	–10% to –30%	-40% to –90%
	Non-Annex I	Deviation from baseline in Latin America and Middle East, East Asia	Deviation from baseline in most regions, especially in Latin America and Middle East
C-650 ppm CO_2-eq	Annex I	0% to –25%	–30% to –80%
	Non-Annex I	Baseline	Deviation from baseline in Latin America and MIddle East, East Asia

Notes:
a) The aggregate range is based on multiple approaches to apportion emissions between regions (contraction and convergence, multistage, Triptych and intensity targets, among others). Each approach makes different assumptions about the pathway, specific national efforts and other variables.
Additional extreme cases – in which Annex I undertakes all reductions, or non-Annex I undertakes all reductions – are not included. The ranges presented here do not imply political feasibility, nor do the results reflect cost variances.
b) Only the studies aiming at stabilization at 450 ppm CO_2-eq assume a (temporary) overshoot of about 50 ppm (See Den Elzen and Meinshausen, 2006).

Source: IPCC (Intergovernmental Panel on Climate Change) (2007): Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, Chapter 13. Cambridge, New York: Cambridge University Press.

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emitted during the period 2000 to 2050. Some 350 Gt CO_2 of this 'budget' have already been emitted between 2000 and 2009.

2° Target: Rising emissions must be halted without delay

The braking distance is proportionately short. If it were possible to stop the rise in global emissions in 2010, they would have to be reduced by 3.7 percent in each subsequent year to have a good chance of achieving the 2°C target. If the rise in emissions can only be stopped in 2015, the annual reduction rate needed to achieve the same stabilisation target would already have risen to 5 percent. If the peak in emissions shifts to 2020, annual reductions of 9 percent would then be needed and would be almost impossible to implement.

WBGU Special Report: Solving the Climate Dilemma: The Budget Approach
www.wbgu.de/wbgu_sn2009_en.html

As the German Advisory Council on Global Change (WBGU) states in its new special report: "Unless the international community can agree the required global emissions reductions to 2020 and implement them accordingly during the course of the next four to five years, the German Government subsequently in office from 2013 would be left without any further climate policy leeway. The only issue left open for negotiation would be global reduction rates that are unrealistic in the extreme."

Reduction targets too low

By way of contrast, the emissions targets proposed so far are way below those in the ranges table. Depending on the outcome of the negotiations, the targets proposed by the industrialised countries add up to between 10 and 24 percent compared with 1990 levels. The broad span results from the fact that most countries have formulated ranges of potential targets. If what is seen as 'hot air', i.e. the extremely generous allocation of emission allowances to former Eastern Bloc states, is carried over unabated into the next commitment period, a four-percent deduction would have to be subtracted from each overall target. The new Japanese government recently brought a positive note to the proceedings, however, by throwing a target of 25 percent for Japan compared with 1990s levels into the debate, thus significantly exceeding the eight percent offered by the previous government. Norway went a step further: during the negotiations in Bangkok, it announced its intentions to agree to a 40 percent target. On the whole, though, the announcements made by the industrialised countries are too weak.

This evaluation also applies to the EU to a great extent. While its 30 percent target is formally within the IPCC range, most criteria-based proposals on allocating emissions targets (e.g.

Solar installation in Calvia in the Serra de Tramuntana region (Majorca, Spain)
Photo: obs/MPC Capital Group

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based on per capita emissions and/or per capita GDP) would require a significantly higher target than 30 percent from the EU, even for stabilisation at only 450 ppm.

Developing countries formulate potential contributions

The situation regarding developing countries is more difficult to assess. The big emerging economies have all presented national climate change programmes and are enhancing them in an ongoing process. For example, India has increasingly strengthened its initially very vague national 'missions' and has proposed what are in some respects very ambitious targets for elements like greater use of renewable energy. Quantification of the emission reductions expected in the emerging economies can, however, only be estimated at best due to the lack of available data. Ideas such as those recently proposed in China, to only halt the rise in national emissions by 2030, are in no way compatible with achieving the 2°C target.

The efforts made by developing countries will essentially depend on the level of support the industrialised nations are willing to provide. Both the Climate Change Convention and the Bali Action Plan link climate change activities in developing countries to industrialised nations assuming the additional costs involved. The industrialised nations have, however, brought very few offers to the negotiation table.

If the 2°C target is to be met, the world's major capitals will need a stronger shake-up in the run-up to Copenhagen. Otherwise, from an environmental standpoint, even the formal signing of an agreement will be seen as a failure.

When it comes to the flexible CDM and JI mechanisms, the targets proposed so far will not spark any new activity. This is especially the case given the current decline in emissions as a result of the economic crisis. For example, it is likely that purely on the basis of existing measures, the EU will achieve emission reductions of 25 percent by 2020. If the EU remains with its 30 percent target, there would probably be no greater need on the EU side to purchase additional allowances. The situation will no doubt be the same for most other industrialised countries.

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German Environment Ministry: Emissions Trading Revenue Finances Climate Change Projects

Germany's International Climate Change Initiative: An Innovative Financing Mechanism for Climate Change Activities Worldwide

by Norbert Gorißen,
German Environment Ministry

Norbert Gorißen heads the Strategic Aspects of International Cooperation Division at the German Environment Ministry (BMU). He is responsible among other things for issues relating to financing for international climate change activities, climate policy in the G8 process and the international climate change initiative.

Since 2008, the German Environment Ministry (BMU) has used its International Climate Change Initiative (ICI) to promote projects in developing countries and emerging economies, and also in transition countries in Central and Eastern Europe. The revenue accrued from the auction of emission allowances gives BMU an annual EUR 120 million for additional climate change measures at international level. Germany reinvests a large portion of this revenue in international and national climate change activities and has thus created a uniquely innovative financing mechanism to serve climate change mitigation.

The aim of the initiative is to actively support partner countries in their climate change efforts and make an effective contribution towards reducing carbon emissions, adapting to climate change and protecting climate-relevant biodiversity. The initiative thus provides important stimulus in negotiations on the international climate regime beyond 2012.

The ICI is innovative not just in terms of its funding source, but also in how its funds are used. Particular support is given to project proposals that explore new ideas and solutions in sectors like renewable energy and allow further development of any promising approaches that emerge from the international climate change negotiations. One example involves a range of ICI-funded projects that take vastly different approaches to achieve a common goal: further development of the Programmes of Activities (PoAs) under the CDM.

The PoA instrument gives small-scale emission reduction projects access to the carbon market. For small-volume projects, the costs incurred in the CDM approval process are disproportionately high compared with the overall project budget. With the PoA, consolidation of small-scale projects of the same type and a simplified validation process lowers transaction costs and assists project implementation.

But even so, far fewer PoA projects have been implemented than was hoped for. To foster further development of PoAs, the ICI will promote methodology development and the design of monitoring instruments, and will provide start-up help for pilot projects and capacity building activities in the partner countries.

In Vietnam, for example, BMU has used ICI funds to support GFA Envest GmbH with a PoA design for decentralised biogas production on small holdings. An assessment will be made as to how mini biogas plants can be partially financed from revenue accrued from the sale of PoA-generated certificates.

Apart from drafting the documentation needed to register a CDM PoA project, GFA Envest has cooperated with participating institutions to develop proposals for a PoA implementation structure in Vietnam. The implementation structure sets out roles, responsibilities and financing flows for all involved in the programme.

Recommendations for targeted institutional structures, capacity building and programme implementation resulted in a practice-focused **manual** for use by future PoA coordinators which was well received on the Vietnamese side.

The **PoA CDM Manual** was published by UNEP Risoe Working Center as part of the CD4CDM Working Paper Series and can be downloaded at: http://cd4cdm.org/Publications/PoAManualBiogasHouseholds.pdf

A cross-sectoral approach

Apart from the attempt to embed PoAs in the private sector, some ICI projects are designed to make the public sector more aware of the added value of and principles behind the programmatic approach. In Brazil, for example, InWent (Capacity Building International, Germany) has helped the city authorities in Manaus (Amazonia) to exploit considerable energy-sav-

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The biogas programme in Nigh An Province, Vietnam, is funded by the ICI.
Photos: Zoran Kapor, Daniel Blank

ing potential in its buildings. By consolidating activities to increase energy efficiency in several public buildings, the PoA option will be used to replace compression air conditioning with natural cooling systems. This involves conducting potential analyses and developing a CDM methodology for the programmatic approach in the building sector. InWent also supports its partners by drawing up guidelines for energy efficiency in buildings.

With targeted training measures, InWent gives key individuals such as decision-makers in national approval authorities the expertise they need to review and approve CDM projects. As a best practice model for the construction sector in Brazil, the project can also make it easier for CDM PoAs to be used for private office complexes, shopping centres and housing developments.

These two examples show that the PoA mechanism is still in the test phase. It is all the more important, therefore, that at the Climate Change Summit in Copenhagen this coming December, experience gained with and approaches designed to enhance and implement the programmatic approach flow into the debate on reform of the Kyoto Protocol's project-based mechanisms.

Further Information
For further details of the International Climate Change Initiative see: http://www.bmu-klimaschutzinitiative.de

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Can the CDM Contribute to the Sectoral Mechanisms?

The Example of Waste Management

Waste management projects in the CDM can be seen from differing standpoints. While landfill gas projects are amongst the more successful project type, with more than 250 projects currently in the CDM pipeline, they largely involve simple technological fixes that allow methane produced in landfills to be flared off without making practical use of the heat generated. In older landfills and simple waste dumps, there are often no alternatives. The CDM created the first ever viable option to avoid methane emissions and other harmful impacts on the local environment and the health of the local population. Alternative, technologically more complex models such as mechanical-organic pre-treatment of waste are rarely employed. While both project types achieve the same emission reductions, flaring methane is far cheaper to implement and thus makes such projects financially more attractive given current framework conditions in the CDM. For this reason, it is possible to speak of a technology policy imbalance within the CDM, because the CDM rewards only the emission reductions achieved regardless of the (in the longer term potentially more climate-friendly) technology used.

This is why in this case, the standard market economy argument – whereby demand for certificates initially favours cost-effective waste technology and cost-intensive potential is also exploited in the longer term – only applies to a very limited extent. Developing countries still harbour huge potential in existing landfills that would be suited to CDM projects. Because methane flaring projects generate higher profits (as outlined), there is a risk that simple landfill gas projects will also be seen in those countries as a solution to municipal waste management problems in instances where cost-intensive technologies would be the better approach. Also, once a decision is made it has long-term effects: if a regional authority in a developing country has opted to set up a landfill site, this makes it difficult for many years down the line to introduce more sustainable waste management technologies in that region.

Yet many simple landfill gas projects face problems: the existing projects often achieve far lower emission reductions than expected because it is difficult to project the quantities of methane the sites will produce and capturing the gas is problematic. This throws into question the viability of many existing CDM landfill gas projects. Addressing these problems raises the technical requirements applied to landfill gas projects and result in more conservative

First Order Decay Model (FOD)

The IPPC prescribed that the FOD model be used to establish greenhouse gas inventories for the Annex I states. It currently recognises two different calculation methods. The model was adopted with the second calculation method for the CDM from 2006. Emission reductions are no longer accounted for immediately after landfill gas has been extracted, but rather at a later date after projection of the emissions that would have occurred without the gas being captured. Instead of 100 percent of the emission reductions, the model allows around 9 percent of certificates to be issued in the first year. At the end of the CDM project's lifecycle, if a 10-year accounting period applies then some 62 percent of emission reductions achieved are accounted for with certificates. Apart from the timeframe involved, the FOD model also involves standardisation of waste components which would not necessarily be fair in respect of a given waste volume or specific technology. The FOD model is suspected of fostering trends towards simple technologies. Its advantages and disadvantages are addressed in detail in the annex to the German Environment Ministry's CDM waste management guide (see the Box on page 14).

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assumptions regarding achievable emission reductions. Scepticism rises in respect of simple projects and thus the hope that investors will be more willing to test and consider more sustainable technologies when implementing new projects.

To better exploit the environmental benefits of waste treatment processes, the existing CDM methodologies should be made more practice-focused. CDM methodologies are also needed for the following sectors:

- Capping of landfills with organic methane-oxidation layers.
- In-situ ventilation and stabilisation of landfills (currently being reviewed by the Methodology Panel).
- Landfill reclamation (one proposal was rejected because it failed to use the FOD model).
- Material recovery and substitution of primary raw materials.

Against this backdrop, one of BMU's main priorities is to effect greater sensitisation to more sustainable waste management models. With capacity building for sustainable waste management policy, CDM host countries can alter their priorities accordingly. Thus, in cooperation with its Export Initiative Recycling and Efficiency Technologies (RETech), BMU has published a CDM waste management guide – Utilisation of the CDM in Waste Management: Guide to Foreign Investment Projects (see Box).

Innovation Potential of Sectoral Approaches

Apart from efforts under the existing CDM, the current climate change negotiations give rise to the question of whether other instruments or a reform of the CDM would allow the potential of more sophisticated technological solutions to be exploited in the waste management sector.

CDM Waste Management Guide

To highlight approaches towards greater use of modern waste treatment technologies, the guide provides information for project developers, technology providers and competent authorities in CDM host countries. It sets out opportunities and courses of action for better use of the Kyoto Protocol's project-based mechanisms for modern waste treatment technologies. It also discusses use of the programmatic CDM (Programmes of Activities). Technological opportunities and economic conditions are linked and addressed in connection with the following:

- Areas of application and limitations of approved CDM methodologies for waste management projects, including a tabular summary for the methodologies AC-M0001, AMS III.G, AM0025, AMS III.E and AMS III.F.
- Ecobalance forecasts for projects which reduce or prevent the occurrence or release of methane from household waste.
- Description of modern waste treatment technologies (higher performance landfill models, mechanical/organic waste treatment and waste treatment to produce heat or energy) and sustainable treatment and usage pathways as a combination of various treatment technologies – adapted to suit a specific situation (local climate, waste composition, etc.).

In addition, waste management information and statistics have been collated for a number of different countries (including JI countries). These are available at www.jiko-bmu.de and www.retech-germany.de, along with the complete guide. The German Environment Ministry will use the findings and suggestions in its bilateral cooperation activities.

Download the Guide at: www.jiko-bmu.de/845

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The CDM landfill project in Bandeirantes, São Paulo: The project design provides for methane capture to trap heat.
Photos: KfW

Innovative waste treatment methods could, for example, be implemented as part of the many sectoral approaches being discussed internationally and/or as part of the climate change efforts that developing countries are likely to embark on as Nationally Appropriate Mitigation Activities (NAMAS).

With a sectoral approach, certificates would theoretically be issued for all emission reductions which remain below a baseline set for the respective sector. This can result in a baseline for a specific project being set below the business as usual (BAU) mark. The difference between the BAU and the baseline would then accrue to the host country government. Unless, that is, internationally agreed rules allowed the emission reduction to be credited to the project participants. Details of these approaches are currently under negotiation.

On the other hand, it is naturally less satisfying if the emission reduction is more or less credited to the host country as a by-product with the host failing to play an active role in developing the emission-saving project(s) or even to consider waste management policy as part of long-term climate change requirements. This standpoint is, however, somewhat theoretical because in reality the host countries are for reasons of social policy interested in sensible, sustainable solutions for the waste management sector and are usually lacking in resources, meaningful waste sector data and, more importantly, the instruments needed to achieve progress towards sustainable development.
In addition to publishing its CDM waste management guide, the German Environment Ministry has thus commissioned bifa environmental institute to put thought to the conditions needed to allow sectoral approaches in waste management. On the whole, waste management experts see the limitations of the CDM as a problem in terms of indifference towards the differing waste technology models and services, as described earlier. If the benefits of the CDM as a market instrument are not to be lost, the question arises as to how these barriers can be overcome.

bifa thus works on the development and weighting of technology factors that could supply justifications for cross-sectoral or sectoral approaches to differing ways of rewarding emission reductions. Simple technological solutions such as methane flaring would then be subject to discounts when certificates are

issued, while more sophisticated technologies such as mechanical-organic waste treatment with composting or fermentation stages would receive the full quota of certificates.

The technology weightings would be linked to sectoral baselines at activity level, which would be set within the scope of sectoral crediting and sectoral no-lose targets. The technology weighting approach assumes that only the maximum achievable reduction amount can be issued. This maximum amount could be achieved with use of mechanical-organic waste treatment with fermentation and composting. Lesser weightings would then be awarded to landfill gas flaring and landfill gas combustion for energy. The different emission reduction quantities would not fall to investors but would be available to the host country.

Depending on the no-lose targets that are set, the host country would be able to use the certificates to make its own contribution or use any excess certificates in international emissions trading. The justification for technology weighting would not be host country-specific, but be of a global nature. In this approach, host country-specific conditions find their place in the setting of the sectoral baseline, the options for which can be derived from the decisions made at future UN climate conferences. In this regard, additional incentives could be provided if the methodological weaknesses of the CDM methodologies (FOD model) could be overcome by a longer-term, overall consideration of the emission activities in line with developing countries' greenhouse gas inventories and balances.

bifa will present its technology factors proposal at the end of the year. To stay up to date, please watch out for announcements on the JIKO website (www.jiko-bmu.de).

TF

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