

**DUTCH EXPERIENCE
WITH JOINT
IMPLEMENTATION
(JI) AND THE CLEAN
DEVELOPMENT
MECHANISM (CDM)**

Mirjam Harmelink
Yvonne Hofman

25 September 2002

M70057

by order of: Copenhagen Economics

Abbreviations

ADB	Asian Development Bank
AIJ	Activities Implemented Jointly
CAF	Corporación Andina de Fomenta
CDM	Clean Development Mechanism
CER	Certified Emission Reduction Units
CERUPT	Certified Emission Reduction Unit Procurement Tender
CoP	Conference of Parties
EBRD	European Bank for Reconstruction and Development
EoI	Expression of Interest
ERU	Emission Reduction Units
ERUPT	Emission Reduction Unit Procurement Tender
ET	Emission Trading
FCCC	Framework Convention on Climate Change
GHG	Greenhouse gases
IBRD	International Bank for Reconstruction and Development
IFC	International Finance Co-operation
JI	Joint Implementation
LoI	Letter of Approval
MoU	Memorandum of Understanding
PCF	Prototype Carbon Fund
PDD	Project Design Document

Table of contents

Abbreviations	III
Table of contents	V
1 Introduction	7
2 Policy development for Flexible Mechanism in the Netherlands	8
2.1 Before Kyoto	8
2.2 After Kyoto: domestic versus abroad	8
2.3 Flexible Mechanism: CDM, JI and ET	10
2.3.1 Allocated budgets	10
2.3.2 Joint Implementation (JI)	11
2.3.3 Clean Development Mechanism (CDM)	12
2.4 Conclusions	12
3 ERUPT and the CERUPT programmes	13
3.1 Introduction	13
3.2 ERUPT procedure	13
3.2.1 Introduction	13
3.2.2 Project requirements	13
3.2.3 Procedure and programme management	14
3.2.4 Contracts	14
3.2.5 (Preliminary) results of the ERUPT programme	15
3.3 CERUPT procedure	16
3.3.1 Introduction	16
3.3.2 Project requirements	16
3.3.3 Procedure and programme management	17
3.3.4 Contracts	18
3.3.5 (Preliminary) results of the CERUPT programme	19
3.4 Lessons learned so far	19

4	Handling of risks	20
4.1	Introduction	20
4.2	Policy risks	20
4.3	Market Risks	22
4.4	Conclusions	22
5	Transaction costs	24
5.1	Introduction	24
5.2	Transaction cost for the host country	24
5.3	Transaction cost for the project developer	24

1 Introduction

The Danish government is currently investigating the possibilities to achieve part of their greenhouse gas emission reduction commitment under the Kyoto Protocol through the flexible mechanism: CDM (Clean Development Mechanism), JI (Joint Implementation) and ET (Emission Trading).

The Danish government wants to learn as much as possible from the already running initiatives in the field of CDM and JI like the programs currently running in the Netherlands. This reports holds a short overview of the developments and experiences in the field of CDM and JI in the Netherlands and especially focuses and how risks are handled and the level of transaction costs.

2 Policy development for Flexible Mechanism in the Netherlands

2.1 Before Kyoto

The interest of the Dutch government in international projects reducing greenhouse gas emissions goes back at least a decade. Embedded in the Framework Convention on Climate Change (FCCC) was the agreement on the concept of Joint Implementation (JI), i.e. the international development of activities to reduce GHG emissions. This resulted in the establishment of a pilot phase for activities implemented jointly (AIJ), with the main aim to gain experience with this type of projects. The Dutch government supported ‘Jointly Implemented’ projects and proposed in the climate negotiations to calculate joint reductions as a way to reach feasible and ambitious greenhouse gas reduction targets.

Since CoP-1 in 1995 the Netherlands is testing AIJ. In total the Dutch government supported 25 projects under the AIJ pilot phase, of which 12 energy efficiency projects, 7 fuel switch projects, and 3 fugitive gas project (UNFCCC, 2002)¹. The Dutch government supported the projects with a total budget of 38 million Euro. The pilot phase was the joint responsibility of the three ministries: Development Co-operation, Economic Affairs, and Housing, Spatial Planning and the Environment. To demonstrate that the projects in the pilot phase achieved additional emissions reductions compared to the reference situation without the project the Joint Implementation Registration Centre (JIRC) was established. This centre operated on behalf of the Ministry of Housing, Spatial Planning and the Environment and was jointly managed by KEMA (a consultant and advisory firm with a lot of expertise on the energy sector) and Senter² (an agency linked to the Ministry of Economic Affairs which is among others responsible for the management of subsidy programmes in the field of energy and environment).

2.2 After Kyoto: domestic versus abroad

As a result of the negotiation in Kyoto, followed by the burden sharing of the target within the European Union, the Netherlands is faced with a 6% reduction target. I.e. in the period 2008-2010 the greenhouse gas emissions have to be cut by 6% com-

¹ UNFCCC (2002). www.unfccc.org (overview of AIJ projects under the pilot phase). Downloaded 17-09-2002.

² www.senter.nl

pared to 1990. The -6% means for the Netherlands an allowed emission budget of 197 Mtonne CO₂-equivalent a year in the period 2008-2012 (RIVM, 2002)³.

In 1998 the Dutch government started with an inventory of the efforts needed to reach this emission budget. This includes an independent outlook of the level of greenhouse gas emissions in 2010 without additional policies, and an inventory of possible emission reduction options (ECN, RIVM, 1998)⁴. This inventory was the main input for the Netherlands Climate Policy Implementation Plan, Domestic Measures (Part 1) (TK, 1999)⁵. This policy document holds the main strategy for Netherlands on how to reach their Kyoto commitment.

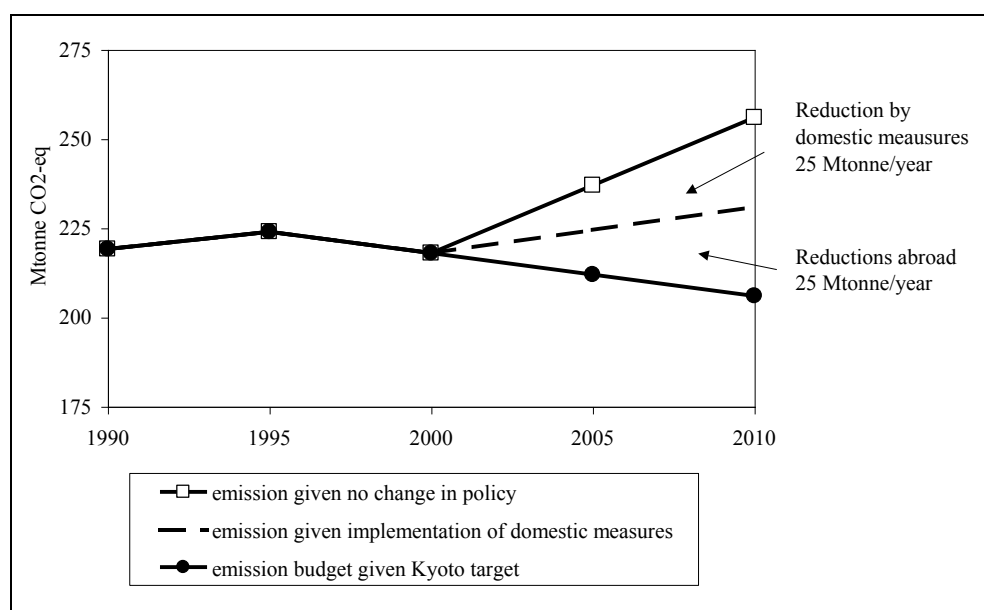


Figure 1 Total level of greenhouse gas emissions in the period 1990-2010 without policy changes and with the implementation of additional policies in the Netherlands.

The outlook showed that with no change in policy the emissions increase to a level of approximately 250 Mtonne CO₂-equivalents a year in 2010 (see Figure 1). This means that a reduction of approximately 50 Mtonne of greenhouse gases needs to be achieved in order to reach the Kyoto target. The inventory of reduction options showed that the marginal reduction costs for domestic measure are relatively high. The Dutch government therefore decided that it wants to achieve 50% of its reduc-

³ RIVM (2002). Environmental Balance 2002 (Milieubalans 2002. Het Nederlandse Milieu verklaard). National Institute of Public Health and the Environment, Bilthoven

⁴ ECN, RIVM (1998). Option document on the reduction of greenhouse gas emission. Inventory within the framework of the Climate Policy Implementation Plan (in Dutch). Netherlands Energy Research Foundation, Petten and National Institute of Public Health and the Environment, Bilthoven. ECN-C-98-082.

⁵ TK (1999). Netherlands Climate Policy Implementation Plan, Domestic Measures (Part 1). Tweede Kamer, Vergaderjaar 1998-1999, 26 603, nr 1.

tion through the implementation of domestic measure, and 50% through reductions abroad by means of the flexible mechanism: CDM, JI and Emissions Trading^{6 7}.

2.3 Flexible Mechanism: CDM, JI and ET

In March 2002 the Dutch government published Netherlands Climate Policy Implementation Plan, Part II (TK, 2002)⁸. This policy document deals in more detail with the strategy of the Dutch government concerning the Flexible Mechanism.

Part II of the Netherlands Climate Policy Implementation Plan set the following generic starting points for the further practical implementation of the Flexible Mechanism:

- Emission reductions abroad must be cheaper than domestic emissions reductions.
- Emission reductions must be of ‘good’ quality, i.e. emission reduction credits will only be bought:
 - from projects of which can be expected that they will be able to comply with validation and certification requirements,
 - from Parties that comply with monitoring and reporting requirements.
- The private sector must be involved.

In the early stages of AIJ the government focussed on Dutch companies, because the idea was that AIJ reductions could eventually be distracted from companies’ obligations. Two aspects made the Dutch make the shift to another directions.

- Firstly, the governments believed that making use of Kyoto mechanisms does not need to be linked to companies’ obligations. The government can have an independent role as private buyer on the market.
- Secondly, when the government planned to issue a subsidy scheme for companies the European Commission advised to organise the programme as a European Tender, to prevent forbidden State Aid to companies.

2.3.1 Allocated budgets

The available money for CDM and JI consists of clearly earmarked budgets, supported by the Parliament (see Table 1).

⁶ In februari 2002 the outlook that laid the foundation for the Netherlands Climate Policy Implementation Plan was updated. This update showed that the emission don’t have to be reduced by 50 Mtonne/year. But with 40 Mtonne/year in the period 2008-2010. With a split of 50% domestic and 50% emission reductions abroad this means that the emission reduction goal for the flexible mechanism becomes 20 Mtonne/year (MinVrom, 2002).

⁷ MinVrom (2002). *Evaluation Climate Policy. Progress of Netherlands Climate Policy: an evaluation for 2002*. Ministry of Housing, Spatial Planning and the Environment, The Hague, The Netherlands, Februari 2002.

⁸ TK (2000) Netherlands Climate Policy Implementation Plan, Part II. Tweede Kamer, Vergaderjaar 1999-2000, 26 603 nr 28.

Table 1 Allocated budgets for the Flexible Mechanism and the Responsible Ministries. Source: (TK, 2002a)⁹, (TK, 2002b)¹⁰

	Budget (mln)	Responsible Ministry
Joint Implementation	~ € 384 mln in the period 2002-2007 € 44 mln in 2003 mounting to € 71 mln in 2006	Economic Affairs
Emissions Trading	Unknown	Economic Affairs
Clean Development Mechanism	~ € 421 mln in the period 2002-2007 € 57 mln in 2003 mounting to € 107 mln in 2006	Housing, Spatial Planning and the Environment

2.3.2 Joint Implementation (JI)

In the Netherlands Climate Policy Implementation Plan, Part II the rough outlines were set for developing Joint Implementation, which have been further elaborated in the past two years.

Joint Implementation is the responsibility of the Ministry of Economic Affairs. Currently the following tracks are followed to obtain emission reductions (TK, 2002b)

1. ERUPT (Emission Reduction Unit Procurement Tender): A European tender through which emission reduction units from Joint Implementation projects are bought (for more details see chapter 3). The aim is to buy 4,8 Mtonne of CO₂-equivalents in the budget period.
2. PCF (Prototype Carbon Fund). The Netherlands is participating in the Prototype carbon fund of the Worldbank. The aim is to buy 0,8 Mtonne of CO₂-equivalents in the budget period.
3. EBRD (European Bank for Reconstruction and Development). The Dutch government is exploring the possibilities to buy reductions from projects financed by the EBRD.

Furthermore the Dutch government facilitates the process of Joint Implementation though entering into Memorandums of Understanding (MoU's) with different Annex I countries. Among others in the MoU's is laid down that a country wants to co-operate with the Netherlands and is willing to transfer a certain amount of emissions reduction credits.

⁹ TK (2002a). Rijksbegroting. Begroting XI. Volkshuisvesting Ruimtelijke Ordening en Milieubeheer 2003. Tweede Kamer, vergaderjaar 2002-2003. Blz 137

¹⁰ TK (2002b). Economische Zaken. Begroting 2003. Ministrie van Economische Zaken, vergaderjaar 2002-2003

2.3.3 Clean Development Mechanism (CDM)

As for Joint Implementation the rough outlines for CDM in the Netherlands Climate Policy Implementation Plan, Part II have been further elaborated in the past two years.

The Clean Development Mechanism is the responsibility of the Ministry of Housing, Spatial Planning and the Environment. Currently the following tracks are followed to obtain emission reduction (TK, 2002a):

1. CERUPT (Certified Emission Reduction Unit Procurement Tender): A European tender through which emission reduction units from CDM projects will be bought (for more details see chapter: 3).
2. Participation in multilateral international financial institutions. These include:
 - The International Finance Co-operation (IFC). A contract has been closed to deliver 10 Mtonne of CO₂ emission reductions.
 - The International Bank for Reconstruction and Development (IBRD) A contract has been closed to deliver 16 Mtonne of CO₂ emission reductions.
 - Corporación Andina de Fomenta (CAF). A contract has been closed to deliver 10 Mtonne of CO₂ emission reductions.
 - Asian Development Bank (ADB). Negotiations for a similar contract are in progress.
3. Private financial institutions. The idea is to provide private financial institution with a role in buying emission credits. For this purpose in 2002 a European Tender procedure will be launched.
4. Bilateral purchase agreements with Host Countries. The Netherlands is considering closing a deal with China, Indonesia and India.

The CDM process is supported by entering into MoU with different non-Annex I countries.

2.4 Conclusions

Due to the relatively high cost for greenhouse gas emission reductions in the Netherlands the Dutch government already decided in an early stage to focus on achieving emission reductions abroad. The Dutch government decided to:

- Set clear guidelines for CDM and JI.
- Develop different tracks to obtain emission reduction credits.
- Allocate earmarked budgets for CDM and JI.

3 ERUPT and the CERUPT programmes

3.1 Introduction

The previous chapter outlined the different tracks currently followed by the Dutch government to acquire emission reductions abroad. One track – the European Tendering procedure for CDM and JI - is described in more detail in this chapter.

3.2 ERUPT procedure

3.2.1 Introduction

In 2000 the Dutch Government launched the first ERUPT (Emission Reduction Unit Procurement Tender) programme. The programme is managed by the Dutch implementing agency Senter. In November 2001 Senter launched the second ERUPT-tender.

With the ERUPT programme the Dutch government aims to acquire ERUs generated through JI-projects in host countries. These ERUs will contribute to the Dutch obligations under the terms of the Kyoto Protocol. One ERU equals one tonne of CO₂-equivalent.

3.2.2 Project requirements

According to the ERUPT programme the JI-projects have to meet the following minimum requirements¹¹:

- The JI projects must be able to deliver a minimum of 100,000 tonnes of CO₂-equivalent per annum (i.e. 500,000 tonnes over the whole budget period).
- Delivery should take place in the period 2008-2012.
- The project would not have taken place without JI-funding.
- Projects should not have a large-scale adverse effect on society.
- Projects in the field of nuclear energy are not eligible for funding.

The programme does not state a preference for specific project types. The price of the credits the government is expected to pay for the ERU varies between € 2-5.

¹¹ Senter, Terms of Reference for ERUPT (ERU Procurement Tender - JI), 2001

3.2.3 Procedure and programme management

The ERUPT procedure consists of two phases, a selection phase and a contract awarding phase. In the selection phase the project developers submit an Expression of Interest to Senter in which the potential suppliers expresses its interest to develop a JI project. The proposals are assessed on the basis of, among other criteria, the feasibility of the projected GHG emissions reduction and the experience of the project developer. Items that have to be delivered with the Expression of Interest are among others:

- Annual account of the previous three financial years
- A certified statement of the suppliers turnover
- Project Idea Note (PIN)
- Letter of Endorsement of the host country
- Reference with respect to setting up and operating similar projects
- Reference with respect to the technology to be used
- Statement of social responsibility

In the second phase, the contract-awarding phase, the short-listed projects have to be worked out in more detail. In this phase, among others the following items have to be supplied:

- Offer of Claims on ERU's
- Letter of Approval from the host country
- Business plan
- Baseline study
- Contracts between project partners
- Proof of all financial arrangements relevant to the project
- An environmental impact assessment (if required by the host country)
- Validation report

Senter assesses the detailed proposal on completeness and on the basis of the price at which carbon credits are being offered. Contracts are awarded to the lowest price proposals.

The Marrakech Accords provide for a 30-day period for comments on the Project Design Document (PDD) from Parties, stakeholders and UNFCCC accredited NGOs to the validator. The validator will have to make the PDD publicly available through the UNFCCC Secretariat. As long as this is not possible Senter installed a special site: www.Carboncredits.nl. Senter invited all stakeholders to comment on the PDD and all other project specific documents that are posted.

3.2.4 Contracts

The Erupt Terms of Reference includes all terms and conditions pertaining to the contract. The main issues are:

Penalty procedure

If a part of or the whole amount of the ERUs are not delivered on schedule, except in case of force majeure, Senter will be entitled to fine a penalty equal to 2,5 per cent of the total agreed purchase price per month of delay, up to a maximum of the agreed purchase price. This implies for example that if a total purchase price of Euro 1 million has been agreed on, each month a penalty of Euro 25.000 has to be paid. Apart from the penalty procedure Senter still has the right to reclaim any advances paid by Senter to the contractor.

Monitoring reporting

Every year the contractor has to submit to Senter a written report documenting the progress of the JI project. The reports has to supply the monitoring of emission reductions according to the validated Monitoring plan. In addition various issues have to be addressed e.g. whether any proposed changes to the JI project are anticipated and whether any side effects or bottlenecks have been identified.

During the crediting period, per period of maximum two calendar years and prior to 1 April of the year following that of that period the contractor has to submit to Senter a verification report.

Delivery of extra ERUs

If the contractor generates more ERUs during the crediting period than offered in the contract, Senter reserves the right to acquire these ERUs. The contractor is obliged to offer the surplus of generated ERUs to Senter at the market price at the time of delivery, before it can do so to any other party.

Payment conditions

Final payment of the ERUs can only take place after delivery of the verification report. The verification should be carried out by an independent entity (IE) accredited by the Dutch Accreditation Board. Senter however, offers the possibility of pre-payments up to fifty percent of the contract value. The pre-payment schedule will be as follows:

- 10 % after all conditions of avoidance in clause of the contract have been met;
- 30 % during implementation of the investment.;
- 10 % at the moment of taking into operation of the investment, monitoring of emission reductions realised and verification by and IE of these emission reductions.

3.2.5 (Preliminary) results of the ERUPT programme

In the first ERUPT tender launched in 2000 26 project developers submitted an Expression of Interest. Senter short-listed 9 projects that got the opportunity to work

out their project in more detail (Senter 2000)¹². Finally 4 contracts were awarded, valid for 3.2 – 3.9 Mt CO₂-equivalents against 26 - 33 million Euro. The credits were purchased at an average price of € 8.46. More details on the projects that got awarded a contract are given in Table 3-1.

Table 3-1 Overview of projects that got awarded a contract in the first ERUPT tender (Source: www.carboncredits.nl)

Project	Country	ERU (mln)	Total costs ERU (mln €)	Price ERU (€)
Biomass: portfolio of 28 projects	Czech Republic	0.5-1.2 ¹	4,5-10,8	9
Wind energy: 30 turbines of 2 MW	Poland	0.58	5,4	9
Hydro energy: 55 MW	Romania	0.61	3	5
Co-generation: 26 MWe	Romania	1.54	13,5	9
Total		3.2-3.9	26 - 33	8.3-8.4 ²

¹ optional delivery of 0.7 mln ERUs

² average weighted price for the ERUs

For the ERUPT 2001 tender 26 Expressions of Interest were received by Senter and 6 projects were selected. The emission reduction per project ranges from 0.5 to 1.6 million tonne CO₂-equivalents with an average price of 5 Euro. The projects are situated in four countries of Central-Europe and one project is situated in New Zealand (Senter 2002)¹³. The project developers are currently in the phase of preparing their project design document (PDD).

3.3 CERUPT procedure

3.3.1 Introduction

In November 2001 the Dutch Government launched the first CERUPT (Certified Emission Reduction Unit Procurement Tender) programme. The programme is managed by the Dutch implementing agency Senter. Through CERUPT 2001 Senter aims to buy at least 3 million CERs (Certified Emission Reduction units) from investments in CDM projects. One CER equals one tonne of CO₂-equivalent.

3.3.2 Project requirements

According to the CERUPT programme¹⁴ the CDM-projects have to meet the following minimum requirements:

¹² Senter (2000). 15 November 2000, News page www.carboncredits.nl

¹³ Senter (2002). 5 June 2002, News page www.carboncredits.nl

¹⁴ Senter, Terms of Reference for CERUPT (CER Procurement Tender – CDM), 2001

- The CDM projects should deliver a minimum of 100,000 tonnes of CO₂-equivalent over the whole budget period,
- The period in which the CERs can delivered depends on the crediting period. If a crediting period of 10 years is chosen the delivery should take place in the period before 2012. If one, two or three periods of 7 years have been chosen, in the first 7-year period the delivery should take place before 2012. If case 14 or 21 years have been chosen, deliveries may also be supplied after 2012¹⁵.
- The project would not have taken place without CDM-funding.
- Projects should contribute to sustainable development in the host country
- Projects in the field of nuclear energy are not eligible for funding

For the CDM tenders a technology preference is stated in order to promote sustainable development and assure a balanced project portfolio. CERs from renewable energy projects a higher price than from landfill gas projects (see Table 3-2).

Table 3-2 Maximum prices and technology preference factor for different project types

Project types	Price (EUR)
Renewable energy (excluding biomass)	5.50
Energy production by using clean, sustainably grown biomass (excluding waste)	4.40
Energy efficiency improvement	4.40
Others, among which fossil fuel switch and methane recovery	3.30

3.3.3 Procedure and programme management

CERUPT consists of two phases, a selection phase and a contract-awarding phase. In the selection phase the project developer submits an Expression of Interest to Senter in which the potential suppliers expresses its interest to develop a JI project. The proposals are assessed on the basis of, among other criteria, the feasibility of the projected GHG emissions reduction and the experience of the project developer.

Items that have to be delivered with the Expression of Interest are among others:

- Annual accounts of the previous three financial years
- A certified statement of the suppliers turnover
- Project Idea Note (PIN)
- Letter of Endorsement of the host country
- Reference with respect to setting up and operating similar projects
- Reference with respect to the technology to be used
- Statement of social responsibility

¹⁵ In case of contracts also covering years after 2012 additional conditions are valid.

In the contract-awarding phase the short-listed projects have to be worked out in more detail. In this phase, among others the following items have to be supplied:

- Offer of Claims on CER's
- Letter of Approval from the host country
- Business plan
- Baseline study
- A report concerning public participation
- An environmental impact assessment (if required by the host country)
- A validation report
- Registration of the project by the Executive Board

The validator has to put the baseline, the EIA, and the stakeholders comments on the Senter web-site in order to provide for the 30-day period for comments on the Project Design Document (PDD) from Parties, stakeholders and UNFCCC accredited NGOs.

3.3.4 Contracts

The Cerupt Terms of Reference (ToR) includes all terms and conditions pertaining to the contract. The main issues are similar then those that are valid in the Erupt ToR. The penalty procedure and payment conditions in Cerupt however differ from Erupt.

Penalty procedure

Whereas the penalty procedure in ERUPT applies when less then 100 % of the total amount of CERs is delivered, in CERUPT Senter is entitled to fine a penalty if less than 70 percent of the amount of CERs offered is delivered on the agreed schedule, except in case of force majeure. For the penalty procedure it makes no difference if 65 % or only 5 % of the amount of CERs has been delivered. Similar to the ERUPT procedure, the penalty is equal to 2,5 percent of the total purchase price per month of delay, up to a maximum of the agreed purchase price. Apart from the penalty procedure Senter still has the right to reclaim any advances paid by Senter to the contractor.

Payment conditions

Payments will be made as follows:

- on delivery in the 1st, 3rd, 5th etc year of the Project being operational and generating emission reductions;
- on delivery of a monitoring report in the 2nd, 4th, 6th etc year. These payments will be considered as prepayments.

In exceptional cases and only if proven unavoidable, Senter may make prepayments in the period of project realisation, i.e. before actual delivery of CERs. Prepayments will negatively affect supplier's ranking.

Senter will make a maximum of four prepayments, mounting up to 50 percent of the guaranteed contract value.

3.3.5 (Preliminary) results of the CERUPT programme

The first CERUPT tender was launched in November 2001. Senter received a total of 80 Expressions of Interest of which 26 projects were selected. The emission reduction per project ranges from 0.1 to 6.5 million tonne CO₂-equivalents and the average price per tonne is around 5 Euro. The projects are situated in 13 different developing countries, with India, Costa Rica and Panama as the front runners. Most frequently used technologies are wind energy and hydropower. The project developers are currently in the phase of preparing their project design document (PDD).

3.4 Lessons learned so far

PM To be filled out later

4 Handling of risks

4.1 Introduction

Different kinds of risks are linked to project development and purchase of emissions reduction credits in the field of JI and CDM. Two types of risks can be distinguished policy risks and market risk, which affect three types of actors the host country, the investor country and the project developer. The actors have to evaluate their policy and market risks and need to develop strategies to mitigate these risks. The actors and type of risks are outlined in Table 3.

Table 3 Type of risks linked to JI and CDM projects and the involved actors

<i>Actor</i> → <i>Type of risk</i> ↓	Host Country	Investor country	Project developer
Policy risks			
Market risks			

The different type of risks will be treated in more detail in this chapter and options will be presented to mitigate risks. For the mitigation of risks we mostly look at the viewpoint of the investor country and refer to concrete projects or programmes as much as possible. It must be noted that this chapter only assesses the additional risks related to fact that the project is a JI or CDM project. Apart from these risks the actor will also have to assess the ‘conventional’ political and country risks associated with cross-border investments. These risks include a broad category such as social conditions (labour, literacy, health), economics (growth, revenue generation, balance of payments), government (sources of power, regime stability), and climate for business (investment and trade restrictions, banking and financial sectors).

4.2 Policy risks

Policy risks refer to the uncertainties in the Kyoto process and its implementation for the international and national context. The evolution and outcomes of climate change policy is still subject to uncertainty, related to both the international agenda, such as the Kyoto Protocol, and to individual countries’ domestic implementation of the Protocol and climate change-related policies.

Developments in international climate policy: International policy risks are mainly associated with the ratification of the Kyoto Protocol. The Kyoto Protocol is not a legally-binding document, until it has not been ratified under the terms of Article 25, which sets out detailed provisions governing the treaty's entry into force. Lacking an operative Kyoto Protocol substantially increases the risks that particular project investments may prove relatively worthless.

Implementation of Kyoto protocol in the host country: There are risks associated with the host country's implementation of the Kyoto Protocol, particularly the conditions under which JI/CDM investments will be allowed. It can be expected that different countries will implement their Kyoto ratification requirements in different ways, in accordance with their own national objectives and priorities. This could impact the viability of projects that fall outside those considerations. The Kyoto Protocol does furthermore state that emission reduction units from non-ratifying countries cannot be used to fulfill the Kyoto agreements. This means that investing in a country that has not yet ratified the Kyoto Protocol is more riskier than investing in a country that has already ratified the Kyoto Protocol.

The ERUPT and CERUPT programme requires that host countries have ratified the Kyoto Protocol or declare to do so in the Letter of Approval (LoI)¹⁶. Within the Prototype Carbon Fund projects are only eligible for funding if the host countries ratifies the Kyoto Protocol.

Host Country Approval: Both JI and CDM projects require host country approval. Getting project approval for a JI or CDM project from a host country normally requires negotiation with the host country's JI or CDM focal point. The ability of host countries to enter approval procedures varies.

The Dutch government makes efforts to assist host countries in this matter by making framework agreements (Memoranda of Understanding or MoUs) with potential host countries. At this moment, MoUs have been concluded for JI projects with Bulgaria, Croatia, Romania and Slovakia. For CDM projects MoUs have been signed with Panama, Costa Rica, El Salvador, Peru and Colombia.

Within the ERUPT and the CERUPT programme the host countries should approve of each individual JI or CDM project and authorise the supplier 'to assist in the generation and transfer of ERUs' or CER's'. The host country should also confirm this in the Letter of Approval (LoI).

Credit Sharing: Credit-sharing arrangements will be subject to host country criteria for JI projects.

¹⁶ Senter (2001). Term of Reference ERUPT 2001. Senter International, The Hague

This Letter of Intent (LoI) also arranges the sharing of credits between the host and investor country.

4.3 Market Risks

Market risks refer to immature market status and price risks for carbon credits.

Price uncertainty of emission credits. Even assuming the existence of a liquid market for emissions credits there remains the unpredictability of future prices and market development, due to uncertainties in policies and strategies of actors on the carbon market.

Project developers can mitigate price risks by establishing contracts for fixed prices with buyers of credits (like the ERUPT, CERUPT, PCF) or try to insure their risk in the private insurance sector, which are current exploring their possible role in the carbon market.

Establishing contracts with fixed prices is also the way for the host countries to mitigate the risks of price fluctuations. Host countries (like the Netherlands) establish these fixed contracts with the idea that prices of credits will go up when entering the budget period and that it is therefore cheaper to act early on the market. Of course there is the risks for the host country that there is a surplus of credits in the budget period and that it would have been cheaper if they had just waited.

Credit delivery. Liabilities associated with credit quality and chances of delivery are likely to be assumed by the buyer as it is for other existing tradable commodities like grain, minerals, etc. The credibility and reliability of the seller will largely determine the credit quality, the price and chances of delivery.

Within the CERUPT and ERUPT programmes deliveries (timing, quality) are agreed upon in the contract between Senter and the project developer. Within these programme there is penalty on non-deliverance of credits.

4.4 Conclusions

Different type of additional risks can be identified for CDM and JI project compared to 'conventional' projects:

- Identified policy risks are non-ratification of the Kyoto Protocol, uncertainties in the implementation of the Protocol in the host country, approval of the host country and credit sharing. Within the CERUPT and ERUPT programme most policy risks are mitigated through legal arrangements in the contract between Senter and the project developer, with the exception of the political risks that the Kyoto Protocol with not come into force.

Identified market risks are price fluctuation and uncertainties in the delivery of contracts. Within CERUPT and ERUPT contracts are awarded with fixed prices which rules out the risks of price fluctuation. Non-deliverance of credits by the project developers is covered through a penalty in the contract.

5 Transaction costs

5.1 Introduction

This chapter examines the transaction costs of Joint Implementation and the Clean Development Mechanism for the investor country and the project developer. Transaction cost are defined as all costs that have to be made in order to be able to transfer ERU or CER from a host country to an investor country.

5.2 Transaction cost for the host country

Not many data are available on the costs that have to be made by the host country to import emission reduction units. We were only able to make rough estimates. Currently approximately 9 people¹⁷ with Senter are working on the CERUPT and ERUPT programme, which roughly amounts to 1,5-2 Million Euro. In 2002 they handle a total budget of X mln Euro, i.e the share of transaction costs is Y %.

5.3 Transaction cost for the project developer

Project developers will only consider a JI or CDM project viable if the costs of transacting the ERUs or CERs are substantially lower than the revenues they will generate through the sale of ERUs of CERs.

Table 4 shows estimated transaction costs for CDM and JI projects, based on numbers from ERUPT and CERUPT and on Ecofys experiences in the field. It must be stressed that the numbers are very rough and can only be used to get an indication of the level of these transaction costs.

The transaction costs in the in the project preparation phase include a feasibility study, preparation of documents to get the project registered as a JI and CDM project and the legal work for the contract. Total estimated up front cost range from 45,000 – 95,000 Euro. The total transaction costs in the operational phase are even harder to determine because none of the JI and CDM projects has entered this phase and no practical data are available.

¹⁷ [Date] Phone call to Senter

Table 4 Estimated ranges of transaction cost for JI and large CDM¹⁸ projects (Euros)

	JI	CDM (large projects)
A) Preparation phase – Once only costs		
Feasibility Assessment	10,000-20,000	10,000-20,000
Baseline, Monitoring and Verification Plan	10,000-15,000	15,000-20,000
Validation	10,000-30,000	10,000-30,000
Legal Work (contracts)	15,000-20,000	20,000-25,000
Total Up-front Costs:	45,000-85,000	55,000 – 95,000
B) Operational Phase Costs – Annual costs		
Monitoring and Verification	10,000 - 15,000 per year	10,000 - 15,000 per year
Adaptation levy	Not applicable	2% CERs value annually
Sale of ERUs/CERs	<ul style="list-style-type: none"> • No costs in case of a fixed contract. • Success fee in case of sale on market. Rough estimate 5 -10% of CER/ER value. Higher for a small project than a large project. 	
Risk Mitigation	No information available on risks mitigation products on the free market.	

The project transaction costs may differ (a little bit) depending on the type and the size of project. E.g. Monitoring and verification of a large energy supply side project or an energy demand side management project may require more time than for a small solar home systems project. However in most cases a similar amount of work will be required for all the transaction cycle activities regardless of project size and type and thus transaction costs will be almost similar in absolute terms for both large and small-scale projects.

Eventually transaction costs have to weigh out the total revenues from the sale of ERUs and CERs. E.g. the revenues from the sale of ERUs of the 4 project awarded a contract in the first ERUPT tender range from 4,5 – 13,5 mln Euro. The up-front transaction cost then range from 0.3% to 2.8% of the total revenues. According to Harmelink et al (2001)¹⁹ project developers generally expect transaction costs to be no more than 5-7% of the net present value of the revenue. This means that the transaction costs for the large ERUPT project are acceptable for project developers. However for smaller projects with revenues from carbon credit sale below 1 mln Euros the transaction cost would amount to 5% and 9% and are probably not acceptable any more.

¹⁸ Small CDM projects (< 15 MW) are allowed to follow the short procedure. **Cost???**

¹⁹Harmelink, MGM, P. Softe, 2001. Financing and financing mechanism for Joint Implementation Project (JI) in the electricity sector. Paper written within the Framework of the JOINT project. Ecofys, Utrecht, The Netherlands, Ecoscurities, Oxford, United Kingdom.