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Editor's note

Transparency

Both cost-effectiveness and environmental integrity are traditionally the key criteria for the application of the Kyoto mechanisms and there has been much debate on the acceptable edges of their trade-off. Much less emphasis has thus far been placed on the principle of transparency which also seems of key importance in the application of the mechanisms, *i.e.* can any interested person clearly see and check how and based on which criteria crediting takes place in specific project cases or is this process surrounded with some fuzziness? The request for more transparency of crediting procedures may well become more important as we have entered the stage of actual CDM/JI project implementation and payments for carbon credits are taking place.

Not only is transparency an important issue for green NGOs and others that have a professional or general interest in knowing what is precisely going on in the several processes set up by investors to acquire carbon credits, it is also particularly important for the (direct and indirect) competitors of firms that sell serious amounts of JI/CDM emissions reduction credits. After all, any 'overdose' of credits a firm would capture from its JI/CDM investment puts at least its direct competitors at an undue competitive disadvantage.

Such a competitive effect can be non-trivial indeed. The latest three completed tenders of the Netherlands' government – ERUPT-1 and 2, and CERUPT with 8 approved JI projects (roughly estimated total investment around € 700 m) and 18 CDM projects (roughly estimated total investment about € 1,100 m) – have shown that the credit value of the 26 approved projects taken together represents 5-10% (some € 135 m) of the overall investment amount. Assuming this figure to be representative for the general JI/CDM picture, a hypothetical 10% 'overcrediting' margin - something a non-transparent procedure could probably obscure well - could represent a serious fraction of the usual profit margin (especially if that margin is low on average), and therefore have a serious competitive impact.

In order to achieve transparency, it is crucial that everybody would be able to precisely follow the processes of baseline determination, setting project boundaries, dealing with leakages *etc.* which eventually generate the amount of credits from a particular project. The best guarantee for achieving transparency is probably via a public tender with completely clear and publicly known tender terms and procedures. The ERUPT and CERUPT tenders set out by the Netherlands are probably the best examples satisfying the transparency criterion: the document explaining the procedure is public, detailed, project type-specific, and covers some 100 pages that everybody can download and check. Other comparable and increasingly popular non-tender programs guiding the JI/CDM crediting process run the risk of being less transparent. For example, banks, as well as multilateral institutions, are setting up investment funds for credit acquisition. This seems fine, but it may lead to cases where it is not always very transparent what the procedures are, and specifically why particular baseline methods are used in particular circumstances (it should be realized that choosing one method or another can have quite an impact).

Additionally, the environmental integrity of the KP might benefit from a transparent notification procedure as an element in the JI/CDM crediting process. On the basis of such a procedure, direct competitors would be able to appeal (in court or otherwise, and obviously at their own costs and via a fast and simple procedure) if they believe they can show that their competitors have been 'overcredited.'

Scanning through the present KP/MA appeal procedure learns that (surprisingly) such a provision is not specifically foreseen. The only 'appeal' procedure is based on MA Decision 17/CP.7, Annex G, par.40c, saying that during the validation process "the designated operational entity shall receive, within 30 days, comments on the validation requirements from Parties, stakeholders and UNFCCC accredited non-governmental organizations and make them publicly available". This procedure entered into the legal text during the negotiations, and typically allows green NGOs formally to be heard in each project-dossier. This provision may therefore actually turn out to be a corrective device, even if it is still up to the validator to see to what extent the comments are taken into account (par.40d).

So, what the par.40 procedure to my knowledge does not facilitate, however, is the clear possibility for those having the most direct interest in the dossiers – the direct competitors of the investor firm – to appeal against a concrete crediting procedure. The result is that if a business firm gets the feeling that its main competitor is treated a bit too well in being credited for its CDM investment, there is not much it can do about it within the scope of the KP.

If such a simple provision had been taken up, it could have created a potentially very powerful feedback mechanism to enhance transparency and promote environmental integrity.

Catrinus J. Jepma
Chief Editor

In this issue:

CERUPT First Round Concluded

On 13 March 2003 the State Secretary of the Netherlands' Ministry for Housing, Spatial Planning, and the Environment (VROM), Mr. Pieter van Geel, approved 18 CDM projects for the first round of CERUPT. Together, these projects aim to achieve over 16.5 Mt CO_2-eq. emission reductions.

After its opening in November 2001, the first CERUPT round received 78 *Expressions of Interests* (EoI) from project developers to offer CDM project credits (CERs) to the Netherlands' government. A number of these EoIs were short-listed to be further developed into a full project proposal of which eventually 18 projects were approved (see Box 1). The projects will now be submitted to the CDM Executive Board (EB) for approval and registration. Although the total sum involved in the acquisition of the CERs from the selected projects was not disclosed, it may amount to about € 78 m. This estimate is based on the average CER price of € 4.7 in the 78 EoIs and the 16.5 m CERs expected to result from the 18 selected projects.

Mr. Pieter van Geel approves 18 CDM projects

Apart from the CERUPT round, the Netherlands' government also aims at purchasing CERs via third parties. It has concluded contracts with the World Bank's International Finance Company (IFC; see hereafter), the International Bank for Reconstruction and Development (IBRD), the regional development bank for the Andes (CAF), and the Dutch Rabobank (see next page). The Netherlands has also signed a number of Memoranda of Understanding with potential CDM host countries which is shown in Box 2.

Bujagali

Of the 19 projects that went through to the second phase, only one project was eventually not approved. This was the Bujagali Hydroelectric project in Uganda. According to a press officer of VROM contacted by phone, the Bujagali project was rejected on grounds of overestimation of the emission reductions by the project proposal.

INCaF

The Netherlands' government and the World Bank's International Finance Corporation (IFC) together set up the IFC-Netherlands Carbon Facility (INCaF). INCaF acquires CERs from CDM projects on behalf of the Netherlands government and has a total of € 44 m available for this purpose.

On 3 February 2003 INCaF announced it had acquired 5 m CERs for about € 15 m from a single project in Brazil, a fuel switch operation in the *V&M do Brasil* steel plant. The project will supply sustainably-produced charcoal to avoid the use of coal for the steel production. Many Brazilian steel producers have converted from charcoal to coal in order to reduce costs. Such a conversion will be prevented by the project in this particular steel plant. This will result in a total predicted emission reduction of 21 Mt CO_2-eq. over the next 21 years. The Japanese Toyota Tsusho Corporation also bought some of the emission reductions.

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Box 1. CERUPT projects

Project	Country	CER amount (x 1,000)
High efficient power generation	Bolivia*	327
Catanduva sugarcane mill	Brazil	196
ONYX Landfill gas project	Brazil	696
Wind farm Inner-Mongolia	China	606
INCSA expansion project	Costa Rica*	491
SARET landfill gas project	Costa Rica*	948
Penas Blanca hydroelectric project	Costa Rica*	807
Shell geothermal energy project	El Salvador*	100
Suzlon 15 MW wind project	India	340
Vestas 14 MW wind project	India	272
Enercon wind farm	India	476
Biomass project Maharashtra	India	300
Biomass project Rajasthan	India	1,150
Geothermal project	Indonesia	5,432
Wigton wind farm	Jamaica	457
Hydro power generation Fortuna	Panama*	225
Esti hydroelectric power plant	Panama*	3,397
Bayano hydroelectric project	Panama*	331

** Countries with which the Netherlands' government has signed an MoU*

Box 2. CDM MoUs

The Netherlands recently signed Memoranda of Understanding (MoUs) with Nicaragua and Bolivia for the transfer of a maximum of 5 and 10 Mt CO_2-eq. respectively for the 2008-2012 period, to be realized through CDM activities. The Netherlands has now signed MoUs with the following countries:

Bolivia	(10 Mt)*
Colombia	(25 Mt)
Costa Rica	(30 Mt)
El Salvador	(5 Mt)
Guatemala	-
Nicaragua	(5 Mt)
Panama	(20 Mt)
Peru	(30 Mt)

** In brackets: the agreed maximum amount of CERs to be transferred (in CO_2-eq.)*

Letter to the Editor

Three letters were received by *JIQ* in reaction to the Editor's Note of December 2002 titled "Credits for Mozart". These letters as well as the response by *JIQ*'s Chief Editor are posted on the JiQ Internet site. For the complete letters and response, please visit: www.jiqweb.org – 'Reaction to Editor's Note'

Rabobank Generates CDM Credits for the Netherlands' Government:

"We want to make this contract a success"

On 21 January of this year, Dutch private bank Rabobank signed a 2-year contract with the Netherlands' Ministry of Housing, Spatial Planning, and the Environment (VROM) for the transfer of 10 Mt CO_2-eq. CDM credits. The contract with Rabobank is VROM's first CDM agreement with a private financial institution. *JIQ* spoke with Rabobank's manager for Sustainable Energy & Environmental Markets, Mr. Daan Dijk about the bank's role and responsibilities under the contract.

JIQ: What is the motivation for Rabobank to engage in a contract with the Netherlands?
Mr. Dijk: The contract between *Rabobank* and the Netherlands' government illustrates how the Triple P principle (people, planet, profit) can be put to practice. The contract enables us to enter into Emission Reduction Purchase Agreements (ERPA's) with clients in developing countries who are developing CDM projects. The cash flow from emission reduction sales helps our clients to get sustainable projects off the ground which would otherwise be difficult to finance. The ERPA arranges for the transfer of project-based GHG emission reductions from the host country to the Netherlands. In addition to the obvious global environmental benefits, purchasing CERs from CDM projects results in economic benefits for the host country.

JIQ: Will Rabobank play an active role in attracting CDM projects with the aim to explore new markets (e.g. the African market), or will its role be more supervisory with a focus on project approval, validation and verification?
Mr. Dijk: Our experience so far is that there is no need to market our carbon finance capabilities. Project companies and developers are well aware of *Rabobank's* role in the CDM market. Our focus is presently on countries such as India and Brazil which have a huge CDM potential. As for Africa, we are not actively looking for CDM projects there. The main reason is that we have no offices in Africa. That doesn't mean though that we're not active in Africa, however. The not-for-profit *Rabobank Foundation* is active in Africa in setting up co-operatives and micro credit systems. *Rabo International Advisory Services* also assists local banks and financial intermediaries in Africa. So, we do not rule out in the future that we will support a CDM project in that region.

Our role in the project cycle is threefold. Firstly, we must make sure that projects, which are brought to our attention, are indeed eligible under the CDM and comply with the CDM selection criteria of the Netherlands' government. Secondly, we assist with the financial structuring of the project. Finally, we supervise the process of carbon asset creation by supervising the baseline study, the monitoring and verification plan, validation and ultimately, certification. Much of the carbon due diligence – the validation, certification, baseline – will be outsourced to qualified third parties.

JIQ: Eventually, the Netherlands' government will acquire the ERPA carbon credits. What safeguard will Rabobank use to minimise the risk that ERPA credits are eventually not recognized as CDM credits?
Mr. Dijk: *Rabobank* is responsible for the project selection. The actual production of emission reduction credits, including the monitoring and verification, is the responsibility of the project company. Rejection of the project could take place in the validation phase if, for example, it turns out that the baseline assumptions are not correct or if procedures in the monitoring and verification plan are considered inadequate. The risk of rejection of credits once the project has entered the operational phase is minimised since we will ensure that a project's design meets the requirements of the CDM Executive Board for registration.

JIQ: Does the latter mean that Rabobank will develop its own guidance for designing CDM projects?
Mr. Dijk: Yes, it does, but it will be similar to PCF procedures. As a PCF participant we are familiar with the PCF guidelines for carbon due diligence. In case the project company seeks debt financing, we will add to this our regular financial due diligence procedures.

JIQ: The Marrakech Accords suggest that multi-project procedures be developed for the CDM. Would you be in favor of that?
Mr. Dijk: For now, we will judge each project on its own merits. However, once standardised baseline methods have been approved by the Executive Board, we will certainly use them when appropriate.

JIQ: Does Rabobank envisage an enlargement of its role in the (near) future by attracting similar contracts with other EU-governments, or by attracting contracts for JI projects as well?
Mr. Dijk: Possibly. But for now the focus is on the contract with the Dutch government. We want to make this contract a success.

JIQ: Presently, there seem to be two approaches for additionality assessment. The Dutch ERUPT-approach assumes implicit additionality when a project beats the baseline. The PCF demands that project developers explicitly show project additionality. How does Rabobank regard these two approaches?
Mr. Dijk: It is not my role to comment on methods used by Senter (Dutch government agency, *ed.*) or PCF. In practice the differences are not so marked since both Senter and PCF focus on environmental additionality rather than on financial additionality. Unlike the latter, environmental additionality can be established in a more objective manner.

JIQ: Being also an investor in the PCF Rabobank would, in principle, have the possibility of partly fulfilling the VROM contract with credits obtained from the PCF, thereby possibly exploring arbitrage opportunities. Does Rabobank consider such transactions?
Mr. Dijk: No, this is not our intention. *Rabobank* develops its own project pipeline.

JIQ: Does Rabobank intend to become actively involved in the EU ETS and, if so, in what way?
Mr. Dijk: A prerequisite for this would be that the EU-ETS allows trade in project-based emission reduction units in addition to trade in allowances. Whilst such a credit trade would be economically efficient, the EU has yet to decide on this.

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Evaluation of ERUPT-2 and 3

On 18 December 2002 the Netherlands' Minister for Foreign Trade signed the contracts for the four projects that were approved under ERUPT-2. On 30 January 2003 the ERUPT-3 tender closed, which received 31 Expressions of Interest. *JIQ* spoke with Ms. Daniëlle Hendriks of the Netherlands' Ministry of Economic Affairs and Mr. Adriaan Korthuis of Senter Internationaal about the two tenders.

JIQ: On the basis of experiences with tendering JI projects under ERUPT-1, the procedures of ERUPT-2 and 3 were adjusted at some points. The guidelines for project developers were revised, acquisition of early action credits was included and the maximum credit price was lowered. To what extent did these adjustments lead to an improvement in the quality of project proposals?
Mr. Korthuis: In ERUPT-2 we aimed at achieving more certainty that selected projects will be implemented in the foreseeable future as JI projects. First, the *Terms of Reference* require that already in the second phase of the tender (which follows after a shortlist of projects has been compiled from the first expressions of interest, *ed.*) projects have to be approved by the designated authority of the host country via a *Letter of Approval*.
Due to this change, we have certainty at the time of signing the ERUPT contracts that the designated authorities of the host country recognize the project as a JI investment.

Moreover, the project design stage has been an important aspect in the selection procedure of ERUPT-2. Most of the selected projects already have energy purchase agreements as part of the project design, which facilitates their eventual implementation. Finally, by offering the possibility of submitting early action credits we have created an incentive for project developers to implement the project as early as possible.

JIQ: The ERUPT-2 guidelines contained non-mandatory standardized emission factors for baseline determination. How have these multi-project factors been used by project developers?
Mr. Korthuis: In ERUPT there are only standardized baseline emission factors available for projects in the power sector. Two of the four selected ERUPT-2 projects are in the electricity sector. One of these projects used the standardized factors whereas the developer of the other project calculated project-specific emission factors. The other two ERUPT-2 projects deal with energy saving in cement production and methane captured from a landfill. For these projects no standardized baseline emission factors were available in the Guidelines.

JIQ: Sufficiently conservative baselines could be a safeguard that projects result in additional emission reductions. Do you believe that the ERUPT standardized baseline emission factors are sufficiently conservative to prevent taking a free ride on the ERUPT credits?
Ms. Hendriks: The *Marrakech Accords* text does not contain a separate additionality test and therefore neither does ERUPT. The basic idea behind 'Marrakech' and 'Kyoto' is that GHG emissions need to be reduced. This will be achieved when clean energy techniques are added to an electricity network with a presently high share of fossil fuels. If the baseline for such projects indicates that in absence of a project the emission reductions related to such a switch would not have taken place or to a smaller extent, the emission reductions can be considered additional.

When formulating the standardized baseline emission factors for the power sector we took into account the existing energy situation and the expected developments relevant for the power sector for a number of possible JI host countries. We have incorporated expectations in terms of energy efficiency improvements and coal to gas switches which is reflected in the decreasing annual baseline emission factors. The standard emission factors under ERUPT comply with requirements of the Marrakech agreement: they are transparent, conservative, and reasonable.

JIQ: An important issue in relation to JI and the CDM is the capacity in the host countries to take part in the design and implementation of projects. Do you have the impression that this capacity has increased, for example because of a larger involvement of local stakeholders in the design of JI projects proposed to ERUPT-2? Have the JI units in Bulgaria en Romania had any effect yet?
Ms. Hendriks: The capacity in host countries has certainly increased. Under the first tender projects were mainly submitted by project developers from the Netherlands and countries other than the hosts. Under the second tender there were mainly offers from host country companies. This is a clear indication that more knowledge about JI and ERUPT has become available for relevant parties in the host countries.
This trend is also perceptible for most authorities. The first two tenders under ERUPT have resulted in projects from twelve different host countries. Most of them turned out to be able to sign *Letters of Endorsement* or *Letters of Approval* in time, which was only possible due to sufficient knowledge about the ERUPT program and the political readiness to cooperate with the Netherlands in the field of JI.

JIQ: At the end of January of this year the ERUPT-3 round was closed. What were the most important changes that you observed in comparison with ERUPT-2? For example, when looking at procedures?
Ms. Hendriks: The ERUPT procedure with its different phases was not changed. On the basis of experience from the first two tenders we had adjusted the *Terms of Reference* though. Eye-catching in this respect is that it enables project developers to construct a detailed project proposal along the lines of a standardized step-wise guidance document. There were also a couple of changes concerning the contents of the guidance. For example, ERUPT-3 reduced the minimum amount of carbon credits offered by a proposed project by half to 250,000 ton CO_2-eq. Moreover, in case of financial advances no use was made anymore of 'discounted prices'. Finally, in the phase of issuing the project, submission of a baseline estimate only is no longer sufficient. Instead, Senter needs a complete *Project Design Document* and a validation report.

We expect that the above-mentioned changes will make ERUPT even more transparent and more attractive for project developers. We expect that this will increase the quality of the project offers so that we can also conclude good project contracts in the future. For the Netherlands, this would mean another step towards reaching its Kyoto target.

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PROBASE *e-SEREM* and Final Recommendations

At the end of 2002 the EU-funded PROBASE research project was completed. Earlier issues of *JIQ* regularly reported on the PROBASE results. This article focuses on the final recommendations of PROBASE and presents the PROBASE Internet-based decision tool called e-SEREM.

Electronic baseline manual

The main focus of PROBASE was on standardizing baselines procedures. Earlier JIQ issues described the methods and tools developed for such procedures. Below is a description of the *Smart Emission Reduction Estimation Manual* (*e-SEREM*), which is an electronic tool for calculating JI/CDM project emission reductions using multi-project baselines. The manual contains benchmark values calculated by the PROBASE analysis thereby taking into account several different project options (*e.g.* base or peak load projects, on-grid or off-grid electricity supply, large or small-scale projects, region, country).

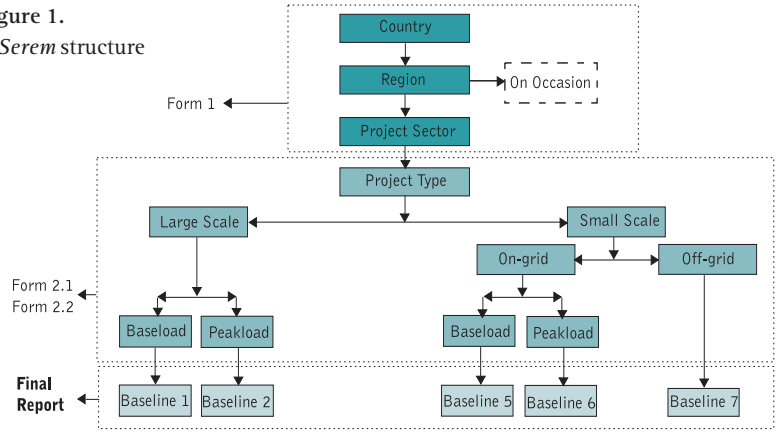
The manual guides project developers through a number of steps based on an underlying decision tree. The result of the manual is a baseline scenario for the project as well as a calculation of the project's emission reduction in the form of a printable report.

e-SEREM was developed to operationalize baseline and GHG accounting procedures that lead to a reasonably high environmental integrity (*i.e.* prevent overestimation of baseline emissions) at reasonably low transaction costs. It was also included in the PROBASE research package because of the *Marrakech Accords'* request for specific guidance into "decision trees and other methodological tools, where appropriate, to guide choices in order to ensure that the most appropriate methodologies are selected, taking into account relevant circumstances," (Para. b(iv) of Appendix C to Decision -/CMP.1 [*Article 12*]).

Testing e-SEREM

In order to test the applicability and practicality of *e-SEREM*, the manual has been developed and tested on the power sectors of three countries – Indonesia, the Russian Federation, and South Africa – as well as on the heat sector of the Russian Federation. The baselines used for these countries are the ones derived under PROBASE using the PERSEUS, Reflex and SimBAT tools (see *JIQ* December 2002, pp.4-5). *e-SEREM* is still in a pilot phase and may be expanded with further items.

Figure 1.
e-Serem structure



e-SEREM structure

The procedure for the selection of the applicable baselines for JI or CDM power and heat sector projects is based on a decision-tree approach. By selecting the host country, region, project sector, project type, scale, grid connection and load profile, the user ends up in a specific branch of the decision tree, which leads to the most appropriate baseline for the project in the system. To illustrate, Figure 1 shows the general structure of the decision tree for power sector projects.

Form 1: general data

In the first phase (form 1) of the decision tree the project developer must fill in general information about the project, such as project name, project country, project region (this is an option if the project host country has regions with significant differences in the electricity sector characteristics, power generation mix, separate grids *etc.*), and the project sector (in this pilot version: heat or power sector). The information is systematically savedby *e-SEREM* so that it serves as automatic input into the next steps.

Defining project specifics

The procedure of data submission in the next phase (Form 2.1) consists of seven data fields that should be filled out:

1. Main project type (*e.g.* fuel switch).
2. More detailed project type identification (*e.g.* for fuel switch project: coal to oil or coal to natural gas).
3. Define the project scale (small or large).
4. Define the load profile of the project (peak, average or base load).
5. On-grid or off-grid investment
6. Starting year of the project
7. Crediting lifetime (10 years or 3x7 years).

Technical parameter values

Subsequently, (in Form 2.2) data for technical parameters on the power sector project must be submitted, such as:

- Capacity in MW.
- Annual fuel Consumption in GJ/y.
- Efficiency of the power plant in %.
- Load factor (utilisation factor) in %.
- Annual project output in MWh/y.
- Annual project emissions in tCO_2-eq/y.

Baseline selection and emission reductions

After the completion of Form 2.2 *e-SEREM* automatically selects the appropriate baseline for the project and calculates the project's emission reductions. The information about the baseline and the emission reductions of the project are displayed in the *Final Report* of the system for power sector projects. (see Figure 2).

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Figure 2. Final report

PROBASE recommendations

Purpose of standardization
Standardization of baseline procedures, parameters and/or emission factors would contribute to the success of JI and the CDM because of the following benefits of multi-project approaches and methodologies:

- Transaction costs in the project design and implementation phase are reduced.
- Standardized baselines with multi-project GHG emission factors reduce the scope for gaming.
- Multi-project baseline can correct for perverse incentives.
- Multi-project baseline can provide a simplified alternative for host countries where data availability and insufficient data quality are problematic for single-project baseline determination.

Standardization and uncertainty
Multi-project baseline determination addresses the problem of baseline variability caused by many data uncertainties and other choices made.

Scope
To the extent feasible, standardisation should not only apply to baseline setting, but also to project proposal procedures (*e.g.* via templates), project boundaries, leakage factors, *etc.*

Forms of standardization
PROBASE has therefore identified three forms of standardization in relation to baseline determination:

1. Standardization of procedures.
2. Standardization of baseline parameters.
3. Standardization of baseline emission factors.

Environmental integrity
Securing environmental integrity with regard to the JI/CDM procedure is imperative to its long-term acceptability. This not only calls for conservative and regularly updated benchmarks, but also for a range of other safeguards, such as limited crediting lifetimes, high data quality and validation/verification standards, careful consideration of leakage factors, *etc.*

Organization of multi-project baselines
It is recommended that multi-project baselines are mandatory for all projects in the project categories and JI/CDM host countries for which they have been determined. The benchmarks would have to be managed under the auspices of the CDM Executive Board (or the JI Supervisory Committee). The benchmark type (*e.g.* country or sector averages, fuel-specific averages or modelled scenarios) selected for a host country depends on the characteristics of that country. For example, a modelling approach could be applied for countries where energy sector characteristics and data availability and quality are well suited for the application of energy models. However, for country where data is limitedly available a less country-specific benchmark could be chosen based on the average emissions in the region, *etc.*

Possibility of appeal and systematic bias
In case appeal procedures are established for project developers who believe that the multi-project is not a reasonable description of what would have happened in absence of the project, there could be a risk of a system bias as it is likely that only those project developers will appeal who feel that the benchmark is stricter than their single-project baselines and those who benefit from the benchmark would not appeal.

Choice of benchmarks
Even if the official acceptance of benchmarks for specific project categories/regions may have political implications, such decisions should be based on a selection by an independent panel of experts preferably from a number of well-documented alternatives that specify sensitivity to key uncertainty factors.

Benchmark type and level of aggregation
The benchmark type and level of aggregation, both with regard to the project category and the regional scope, may have an impact on the overall environmental integrity of the system. Decisions on this should be based on experts' views, based on a mix of principles (transaction costs, integrity), technical factors (grid, substitution possibilities) and practical considerations (data availability).

Forestry
Generic benchmarks do not seem suitable for forestry projects. Yet, there seems to be scope to introduce standardization, *e.g.* by standardising the process to get to a baseline and a leakage factor (templates).

Electronic manual
Standardizing the project design and implementation procedure of JI and CDM, including a multi-project baseline, can greatly benefit from electronic manuals that are freely available.

Political considerations behind the choice of benchmark
For host countries the choice of the benchmark could be crucial for the JI or CDM potential in their countries. For the political acceptability of benchmarks for potential host countries it is therefore recommended that the expert teams, which determine benchmarks under the auspices of the CDM Executive Board, consist of sufficient experts from host countries as well.

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Eileen Claussen: "Voluntary efforts are no substitute for mandatory GHG reduction policies."

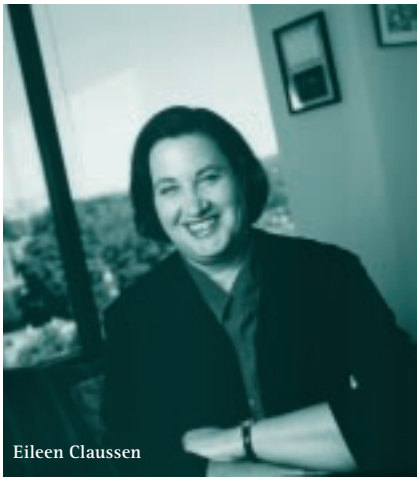
Ms. Eileen Claussen is the President of the Pew Center on Global Climate Change, and President and Chairman of the Board of Strategies for the Global Environment. She has served as Assistant Secretary of State for Oceans and International Environmental and Scientific Affairs, as a Special Assistant to the President at the National Security Council, and has spent over 20 years at the U.S. Environmental Protection Agency. Following her recent testimony before the US Senate, recent publications by Pew, and recent developments such as the start-up of the Chicago Climate Exchange (CCX) and the EU ETS, *JIQ* decided to learn more about her views on these developments.

JIQ: Although the USA will not participate in the first commitment period of the Kyoto Protocol, there are several initiatives in the USA concerning climate change mitigation. One of them is the Chicago Climate Exchange (CCX). Do you believe this is a meaningful initiative considering the US position? Could you see any linkage between the CCX and the EU ETS (e.g. participants of the CCX buying allowances in the EU ETS)?

Ms. Claussen: Indeed, the Chicago Climate Exchange is just one of many developments demonstrating rising support for climate action in the United States. Voluntary efforts such as CCX are no substitute for mandatory greenhouse gas (GHG) reduction policies. But the successful launch of CCX shows that despite the "business as usual" policies of the Bush Administration, a growing number of leading corporations recognize the urgency of climate change and are prepared to act. While the initial emission reduction targets are modest, CCX can play a significant role in the longer term by demonstrating the viability of greenhouse gas trading. Lessons drawn from the companies' experience also can help inform the design of climate change policies such as the legislation recently introduced by Senators Joseph Lieberman and John McCain to cap U.S. emissions and establish an economy-wide GHG trading system.

CCX allows for emission offsets from other countries – initially only from Brazil – so in time it could link to trading systems outside the United States. However, one potential obstacle to linking with the EU trading system is a provision in the EU system that limits trading to countries that are party to the Kyoto Protocol.

JIQ: Emissions trading is typically an American instrument. Yet, it is the EU that will start a large-scale ET scheme. Do you believe the existence of a EU ETS will act as


Eileen Claussen

a catalyst for the USA to consider joining the Annex I Parties more easily?
Ms. Claussen: It is perhaps ironic that Europe, having strongly resisted U.S. proposals for emissions trading during the negotiations leading to the Kyoto Protocol, is now taking the lead in building the international greenhouse gas market. Europe's embrace of emissions trading underscores its commitment to addressing climate change – and to doing it cost-effectively.

In the long term, it is not important on which side of the Atlantic greenhouse gas trading begins. What is important is that ultimately all the major emitting countries commit to meaningful climate action and have access to a well functioning greenhouse gas market. A flourishing market in Europe or elsewhere can certainly help encourage action by the United States both by demonstrating the viability of climate mitigation and by providing access to international offsets.

JIQ: Several climate initiatives have been taken up by individual states in the USA. Do you believe that all these different initiatives will eventually evolve into one comprehensive climate reduction system for the whole nation?
Ms. Claussen: At least 42 of the 50 states now have programs that, while not necessarily directed at climate change, have the potential to significantly reduce greenhouse gas emissions. Thirteen states including Texas now require electric utilities to obtain a share of their power from renewable sources. A growing number of states are setting greenhouse gas targets or directly regulating carbon from power plants and, in the case of California, from automobiles. To provide a sense of the potential emissions impact of these efforts, it is worth noting that some states have higher annual emissions than many industrialized countries. Texas, for instance, emits more than France.

While these initiatives are not likely to coalesce into a comprehensive national program, they could help promote stronger action at the federal level. It is common in the United States for federal policymakers to draw lessons from state initiatives. Indeed, most of the major federal US environmental laws were based on state models. Also, to the extent that a fragmented, state-by-state approach to climate policy leads to a patchwork of conflicting rules and regulations, this will increase pressure on Washington for a comprehensive, consistent national approach.

JIQ: Do you expect the USA to join the Kyoto Protocol in the second commitment period, or do you rather expect the USA to follow its own climate change mitigation path from now on? What can be a decisive factor whether the USA would join in the second commitment period?
Ms. Claussen: Before the United States can credibly reengage in the international climate process, it must demonstrate that it is committed to addressing climate change. So for the time being, the most important step the U.S. can take is to put in place strong domestic measures to begin reducing its GHG emissions.

> *"A flourishing market in Europe or elsewhere can certainly help encourage action by the US."*

The question of U.S. participation in Kyoto or any future climate agreement must be understood in the broader context of how best to advance the international climate effort. It is not simply a matter of the United States joining. Rather, the next stage must entail both a *deepening* of commitments (by those who have accepted binding targets under Kyoto) and a *broadening* of commitments (to include not only the United States but, in some form, the major developing countries as well). The goal of the next major round of negotiations should be an effective long-term framework that ensures fair and adequate efforts by all the major emitting countries. Core challenges in crafting such a regime include: structuring effective, enforceable commitments; arriving at an equitable sharing of responsibilities; ensuring maximum cost-effectiveness; integrating climate into the development priorities of developing countries; and avoiding conflicts between climate and trade. Given the scale of these challenges, it is critical that discussions begin now with the goal of modifying Kyoto or arriving at a successor agreement for the period after 2012.

JIQ: Some U.S. businesses have repeatedly expressed to be unhappy with the decision made by President Bush not to join the Kyoto Protocol. On the one hand U.S. business is likely to be exempted from Kyoto-based measures. On the other hand, clean technology development might lose momentum. In your opinion, will the overall impact on the U.S. industry of the USA not joining Kyoto be positive or negative, and do you still see an opportunity for some companies to voluntarily play a role in the Kyoto regime?
Ms. Claussen: In the short term, some U.S. firms may realize a competitive advantage: they will not face greenhouse gas mitigation costs while their competitors in Europe, Japan and other developed countries will. However, any short-term advantage will likely be far outweighed by the long-term competitive *dis*advantages. First, U.S. firms will not enjoy the improved efficiencies, particularly in energy use, that typically result when a company undertakes to reduce its emissions. Second, without a strong market signal for emissions reduction, U.S. firms will have less incentive to develop the kinds of technologies the world needs to make the long-term transition to a low-carbon economy. Firms in other developed countries – which will soon have that incentive – will be much better positioned to capture the growing global market for clean energy technologies.

Some U.S. companies – those with operations in countries that are party to the Kyoto Protocol – may soon have direct experience under Kyoto. Conceivably, others could as well on a voluntary basis. For instance, they could purchase Kyoto credits to meet voluntary or mandatory emission targets they face in the United States. Kyoto would allow such transactions (provided the allowances are retired from the registry of the selling country). Whether or not they are recognized in non-Kyoto systems would depend on the rules governing those systems.

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Nordic Countries and the Kyoto Mechanisms

By Jorund Buen and Henrik Hasselknippe*

This article takes a look at the progress of the four Nordic countries (Denmark, Finland, Norway and Sweden) with preparing themselves for the use of the project-based mechanisms under the Kyoto Protocol and what their position is concerning the EU ETS.

Denmark

Denmark's climate strategy of February 2003 concludes that Denmark needs to make an additional annual reduction of 20-25 Mt CO_2-eq. to meet its Kyoto commitment. The strategy proposes to extend the Danish domestic emissions trading scheme to more sectors in order to bring it in line with the EU ETS, and to open it for credits from JI or CDM projects. So far, Denmark has signed Memoranda of Understanding (MoUs) for JI cooperation with Romania and Slovakia. An agreement for a JI project in Romania for a total of 0.72 Mt CO_2-eq. was signed in early March of this year. Negotiations with the Russian Federation, Ukraine, Poland, Estonia, Bulgaria, Latvia and the Czech Republic are ongoing.

Finland

Finland's *JI and CDM Pilot Programme* was launched in 1999. It has a total budget of about € 20 m, with some 30 projects currently under consideration. Nevertheless, it is estimated that the program will yield a modest total of 1-1.4 Mt CO_2-eq. at a price of € 6-8 per ton because the program focuses entirely on small-scale projects which on average have a lower emission reduction potential per euro invested. A tender for projects satisfying the CDM Executive Board's small-scale CDM criteria (estimated to yield about 0.5 Mt CO_2-eq.) opened in January and closes on 31 March 2003. Finland has signed MoUs – or similar documents – with Estonia, Hungary, Latvia, Lithuania, and Ukraine for JI (negotiations with the Russian Federation are ongoing), and China, Costa Rica, El Salvador, India, and Nicaragua for CDM cooperation.

Norway

Norway has experience with implementing 6 AIJ projects, some of which were based on a cooperation with the World Bank. Norway and Romania signed an MoU for JI cooperation in 2001. Under this cooperation a project with an 175 kt CO_2-eq. emission reduction was agreed upon. JI and CDM credits will be accepted in the Norwegian ETS which is to become operational in 2005. The scheme would primarily include the processing industry.

However, a recent study concluded that these companies could reduce only 750-900 kt CO_2-eq. for about € 25 per ton. This has increased the industry's interest in acquiring cheaper JI and CDM credits. So far, Norway's policy has been that the Norwegian industry should pay for meeting Norway's Kyoto commitments, but a shift towards more government involvement could be underway. Some restrictions on the use of credits from project-based mechanisms might also be introduced when the details of the domestic ETS are negotiated in the months to come.

Sweden

In the period 1995-1999, Sweden initiated over 60 AIJ projects with in total about 4 Mt CO_2-eq. of expected GHG emission reductions. Since 2000, it has made preparations for 10-12 JI and CDM projects. A national study published in late 2002 concluded that purely technically speaking a large potential for JI projects exists in Poland, Ukraine, the Russian Federation, and Romania. However, the Swedish government has already given priority to Estonia and Romania (agreements on JI cooperation have already been signed), and Lithuania and the Russian Federation. This choice is due to Sweden's long-standing economic cooperation with the Baltic countries.

Nordic links to the EU ETS

Denmark, Finland and Sweden are all members of the EU, and although Norway is not, its domestic ETS will most likely be linked to the EU ETS. Also, a separate EU Council directive on the linking of the EU ETS with JI and CDM is just around the corner. However, because the EU scheme is not directly linked to the EU's commitments under the Kyoto Protocol and the countries included in the scheme may take separate initiatives besides the EU ETS to meet their own Kyoto commitments. This reinforces the need for the relationship between these initiatives and the EU ETS (for instance the status of JI and CDM credits in relation to allocation of permits to companies in the EU) will have to be resolved soon.

With the EU ETS, each of the Nordic countries can join a much larger and more liquid market than if there were only be domestic trading. In the larger market the chances of monopolistic behavior are probably smaller. However, not all Nordic countries are content about the current EU ETS design. Finland argued in favor of a voluntary scheme in the period before 2008 – or, alternatively – opt-outs for industrial sectors. This point of view was strongly inspired by the pulp and paper industry's (considerable emissions, ownership links to biomass energy production) concerns regarding their further growth.

Even though the EU directive in principle opens the door to Norway through 'mutual recognition' of emission allowances, the rules and procedures to facilitate such an inclusion have yet to be established. Norway differs from other participants in the EU ETS in that it has less potential for low-cost abatement measures, has a large share of renewable energy sources, and is a large producer of oil products (see also *JIQ* October 2002, p.9). Therefore, in order to increase flexibility and reduce costs, the Norwegians have supported: the pre-Kyoto EU ETS to cover all six gases of the Kyoto Protocol, inclusion of credits from JI and CDM projects, and expansion of industrial sectors (*e.g.* transport) in the scheme ('opt-ins'). The EU Council's decision to limit the scheme to CO_2 was therefore disappointing for Norway.

The Swedes worked together with Norway - both countries produce much of their electricity through CO_2-free hydropower - for including 'opt-ins' and allocation through auctioning. They fear that the EU ETS might weaken their *existing* policies and measures for reducing emissions in sectors other than (emissions-free) power production. If, for instance, Norway would have to remove the CO_2 tax on offshore industry, that industry would face more lenient reduction targets and important revenue would be lost. Therefore, both countries were dissatisfied with the acceptance of the "opt-in" arrangement in the EU ETS as of 2008 only, and with the decision that governments are only allowed to auction up to 10% of their allowances from 2008 onwards.

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UK Perspective on Emission Trading Schemes

The EU Emission Trading Scheme (ETS) forces the UK to put its mind to the question whether co-existence of their own trading scheme, the UK ETS, is desirable, and how the future emissions market in the UK will manifest itself. *JIQ* spoke with two experts on the UK scheme, Ms. Fiona Mullins (Associate Fellow to the Royal Institute of International Affairs) and Dr. Steve Sorrell (University of Sussex), about their thoughts on future developments and harmonisation.

JIQ: How do you envisage the future harmonisation between the UK ETS and the EU ETS?

Mr. Sorrell: I think the UK ETS will come to an end in the longer term. UK policy will be based upon the EU ETS, including the use of 'opt-in' provisions and its expansion to cover more sectors and gases. It is possible, however, that the UK will continue developing its project-based scheme using the modalities currently being proposed to link the EU ETS with JI and CDM.

In the short term, I believe the great majority of the companies with Climate Change Agreements (CCAs) will 'opt-out' of Phase 1 of the EU ETS and continue with their existing CCAs up to 2008. Beyond 2008, eligible companies will have no choice but to abandon their CCAs and join the EU scheme. The UK direct participant scheme ends in 2006 and so has only a two-year overlap with the EU ETS. It is possible that allowances will be traded between the UK and EU schemes during this period, if the Commission allows it. However, this agreement may be hampered by a number of issues, including the 'hot air' in the UK scheme.

Ms. Mullins: The UK will implement the EU scheme. A wider range of buyers and sellers will increase liquidity and reduce the likelihood of mismatches between demand and supply that caused UK prices to fluctuate. The UK could opt out installations or entire sectors from the initial phase of the EU scheme 2005-2007 and may do this for UK ETS participants. Many of the participants in the UK ETS are not covered by the EU ETS, and it would be possible for the UK to run a domestic emissions trading scheme alongside the EU scheme. The main sources that are covered by the EU ETS, particularly the electricity sector, are not in the UK ETS and will have to enter the EU scheme from 2005. It is, however, not clear how the UK will deal with double counting of electricity sector emissions (emissions from electricity consumption are both charged in CCAs with energy intensive companies and allocated to the electricity sector in the EU ETS).

JIQ: How do you envisage the incorporation of credits from JI/CDM in Emission Trading Schemes?

Mr. Sorrell: The case for allowing links to JI/CDM is fairly strong. The prices estimates I have seen suggest that JI/CDM credits will be cheaper than EU allowances and hence that links to JI/CDM will reduce the cost of abatement in the EU. The key 'linking' questions are whether to impose stricter criteria on the types of projects (*e.g.* sinks), which are eligible, and whether to impose ceilings on the volume of credits that can be imported (*i.e.* supplementarity by the back door). It would be difficult for the EU to impose different criteria for issues such as baselines and additionality. There are particularly important implications for JI projects in Accession countries, especially if these are in sectors that may subsequently come within the EU ETS.

> *"There is a difference between opening up to ERUs and CERs, and opening up to AAUs."*

Ms. Mullins: The European Commission will produce its proposal for incorporating project-based mechanisms in the EU ETS shortly. JI credits from inside the EU will have to be for projects that reduce emissions from sources that are not participating in the EU ETS. If EU allowances are designated as AAUs in national registries, then it is straightforward for companies to use JI/CDM credits to meet their obligations under the EU ETS since these units are equivalent to AAU. The EU, or Member States, could control the import and export of JI and CDM credits, for example by limiting the types of projects that are acceptable and the total amount of credits that can enter the EU scheme.

JIQ: Do you feel the project-based credits (CERs, ERUs) and allowances (AAUs, EUAs) will be comparable and interchangeable currencies? Do you consider it a possibility that market prices for EUAs will differ from AAUs given the current status of the EU Directive?

Mr. Sorrell: In the UK scheme, it was initially proposed that CCA companies should not be allowed to purchase project credits. This was later dropped because it was realised that the rule could be circumvented - project credits could be purchased by direct participants who could then sell on displaced allowances to the CCA companies. Exactly the same problem exists on the international market. Once you start opening up the EU ETS to AAUs, any attempts to *e.g.* restrict the import of CERs from sink projects can easily be circumvented. Market prices for EUAs will differ from AAUs if effective restrictions are placed on the import of the latter. The prices will converge if no restrictions are placed. There is a difference between opening up to ERUs and CERs, and opening up to AAUs. The choice whether to do so rests on the relative priority given to domestic abatement and environmental integrity as opposed to minimising abatement costs.

Ms. Mullins: AAUs, RMUs, ERUs, CERS are comparable and inter-changeable for international compliance by Kyoto Parties. At industry level, the different units will be comparable and interchangeable only if their governments recognise all units as equally valid for compliance. If the EU and member states recognise AAUs from outside the EU as valid for compliance, the price for EUAs and AAUs should become the same. Companies are likely to be concerned about the impact on their reputation of credits from certain sources, so the value of CERs and other units could vary due to higher demand for units from some sources than for others. I think it likely that there will not be a single price for carbon on a global market for many years.

JIQ: Do you feel harmonisation is essential? If not, to what extent is harmonisation useful or even necessary?

Mr. Sorrell: Harmonisation is not essential for linking the two schemes. Instead of harmonisation, I see the EU ETS replacing the UK ETS in the long term.

Ms. Mullins: There are only a few key features needed to enable different emissions trading schemes to be linked: =>

a common unit of trade; mutual recognition by the governments that the units are valid for compliance; and a way of registering ownership of the units and transfer of ownership. Compatibility of these features is essential. Harmonisation could be useful but is not essential. Many features of emissions trading schemes do not need to be harmonised, including targets, penalties, monitoring and reporting, participation, which gases are included. Features that affect competitiveness such as stringency of targets and monitoring and reporting requirements will tend to become more similar once schemes are linked because participants will lobby for equal treatment.

JIQ: Assuming the current low prices of allowances in the UK will be indicative for the future, do you think there will be any potential for project-based mechanisms in Emission Trading Systems?
Mr. Sorrell: We did some work on the UK project scheme, and found that a carbon price of UK£ 5-8 t CO_2-eq. made only a marginal difference to the economics of most of the projects proposed. The UK is a poor guide to future carbon prices, given that abatement was subsidised and that there is a preponderance of sellers rather than buyers. However, to the extent that low carbon prices in the UK scheme result from excessive 'hot air', there are analogies with the international carbon market post-2008. It seems to me highly likely that the carbon price will be very low during the commitment period and that this will undermine the viability of the project-based mechanisms and reduce the incentive for real abatement.

Ms. Mullins: Project-based mechanisms have an inherent disadvantage of much higher transaction costs. JI projects in accession countries will have to use western European standards as their baseline, which will drastically reduce the potential credits from these countries. In my view it is simpler to include emissions sources in emissions trading rather than projects. I think there is potential for projects to be included in emissions trading schemes at the margin, but their contribution is likely to be small.

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Surduc-Nehoiasu *- A run-off-river hydro project in Romania*

The Surduc-Nehoiasu project in Romania is one of the projects submitted and accepted in the first round of ERUPT (April 2001). It was also selected as a case study in the PROBASE research project (see elsewhere in this issue) in order to explore the effects of constructing different baselines for one particular project. This article describes the results of that analysis.

Project description

The *Siriu-Surduc-Nehoiasu Hydroelectric Project* is located in the central part of Romania, about 150 km north of Bucharest with a drainage area covering the counties of Buzau, Vrancea and Covasna. The project is a run-off-river (RoR) hydro project, scheduled to become operational in 2005, and will harness the hydroelectric potential of the Buzau, Bâsca Mare and Bâsca Mica rivers.

In June 2000, MWH Global, Inc. (formerly Harza) of Chicago signed a *Joint Development Agreement* with the Romanian national electricity company Hidroelectrica SA, providing MWH with the exclusive rights to develop the project. When completed, the project will have an installed capacity of 55.2 MW with an expected output of 152.7 GWh/yr. The estimated project costs are US$ 56.9 m. The plant will sell its output to Hidroelectrica based on a 25 year *Power Purchase Agreement*. The construction includes: a small 20-meter high concrete gated dam, which will regulate incoming flows, the completion of the 16 km tunnel, a penstock, and part of a powerhouse. The project developers estimate the emission reduction to amount to 612,631 t CO_2-eq. for the period 2008-2012.

Single-project baselines

The *Surduc* project was one of the projects in the PROBASE set. One of the objectives of PROBASE was to explore uncertainty related to baseline determination. For that purpose 12 case study projects in the heat and power sector in different potential JI and CDM host countries were selected. For these projects a series of baselines were constructed on the basis of different but basically reasonable assumptions about baseline parameters. In this analysis, large differences between reasonable baselines for one project would indicate that the baseline determination for that project is surrounded with large uncertainties. The results of the analysis are described below. Note that the analysis assumes that the project has a 10-year crediting lifetime.

When assessing possible baselines for the *Surduc* project (both single- and multi-project baselines) a number of assumptions were made. First, for all single-project baselines it is assumed that when the project becomes operational (*i.e.* 2005), the present over-capacity in the Romanian electricity grid will still exist. Consequently, the project is assumed to meet *existing electricity demand*, which implies that it replaces an existing plant ('the marginal plant'). Second, being a run-off-river project implies that the plant must continuously be in operation ('must run'). It is therefore reasonable to assume that the plant adds baseload grid capacity, *i.e.* the minimum amount of electric power delivered or required over a given period of time at a steady rate.

On the basis of the above, the project is assumed to replace a marginal plant that produces baseload capacity. Determining this marginal plant, however, is not straightforward because it requires an answer to the question which plant would be replaced first ('the margin').

On the one hand, when considering maintenance cost per unit of output it would be reasonable to assume that the old coal-fired plants are the ones to be closed first. On the other hand, coal is a relatively cheap and reliable domestic fuel whereas gas must be imported. Although gas-fired plants are easier to maintain, gas is much more expensive and its price can fluctuate considerably on the international market. Alternatively, since both coal and gas could reasonably be considered marginal plants, the average fossil-fuel grid mix in Romania could be used as a surrogate.

In the PROBASE analysis the following four possible baseline scenarios were constructed:

- **Baseline 1 ('current mix'):** This is the 'poor economic growth' scenario, which assumes that the present overcapacity in the power sector will continue. This

Table 1. Comparing baselines

Baseline	Emissions over 10y
Project-specific	(tCO_2-eq.)
Baseline 1: current mix	1,353,975
Baseline 2: mix 2020	1,199,968
Baseline 3: 5y additional	655,558
Baseline 4: old coal	1,748,415
Standardized	
Av. Rom. Gas	761,973
ERUPT	707,459 (8y only)
Ecosecurities	612,630 (5y only)
Romania+region (CCB)	1,062,396
Best region	942,299
OECD av.	1,119,994

baseline needs to identify the marginal plant, which, as explained above, could both be a coal or gas-fired plant. Therefore, baseline 1 has an emissions factor similar to that of the current grid mix, which would be business-as-usual (baseline 4 below shows a scenario with similar circumstances but with coal as the marginal plant).

- **Baseline 2 ('mix 2020')**: This scenario assumes that the emissions factor of the fossil-fuel grid mix will decrease over time to a value of 0.6 tCO_2/MWh in 2020 as a result of the phasing-out of old plants and building of *best available technology* plants. If the economy recovers well, then it can be assumed that the emissions factor of the fossil-fuel component of the grid mix will show a marked decrease. This will be due to the facts that: new plants will be added which are much more efficient; more gas will be imported and used; and old plants will be phased out because more stringent environmental regulations will be enforced as accession to the EU proceeds.
- **Baseline 3 ('5y additional')**: This scenario assumes that the emission reductions associated with the project would have happened in 5 years' time anyway because of increasing demand for electricity. RoR hydroelectricity generation such as in the *Surduc-Nehoiasu* project is a no-regrets option as its running costs are very low. Since there are only a few new hydro opportunities in Romania, it could be argued that in the case of new demand, the project would eventually have happened anyway, although it would take a number of years to plan and build the plant. The building of new hydro plants would be most likely under a high economic growth scenario.
- **Baseline 4 ('old coal')**: Under this scenario which, similar to Baseline 1, assumes poor economic growth, an old coal-fired station is substituted from the baseload by the new hydro plant. This baseline assumes that the plant serves existing demand and that the marginal plant would be an existing coal-fired plant (the average existing Romanian coal is taken as a proxy value for that plant).

Box 1 presents an uncertainty analysis for the project-specific baselines.

Multi-project baselines

For comparison purposes the following five multi-project baselines and benchmarks were selected for the *Surduc* project:

1. **Old gas** - representing the average of existing (*i.e.* old) gas plants in Romania. This technology benchmark may be relevant if the price of gas on the international markets increases to such a level that it will make the gas-fired plants more expensive to run than the coal-fired plants (gas-fired thus becoming the marginal plant, see above).
2. The **ERUPT** multi-project baseline factors for electricity projects in Romania included in the Guidelines document for the tenders (see www.carboncredits.nl). This baseline takes the present mix as a starting point and incorporates expected energy market developments.
3. The actual baseline calculation for this project for the ERUPT tender was done by the consultancy firm **Ecosecurities** who used a **linear extrapolation** from the current grid mix to an assumed grid mix in 30 years time fully based on modern gas-fired plants with an emissions factor of 0.388 t CO_2/MWh.
4. **Romania and region** – this scenario reflects the present average grid mix for Romania and all transitional economies excluding the Russian Federation.
5. **Best region** in the world.
6. **OECD average** – this is the average grid mix for all OECD countries for the specific time period.

Multi-project baselines 4, 5 and 6 are developed with the PROBASE Multiple Benchmark System (see *JIQ* October 2002, pp.6-7). It should be noted that all baselines run for 10 years except ERUPT (8 years only, until the end of 2012) and Ecosecurities (5y only; 2008-2012). So, the emission reductions of the latter two cannot be compared with that of the other baselines. Table 1 and Figure 1 give an overview of the single-project and multi-project baselines described in this article.

From the table and the figure it can be concluded that the multi-project baselines for Romania, with the exception of Ecosecurities' scenario, are generally more conservative than the single-project baselines for the Surduc project. This could be explained by the fact that the multi-project baselines chosen better take into consideration that Romania is in the process of accession to the EU and that this requires improving environmental standards. Multi-project baselines may reflect such a trend better than single-project scenarios.

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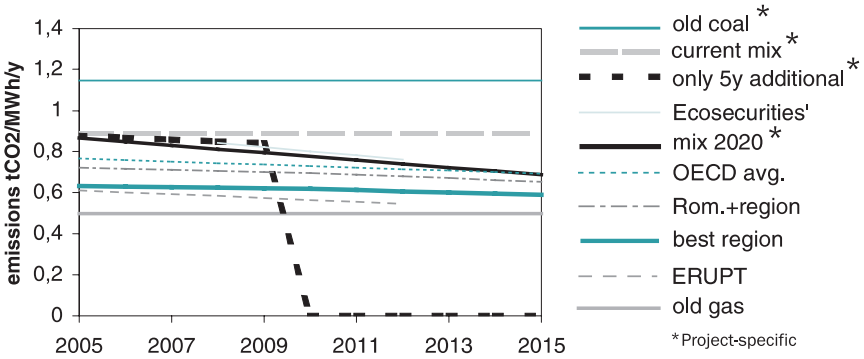
Figure 1.Baselines for the Surduc-Nehoiasu hydro project



Box 1. Project-specific baseline uncertainty

From the single-project baseline uncertainty analysis for this project the following can be concluded:

1. The *counterfactual uncertainty* associated with the range of technology/fuel combinations in the baseline is fairly large at ±19%, while for variations in the energy grid mix (for plants which are not 'must run') it is generally low at ±6%.
2. The uncertainty associated with the *continued additionality* of the project is high and it may be a relevant uncertainty especially in countries in the EU accession process.

Facts about the Kyoto Mechanisms

EB decides on small-scale procedures

In January of this year, at its seventh meeting, the CDM Executive Board adopted the simplified modalities and procedures for CDM small-scale project activities (see *JIQ* October 2002, p.3 for a discussion). The procedure for accrediting operational entities was agreed on as well.

For a full report of the seventh meeting of the EB, please visit: unfccc.int/cdm

CCX takes on target

The Chicago Climate Exchange (CCX) announced in January of this year that it will begin trading this spring and that it aims to reduce emissions by 50 to 60 Mt CO_2-eq. by 2006. Buyers and sellers on the CCX will commit to a 4 percent mandatory reduction of their emissions based on 1998-2001 levels. Traders can also earn credits for international emission reduction projects, such as sequestration projects in Brazil that have already been initiated.

Source and further information: www.chicagoclimatex.com

Canadian Climate Exchange

The Canadian Winnipeg Commodity Exchange Inc. announced in February 2003 that it has set up the Canadian Climate Exchange to "explore the concept and creation of an emissions exchange in Canada."

Source and further information: www.canadianclimateexchange.com

Czech Republic's AAU potential

CO2e.com recently reported that the Czech Republic's emissions are currently about 25% below 1990 levels, while it has a reduction target of minus 8% under the Kyoto Protocol. According to CO2e.com, the Czech Republic could earn several billions of CEK (1 CEK = 0.03 Euro) if it sold its excess AAU.

Source: www.co2e.com

Fierce lobbying over link JI/CDM with EU ETS

Currently the European Commission is examining if and how a link should be established between the EU ETS and the Kyoto mechanisms (see also the Editor's Note of *JIQ* October 2002). The NGO Climate Action Network (CAN) Europe is opposing this link because in their view the inclusion of large volumes of JI and CDM credits could eliminate the incentives for the EU industry to reduce their own domestic emissions. Industry in the EU has a different opinion and argues that the emission caps under the EU ETS are too tough and that the introduction of JI/CDM credits would help to meet their targets.

Source: ENDS, Environmental Daily, 3 March 2003.

First trade in EU ETS

Shell announced on 27 February 2003 that it had made the first forward trade in the EU ETS, which is to begin in 2005. According to Shell, it had made an agreement to sell a "significant volume" of allowances to Nuon, a utilities company based in the Netherlands. No further details on the transaction, such as the price per allowance, were disclosed.

Sources: Shell press release, 28 Feb 2003.

Romania most attractive

According to a study done by the Norwegian *Point Carbon* institute and the Hungarian-based *Vertis Environmental Finance*, Romania is the most attractive country for JI projects. The ranking of the potential JI host countries in the study is based on four (weighted) main indicators:

- Potential project pipeline (*i.e.* potential size of JI market, expected quality of projects, level of energy efficiency),
- Political and institutional environment,
- General investment climate,
- Past expercience with AIJ and JI projects.

Apart from Romania, Poland also scores very well due to good project opportunities in renewable energy and energy efficiency, and a wel-structured institutional approach, but it lacks political commitment. Slovakia is also close to the top of the list, followed by Hungary and the Czech Republic.

Despite their enormous JI potential and political interest, the Russian Federation and Ukraine are in the bottom half of the list because of a weak institutional structure. The JI markets in the Baltic States are rather small, and Croatia and Slovenia have a low score on all indicators.

Source: Point Carbon, 9 January 2003.

JI/CDM initiatives: Denmark, Finland, Austria, and Germany

In February of this year the **Danish** government announced it plans to invest in JI projects in Eastern Europe. Studies published last December already indicated that it would be a very difficult task for Denmark to reach its Kyoto obligations without resorting to the mechanisms. Denmark has already signed JI cooperation agreements with Slovakia and Romania, and is currently negotiating with the Russian Federation, Ukraine, Poland, Estonia, and Bulgaria (see also p.8 of this issue).

Source: Agence France Presse, 28 February 2003; Reuters 28 February 2003.

The **Finnish** Ministry of Foreign Affairs has invited project developers to submit project proposals for small-scale CDM projects. The proposal round was open from 1 January through 31 March 2003 (see also p.8 of this issue).

Further information: global.finland.fi

The **Austrian** government also confirmed plans to start a tender procedure for companies to undertake JI and CDM projects. Austria has reserved € 36 m per year for this tender, which was criticized by Greenpeace Austria because it would reduce incentives to take domestic action. The Austrian government has already signed MoUs for the transfer of ERUs with a number of Eastern European countries and is involved in negotiations with other countries.

Source: ENDS Environmental Daily, 30 January 2003.

Meanwhile, in February of this year **Germany** published a set of guidelines for project developers for JI and CDM activities. The guidelines are intended to be revised regularly following international developments and experiences with its use.

For further information on the German JI/CDM guidelines, please contact:
Thomas P. Forth
Joint Implementation Coordination Unit (JIKO), Berlin, Germany
tel.: +49 30 28550 2357
e-mail: thomas.forth@bmu.bund.de

Japan-Russia JI agreement

In late January of this year Japan and the Russian Federation reached an accord that there is need for an agreement to reduce GHG emissions through JI projects. To this end, a taskforce of experts will be set up to conduct feasibility studies for potential projects. Two Japanese-Russian JI projects that are already envisioned to be implemented are coal to gas fuel-switch projects at power stations in the cities of Amursk, Khabarovsk territory, and Nogliki, on Sakhalin Island. Needless to say, the Russian Federation would first have to ratify the Kyoto Protocol before the transfer of ERUs to Japan could take place.

In connection to this, the Japanese Ministry for Trade and Industry plans, in cooperation with the Development Bank of Japan and other financial institutions, to establish in 2003 a fund for carrying out JI and CDM projects. The precise amount of the fund is not yet known, but is expected to be in the billions of yen. Simultaneously, a different Japanese development bank, the Japan Bank of International Cooperation, also announced the establishment of a fund for purchasing JI/CDM credits.

Source: CO2e.com, 3 March 2003; Yomiuri Shimbun, 1 March 2003.

Kyoto Protocol Ratification Status (as per 20 March 2003)

Since January of this year, 5 more countries ratified the Kyoto Protocol: Lithuania, Tunesia, Jordan, Solomon Islands, and Lao Democratic People's Republic. These ratfications have no influence on the total share of Annex I emissions in 1990, keeping the total Annex I emissions coverage percentage on 43.9. The total number of Parties that ratified is now 106.

The focus of the Kyoto community is now totally on the Russian Federation. On 5 March 2003 three top level European environment officials arrived in Moscow to pursuade the Russian Federation to ratify. The delegation consisted of EU Environment Commissioner Ms. Margot Wallstrom, and the Environment Ministers of Italy and Greece, the latter currently holding the EU Presidency.

However, in the Russian Federation no bill has yet been put to the Duma to start the ratification process, and no timetable for ratification has yet been drafted. Recently two members of the Russian parliament said that only about half the Duma supports the Protocol, which makes its passage highly uncertain. Also, two top Russian scientists have questioned the scientifific soundness of the Protocol.

	percent of Annex I emissions
Ratified	
- European Community	24.2
- Japan	8.5
- Canada	3.3
- Norway	0.3
- New Zealand	0.2
- Iceland	0.0
- Poland	3.0
- Czech Republic	1.2
- Slovakia	0.4
- Hungary	0.5
- Bulgaria	0.6
- Romania	1.2
- Slovenia	0.0
- Latvia	0.2
- Lithuania	0.0
- Estonia	0.3
Total	**43.9**
Almost certainly no ratification	
- USA	36.1
- Australia	2.1
Total	**38.2**
Annex I Parties still to ratify	
- Russian Federation	17.4
- Other CEE countries	0.2
- Switzerland	0.3
Total	**17.9**

Carbon Finance 2003

On 23-24 January (London) and 4-5 February (New York) of this year, *Environmental Finance* organized a conference under the title "Carbon Finance 2003 – Kyoto 5 years on". A number of major speakers attended the conference, amongst them Mr. Jos Delbeke of the European Commission, who presented the latest developments of the EU ETS. The intention to include more gases than CO_2 and more sectors from 2005 onwards was expressed explicitly by him.

In a second session Ms. Fiona Mullins addressed the difficulties in harmonizing the different trading schemes and linking the project-based credits (see pp.9-10 of this issue). According to Ms. Mullins: "Basically only few key-issues need to be resolved: a common unit of trade; mutual recognition by the governments that the units are valid for compliance; and a way of registering ownership of the units and transfer of ownership."

On the second day of the conference Mr. Daan Dijk presented the position of *Rabobank* in relation to the recently signed contract that arranges the acquiring of CDM credits for the Netherlands' government (see p.3 of this issue). The closing debate of the conference explicitly focused on the need for cost-effectiveness, liquidity and transparency for an emission trading market to be successful.

Further information: www.environmental-finance.com

World Bank's CDCF and BCF

In 2002, the World Bank launched two new carbon funds: the Community Development Carbon Fund (CDCF), and the BioCarbon Fund (BCF). The two funds have been set up analogous to the World Bank's Prototype Carbon Fund, but each with a specific project target area.

The **CDCF** is aimed at projects generating benefits for the poorer communities in the least developed countries, while the **BCF** mainly aims at sink projects that are currently eligible under the rules of the Kyoto Protocol or that may become eligible in the future. The set-up of the funds is roughly identical regarding threshold (approximately US$ 50 m), ceiling (US$ 100 m), minimum participant contribution (US$ 2.5 m), working through local intermediaries (*e.g.* financial institutions, NGO's and micro-financing companies), and appliance of streamlined project procedures.

The CDCF is specifically aiming at small community development. The portfolio-criteria to which the CDCF's manager is bound are very clearly supporting this aim:

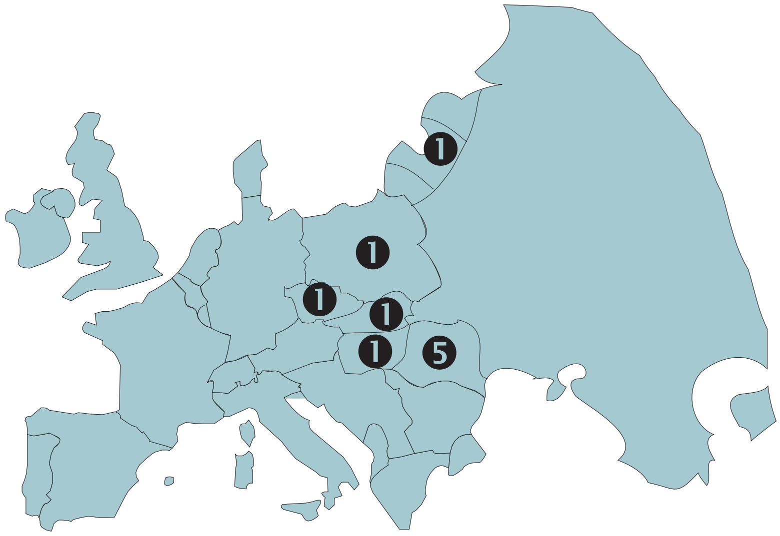
- All decisions must be made from the distinct criteria of generation of benefits for poorer communities, and project outputs will be measured against these criteria by independent entities outside the CDCF.
- No more than 10% of fund-capital will be invested in small-scale afforestation and reforestation projects.
- At least 25% of fund-capital must be deployed in the least developed and the poorer developing countries.
- All projects must be "Kyoto-compliant".

Currently the BCF portfolio criteria are under revision with the Funds' Expert Advisory Group. The BCF has, however, a clear view for its composition, which is a 'two window' approach:

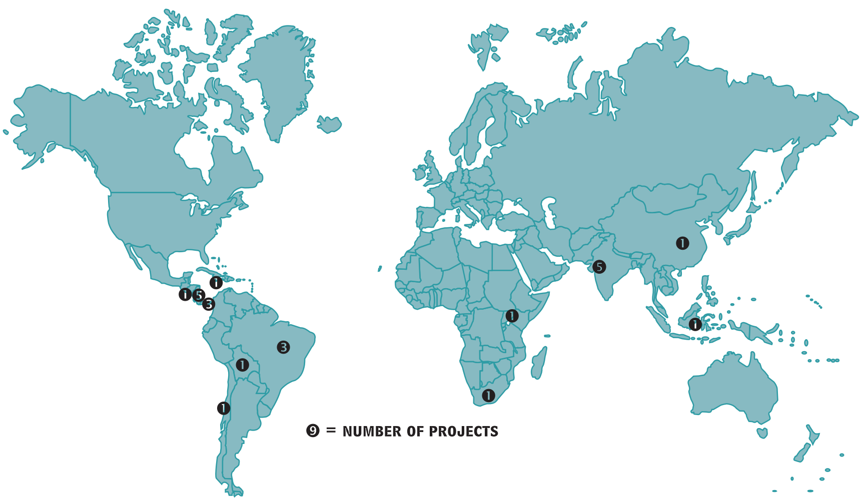
- The first window will attract Kyoto-compliant projects in the forestry sector (afforestation and reforestation projects). The projects likely to be generated in this window are small-scale reforestation, agroforestry, community-promoted biofuel and forest management projects.
- The second window goes beyond Kyoto by exploring options for carbon crediting that may be eligible under emerging carbon management programs. Likely projects in this area are restoration of degraded forests, rehabilitation of dryland grazing lands, and forest protection programs.

For further information, please visit: www.communitycarbonfund.org and www.biocarbonfund.org

Planned and ongoing JI Projects



Planned and ongoing CDM Projects



AIJ Pilot Projects

The AIJ list below shows per host country which investing countries are active and the project types that occur. The projects are accepted, approved and endorsed by the designated national authorities for AIJ of the host and investing countries and have been reported to the FCCC Secretariat. See also: unfccc.int/program/coop/aij/index.html

Project types

A fuel switching
B energy efficiency
C fugitive gas capture
D renewable energy
E afforestation
F reforestation
G forest preservation
H agriculture

Host country	Project type						
Argentina	B,C,E,G	Djibouti	D	Malaysia	C	Solomon Isl.	B,D
Belize	D,G	Ecuador	E,G	Mali	B,D	South Africa	B
Bhutan	D	El Salvador	B	Mauritania	D	Sri Lanka	D
Bolivia	A,B,D,G	Equat.Guinea	C	Mauritius	B,D	Thailand	B,D
Bulgaria	B	Estonia	B,D	Mexico	B,D,F,H	Uganda	B,D,E
Burkina Faso	B	Fiji	B,D	Morocco	B	Ukraine	B
Chile	C,D,E,G	Guatemala	D	Nicaragua	D	Vietnam	B,D,E
China	B,C,D	Honduras	B,D	Panama	F	Zimbabwe	D
Columbia	B	Hungary	A,B	Peru	D,F		
Costa Rica	C,D,E,F	India	B,H	Philippines	B		
Croatia	B	Indonesia	B,C,D,G	Poland	A,B,C,D		
Czech Republic	A,B,G	Jordan	B	Romania	B,C		
		Latvia	A,B,D	Russian Fed.	A,B,C,E,F		
		Lithuania	B,D	Slovakia	A,B,D		

Planned and ongoing JI and CDM Projects

For the projects listed here an emission reduction transfer has been agreed between the host and investing country or multilateral fund. The emission abatement credits achieved through these projects are anticipated to be used for compliance under the Kyoto Protocol.

Article 6 JI Projects

- *PCF:* Solid Waste Management in Latvia
- *ERUPT:* Skrobotowo 60 Megawatt wind-power park, Poland
- *ERUPT:* Surduc - Nehoiasu hydro-power plant, Romania
- *ERUPT:* Biomass energy portfolio, Czech Republic
- *ERUPT:* Municipal Co-generation Targoviste, Romania
- *PCF:* Municipal Co-generation Cluj-Napoca, Romania
- *ERUPT:* Alesd and Campulung cement plants energy efficiency, Romania
- *ERUPT:* Portile de Fier Hydro Power, Romania
- *ERUPT:* Borsod Biomass project, Hungary
- *ERUPT:* LFG recovery, Slovakia

Total projects: 10

Article 12 CDM Projects

- *PCF:* West Nile off-grid run-off-river hydropower plants in Uganda
- *PCF:* Chacabuquito run-off-river hydropower plants Aconcagua River, Chile
- *PCF:* Plantar Sequestration and Biomass Use, Brazil
- *PCF:* Chorotega Sub-Project, Costa Rica
- *PCF:* Cote Hydroelectric Sub-Project, Costa Rica
- *PCF:* Durban Landfill Gas to Electricity, South Africa
- *CERUPT:* High efficient power generation, Bolivia
- *CERUPT:* Catanduva sugarcane mill, Brazil
- *CERUPT:* ONYX Landfill gas project, Brazil
- *CERUPT:* Wind Farm Inner-Mongolia, China
- *CERUPT:* INCSA expansion project, Costa Rica
- *CERUPT:* SARET Landfill gas project, Costa Rica
- *CERUPT:* Penas Blanca hydroelectric project, Costa Rica
- *CERUPT:* Shell Geothermal Energy project, El Salvador
- *CERUPT:* Suzlon 15 MW Wind Project, India
- *CERUPT:* Vestas 14 MW Wind project, India
- *CERUPT:* Enercon wind farm, India
- *CERUPT:* Biomass project Maharashtra, India
- *CERUPT:* Biomass project Rajasthan, India
- *CERUPT:* Geothermal project, Indonesia
- *CERUPT:* Wigton Wind Farm, Jamaica
- *CERUPT:* Hydro Power Generation Fortuna, Panama
- *CERUPT:* Esti hydroelectric power plant, Panama
- *CERUPT:* Bayano hydroelectric project, Panama

Total projects: 24

Meetings, books, studies and reports

Recent Meetings

UNFCCC workshop on definition and modalities for including afforestation and reforestation project activities under Article 12 of the Kyoto Protocol in the first commitment period, 12–14 February 2003, Foz do Iguacu, Brazil.
Contact: UNFCCC Secretariat, Bonn, Germany, e-mail: secretariat@unfccc.int Internet: unfccc.int/sessions/workshop/120203

Workshop "Emissions Trading and Joint Implementation – Latest Developments" organized by the German Environment Ministry, 13 March 2003, at the TerraTec fair in Leipzig, Germany.
Contact: Mr. Thomas P. Forth, Joint Implementation Coordination Unit (JIKO), Berlin, Germany, tel.: +49 30 28550 2357, e-mail: thomas.forth@bmu.bund.de

WRI's Sixth Annual Sustainable Enterprise Summit, 13 – 14 March 2003, Washington DC, USA.
Contact: Ms. Lydia Vermilye, Sustainable Enterprise Program (SEP), World Resources Institute (WRI), tel.: +1 202 729 7635, e-mail: lydiav@wri.org, Internet: www.wri.org/wrisummit

Energy Market Development Conference, 24 March 2003, Hong Kong, P.R.China.
Contact: Alternative Development Asia Ltd, Hong Kong, P.R.China, tel.: +852 2574 9133, e-mail: info@adal.com, Internet: www.enviroseries.com/2003/emd

ASEM Green IPP Network Workshop "Renewable Energy Development in Southeast Asia – European Experiences and Perspectives", 27–28 March 2003, Roskilde, Denmark.
Contact: Mr. Kaj Jørgensen, Risø National Laboratory, Systems Analysis Department, Roskilde, Denmark, tel.: +45 4677 5104, e-mail: kaj.joergensen@risoe.dk Internet: www.asem-greenippnetwork.net

Studies/reports

Armenteros, F. M., A. Michaelowa, 2002. Joint Implementation and EU accession countries, HWWA Discussion Paper 173, Hamburg, Germany.
This paper looks at the experiences of the EU Candidate Countries with the AIJ phase, their early JI activities, and the way the climate change issue is integrated in the EU enlargement strategy. It also looks at the consequences of EU enlargement for GHG monitoring systems for Candidates and how JI could be integrated in the EU ETS.
Contact: Dr. Axel Michaelowa, HWWA, Neuer Jungfernstieg 21, 20347, Hamburg, Germany, tel.: +49 40 4283 4309, e-mail: a-michaelowa@hwwa.de, Internet: www.hwwa.de

Babiker, M.H., J.M. Reilly, L.L. Viguier, 2002. Is International Emissions Trading Always Beneficial?, MIT Joint Program on the Science and Policy of Global Change Report No. 93, Cambridge, MA, USA.
This report looks at the economic efficiency of an emissions trading system under partial and general equilibrium models. It introduces the concept of 'immiserizing emissions trading' and looks at the outcomes of various emissions trading simulations.
Contact: Dr. John M. Reilly, MIT Joint Program on the Science and Policy of Global Change, Cambridge, MA, USA, tel.: +1 617 253 7492, e-mail: globalchange@mit.edu, Internet: mit.edu/globalchange

Duic, N., L.M. Alves, F. Chen, M. da Graça Carvalho, 2003. Potential of Kyoto Protocol Clean Development Mechanism in transfer of clean energy technologies to Small Island Developing States: case study of Cape Verde, Research Group on Energy and Sustainable Development, Instituto Superior Técnico, Lisbon, Portugal.
This paper concentrates on the case of Cape Verde which is a typical Small Island Developing State, and analyses the way the CDM might influence the transfer of clean energy technologies. The paper studies implications of different scenarios of development of electrical energy systems on the island of Santiago, Cape Verde.
Contact: F. Chen, Research Group on Energy and Sustainable Development, Instituto Superior Técnico, Lisbon, Portugal, tel.: +351 218417592, e-mail: cfz@navier.ist.utl.pt

EURELECTRIC, 2002. Experiences of the Electricity Industry with Potential JI and CDM Projects, Union of the Electricity Industry, Climate Change Working Group, Brussels, Belgium.
The purpose of this report is to give an indication of the experience of the European electricity industry with JI and CDM projects. Through a survey it describes the methodologies adopted, the motivation to develop JI and CDM projects, and the initiatives and experiences in project development.
Contact: Union of the Electricity Industry (EURELECTRIC), Brussels, Belgium, tel.: +32 2 515 1000, e-mail: eurelectric@eurelectric.org, Internet: www.eurelectric.org

Gaast, W.P. van der, 2002. The Scope for Joint Implementation in the EU Candidate Countries, Foundation Joint Implementation Network (JIN), the Netherlands.
This paper deals with the EU Candidate Country's potential involvement in JI activities, taking into consideration the Candidate Countries' commitments under the *Acquis Communautaire*, it is analyzed to what extent the scope for JI is reduced by the *Acquis* measures and whether IET might replace JI. The paper is partly based on analysis carried out in the framework of the PROBASE research project.
Contact: Mr. Wytze van der Gaast, Foundation Joint Implementation Network, Meerkoetlaan 30-A, 9765 TD Paterswolde, the Netherlands, tel./fax: +31 50 309 6815, e-mail: jiq@northsea.nl, www.jiqweb.org

Ringius, L. *et al.*, 2002. Wind Power Projects in the CDM: Methodologies and Tools for Baselines, Carbon Financing and Sustainability Analysis, Risø National Laboratory, Roskilde, Denmark.
This report explores the Zafarana 60 MW wind farm in northwestern Egypt as a case example of a wind project in the CDM. The report demonstrates how to apply the existing assessment methods, compares their implications, and recommends methods and approaches for development of the baseline, carbon financing, social costs, and environmental sustainability of wind power projects.
Contact: Mr. Lars Henrik Nielsen, Systems Analysis Department, Risø National Laboratory, tel.: +45 46 77 51 10, e-mail: l.h.nielsen@risoe.dk, Internet: www.uccee.org

UCCEE/UNCTAD/Earth Council Carbon Marketing Programme, 2002. An Emerging Market for the Environment: A Guide to Emissions Trading, UNEP Collaborating Centre on Energy and the Environment (UCCEE), Roskilde, Denmark.
This is a guide for non-specialists for the theoretical concept and actual practice of emissions trading. It presents various emissions trading designs and gives examples of existing systems.
Contact: Ms. Martina Otto, UNEP, Paris, France, tel.: +33 1 44377615, e-mail: martina.otto@unep.fr, Internet: www.uccee.org

The **Joint Implementation Quarterly** is an independent magazine established to exchange the latest information on AIJ and the Kyoto Mechanisms. *JIQ* is of special interest to policy makers, representatives from business, science and NGOs, and staff of international organizations involved in the operationalization of AIJ and the Kyoto Mechanisms.

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Abbreviations

AAU	Assigned Amount Unit
AIJ	Activities Implemented Jointly under the pilot phase
Annex A	Kyoto Protocol Annex listing GHGs and sector/source categories
Annex B	Annex to the Kyoto Protocol listing the quantified emission limitation or reduction commitment per Party
Annex I Parties	Countries with a quantitative CO_2 target (OECD, Central and Eastern European Countries, listed in Annex I to the UNFCCC)
Annex II Parties	OECD countries (listed in Annex II to the UNFCCC)
non-Annex I Parties	Countries without a quantified CO_2 target (also non-Annex B)
CDM	Clean Development Mechanism
CEE	Central and Eastern Europe
CER	Certified emission reduction (Article 12 Kyoto Protocol)
COP	Conference of the Parties to the UNFCCC
COP/MOP	COP serving as the Meeting of the Parties to the Kyoto Protocol
ERU	Emission reduction unit (Article 6 Kyoto Protocol)
ERUPT	Emission Reduction Unit Procurement Tender (in the Netherlands)
ETS	Emissions Trading Scheme
GHG	Greenhouse Gas
IET	International Emissions Trading
JI	Joint Implementation
KP	Kyoto Protocol
LULUCF	Land Use, Land-Use Change and Forestry
MA	Marrakech Accords
PCF	Prototype Carbon Fund (World Bank)
RMU	Removal unit (Article 3.3 and 3.4 Kyoto Protocol)
SBSTA	UNFCCC Subsidiary Body for Scientific and Technological Advice
SBI	UNFCCC Subsidiary Body for Implementation
UNFCCC	UN Framework Convention on Climate Change

JIQ Meeting Planner

8 - 10 April 2003, Manila, Philippines
South East Asia Forum on Greenhouse Gas Market Mechanisms and Sustainable Development.
Contact: Mr. Cedric Ammann, International Emissions Trading Association (IETA), Geneva, Switzerland, tel.: +41 22 839 31 07, e-mail: ammann@ieta.org, Internet: www.ieta.org/seasia.html

12 - 13 May 2003, London, UK
3rd Annual Emissions Trading Conference.
Contact: Mr. Gerard Strahan, Euromoney Energy Events, London, UK, tel.: +44 20 7779 8777, e-mail: gstrahan@euromoneyplc.com, Internet: www.euromoneyenergy.com

20 - 21 May 2003, Brussels, Belgium
First Brussels Climate Change Conference.
Contact: Centre for European Studies (CEPS) & EU Conferences, tel.: + 44 1873 830 724, e-mail: info@euconferences.com, Internet: www.euconferences.com/fraclimate.htm

22 - 24 May 2003, Shanghai, China
International Conference on Energy and the Environment (ICEE 2003).
Contact: Dr. Daoping Liu, University of Shanghai for Science and Technology, tel.: +86-21-6568-9564, e-mail: dpliu@online.sh.cn, Internet: www.gwu.edu/%7Eeem/ICEE/firstpagenew.htm

27 - 30 May 2003, Boston, USA
14th Global Warming International Conference (GWXIV).
Contact: GWXIV International Conference Program Committee, Naperville, IL, USA, tel.: +1 630 910 1551, fax: +1 630 910 1561, e-mail: gw14@globalwarming.net, Internet: www.globalwarming.net

2 - 13 June 2003, Bonn, Germany
Eighteenth sessions of the Subsidiary Bodies (SB18).
Contact: UNFCCC Secretariat, PO Box 260 124, D-53153 Bonn, Germany, tel.: +49 228 815 1000, fax: +49 228 815 1999, e-mail: secretariat@unfccc.int, Internet: unfccc.int

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