BASREC REGIONAL HANDBOOK ON PROCEDURES FOR JOINT IMPLEMENTATION IN THE BALTIC SEA REGION

JANUARY 2003

Baltic Sea Region Energy Co-operation
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SYNERGY PROGRAM

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JANUARY 2003

FOREWORD

The Energy Ministers of the Baltic Sea Region (BSR) states have decided to co-operate in the energy field through the Baltic Sea Region Energy Cooperation (BASREC). In December 1999 in Helsinki, Finland, the energy ministers of BSR countries and the European Commission (EC) decided on a joint working programme to enhance the co-operation in the Baltic energy sector. The participation in this work programme also involves the Nordic Council of Ministers (NCM), the Council of Baltic Sea States (CBSS) and the Council of Baltic States (CBS).

One important area of this co-operation is climate change mitigation, for which there is a special working group: the BASREC Ad Hoc Group on Climate Change. This working group has been assigned with the task to examine the possibility of establishing the BSR as a testing ground for the two flexible mechanisms Joint Implementation and Emission Trading (Articles 6 and 17 of the Kyoto Protocol). At the ministerial meeting in Vilnius on 19 November 2002 the energy ministers of the BASREC countries decided to establish the BASREC testing ground for the flexible mechanisms. The aim of the testing ground-approach is to build capacity and promote understanding of the concepts and functions of these mechanisms, emphasizing the potential of energy projects for Joint Implementation (JI). The use of the flexible mechanisms will enhance the possibilities to exploit the advantages of energy trade in the Baltic Sea region, promote sustainable growth and further inter-regional integration.

As a crucial element in this work the Ad Hoc Group has developed this handbook to be used for JI projects in the BSR. The aim of the handbook is to promote a common understanding of the rules for JI decided within the United Nations Framework Convention for Climate Change and the requirements that have to be met when carrying out different steps of the JI project cycle.

Our intention with the handbook is to guide JI project proponents in government and business in the BSR without prescribing exact rules or methods of work. It is hoped that the handbook will serve as a tool for national governments in bilateral and multilateral co-operation on JI. It is important to note that the handbook is a living document. This version will be revised as as policies evolve and as new information is provided on JI rules as well as methodological work on baselines. Experts have reviewed the Handbook and comments received from them and from participants at the BASREC St Petersburg conference in May 2002 have been taken into account in this revised version of the Handbook. The reader is advised to look for future revised editions on the BASREC website. This handbook is published on our authority as co-chairs of the BASREC Ad Hoc Group on Climate Change. The content of the handbook does not necessarily reflect the views or policies of BASREC states.

On behalf of the BASREC Ad Hoc Group on Climate Change, we thank all the contributors and all others involved for their contribution to the production of the handbook.

Olle Björk and Alexander Popov
Co-Chairs, BASREC Ad Hoc Group on Climate Change.

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The Steering Committee was assisted by a Reference Group with national experts from the BASREC member countries, who provided valuable input to the Handbook.

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The consultants EcoSecurities and Niras produced the first version of the Regional Handbook on Procedures for Joint Implementation in the Baltic Sea Region, presented at the BASREC Conference in St Petersburg in May 2002. EcoSecurities updated and revised this second version of the Handbook.

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Copies of this handbook are available from www.cbss.st/basrec

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ABBREVIATIONS & DEFINITIONS

AA *Assigned Amount* – the amount of GHG emission that an Annex B country under the Kyoto Protocol may emit in the Commitment Period 2008–2012.

AAU *Assigned Amount Unit* – tradable units of the Assigned Amount of an Annex B country expressed as one metric ton of CO_2 equivalent.

Additionality The property that project emission reductions have to be additional to what otherwise would have occurred.

AIJ *Activities Implemented Jointly* – The Conference of the Parties, at its first session (COP 1), by its decision 5/CP.1 decided to established a pilot phase for climate mitigation projects called activities implemented jointly (AIJ). AIJ activities do not result in credits for the emission reductions achieved by the project.

Annex I and Annex B countries Industrialised countries with emission reduction commitments. Annex I is an annex to the UNFCCC and Annex B is an annex to the Kyoto Protocol.

Baseline An assessment of GHG emissions that would have occurred in absence of the JI project.

CDM *Clean Development Mechanism;* a project-based mechanism under the Kyoto Protocol for cooperation between Annex I and non-Annex I countries.

CER *Certified Emission Reductions;* the terminology for emission reductions generated under the CDM.

COP Conference of the Parties to the Framework Convention on Climate Change.

Commitment Period Period for which the parties included in Annex B of the Kyoto Protocol have agreed that their aggregate GHG emissions do not exceed their assigned amounts, the first period is 2008–2012.

Crediting period The fixed and approved period (2008–2012) over which emission reductions can be generated by a JI project.

Determination The process of independent evaluation of a project activity by an Independent Entity against the requirements of JI (sometimes also referred to as validation).

EIA *Environmental Impact Assessment,* an assessment of the impact that the project will have on the environment.

ERUs *Emission Reduction Units;* the terminology for emission reductions generated under Joint Implementation.

ERUPT The Emission Reduction Unit Procurement Tender for JI projects administered by the government of the Netherlands.

Emissions Trading Mechanism introduced by Article 17 of the Kyoto Protocol, allowing trade of emission allowances (AAUs) between Annex I countries.

EB *Executive Board for the CDM.* Board that supervises the CDM under authority of the COP/MOP.

GHG *Greenhouse gas;* a gas that contributes to climate change. The greenhouse gases included in the Kyoto protocol are: carbon dioxide (CO_2), Methane (CH_4), Nitrous Oxide (N_2O), Hydrofluorcarbons (HFCs), Perfluorcarbons (PFCs) and Sulphurhexafluoride (SF_6).

Host country Country in which a JI project is implemented.

Investor country Country purchasing, or receiving as a return on investments, ERUs that are accrue from a JI project or sanctions such purchases by legal entities.

Independent Entity A legal entity that has been accredited by the JI Supervisory Committee to perform the determination of JI project eligibility and/or the verification of ERUs generated by JI projects.

JI *Joint Implementation;* Mechanism established under Article 6 of the Kyoto Protocol. JI allows for the acquisition and transfer of ERUs between two Annex I countries in the period 2008–2012, arising from climate change mitigation projects.

Kyoto Protocol Protocol under the UNFCCC. International legal instrument on climate change containing emission reduction commitments for Annex B countries. See www.unfccc.int

Marrakech Accords Elaborates on the rules and guidelines of the Kyoto Protocol. Adopted by the COP at its seventh session (COP-7). See www.unfccc.int

MOP Meeting of the Parties once the Kyoto Protocol has entered into force.

Monitoring plan Plan describing how monitoring of emission reductions will be undertaken. The monitoring plan forms a part of the Project Design Document (PDD).

Non Annex I and non-Annex B countries Developing countries with no emission reduction commitments under the Kyoto Protocol for the first commitment period 2008–2012.

Operational Entity A legal entity that has been accredited by the CDM Executive Board to perform validation, verification and certification functions for CDM projects.

Party Party to the UNFCCC and/or the Kyoto Protocol, which are the countries that ratified the UNFCCC and/or the Kyoto Protocol once these respectively have entered into force.

PCF Prototype Carbon Fund administered by the World Bank.

PDD *Project Design Document,* which refers to the documents to be submitted to an Independent Entity to determine JI project eligibility.

RMU *Removal Unit* – a carbon unit relating to credits generated from sequestration activities, where one unit is equal to one metric ton of CO_2 equivalent. RMUs are only related to Annex I parties. They cannot be taken over to a subsequent commitment period.

Secretariat The Secretariat of the UNFCCC, located in Bonn, Germany.

Supervisory Committee Committee that will supervise JI under authority of the COP/MOP. The Committee will be created after the KP has entered into force. It will make further recommendations on modalities and procedures for JI.

UNFCCC United Nations Framework Convention on Climate Change.

Verification The periodic independent review and ex post determination by the Independent Entity of the monitored GHG emission reductions that have occurred as a result of the JI project activity during a given time period.

GENERAL INTRODUCTION

This Handbook on Joint Implementation in the energy sector in the Baltic Sea Region is one of the first steps in an on-going process to establish a common understanding in the Baltic Sea Region on the rules and procedures related to Joint Implementation and to establish the region as a testing ground for such activities. The Nordic Council of Ministers and the Baltic Sea Region Energy Cooperation (BASREC) programme have commissioned this Handbook.

Joint Implementation (JI) is a project-based mechanism under Article 6 of the Kyoto Protocol. It allows for the transfer of Emission Reduction Units (ERUs) from projects that reduce greenhouse gas (GHG) emissions. The greenhouse gases covered under the Kyoto Protocol are Carbon dioxide (CO_2), Methane (CH_4), Nitrous oxide (N_2O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs) and Sulphur hexafluoride (SF_6).

These Emission Reduction Units can be generated in the period 2008–2012 and transferred between Annex I Parties, to serve as a means to fulfil obligations in a cost-efficient manner. Projects starting as of the year 2000 may be eligible as JI projects if certain requirements are met.

The Annex I Parties that will commit themselves to legally binding GHG emissions targets under the Kyoto Protocol are listed in Annex B of the Kyoto Protocol. These are the industrialised countries, including countries that are undergoing a process of transition to a market economy. All countries in the Baltic Sea Region are Annex B Parties. A JI project has to be developed and approved according to the provisions of the Kyoto Protocol and the guidelines adopted by the Parties to the protocol. This Handbook attempts to explain what these provisions and guidelines are.

The Handbook aims at taking a conservative approach to the provisions of the Kyoto Protocol and the JI guidelines. Projects taking a conservative approach may have a higher likelihood of being in accordance with the provisions of the Kyoto Protocol and the JI guidelines[1]. It is the intention of this Handbook to provide guidance to the development of high quality JI projects.

BACKGROUND ON BALTIC SEA REGION ENERGY COOPERATION (BASREC)

The Energy Ministers of the Baltic Sea region and the European Commission decided at their conference in Helsinki in October 1999, to set up the inter-governmental Baltic Sea Region Energy Cooperation programme (BASREC).

The countries and institutions participating in BASREC are the governments of Denmark, Estonia, Finland, Germany, Iceland, Latvia, Lithuania, Norway, Poland, Russia and Sweden; as well as the Directorate General for Transportation and Energy (DG TREN) of the European Commission.

At the conference in Helsinki it was decided that the BASREC initiative should underline the importance of early clarification of the international framework for the reduction of greenhouse gas emissions. This included the rules and guidelines for the Kyoto mechanisms, and in particular Joint Implementation, in the energy sector in the Baltic Sea region. They stressed the need for a clear and credible framework for long-term energy investments to underpin the development of environmentally sound energy systems in the area. In this context the BASREC Ad Hoc Group on Climate Change decided that a regional handbook for Joint Implementation (JI) projects in the energy sector of the Baltic Sea region should be developed.

The BASREC Parties decided at their meeting in Vilnius in November 2002 to establish a Testing Ground for the flexible mechanisms under the Kyoto Protocol in the Baltic Sea Region. This handbook is an important element in the efforts to build capacity and competence to use the Joint Implementation mechanism and to promote the realisation of high quality projects in the energy sector generating emissions reductions.

For more information on BASREC please see www.basrec.org

[1] JI guidelines refer to the guidelines for JI as stipulated in the Marrakech Accords and Kyoto Protocol.

GUIDE TO USING THIS HANDBOOK

This Handbook is aimed at project proponents who are considering developing Joint Implementation projects, as well as regional and national government administrators involved in the implementation of Joint Implementation. The focus of the Handbook is on projects in the energy sector under the BASREC Testing Ground under the so-called JI Second Track. Under the JI Second Track approach a Host Party may become involved in JI even if it does not meet all of the eligibility requirements related to the so-called First Track. Instead, the project will be subject to a more strict verification procedure than if all the eligibility criteria were already met. It should be noted that if the Host Party is eligible to use the JI First Track it could decide on a simplified verification procedure than the one for the Second Track described in this Handbook. A Party meeting the First Track requirements may however at any time opt to use the Second Track procedure.

The Handbook consists of two volumes – Volume A and B.

Volume A focuses on guiding project proponents interested in developing JI projects under the Second Track (see Volume A, Chapter 2). It includes 5 different chapters. Chapter 1 briefly introduces procedures for Second Track JI projects. Chapter 2 describes the JI project cycle and the participants involved. It includes a step-by-step guide to tasks and actions involved in establishing a JI project. These steps are further elaborated upon in Chapters 3 and 4. Of particular relevance to project proponents is the information provided in Chapter 5 on the costs and revenues associated with the JI aspects of the implementation of a project.

Volume B elaborates the international policy context and discusses the eligibility requirements for countries to participate in Joint Implementation. Volume B also elaborates the concept of Activities Implemented Jointly (AIJ) under the UNFCCC, existing experience with JI projects and the status of JI procedures in BASREC countries. Volume B is also of relevance for project proponents considering participating in JI, because it highlights both the international and national policy status that ultimately determines how and where a JI project could be established.

The Appendices to the Handbook provide reference to additional sources of information that can assist those seeking to develop national policy frameworks and/or establish JI projects. The Appendices provide literature sources and relevant websites that provide further information on JI and national policies of the Baltic Sea Region States.

VOLUME A:
GUIDE TO DEVELOPING A JI PROJECT

1 INTRODUCTION TO JI AND THE TWO TRACK APPROACH

This Volume provides a guide for project proponents developing Joint Implementation (JI) projects under Article 6 of the Kyoto Protocol, and aims to give guidance on the different steps in the JI project cycle and on the documentation needed for developing a successful JI project. The focus is on the rules and procedures for the JI Second Track, which calls for a more strict verification procedure than what is needed for projects eligible for the JI First Track.

Joint Implementation (JI) allows for the transfer and acquisition of emission reduction units (ERUs) resulting from activities that reduce anthropogenic greenhouse gases (GHG) or enhance the removal of GHGs. JI promotes investments by industrialised countries and economies in transition (Annex I Parties), in projects undertaken in other Annex I Parties. The investor country or private legal entity is then able use the resulting ERUs from projects towards their own emission commitments under the Kyoto Protocol. For a project proponent one of the benefits of implementing an emission reduction project under the Joint Implementation mechanism is the ability to generate revenues from the sales of the emission reductions that result from project activities. Under the JI mechanism emission reductions can be claimed for the period 2008 – 2012[2].

It is possible to develop JI projects in any of the BASREC states. In order to develop a project the proponent will need the approval of the host government. Further information on the JI policy status in the BASREC states (by December 2002) can be found in Chapter 4, Volume B. Project proponents should be aware that any BASREC State that wishes to utilise the JI mechanism will have to meet the eligibility requirements related to the transfer and acquisition of Emission Reduction Units (ERUs). Chapter 2, Volume B, describes these requirements in general, and Chapter 4, Volume B, provides some information on the status of the BASREC states in meeting them.

1.1 JI TWO TRACK APPROACH

The international climate change agreements provide two sets of JI procedures commonly referred to as the 'Two Track' approach. The Two Tracks refer to alternative procedures and project cycles for JI projects that are open to project development depending on the status of the host Party in meeting the eligibility requirements.

Under both tracks the Parties are required to establish a Designated Focal Point for approving projects and have in place national guidelines and procedures for approving JI projects.

The differences in terms of the eligibility of Parties to use the Two Tracks, and the procedures and documentation requirements for project proponents are provided in Table 1 below.

First Track: The First Track procedures for JI apply when a host Party meets all the eligibility criteria related to the transfer and acquisition of ERUs (see Table 1 below). In this situation, Annex I host Parties are allowed to apply their own procedures for assessing projects emissions additionality. The Party is then able to issue and transfer ERUs to the investing Party, without recourse to any international body for approval. Therefore, the eligibility requirements that allow an Annex I host Party to participate in JI First Track are stricter than the requirements applying to the Second Track.

[2] An aim of the BASREC testing ground is to provide a possibility also to reward emissions reductions before 2008.

Second Track: Under the Second Track procedure for JI, an Annex I host Party can also participate in JI if it is a Party to the Kyoto Protocol, and has established both its assigned amount and a registry. Under the Second Track the host Party has to follow the project determination and verification procedure under the Article 6 Supervisory Committee (hereafter called the Second Track procedures), as specified in the guidelines for Article 6 projects[3]. The project proponent has to prepare a Project Design Document (PDD) and have this approved by an Independent Entity accredited by the Supervisory Committee. Chapter 3 and 4 further elaborate on the development of a Project Design Document and other activities that have to be undertaken when developing a JI project under the Second Track procedure.

Since there are no specific requirements for verification of ERUs under the First Track JI, the JI project cycle under the First Track could vary from host Party to host Party, and could differ from Second Track JI procedures. It is likely that the First Track project procedures adopted will be more straightforward and simple than those established for the JI Second Track. It should be noted that a Party meeting the First Track JI requirements may at any time opt for using the JI Second Track procedure.

At this stage, project proponents are advised to

Table 1. Overview JI First Track and Second Track participation requirements and procedures

	JI First Track	JI Second Track
A. Process Requirements for a Host Party to participate	1. It is a Party to the Kyoto Protocol. 2. Its assigned amounts (AA) has been calculated and recorded. 3. It has in place a national system for the estimation of GHG emissions. 4. It has in place a national registry to record the acquisition and transfer of AAUs, ERUs, CERs, and RMUs. 5. It has submitted annually a GHG inventory report. 6. It has submitted the supplementary information on the assigned Amounts.	1. It is a Party to the Kyoto Protocol. 2. Its assigned amounts (AA) has been calculated and recorded. 3. It has in place a national registry for recording the acquisition and transfer of AAUs, ERUs, CERs, and RMUs.
B. Documentation Project requirements for generating and transferring ERUs	• The Host Party is free to decide upon and define the rules for verification of ERUs from a JI project.	• Host Party has to follow the verification procedure under the Article 6 supervisory committee, which includes the development of a Project Design Document. • The PDD needs to be validated by an Independent Entity accredited by the Article 6 Supervisory Committee.
C. Issuance of ERUs	• ERUs can be issued by the host Party. No approval is required from JI Supervisory Committee.	• If JI Supervisory Committee does not call the Independent Entity's verification report into a review procedure then host Party can issue ERUs.

[3] Decision 16/CP.7 Annex, Section D, paragraph 24.

develop a project under the Second Track procedures, primarily because none of the national Governments of the BASREC region have yet developed institutions and procedures under the First Track. Project proponents that want to establish a JI project under the First Track should contact the host Party's JI or climate change authorities for advice on how to proceed.

1.2 TIMING OF THE JI TWO TRACK PROCEDURES

The entry into force of the Protocol is a precondition for an Annex I Party to become a Party to the Protocol. However, if and when any Party will actually be in a position to meet the other JI participation requirements is as yet difficult to assess and for some Parties the requirements may not be met until just before the start of the commitment period (Parties have until 2007 to meet some of the requirements). According to the JI guidelines projects starting from the year 2000 may be eligible JI projects if they meet the requirements stipulated.

A key criterion for operationalising Second Track JI is the establishment of the JI Supervisory Committee. The JI Supervisory Committee will be established at the meeting of the first COP/MOP. Assuming the Protocol enters into force and the COP/MOP meets in 2003, it may be possible for the JI Supervisory Committee to be operational by 2004. It should be able to draw on the experience of the CDM Executive Board (which performs a similar function for the CDM), which should accelerate the readiness of the Supervisory Committee.

Since the Supervisory Committee is not yet in place questions are raised as to what Parties should do in the interim period. The recommended approach to this is to closely consult with the host Party and to develop projects according to the rules that currently exist[4]. The Secretariat, in due course, will maintain a publicly available list of countries that meet the eligibility requirements for JI First and Second Track projects, and of those that have been suspended.[5]

1.3 GUIDANCE FOR JI SECOND TRACK APPROACH

This Volume of the Handbook provides project proponents with a description of the process of developing a JI project under the Second Track and its documentation requirements, and a discussion of likely costs and revenues associated with developing a JI project.

More specifically, this volume provides information on the following:

1. The JI Second Track approach rules and procedures, including a description of a likely project cycle for developing JI projects under the Second Track procedure, and the responsibilities of each of the participants involved in the project cycle. Chapter 2 of this Volume further describes the Two Track approach.
2. The documentation, including the Project Design Document, required for determining both project eligibility and the generation of emission reductions under the JI Second Track procedures. The components of the PDD are described in Chapter 3, Volume A.
3. A more detailed description of two components of the Project Design Document: the Baseline Study and the Monitoring Plan (Chapter 4,Volume A).
4. An overview of some of the expected costs and also the revenues associated with developing a JI Second Track project (Chapter 5, Volume A).

Whilst project proponents are likely to find this volume of most assistance when looking for guidance on how to develop a JI project, they should also be aware of relevant information on the policy background for JI that is contained in Volume B of this Handbook. Of particular importance is information on the requirements that Parties have to meet to be able to transfer ERUs. This has implications for terms and conditions governing any carbon purchase arrangements. Volume B also contains useful information on the JI policy positions of the BASREC states.

[4] The BASREC testing ground will to a certain extent provide for action before all institutions are in place. However, a determination report cannot be formally approved until accredited Independent Entities are established.

[5] Decision 16/CP.7 Annex, Section D, paragraph 27.

2 JI SECOND TRACK PROJECT CYCLE

This Chapter describes the steps involved in the project cycle for the Second Track, and the roles of the participants in each step. The order of steps is not prescribed in the JI guidelines. The order described in this handbook is an example of how the development of a JI project could unfold.

The steps in the project cycle for JI are very similar to the steps and activities that have to be taken for developing a conventional project (i.e. a project without a JI component). Figure 1 below presents the timeline for developing a JI project.

The project cycle for a JI project starts off with the idea of developing the project as a JI project and with a first rough assessment of the amount of greenhouse gas (GHG) emission reductions that the proposed project could generate. If the first screening of the GHG emission reductions of the project is positive, the next step is a feasibility assessment. During this stage, the project proponent will establish contact with the national Designated Focal Point for JI or if this has not been appointed the Ministry with responsibility for JI and discuss the idea of developing the proposed project as a JI project. This includes an assessment of the applicable and relevant international and national regulations and policies – see the quick scan checklist, section 2.4 for guidance on undertaking an initial assessment. Section 2.1 below provides a description of the key participants involved in a JI project. Section 2.2 provides further detail on the steps in the JI project cycle.

2.1 PARTICIPANTS INVOLVED IN THE JI SECOND TRACK PROJECT CYCLE

The four primary participants involved in the JI Second Track project cycle are:

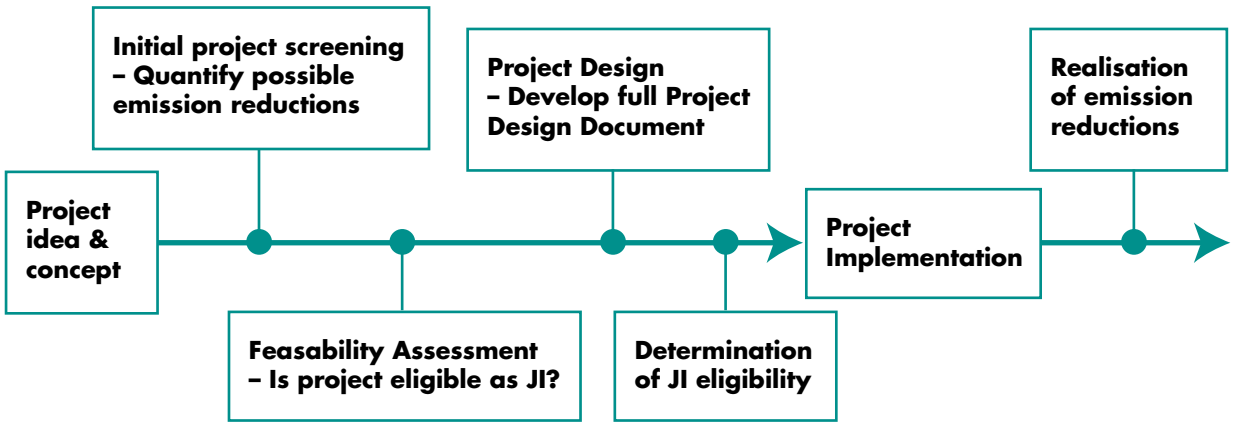
1. Project proponent
2. Parties
3. Independent Entity (IE)
4. Supervisory Committee for JI

Each of the above participants is responsible for different tasks involved in implementing and administering JI projects. The role of each of the participants is outlined in sections below.

2.1.1 Project Proponent

The JI guidelines allow legal entities authorised by host or investor Parties to participate in and implement JI projects. It should be noted that the Party ultimately remains responsible for ensuring that its Kyoto commitments are met.[6] This suggests that a wide range of bodies could, if authorised by a Party,

Figure 1. Timeline of developing a JI project



[6] Decision 16/CP.7, Annex, Section D, paragraph 27.

develop projects and acquire or transfer ERUs. Examples of possible entities that could participate as project proponents include government bodies or agencies, municipalities, foundations, financial institutions, companies and NGO's.

2.1.2 Parties

Parties are the national government of the country in which the JI project is located, and if applicable the national government of an investor country. The country where the project is located is referred to as the Host Party. Every JI project includes the involvement of a Host Party. According to the JI guidelines a JI project has to have the approval of the Parties involved.

Apart from the Host Party, other Annex I Parties could be involved. This could be the case when an Annex I Party is either buying the ERUs resulting from a JI project or facilitating the purchase of ERUs for companies participating in an emission trading system.

2.1.3 Independent Entities

The Independent Entity is an entity that under the JI Second Track procedure is responsible for determining the eligibility of the proposed project and verifying the emission reductions accruing from the project. Independent Entities have to be accredited by the Supervisory Committee.

The validation by the Independent Entity prior to the project operation is referred to as determination (see also section 3.8, Volume A). Determination refers to the fact that *prior* to the project implementation a third party independent organisation – the Independent Entity – needs to assess whether Project Design Document of the proposed JI project meets all the requirements for JI. Once a PDD has been submitted to the Independent Entity, the tasks of the Independent Entity are to:[7]

1. Make the PDD submitted by the project proponent publicly available for 30 days through the Secretariat;
2. Receive comments from Parties, stakeholders, and UNFCCC accredited observers, on the PDD and any supporting documentation. Comments can be made for 30 days from the date from which the PDD is made publicly available;
3. Provide a summary of comments received and a report of how due account was taken of these.

The Independent Entity has to determine whether the proposed project has been approved by the relevant Annex I Parties involved, whether the project would result in a reduction of emissions that is additional to any that would otherwise occur, and whether the project has an appropriate baseline and monitoring plan in accordance with JI guidelines. The Independent Entity also has to determine whether project proponents have submitted documentation on the environmental impacts of the project activity, including transboundary impacts, in accordance with procedures determined by the host Party. If the impacts are significant the Independent Entity will have to determine whether an environmental impact assessment has been undertaken in accordance with the procedures required by the host Party.

Verification is also the responsibility of the Independent Entity. Verification is the periodic independent review and ex-post determination of the reductions in GHG emissions that have occurred as a result of the operation of the JI project. In other words, verification can only be carried out once the project is operational. It serves to verify that the project results in real emission reductions. The Independent Entity will determine whether the project documentation provided is in accordance with the approved monitoring plan.

The JI Supervisory Committee will accredit the Independent Entities that will perform all functions related to the determination of JI projects and the subsequent verification of ERUs generated. It may take some time before the first Independent Entities are accredited, because the JI Supervisory Committee has not been established yet. The JI guidelines state that the Supervisory Committee will not be appointed until the first COP/MOP, i.e. the first meeting of the COP/MOP after the Kyoto Protocol enters into force. This may not happen for some years to come. This raises the question of what project proponents and Parties can do in the interim. It is important for project proponents and Parties to recognise that there is a risk that projects implemented in this interim period may not ultimately qualify as a JI project.

[7] Decision 16/CP.7, Annex, Section E, paragraph 32.

One option is to select companies that are Operational Entities accredited by the Clean Development Mechanism (CDM) Executive Board because it is highly likely they will also become Independent Entities, and the CDM is in many ways similar to Second Track JI. Entities that are accredited will in due course be listed on the website of the Executive Board at http://unfccc.int/cdm/doe.html. Project proponents could also look at the Prototype Carbon Fund (www.prototypecarbonfund.org), which lists companies that have been carrying out determinations for the Fund, and could provide provisional assessments on JI projects.

However, it should be noted that using entities not accredited by the Supervisory Committee to determine project eligibility or verify the project would only result in provisional determinations or verifications. The project proponent and/or purchaser of emission reductions resulting from verification by an entity not accredited by the Supervisory Committee will face the risk that the project, and the related emission reductions, may not be recognized by Independent Entities accredited by the Supervisory Board.

2.1.4 Supervisory Committee for Second Track JI

The Supervisory Committee will work under the authority of the COP/MOP and is reporting on its activities to each session of the COP/MOP. The Supervisory Committee will:[8]

1. Accredit Independent Entities;
2. Review standards and procedures for the accreditation of Independant Entities;
3. Review and revise reporting guidelines and criteria for baselines and monitoring, for consideration by the COP/MOP;
4. Elaborate the Project Design Document (PDD), for consideration by the COP/MOP;
5. Be responsible for the review procedures in connection with determination of JI Second Track projects and determination of emission reductions;
6. Elaborate any rules or procedures additional to those already contained in the JI guidelines, for consideration by the COP/MOP.

2.2 STEP-BY-STEP GUIDE TO THE JI SECOND TRACK PROJECT CYCLE

The project cycle for Second Track JI projects can analytically be split into two phases. The first one is the project design phase, which refers to all activities prior to the construction or start of any of the project activities. The second phase is the project operation phase, which refers to the phase during which the project starts operations. The latter is the point in time from which emission reductions can be generated.

The main task of the project proponent during the project design phase is to prepare all the required documentation for developing a JI project, which is also referred to as the Project Design Document (PDD). The next step will be to hire an Independent Entity for the determination of the proposed JI project.

Once the project is operational, the main task of the project proponent is to monitor project performance and to report the results to an Independent Entity. The Independent Entity is responsible for: (a) making the PDD publicly available, (b) determining whether the PDD meets JI requirements, (c) summarising stakeholder comments and (d) taking into account stakeholder comments. The Independent Entity is then responsible for making (a) the determination report, (b) the stakeholder comment summary, and (c) the report on how the stakeholder comments were taken into account, publicly available.

The steps in the JI Second Track project cycle are presented in detail below:

1. The figures (Figure 2 and 3) present key steps, and participants involved, in the JI Second Track project design and implementation phases. The figures provide a diagrammatic overview of the project cycle and the steps involved.
2. The tables (Tables 2 and 3) describe briefly each of the steps in the JI Second Track project design and implementation phases. The tables also provide references to the requirements listed in the JI guidelines and links to sections in the Handbook that provide further guidance.

[8] Decision 16/CP.7, Annex, Section C, paragraph 3.

Figure 2. Project Cycle for Project Design Phase of JI Second Track

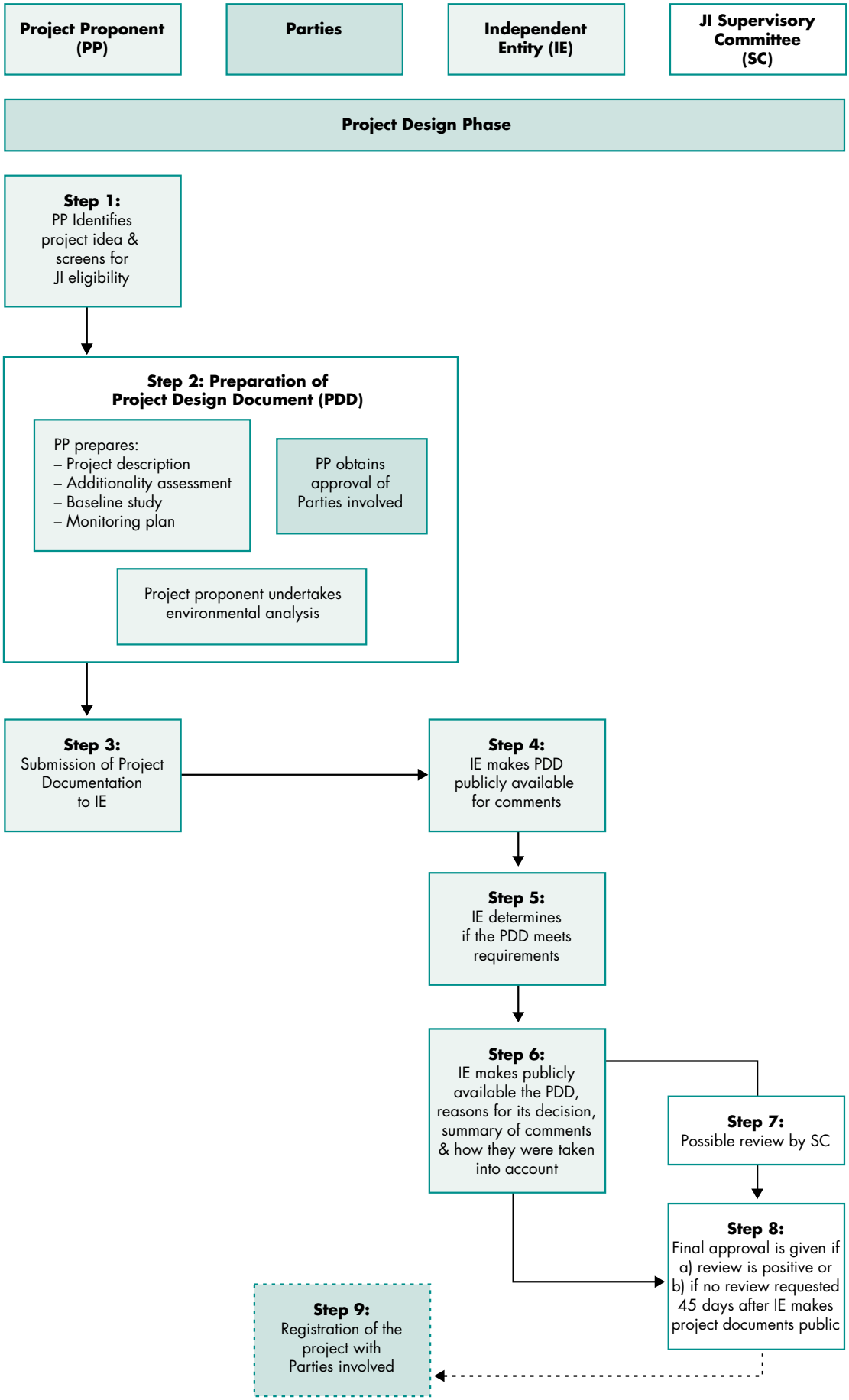


Table 2. Step-by-Step Guide for project proponent of the Project Design Phase of the JI Second Track

Steps
Step 1: Identification of project idea by project proponent and an initial evaluation of the eligibility and feasibility of developing the project as a JI project. *For further guidance see Section 2.4, which provides a checklist to assist in the initial assessment.*
Step 2: Project proponent has to carry out the following tasks[9]: a) Develop Project Design Document (PDD), included a baseline and a monitoring plan. b) Provide documentation on analysis of environmental impacts of the project activity, and if necessary, undertake an environmental impact assessment in accordance with procedures as required by the host Party. c) Obtain approval of the project from the Parties involved. *For further guidance see also Chapter 3 and 4, Volume A.*
Step 3: Project proponent submits PDD, and a report on the analysis of environmental impacts to Independent Entity (IE).[10]
Step 4: The Independent Entity makes the PDD publicly available through the Secretariat for 30 days, and receives comments. It seems likely that the PDD will be made available on the Secretariat website. Based on the comments provided by the stakeholders, the Independent Entity will determine whether the project is eligible under JI.
Step 5: The Independent Entity determines whether the requirements have been met and that the PDD is complete. *See section 2.1.3 and 3.8, Volume A, for further guidance.*
Step 6: The Independent Entity makes the determination publicly available through the Secretariat, together with an explanation of its reasons, including a summary of comments received and a report of how due account was taken of these.[11]
Step 7: Possible review of Independent Entity's determination[12]. If a Party involved in the project or at least three members of the Supervisory Committee requests a review, the Supervisory Committee will review the decision of the Independent Entity. The review process and subsequent decision should take no longer than 6 months after the request for review or be completed no later than the second meeting of Supervisory Committee after the decision for review was made by the Supervisory Committee.
Step 8: The final approval of the project will be made 45 days after the receipt of the determination report, unless a review is requested[13].
Step 9: Optional: Registration of project with the Parties involved in the project. Registration of the project during the project design phase is not a requirement of the JI guidelines. However, it is possible that the Parties involved may require the project to be registered. For further information about registration of the project with the host and investor Parties the project proponent should contact them directly.

[9] Decision 16/CP.7, Annex, Section E, paragraph 31 and 33
[10] Decision 16/CP.7, Annex, Section E, paragraph 31 and 33
[11] Decision 16/CP.7, Annex, Section E, paragraph 34
[12] Decision 16/CP.7, Annex, Section E, paragraph 35 and 39
[13] Decision 16/CP.7, Annex, Section E, paragraph 35

Figure 3. Project Cycle for Implementation Phase of JI Second Track

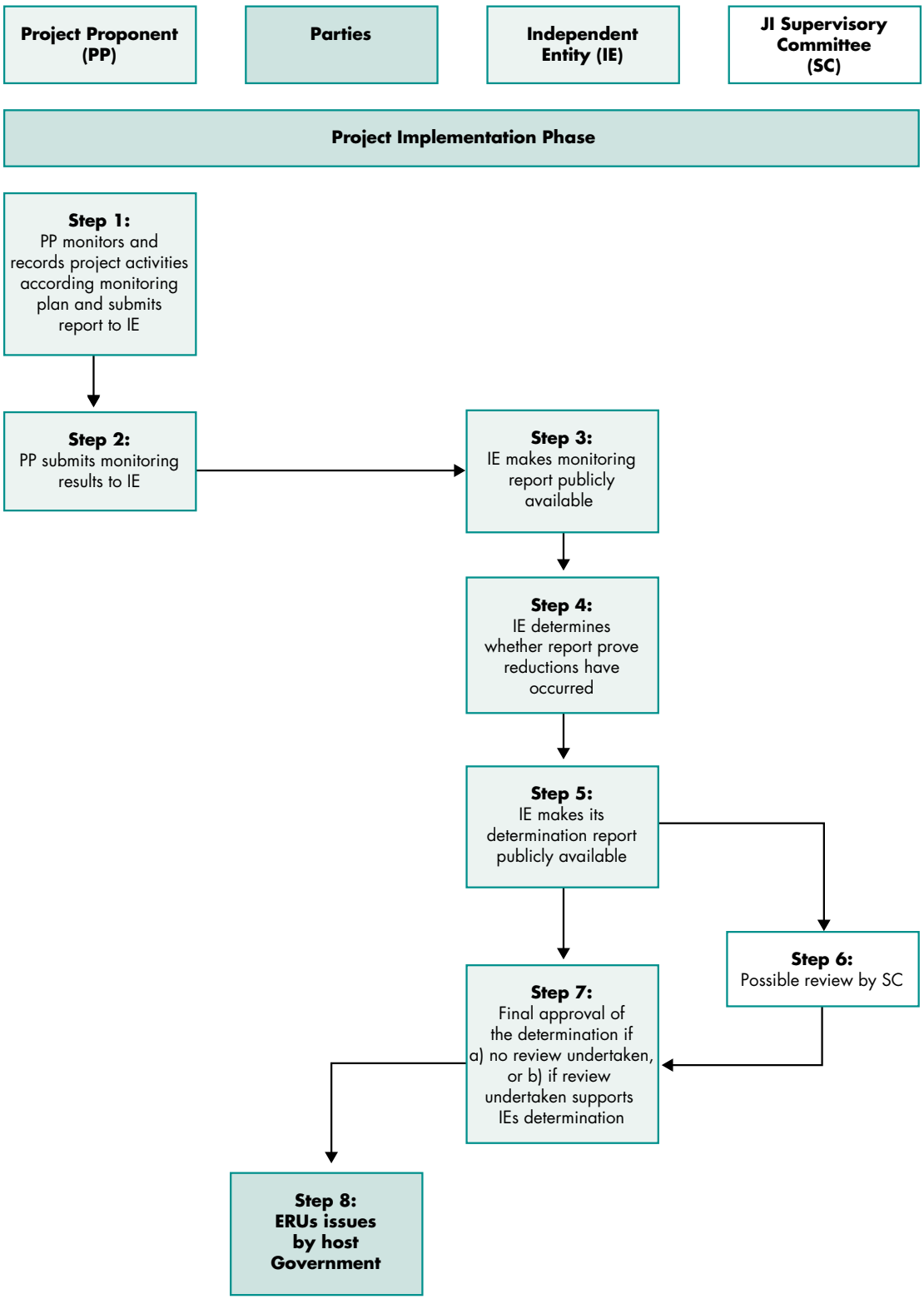


Table 3. Step-by-Step Guide to the Project Cycle Implementation Phase

Steps
Step 1: Project proponent monitors and records project activities[14]. Based on the monitoring results, the GHG emission reductions resulting from the JI project activity can be calculated.
Step 2: Project proponent submits monitoring results to Independent Entity. The project proponent has to contract an Independent Entity for verification of the monitoring results and the subsequent Emission Reductions Units as a result of the operation of the JI project. The JI Supervisory Committee will in due course provide a list of Independent Entities that can be contracted to carry out verification activities.
Step 3: The Independent Entity makes monitoring reports publicly available through the Secretariat[15].
Step 4: Determination of whether monitoring results prove that the emission reductions have occurred, by Independent Entity[16], and whether the monitoring is in accordance with the approved monitoring plan.
Step 5: The Independent Entity makes its determination report publicly available through the Secretariat, together with an explanation of its reasons[17].
Step 6: Possible review by the JI Supervisory Committee. Once the Independent Entity has submitted the verification report to the JI Supervisory Committee (SC), there is a possibility that a review of the verification report by SC may be requested.[18] This can only happen when a Party or three members of the SC request such review. In case there is a request for review of the verification report the following will occur[19]: a) The SC will decide at its next meeting or within 30 days of the request being made, whether a request has merit and whether to proceed with the review. b) If a review is deemed necessary, the SC will review the decision of the Independent Entity. c) SC informs the project proponent of the outcome of the review and makes it decision and reasoning publicly available.
Step 7: In case there is no request for review, the verification is deemed final 15 days after the date on which it was made public[20].
Step 8: Issuance and registration of ERUs. This is a contractual matter between the project proponent, the ERU purchaser and the host Party. When carrying out a project in the territory of an Annex I Party, the emission reductions that will be generated as a result of the JI activity will have to be deducted from its Assigned Amount. Once the emission reductions have been verified the National Registry will need to be notified, and it will record the issuance and transfer of ERUs, and deduct the AAU equivalent from the Party's Assigned Amount. Similarly, the investor Party will register a projects approval and transfers of ERUs, and the addition of the AAU equivalent to its Assigned Amount.

[14] Decision 16/CP.7, Annex, Appendix B paragraph 4-6
[15] Decision 16/CP.7, Annex, Section E, paragraph 36
[16] Decision 16/CP.7, Annex, Section E, paragraph 37
[17] Decision 16/CP.7, Annex, Section E, paragraph 38
[18] Decision 16/CP.7, Annex, Section E, paragraph 29.
[19] Decision 16/CP.7, Annex, Section E, paragraph 39
[20] Decision 16/CP.7, Annex, Section E, paragraph 39

2.3 POTENTIAL PROJECT CATEGORIES UNDER THE BASREC TESTING GROUND

As stated in the introduction, this Handbook focuses on JI projects in the energy sector in states in the Baltic Sea region testing ground. The project cycle discussed in this section is in principle applicable to all energy related projects that mitigate GHG emissions. However, the following should be taken into account:

1. Only projects that result in reductions of greenhouse gases (GHG) listed in Annex A of the Kyoto Protocol can be developed as JI projects. These gases include Carbon dioxide (CO_2), Methane (CH_4), Nitrous oxide (N_2O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs) and SF_6 (Sulphur hexafluoride).
2. Parties should refrain from using ERUs generated from nuclear energy projects.[21]

Examples of potentially eligible project categories for JI in this sector under the BASREC testing ground include installations based on renewable energy sources (wind power, solar power and heat, biomass, hydro etc); fuel switch (for example in the electricity and heat sectors); energy efficiency at the energy production side; energy efficiency (including energy savings) at the demand side, including projects in the residential as well as the industrial sector; cogeneration projects and methane emissions from landfills used in energy generation projects. Projects can either be retrofits of existing facilities or the construction of new plants, for which emissions are lower than those that would have otherwise occurred.

2.4 CHECKLIST TO SCREEN PROJECT IDEAS

To help give project proponents an indication of whether their project ideas might qualify as JI projects, this section provides a checklist to screen ideas. The checklist is in the form of a questionnaire. By its very nature the checklist is simplistic and can only provide a rough indication of whether a project could eligible as a JI project, and a rough estimation of the emission reductions, which could be generated. It is only the first step in the identification of a JI project. A full feasibility study would be needed to provide an accurate picture on eligibility.

The checklist is divided into two parts. Part 1 (Figure 4 below) deals with criteria, which should lead to straightforward yes or no answers. If the assessment is positive the proponent should move on to Part Two (Figure 5 below), which involves assessing more technical aspects of the baseline assessment and the quantification of emission reductions. It therefore addresses the important issue of whether sufficient emission reductions (credits) are generated to warrant pursuing the project as a JI project.

If the answers are not obvious the proponent should look at the various sections in this Handbook for further guidance.

[21] Decision 16/CP.7.

Figure 4. Part 1 – Government Approval, Additionality, and Monitoring Checklist

Steps	Questions	Answer (tick boxes) Yes	No
1	Is the national government supportive of JI projects, and will it provide approval for your project type?		
2	Would your project activity create emission reductions that are additional to those that would have otherwise occurred? If convincing evidence (from the projects policy, economic, and technical, and financial context) can be demonstrated then tick Yes.		
3	Is it possible to monitor and verify that the project generates emission reductions? For example for on-grid projects do you have access to verifiable records of the amounts of electricity exported to the grid, for off-grid projects do you have access to verifiable records of the amount of fuel displaced by the project?		

If the answers to above questions are Yes or likely to be Yes then move to Part 2 of the JI Quick Scan Checklist to develop rough baseline and quantify emission reductions. If the answers are positive ensure you can justify your answer using supporting evidence from the policy, technical, economic, and financial context.

Figure 5. Part 2 – Baseline & Emission Quantification Checklist

Steps	Questions
1.	Is your project (a) energy supply or (b) energy efficiency project? If answer is (a) go to 2a, if answer is (b) go to 3a.
2a.	**Energy Supply Projects** Estimate the projects GHG emissions, expressed as tonnes of CO_2 per MWh or GJ
2b.	If your project will be grid connected go to 2c, if it is off-grid go to 2d
2c.	Constructing Rough Baseline Scenario for Grid Connected Projects: If the project had not been implemented what would have occurred in its absence? For on-grid projects this is could be the continued use of grid electricity, or additional electricity supplied, i.e., by a new coal fired plant. If continued use of the grid is the likely option then an estimate the current grid mix will be needed, This will be in terms of fuel or technology that are likely to be affected by the project, e.g. 10% diesel, 10% oil, 10% coal, 65% gas and 5% renewables. Calculate an average grid CEF (carbon emissions factor) using appropriate values from Table 5 for technologies or Table 6 if available data is on fuel use from the power supply (Chapter 4, Volume A). To calculate the baseline emissions in tonnes of CO_2 per annum multiply the average grid CEF by the MW hour or GJ to be produced by the project. A baseline for an electricity grid should reflect the marginal electricity supply over time.
2d.	Constructing Rough Baseline Scenario for Off-grid Projects: If the project had not been implemented what would have otherwise occurred? For off-grid projects this can be determined by finding out who will use the energy produced by the project. Then estimate what sources of energy these consumers are currently using. If it is electricity from the grid, the method presented under 2c can be used to estimate the emission for the baseline. If it is other sources of off-grid energy this is likely to be diesel, oil, coal, gas or renewable energy. If the current energy use is likely to be renewables then the project will not generate emission reductions, and the proponent should abandon any JI consideration. If the energy used is provided by fossil fuel sources, then look up the relevant CEF per MW hour or GJ fuel in Table 5 or Table 6 (see Chapter 4, Volume A) and calculate baseline emissions by multiplying the quantity of fuel or MW hours consumed by the appropriate CEF.
2e.	To arrive at an estimate of the tonnes of CO_2 reduced per annum by the project subtract the project emissions (either from 2a) from the baseline (either from 2c or 2d above).
3a.	**Energy Efficiency Projects** Estimate the fuel, or MW hours, being consumed per annum under existing activities. Then estimate the CEF per MW hour or tonne of fuel used. Then multiply CEF with MW hours or tonnes fuel, which give you X tCO_2 equivalents per annum.
3b.	Estimate the efficiency improvements as a result of the project activity, per MW hour or tonne of fuel consumed.
3c.	Tonnes of CO_2 reduced per annum = 3a - 3b.
4.	If the emission reductions are significant the proponent should then investigate reduction costs and financial viability of transacting their value, by investigating their current prospective value in the market. If this is also positive the project proponent should undertake a full feasibility study, which will determine whether a project is eligible and the quantity of emission reductions.

3 DOCUMENTATION REQUIREMENTS – PROJECT DESIGN DOCUMENT

This section provides guidance on the information that should be provided by the project proponent in the Project Design Document (PDD) for JI projects. It should be noted that it is not yet clear exactly what information has to be included in the PDD for JI projects, because this will ultimately be determined by the Supervisory Committee and the COP. What is certain is that the following information has to be included in the PDD[22]:

1. Approval of the project by the Parties involved;
2. That the project results in reductions of emissions by sources that are additional to any that would otherwise occur;
3. That the project has an appropriate baseline and monitoring plan.

In addition to the above requirements this section provides further recommendations and elaboration on the information that should to be included in the PDD. These are not specifically required by the JI guidelines, but are suggested additions as part of the BASREC testing ground. These additions to the PDD are:

- Documentation on an environmental assessment;
- A project description that provides key project and project context characteristics;
- A summary of any local public consultations undertaken as part of national government regulatory requirements.

None of the above additions are specifically mentioned in the JI guidelines as being part of the PDD, but they have to be submitted to an Independent Entity for a determination of JI eligibility. It therefore makes sense to include these in the PDD.

A summary of all the information that should be compiled into a PDD is provided in the box below, and each of the components is discussed in the following subsections.

Sections 3.1 to 3.7 further elaborate on each of the above-mentioned components of the PDD. Section 3.8 then briefly discusses the determination process.

Box 1. Project Design Document (PDD)

1. Approval of the Parties involved
2. Additionality assessment
3. Baseline study and monitoring plan
4. Analysis of the environmental impacts
5. Description of the project
6. Summary of any national stakeholder process

3.1 APPROVAL OF THE PARTIES INVOLVED IN THE PROJECT

A JI project has to be approved by the Parties involved[23]. The JI guidelines do not provide further guidance on the form or content of the approval from the Parties involved. However, it could be conceived that the project proponent obtains an official letter of approval from the Parties involved.

It is important to check that there are legal arrangements authorised by the host Party that include the terms and conditions of the transactions and how the ERUs will be issued once the project is operational. Where these arrangements have not been formalised by the host Party, the project proponent should arrange a legal document, signed by the relevant authorities, which set out these terms and conditions[24].

The project proponent should be aware of the possibility of credit sharing with the host country. It is possible that some host governments may want to retain ownership of a proportion of ERUs from certain types of projects or under certain circumstances. For example, this situation could arise where national public funds have been used in the financing of project.

3.2 ADDITIONALITY ASSESSMENT

According to the Kyoto Protocol and the JI guidelines, JI projects have to generate emission reductions that are additional to any that would otherwise occur. The international rules and procedures do not pro-

[22] Decision 16/CP.7 Annex E, paragraph 31 a, b & c.
[23] Decision 16/CP.7 Annex E, paragraph 33 a.
[24] The BASREC Model Project Agreement package could provide some guidance on how to formulate such documents.

vide further direct guidance on how the additionality requirements should be addressed by the project proponent.

The following paragraphs give some recommendations for project proponents in the absence of clear international guidance. In the first instance, the project proponent should consult relevant Parties, and in particular the host Party, involved in the project to ascertain whether they have procedures for assessing additionality.

The development of the baseline study is a key component in demonstrating additionality. Emissions reductions resulting from a project activity are additional if emission levels are lower than those of the baseline scenario. Chapter 4 of this Volume explains how to select an appropriate baseline approach, how to calculate an emissions baseline, and calculate emission reductions.

As part of the process of baseline assessment, it is recommended that the project proponent highlight supporting arguments/evidence from the baseline assessment on why the emission reductions resulting from a project are additional. The project proponent can do this by examining the financial, technological, economic, and policy context of the project. This will not require considerable additional work because the assessment of these factors should be undertaken as part of any baseline study. Key issues to examine include:

- Demonstrating that there are barriers preventing a projects implementation could provide evidence of whether a reduction of emissions related to a project are additional.

- Comparing the current technological practices in the sector as a whole with those proposed by the project might reveal evidence of whether the project would have otherwise occurred. If the project involves a technology or practice that is equivalent or better in terms of its greenhouse gas emissions, than the best technology prevalent in the corresponding industry or sector, then this may be an indicator of additionality.

- Financial considerations can sometimes also be an important element in assessing additionality. If the project proponent can demonstrate that the project is subject to a higher level of risk, and that the carbon revenues will assist in achieving financial viability, this could be supporting evidence of a project being additional. It should be noted that just because a project has high rates of return this does not mean that it cannot be additional. New technologies or the application of technologies in new contexts are generally viewed by the financial investment community as being high risk and they will expect a high return for investing in such projects.

- An important element in assessing additionality is to assess the national, regional or local government policy and program context of the project. Where project activities go beyond the scope of government programs, policy and regulatory requirements, this might be an indicator of additionality. For instance if a country has regulatory requirements on minimum standards for building insulation, that are being adhered to, additional reductions of emissions might be achieved from a project that uses a higher standard of insulation.

BASREC states that are in the process of applying for membership of the European Union will have to take into account the Aquis Communitaire. The mere fulfilment of the requirements or constraints set in the Aquis will not likely result in emissions reductions that qualify as being additional although the timeframe on the implementation of the requirements of the Acquis might be an important issue to consider when addressing additionality.

3.3 BASELINE ASSESSMENT

According to Article 6.1b of the Kyoto Protocol, a JI project activity has to meet the provision that "any such project provides a reduction in emissions by sources … that is additional to any that would otherwise occur". The project Design Document (PDD) should include a baseline assessment that provides a transparent picture of what would have happened without the proposed project, as well as providing information on the estimated project emissions related to such an alternative counterfactual development. The baseline assessment is a key component in the development of a JI project and is discussed in Chapter 4 of this Volume.

3.4 MONITORING PLAN

Monitoring project performance is an essential part of the JI project cycle. The GHG emissions reductions as a result of a JI project are determined based on the monitoring of the project performance over time. The JI guidelines indicate that a project-monitoring plan needs to be established as part of the PDD for JI projects. Therefore the monitoring plan forms a part of the PDD it has to be developed in the project design phase and thus prior to the operation of the project. However, the monitoring activity itself can only start once the project is operational.

The project proponent is responsible for undertaking the monitoring of the project performance. This does not necessarily mean that the project proponent must carry out the monitoring activity itself. This can be delegated to other parties. However, the monitoring plan should describe who will carry out the monitoring activities and who has the final responsibility.

In most cases, some sort of monitoring of the project performance is undertaken as part of the operation of the project. For example, for an electricity generation project, the electric output of a project will be measured and monitored for purposes of the sales of electricity. This data can then be used to calculate the emission reductions attributable to the project. It is recommended to link the GHG monitoring activities as much as possible with the existing monitoring activities, such as electricity output, to reduce the costs of monitoring activities for JI purposes.

3.4.1 Content of the monitoring plan

The monitoring plan serves as a guide and checklist for carrying out the monitoring activities. The monitoring plan should provide details on what and how data will be collected, how data will be archived, who is responsible for data collection and storage, how data will be stored, etc. All relevant data necessary for estimating and measuring GHG emissions and emission reductions of the project within the defined crediting period should be collected. Moreover, monitoring should be carried out in such a way that the indicators of project performance and emissions can be compared with the baseline scenario. The plan is therefore closely related to the baseline study, (see Chapter 4).

The list below provides guidance on the type of information that a monitoring plan should provide for, including:

1. How data relevant for the baseline development have been collected and how these are archived;
2. How all relevant data for estimating the amount of GHG emission reductions as a result of the implementation of the project activity (i.e. list of indicators that will be measured) will be collected and archived, within the defined project boundary and how frequently they will be collected. For example, if it involved a power generation project and the system boundary has been defined as including all activities related to the generation and distribution of electricity, than the monitoring plan should indicate how the data for measuring the GHG emissions as a result of these activities will be measured and how the data will be collected, how frequent and how the data will be archived;
3. How to measure leakage. First identify the potential sources of GHG emissions outside the identified project boundary that are significant. If such activities have been identified, the monitoring plan should indicate how data on GHG emissions from these activities outside the project boundary will be collected, how frequently and how they will be archived;
4. How data on environmental impacts will be collected and archived, and how this relates to procedures required by the host country;
5. Explanation of the control procedures and how quality control for the monitoring process is dealt with;
6. Description of procedures for periodic calculation of the GHG emission reductions as a result of the proposed JI activity. This should include the calculation of periodic leakage effects, in case these have been identified as being significant.

3.4.2 Project boundaries in the monitoring plan

Similar to what is the case as regards the emissions baseline (see chapter 4 below), the definition of the project boundaries is an important issue for the development of the monitoring plan. If possible, the project boundary selected for the baseline and for monitoring should be the same. If emissions from specific activities have been included from the calculations of

the baseline emissions, then these activities should be included in the monitoring plan as well. This implies that the activity level or performance of the specific activity that is defined to be within the project boundary should be monitored.

Similar to the guidance provided for defining the project boundaries for the emissions baseline, the boundaries for monitoring should also be defined based on the following principles:

- The activity and emissions should be under control of the project proponent;
- Significant;
- Reasonably attributable to the project activity.

In a recent paper on monitoring, the following recommendations are provided to define the project boundaries for monitoring (Ellis, 2002):

- For most electricity/heat production projects, emissions at the project site directly resulting from the project activity, as well as emissions associated with any heat, steam or electricity imported to the project site should be included within the project boundary. In general, these are the project's major GHG emission sources.
- For energy supply projects, transmission and distribution losses can be excluded.
- For energy efficiency and distributed generation projects, transmission and distribution losses should be included (Kartha et. al. 2002; Ellis 2002).

3.4.3 Revisions to the monitoring plan

The monitoring plan can be subject to revisions, but only where it improves the accuracy or completeness of the information needed to measure and calculate the GHG emissions of the project. A revised monitoring plan has to be submitted to the Independent Entity for approval. This approval procedure is likely to be a straightforward process concerned only with the monitoring plan.

The data collected as a result of the implementation of the monitoring plan forms the basis for verification of emission reductions as a result of the JI project activity.

3.5 DOCUMENTATION ON ANALYSIS OF ENVIRONMENTAL IMPACTS

The JI guidelines state that the project proponents must submit documentation on the analysis of the environmental impacts of the project activity to the Independent Entity.[25] This should include transboundary impacts, and be carried out using the procedures of the host government. The project proponent should therefore liase with the designated focal point for JI in the host government for guidance on how to proceed.

In practice it is likely that many projects will be subject to existing requirements for environmental assessment (e.g. for EU countries there is an EU Directive on EIA), but for projects where this is not the case procedures will have to considered by the host government, and the project proponent should confer with the designated focal point.

3.6 DESCRIPTION OF THE PROJECT

Whilst there is no specific requirement to provide a project description or its context, as part of the PDD, it is recommended that the project proponent submit such information. This is because this information forms the basis of the assessment of the project, and in particular the assessment of additionality. The project description should summarise information on the project participants, who the contractual supplier of credits will be, and on the financial structure. The project proponent is recommended to provide the following information to the Independent Entity (Chapter 4 in this Volume):

- Project proponent and other project participants;
- Purpose of the project;
- Location of the project;
- Size of project (e.g. heat and/or electricity capacity, e.g. in MW, or energy savings);
- Estimated project output (amount and type);
- Details on technology or techniques used (type and producer);
- Project planning (time schedule);
- Description of key stages/steps in the projects development.

It should also be noted that, in most cases, supplying such information is unlikely to place a significant

[25] Decision 16/CP.7, Annex, Section E, paragraph 33 under d.

additional burden on the project proponent because this information, is already available and required as part of the conventional project development activities – e.g. in business plans used for raising capital, in submissions for gaining planning approval/permit, etc.

3.7 STAKEHOLDER CONSULTATION AT THE NATIONAL LEVEL

According to the rules for JI, national governments are required to develop guidelines and procedures for stakeholder consultation. The project proponent should contact the designated focal point for JI for advice on how to proceed with this.

Although there are no specific requirements to include this in the PDD, it makes sense to provide a summary of such comments in the PDD, and how they have been accounted for in the project design.

3.8 DETERMINATION OF THE PROJECT DESIGN DOCUMENT (PDD)

When the Project Design Document (PDD) has been completed by the project proponent, it has to be submitted for determination to an Independent Entity (see section 2.1.3 for further details).

The determination process starts with the submission of all relevant documentation by the project proponent. The Independent Entity will make the PDD publicly available through the Secretariat, and receives comments from Parties, stakeholders and UNFCCC accredited observers. In practice, the Secretariat is likely to place the PDD on the UNFCCC website. Stakeholders are allowed 30 days to provide comments[26].

The Independent Entity is likely to go through all the documentation provided and check the validity of all references, assumptions and information, and where relevant contact stakeholders and institutions to establish the validity of the information. It is also possible that the Independent Entity will have to undertake a field visit to assess whether the information provided on the project and the assumptions made are valid. Whether a field visit is required will depend on factors like the complexity of the project, detail of information provided and assumptions made, availability of references, use of verifiable data through internet or hard copies, etc.

The Independent Entity will also take into account comments received from Parties, stakeholders, and accredited observers after making the PDD publicly available. Based on its review and the comments received, the Independent Entity is likely to provide the project proponent with a draft determination report. Such a report could raise issues and questions that need to be dealt with in order to provide a positive determination. The project proponent then has to respond to the issues raised by the Independent Entity.

The Independent Entity will then make its determination report publicly available through the Secretariat (again this is likely to be on the UNFCCC website), together with an explanation of its reasons, including a summary of the comments received and a report of how due account was taken of the comments. Information that is considered proprietary or confidential does not have to be disclosed. Information relating to the following cannot be considered proprietary or confidential:[27]

1. Information to determine whether the emission reductions in anthropogenic emissions are additional;
2. Information to describe the baseline methodology and its application;
3. Information to support an environmental impact assessment.

The determination of the proposed project is deemed final 45 days after its submission, unless a review is requested by any of the Parties or the Supervisory Committee.

[26] This is 30 days from the date the PDD is made publicly available.
[27] Decision 16/CP.7, Annex, Section E, paragraph 40.

4 BASELINE ASSESSMENT AND CALCULATION OF EMISSION REDUCTIONS

This Chapter provides preliminary guidance on how to develop an emissions baseline, how to calculate project emissions and how to calculate the emission reductions as a result of the project. Undertaking baseline assessments is not straightforward because there are no officially accepted methodologies in place. The following sections will give project proponents guidance on how to undertake such assessments. A generic example of a baseline assessment is provided in Appendix A and is designed to serve as a reference whilst reading this Chapter.

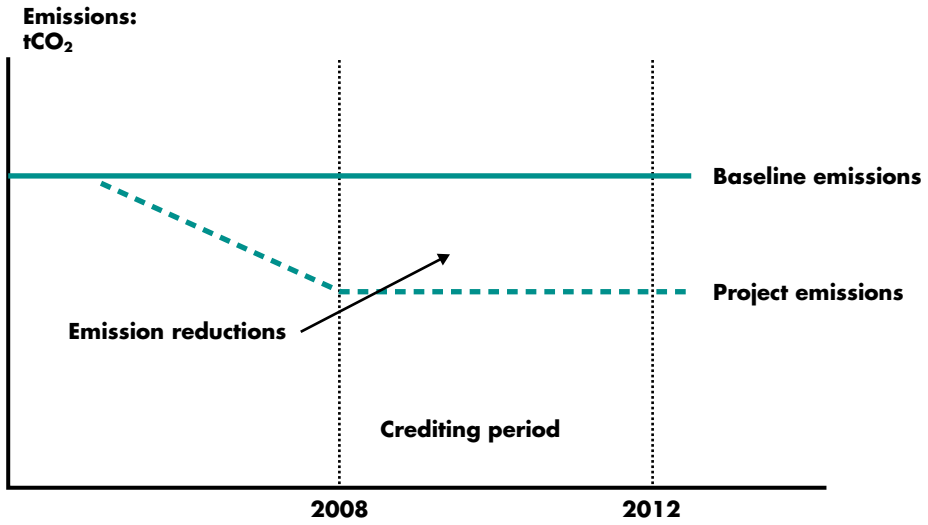
The baseline assessment and quantification of emission reductions resulting from a JI project consists of the following steps, which are described in greater detail in the following subsections:

(a) Describe the project characteristics (see section 4.1);
(b) Define the project boundary (see section 4.2);
(c) Develop an emissions baseline (see section 4.3);
(d) Assessment of the project emissions (see section 4.4);
(e) Assessment of leakage (see section 4.5);
(f) Calculate the net emission reductions by comparing the calculated baseline and project emissions and adjusting for leakage (see section 4.6).

The construction of an emission baseline is one of the key elements for assessing the emissions additionality of a project. An emissions baseline is *a scenario that best represents the emissions that would have otherwise occurred, i.e. without the project or with an alternative design of the project that does not take into account the possibility to obtain extra revenues through the reduction of greenhouse gas emissions*. The emission reductions can be determined by calculating the difference between the emission baseline and the emissions for the proposed JI project. Figure 6 provides a graphic representation of the baseline assessment. If the project results in net emission reductions the project is considered to be additional in terms of greenhouse gas emissions.

This Handbook focuses on projects in the energy sector under the BASREC Testing Ground. Therefore, the Handbook will not address the issue of baseline development and quantification for other projects categories like transportation, waste management, land use change and forestry, etc. Within the energy sector potential JI projects are energy supply projects, energy efficiency and energy saving projects. Energy supply projects include activities that produce energy (i.e. power and/or heat). Examples include, grid-connected electricity generation facilities, off-grid electricity generating units, activities increasing efficiency at power or heat production processes, facilities generating energy switching to fuel with a lower carbon content, combined heat and power projects

Figure 6. Graphic Presentation of Baseline Assessment and Emissions Quantification



(CHP), and heat generation projects. Energy efficiency and energy saving projects include projects resulting in a decreased demand for fossil energy. Examples of such projects include those that involve improved management systems, improved systems of energy use, and the introduction of measures to increase efficiency of energy consumption.

4.1 PROJECT CHARACTERISTICS

A description of the project should include technical characteristics of the project and the description of the activities that are carried out.

The information required is partly the general project information given in the Project Design Document such as: a technical description of the project, including information on the project size and estimated output. It should be noted that the information provided forms the basis for setting the project boundary, calculations of the baseline emissions and calculation of the project emissions. The information needs to be as detailed as possible.

Information to be provided for energy supply projects should include a clear description of:

1. Project category/type;
2. Project capacity;
3. Estimated project output;
4. Fuel use;
5. Efficiency of technology used;
6. The estimated project lifetime
7. The project implementation plan, including timeframe of the planning, implementation and operation stages;
8. If the project involves a retrofit activity (i.e. for a project that aims to replace or rehabilitate existing capacity), a description on the actual performance of the facility that is going to be replaced/rehabilitated should be provided;
9. The sector within which the project will be operating, including a brief description of the context and the circumstances in the project market.

Information that should be provided for energy efficiency projects on the demand side includes a clear description of:

1. Project category/type;
2. Output of the project activity or project demand (i.e. power, heat, lighting, paper, steel, shoes etc.);
3. Current situation of demand delivered or provided, including a description of the energy source used;
4. Volume of products/service;
5. The technical lifetime of the service/product provided;
6. The project implementation plan, including timeframe of the planning, implementation and operation stages;
7. The rebound effect that might occur when use of equipment increases as a direct response to increased energy efficiency measures.

If the project involves the introduction of a new service or product and no information can be collected from the current situation, then the project proponent should look at international or comparable services in other areas, and find out how the demand is currently delivered or provided.

4.2 PROJECT BOUNDARIES

The first step in setting a baseline is to define the project boundary. A project boundary is defined by the notional margins around a project, within which the project's impact (in terms of GHG emissions) will be assessed. The activities and GHG emissions that are included within the project boundary reflect what will be included in the emission baseline and baseline calculations; and will be monitored once the project is operational. The project boundary should be set so that the major impacts on emissions from the project are reflected within the boundary and the impacts outside the boundary are negligible.

Setting a project boundary will take into account a number of factors, of which the most important are geographic aspects and activity levels.

4.2.1 Geographic aspects

Geographic aspects involve assessing what the geographic scope of the project is. For example, for a wind farm in Estonia it is necessary to decide whether to compare the project against the performance of one specific plant, against the current electricity generating mix within the whole country (i.e. at a national level) or a more disaggregated level.

For electricity supply projects the grid system (regional, national or international) to which the project is or will be connected can serve as the basis

for determining the geographical boundary for the emissions baseline and project effect considerations, except where special conditions apply. These conditions could be where the national grid is sub-divided into smaller grids that are independently regulated, or in cases where subdivided grid systems are not interconnected and do not have a joint dispatch. Under these conditions it is recommended to use the subdivided grid system, rather than the national system. On the other hand sometimes grids and electricity markets are linked internationally which may raise the question of including emissions beyond the national border.

For projects that are not connected to any grid system (off-grid), it is best to define the boundary at the level of the local community/industry or end-users it serves. For energy saving and energy efficiency projects the GHG-emission effects arise from the energy supply system that is connected to the project activity. The delivery system should thus also be within the project boundary.

4.2.2 Activity level

Examining the activity level of a project involves assessing which project activities resulting in emissions should be included in the baseline. For example, should emissions related to the manufacture of project equipment, the transport of the project equipment to the site, or the construction of a facility be included?

A workable approach to set the project boundary could be to identify sources and sinks of GHG from the proposed JI activity that can be considered to be under control of the project proponent[28]:

(a) Direct on-site emissions; this includes emissions at the project site that are directly related to the main output of the project activity. For example, emissions from on-site combustion of fossil fuels or biomass.

(b) Direct off-site emissions; this involves emissions that are directly influenced by the project activity but do not occur at the project site. Directly related is defined here as emission one-step upstream. For example the uptake of CO_2 by forests of which the wood is used for the production of biomass electricity or the avoided emissions from fossil fuel electricity in case of electricity conservation.

(c) Indirect on-site emissions are emissions at the project site that are indirectly related to the project activity. Such emissions should also be incorporated into the emission calculations if they are significant.

(d) Indirect off-site emissions; these are emissions related to activities that do not occur at the project site and are indirectly influenced by the project activity. If significant (i.e. non marginal) they should be incorporated in the emission calculations. An example of such significant emissions is the avoided CO_2 emissions from fossil fuel based electricity production in the case of renewable electricity. Other possible examples are emissions related to the transport of fuels to the project site, construction of the project materials or emissions related to mining and processing of fossil fuels used.

The JI guidelines do not provide any guidance on which activities and emissions should be included within the project boundary and which emissions and activities should be excluded. However, for CDM projects, further guidance is given in given in the modalities and procedures for the CDM[29]. The modalities and procedures state that all GHG emissions from the proposed CDM activity that are under control of the project proponent and that are significant and reasonably attributable to the project activity should be included in the project boundary.[30] Until further guidance is provided for JI projects it is recommended that JI projects be guided by the modalities and procedures for the CDM.

Whether impacts of an activity are considered significant, reasonably attributable and under control of the project proponent should be estimated on a case-by-case basis. When defining the boundaries the following guidance for defining significant, reasonably attributable and under control can be used (Ellis, 2002).

What is considered 'significant' can be based on an absolute emissions level, relative to emission levels of

[28] Ministry of Economic Affairs Netherlands, 2001
[29] Decision 17/CP.7
[30] Decision 17/ CP.7, Annex, Section G paragraph 52.

other projects or total emission levels, or relative to the largest GHG impact of a project in that sector. For example, the guidelines for the Dutch ERUPT and CERUPT programmes suggest (as a rule of thumb) that emissions are significant if they are larger than 1% of the total emissions/emission reductions of the project.

The principle of 'under control' implies that the project boundaries should be set in a way that they contain all relevant emission effects that can either be controlled or influenced by the project participants, and that are reasonably attributable to the project. Emissions from production, transport and distribution of primary fuels (oil, coal, natural gas) will not usually be included in the project boundary as they are outside the control, influence and measuring capacity of the project participants

Which emissions are 'reasonably attributable' to the project can be determined from a geographic point of view as well as from an activity point of view. Until further guidance is provided, the principle of control as described above should be used as a reference to define what can be considered reasonable.

It is recommended to draw the project boundaries in a flowchart, which presents the emission sources that are included, and those emissions that are excluded from the project boundary. The emission sources that are included should be those that are considered to be within the control of the project.

4.3 DEVELOPMENT OF AN EMISSIONS BASELINE

The baseline scenario (or emissions baseline) should represent the situation that would have occurred if the proposed project would not have been implemented. The baseline should represent not just the status quo but the most likely future development and related GHG emissions without the JI project, which could be the implementation of a less climate-friendly version of the project such as a coal-fired plant rather than a gas-fired plant. The baseline scenario serves as an important tool to estimate the amount of GHG emission reductions resulting from the project.

Steps in emission baseline development

The following are components that form part of the process of developing an emission baseline:

- Set boundary;
- Select the most appropriate baseline approach;
- Set baseline conditions;
- Calculate baseline emissions.

Each of these components is discussed in more detail in the sections below.

Before developing the emission baseline it is recommended to check with the focal point for JI in the host country whether there is already an emission baseline available in the host country for the proposed project category. If such a baseline is available, the applicability of the baseline for the proposed project will need to be approved by an Independent Entity (as part of the determination), and possibly by the host country. An example of this simplified baseline approach developed for a host country is an emission rate for a unit of output, (i.e. x kg of CO_2 per kWh of electricity produced for the electricity sector in a specific region or country). This emission rate per unit of output would then be applicable for every proposed project in this sector for a specific period of time. This will have to be approved by the relevant Parties and Independent Entity involved.

4.3.1 Set boundaries

Before collecting data and starting to develop the baseline and calculating the baseline emissions, the boundary for the emission baseline should be defined. As explained in section 4.2 the aim should be to define identical boundaries for the project and the baseline scenarios. Therefore, the advice in section 4.2 could be followed when applicable in defining which activities to include when developing the baseline.

It should be noted that the boundaries for the baseline and project respectively might not always be identical. For example, for a grid connected electricity project, the boundary for the emission baseline will include the performance of other plants that are connected to the grid. Such activities and their GHG emissions do not necessarily have to be included within the project boundary for the project case. In those cases where the boundary is defined differently for the project and baseline case this should be justified.

4.3.2 Selection of the baseline approach

After defining the boundary for the emission baseline,

the next step is to select the baseline approach. This includes selection of the data and references to be used for presenting the counterfactual "without JI project" scenario for the project activity, which is meant to reflect what would have "otherwise occurred". The JI guidelines state that the baseline has to be established in a transparent manner with regard to the choice of approaches, assumptions, methodologies, parameters, data sources and key factors.[31]

When making this choice project proponents are advised, in the absence of approaches approved for JI, to select from among the following CDM mandated approaches[32]. The project proponent should select the most appropriate one to represent what would have occurred in absence of the proposed JI project activity:[33]

(a) The emission baseline is formed by using data on existing, actual or historical GHG emissions, as applicable;

(b) The emission baseline is based on data of GHG emissions from a technology that represents an economically attractive course of action, taking into account the barriers to investment;

(c) The average emissions of similar project activities undertaken in the previous 5 years, in similar social, economic, environmental and technological circumstances, and whose performance is of the top 20 percent of their category.

Baseline based on actual or historical data

The first option (a) for a baseline approach is to develop an emission baseline based on actual and historical data. This could be data from just one facility or an average from a sample of facilities. This includes data on existing, or past, performance of facilities. The baseline is derived by collecting data on the performance of existing facilities. These could be trends or data on one specific point prior to the project implementation. The advantage of using historic data is that these are reliable, observable and verifiable.

Data on current performance and production patterns within the project sector form a good starting point for defining a baseline. Moreover, the data forms a good reference point for monitoring activities. The current system can be presented as follows:

- For an already existing project: data on the current performance of the project, e.g. data on amount of fuel used, heat rate, on-site use of heat or power, etc.
- For a new project: the various production facilities that currently meet the same demand can be used to present the system.

However, it is most likely that the performance of the existing system will change over time and improve in the future. Therefore, the information on current performance should be used to define the starting point of the baseline, rather than for defining the baseline for the total crediting period. See section 4.3.3 below, which lists factors that should be considered in combination with actual and historic data for defining the course of the emission baseline over the crediting period. Any baseline will to some extent rely on historical data. In most cases the project proponent should not assume that the status quo best represents a picture of what would have 'occurred otherwise'.

Baseline based on economically attractive technology

When selecting the baseline approach option (b) this implies that the emissions related to the performance of one specific technology would serve as a basis for the baseline. This technology should form an economically attractive alternative for the existing operational technologies meeting the demand. For example, take a region where power generation through a natural gas fired combined cycle (NGCC) is considered to be the most economically attractive. In this case the baseline would be defined on the basis of the emissions related to operating a natural gas combined cycle plant, e.g. expressed as 400 kg of CO_2 per MW hour. In an example, for energy efficiency projects on the demand side, which involves the replacement of incandescent light bulbs with compact fluorescent lamps (CFL), the baseline could be based on an assessment of the power consumed by the incandescent light bulbs, assuming

[31] Decision 16/CP.7, Annex, Appendix B paragraph 2.b
[32] Decision 17/CP.7
[33] Decision 17/CP.7, Annex, Section G, paragraph 48.

these can be proven to be the economically attractive technology for lighting.[34]

Baseline based on average emissions of similar activities

The key component in using the third baseline approach is that information should be collected on the project performance of the top 20% of projects in the proposed project sector. It is not yet certain what particular aspects of project performance should be used to judge the top 20%, but this could involve both energy efficiency and emissions output. The definition would have to be justified by the project proponent. This implies that detailed information on similar projects should be available and also that it should be possible to measure what is the top 20%. Since the CDM guidelines do not provide any indicators on how to measure and identify the top 20% a practical approach would be to use the performance of projects implemented in the last 5 years, which have similar production and delivery patterns to the proposed project, to develop the baseline.

The two other important parameters for this baseline approach are:

- That data should be based on the performance of similar activities in the previous five years[35];
- That data on project performance should be selected from projects in similar social, economic, environmental and technological circumstances.

When using data from similar project activities in the past 5 years, it is possible to include data from all activities in the past 5 years or to use marginal data. Marginal data refers to data on a selection of activities only. In other words a selection of data in a specific category is used to develop the baseline rather than all activities within that category. For example, select all power plants that operate during peak hours and have been installed in the previous 5 years, rather than including all power plants installed in the last 5 years. Using this approach may not be appropriate for JI projects in many countries in Central and Eastern Europe where there has not been significant numbers of new build activities in the recent past. .

Another option, and possibly more relevant in a dynamic economy, is to project production and emissions data into the future, instead of using data from existing activities. Such information could be derived through a number of sources, including:

- An analysis of existing expansion plans for the future (electricity expansion, or technology shifts);
- Economic models;
- Extrapolation of current trends into the future.

Data based on projections should only be used when it is likely that the planned future developments will occur – or would otherwise occur – and the information is reliable. Projections for the future could possibly be considered reliable when derived from competent authorities (i.e. national electricity board, Ministry of Energy, statistics from Central Planning Agencies). Developments considered likely to occur and therefore to be included in the baseline may include the following:

- Data on facilities for which construction has already started;
- Data on facilities planned to be operational in same year that project becomes operational;
- Data on planned projects and facilities of which the financing has been closed;
- Data on plants, facilities and systems for which construction licenses or licenses to improve facilities have been granted or received.

Guidance on Selecting the Baseline Approach

When selecting the most appropriate baseline approach it is important to:

1. Justify the baseline approach selected;
2. Take into account the availability and reliability of data. It is preferable to use data that can be verified;
3. Select an approach that provides data that are comparable with the proposed project situation;

[34] The so-called best available technology (BAT) could serve as a basis for the emission baseline. However, this is not necessarily the most economically attractive technology. In order to select a baseline that is both conservative and realistic it is recommended to only select the BAT as the emission baseline if it is also an economically attractive alternative. For example, although it is proven that in the long term using CFL lamps is more economic, in some countries households cannot afford to purchase CFL lamps. In this case, the current practice should serve as the emission baseline.

[35] The period of five years is specified in the Marrakech Accords under one of the potential approaches to establishing baselines under the CDM.

4. Be transparent and clearly explain why specific assumptions have been made;
5. Be consistent, e.g. in using data, making assumptions, applying key factors, etc.;
6. Use references wherever possible and appropriate;

An important point is to justify the choices made. This can be done by addressing why the other options presented are not considered appropriate, but also by providing good arguments as to why the option selected best reflects what would have happened without the proposed JI project. When none of the options a-c above is deemed appropriate, an alternative approach can be used. An explanation of this choice has then to be provided.

In order to justify the choice of a specific approach, one possibility is to develop more than one emission baseline using different approaches and assumptions. Constructing a number of baselines and then comparing them should assist in the selection of the most realistic and conservative baseline to be submitted for determination.

It should be noted that it is also possible to combine one or more baseline approaches when developing the emission baseline. In some cases the use of actual and historical data in combination with data on BAT and/or the top 20% performance could be an appropriate balance between real, verifiable and reliable data and taking into account future developments and improvements. The actual and historic data form the starting points of the emission baselines for the proposed JI project.

New baseline approaches do not require previous approval by the Supervisory Committee (SC). The application of the proposed baseline approach will be dependent on the approval of the Independent Entity.

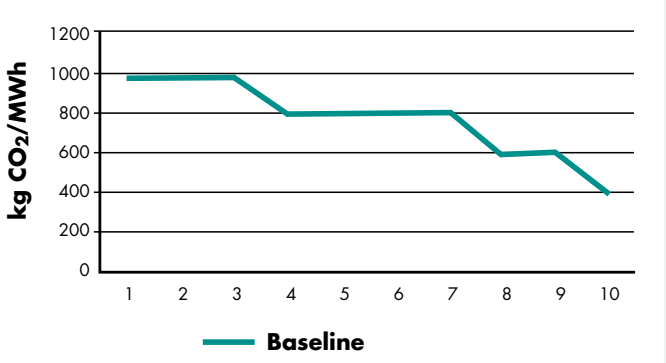
4.3.3 Set baseline conditions

Based on steps outlined above the baseline approach has been selected and the starting point of the baseline has been determined. The next step is to identify and list the key factors that affect the development of the baseline over time, i.e. the course of the baseline. As examples of key factors, the JI guidelines mention relevant national and/or sectoral policies and circumstances such as sectoral reform initiatives, local fuel availability, power sector expansion plans and the economic situation in the project sector.[36]

Box 2: Example – impact of key factors

The project illustrated here involves a fuel switch from coal to biomass in a power plant in Poland. At step 2 in the baseline development process (i.e. the selection of the baseline approach) the starting point of the baseline has been defined (e.g. based on the average coal consumption over the past 3 years). The next step is to assess the impact of the external factors on the project activity. The impact of environmental regulations, improvements in technologies, fuel prices and subsequent changes in the economic viability of technologies should be reflected in the emission baseline. In this example, for year 1-3 it is assumed that changes in factors like environmental policy, fuel prices, technology improvements etc, will not have an impact on the baseline of the project. However, it is assumed that in year 4 more efficient technologies for burning coal will increase their share of production, and that in year 7 gas-fired plants constitute a financially attractive alternative to coal- fired plants. This situation is presented in the graph below.

Figure 7. Graph Showing Baseline for a Polish Coal-to-Biomass Fuel Switch Project



[36] Decision 16/CP.7, Annex, Section B, paragraph 2.c and Decision 17/CP.7 Annex, Section G paragraph 45.e

Baseline conditions and selected parameters for developing the emission baseline are assumed to be time dependent. This dynamic approach should be reflected in the course of the emission baseline (i.e. for the duration of the selected crediting period). In general these changes are based on assumptions, simulations or modelling exercises. The changes should be projected at the start of the baseline, for the total baseline period. Examples of factors that can have an impact on the course of the emission baseline include national and international policy; adopted and planned legislation; GDP; energy demand; fuel prices; fuel supply policy; existence of incentives and subsidies; economic situation in the project sector; financial situation in the country; and trends and existence of new and updated technologies.

All factors that are deemed to significantly affect the business as usual scenario within the project sector should be considered[37]. The role and effect of these factors should be briefly described. Where possible, these factors should be translated in baseline values and reflected in the development and course of the baseline.

EU accession of Eastern European countries is a key policy issue, which may affect baseline scenarios. The EU for example prescribes tighter emission and technical standards, which are in general stricter than existing practices in the Accession countries. Such policies include: Directive on the Liberalisation of the Electricity and Natural Gas Market, Directive on Promotion of Electricity from Renewable Sources of Energy in the Internal Electricity Market, Action plan on Improved Energy Efficiency in the Community, Security of Energy Supply, Guidelines on State Aid for Environmental Protection, Energy Products Directive (currently under discussion), and the IPPC Directive.

The JI guidelines also explicitly state that baselines should be set in such a way that ERUs cannot be earned for decreases in activity or *force majeure*[38].

4.3.4 Calculate baseline emissions

The baseline emissions should be calculated on an annual basis and until the end of the crediting period. Emissions can be quantified based on the information about project characteristics, defined project boundary and an emission factor.

The emissions should be calculated source-by-source and expressed in CO2 equivalents. This can be calculated by using the global warming potentials (GWP) for each source, as provided by the IPCC. The most recent GWP, provided by the IPCC, are (IPCC, 1996): CO_2 (1), CH_4 (21), N_2O (310), and SF_6 (23900). For example, this implies that for a baseline calculated at 10 tonnes of CH4 per year, the baseline emissions should be expressed as 210 tonnes of CO_2 equivalent per year.

Crediting period

For JI projects the crediting period is from 2008 - 2012, equal to the first commitment period of the Kyoto Protocol. Should the project end before 2012 the crediting period is equal to 2008 to time of project closure. The following sections provide further guidance on how to interpret the above criteria from the JI guidelines by discussing the issues that are likely to raise questions.

The different approaches for baseline development rely on different data sources – see Box 3 on next page that gives a description of the main data types and sources that may be used in the baseline development.

Emission Factors

An emission factor indicates the amount of CO_2-equivalent emitted for each unit of fuel consumed or energy produced. Emissions factors are thus a measure of the GHG emission intensity of a specific activity. For example, the emissions factor for the power sector can be expressed in tons of CO_2/MWh, e.g. 0.5 tons of CO_2 per MW hour, for the industrial process in tCO_2/product produced or in MW hour per ton produced, in MW hour per square meter, etc. Emission Factors for energy related projects are often also referred to as the Carbon Emission Factor (CEF).

When possible, project, plant, technology or country specific emission factors should be used for calculating the baseline emissions. In general such information will be available when the baseline is established based on project-specific historic data. However, when all facilities connected to a grid are included in

[37] Decision 16, Annex, Section B, paragraph 2.c and Decision 17/CP.7, Annex, Section G paragraph 45.e
[38] Decision 16/CP.7, Appendix B, paragraph 2

Box 3: Data Sources

The following types of data can be collected and assessed in order to define the baseline:

1. Historic data: Data on current or past performance of facilities. The baseline is derived by collecting data on operations that have already been in operation prior to the implementation of the project activity. These could be trends or data at one specific point prior to the project implementation.

2. Projections/Future data: Data on trends and developments likely to happen, which are extrapolated into the future.

3. Marginal data: : This refers to data on recent capacity additions only. In other words not all data within the defined project boundary are included (for example not all operational power plants connected to the grid), but only a selection out of those data (i.e. the 5 power plants most recently added to the grid). The baseline approach of using the average emissions of similar project activities undertaken in the previous 5 years (option c) presented above) is an example of using marginal data.

the baseline scenario, information on the emission factor might not be available for all facilities. Also, when making projections for the future, this information will be lacking. In these cases default emission factors can be used.

The two most relevant types of CEFs for energy supply and energy efficiency projects are emission factors for a specific fuel and emission factors for a specific technology. When data on fuels consumed (for example in tons of coal, m^3 of natural gas, etc) for the service delivered is available then it is recommended to use this data rather than data on technology. Table 4 below presents some default emission factors that might be applied when data on fuel consumption are available, as provided by the IPCC.

Where data on fuels consumed are not available or not deemed accurate, data on technologies might be used to develop the baseline. The Environmental Manual for Power Development (EM model) of the Öko Institute is a good source providing conservative

Table 4. CO_2 emission factors for fuels in ktonne of CO_2/TJ[39]

	Energy carrier	ktonne CO_2/TJ
Solid Fossil		
Primary fuels	Anthracite	0.0983
	Coking Coal	0.0946
	Other bituminous coal	0.0946
	Sub-bituminous coal	0.0961
	Lignite	0.1012
	Oil Shale	0.1067
	Peat	0.1060
Secondary fuel/ products	Coke oven/Gas coke	0.1082
	Coke Oven Gas	0.0477
	Blast furnace gas	0.2420
	Patent fuel and BKB	0.0946
Liquid fossil		
Primary fuels	Crude oil	0.0733
	Orimulsion	0.0807
	Liquefied natural gas	0.0631
Secondary fuel/ products	Gasoline	0.0693
	Jet kerosine	0.0715
	Other kerosine	0.0719
	Shale oil	0.0733
	Gas/diesel oil	0.0741
	Residual fuel oil	0.0774
	LPG	0.0631
	Ethane	0.0616
	Naphtha	0.0733
	Bitumen	0.0807
	Lubricants	0.0807
	Petroleum coke	0.1008
	Refinery feedstocks	0.0807
	Refinery gas	0.0667
	Other oil	0.0733
Gaseous fossil		
	Natural gas	0.0561
	Methane	0.0551

Source: IPCC 1996 Revised guidelines for national greenhouse gas inventories.

[39] The data provided by the IPCC are expressed in t C/TJ. The data in the table have been converted from t C into t CO_2, using a conversion factor of 1 t C = 44/12 t CO_2.

default emission factors for technologies (Öko, 1998). The EM model links a specific technology for burning fossil fuels to a specific CEF, expressed in CO2 equivalents. The CEFs provided through the EM model are similar to those made available by the US Energy Information Agency (EIA) for voluntary reporting of GHG emissions. Since the values provided by the EM model are in practice higher than CEFs based on country specific data, project proponents have an incentive to use country specific data. The emission factors from the EM model are presented in the Table 5 below.

4.4 ASSESSMENT OF PROJECT EMISSIONS

The following characteristics of the project could be described and used for the calculation of emission reductions as a result of the JI project:

1. Type of product or service that will be delivered by the project;
2. Size of project (e.g., for heat and/or electricity capacity in MW);
3. Estimated project output (e.g., MW hour, GJ, amount of products (steel, lamps, paper);
4. Load profile (e.g. base-load, mid-load or peak-load, amount of hours);
5. Emission factors for the project.

Project emissions need to be estimated and calculated in a transparent manner for each year during the crediting period. If the project output is estimated to change over the crediting period, this should be reflected in the emissions scenario and GHG emission calculations of the project.

For energy supply projects, the estimated project output and the emission factor for the project can be used for the calculation of direct on-site emissions. The direct off-site emissions are calculated similarly.

Also, for demand side management projects, project emissions can be calculated by multiplying the various activity levels (i.e. reduction in energy used, reduction in transport and distribution losses, etc) with the appropriate and defined emission factors for those activities.

Special attention must then be given to the indirect on-site emissions that also are referred to as the rebound effect. The rebound effect occurs, for example, due to lowered marginal costs of energy or increased energy efficiency of projects activities that leads to the expanded use of energy. These emissions should be included in the calculation to give the total project emissions.

4.5 ASSESSMENT OF LEAKAGE

In the JI guidelines, leakage is defined as *'the net change of anthropogenic emissions by sources and/or removals by sinks of greenhouse gases which occurs outside the project boundary, and that is measurable and attributable to the Article 6 project'*.[40]

Table 5. Emission factors for per fossil fuel technology from the EM Model

Fuel	Technology	Carbon Intensity in t CO_2/GWh	Carbon Intensity in t CO_2/MWh
Natural Gas	Simple Gas Turbine	644	0.644
	Combined Cycle	406	0.406
Diesel Oil	Combined Cycle	650	0.605
	Gas Turbine	895	0.895
	Steam Turbine	735	0.735
	Combustion Turbine	854	0.845
Coal	Conventional Steam	987	0.987

Source: Öko Institute, 1998

[40] Decision 16/CP.7, Annex, Section B, 4f.

The fact that emissions are outside the project boundary does not reduce the obligations on the project proponent to measure them, as the monitoring plan must include leakage that is *'significant and reasonably attributable to the project during the crediting period'*.[41]

Leakage refers to off-site effects on GHG emissions that result from the project activity and that are not included within the defined project boundary.

Leakage does not disqualify a project from becoming a JI project unless the projected leakage in terms of GHG emissions is so substantial as to negate a very large percentage of the projected GHG reductions. The project proponent should undertake an assessment of the leakage potential of the project. Where there is a potential for leakage, the proponent should quantify it and deduct it from the predicted GHG reductions. Possible effects from the project activity resulting in leakage are:

1. Activity Shifting – the activities that caused emissions are not permanently avoided, but simply displaced to another area, i.e. emission activities avoided in one discreet area move to another area results in no net reductions in emissions.
2. Outsourcing – purchase or contracting of services or commodities that were previously produced or provided on-site.
3. Market Effects – emissions reductions are offset by higher emissions elsewhere due to project induced shifts in supply and demand. These effects should be taken into account only when non-marginal.
4. Changes in Life Cycle Emission Profiles – changes in upstream or downstream processing as a result of the project's implementation causing changes in emission profiles.

4.6 CALCULATING NET EMISSION REDUCTIONS

The net emission reductions can be calculated by subtracting the total project emissions (as calculated under section 4.4) from the baseline emissions (as calculated under 4.3). Calculations could be made for each year in the crediting period and expressed in tons of CO_2 equivalent. In addition, should the leakage assessment (as calculated under 4.5) identify quantifiable GHG effects, this should be deducted from the net emission reductions calculated above.

[41] Decision 16/CP.7, Annex, Section B, 4c.

5 INFORMATION ON JI PROJECT COSTS, REVENUES AND RISKS

In order to make an assessment on whether it is financially attractive to develop the project as a JI project, the sections below provide some basic information on the costs, revenues, and risks associated with transacting ERUs. A project proponent will have to weigh up the transaction costs against the revenues that can be expected from the sale of emission reductions, and whether the risks of credit delivery can be adequately managed or covered.

5.1 COST OF DEVELOPING A JI PROJECT

For a project proponent it is important to have an indication of what the costs of developing a JI project are likely to be.

Since JI projects imply additional reductions of emissions that would not have otherwise occurred it could be expected that in many cases there are increased costs for investing in a JI project compared to investing in the most economically attractive project, e.g. the extra cost for investing in wind power rather than natural gas-fired power plants. These costs may be considerable but are not further discussed here. There are however costs for developing a JI project, which a project proponent needs to take into account as part of any feasibility study, such as costs associated with developing PDD, contracting an Independent Entity, etc. These costs are sometimes referred to as 'transaction costs'.

Table 6 indicates the approximate costs for the additional activities that have to be undertaken to develop a project as a JI project. It is important to distinguish between upfront pre-operational costs (payable before the project is operational and generating revenue) and implementation/operational costs which will be paid once the project is operational and generating revenue. Upfront costs include feasibility studies; producing the Project Design Document and credit marketing materials; and marketing activities.

The implementation/operational costs will include verification, payments to brokers (if utilised), and administration charges to the JI Supervisory Committee. At present there is no provision for administrative charges by the Supervisory Committee, but such a charge cannot be ruled out, especially as the CDM Executive Board covers some of its operational costs through such a charge. An administrative charge is likely to be a levy in the form of a small percentage (up to 1-2%) of credits or credit revenues. The question of who will bear the cost of a fee will be subject to negotiation between the project participants (i.e. host government, investor government, carbon purchaser and project proponent). Banks are unlikely to look favourably on a carbon purchase agreement (CPA) that has a liability that is not quantifiable. This could potentially seriously impact the positive effect carbon revenues have on a projects financial viability. The solution to this would be for one of the credit-worthy participants in the project, such as the investor Government or carbon purchaser, to bear this financial risk.

It should be noted that some credit purchasing programmes will pay for some elements of the project proponents' upfront costs. For instance the Dutch Governments ERUPT and CERUPT purchasing programmes will pay for preparing the Project Design Document (i.e. baseline case, emissions quantification, and monitoring plan) and validating the project – see Table 7. Under the Dutch schemes both PDD preparation and determination are always paid for through a fixed grant, which are estimated by the tendering agency. The World Bank in certain instances will also pay for certain activities, such as validation, but they will recoup these costs by obtaining emission reduction credits of an equivalent value.

5.2 JI ERU REVENUES

The ERU revenues can be generated only for the period 2008–2012. However, as discussed in section 2.3 Volume B there may be a possibility to obtain value for any emission reductions generated pre-2008. The proponent should also be aware of any claims on ERUs by the host government.

The Table 8 indicates some prices that two of the existing carbon-purchasing programmes have been prepared to pay for carbon emission reduction credits. The revenue secured in a Carbon Purchase Agreement (CPA) will be a function of the number of tons of CO_2 generated per annum, the price that can

Table 6. Estimated Additional Costs Associated with JI Projects

Conventional Project Activities	JI Project Cycle Activities	Estimate of JI Cycle Costs (€)
Pre-operational Activities		
Project Design and feasibility assessment	Additionality and baseline assessment, emissions quantification, monitoring feasibility, and financial analysis. Information for Project Design Document	20,000–50,000[42]
Project planning and design activities	Monitoring Plan	5,000–40,000[43]
Approval activities: e.g. obtaining Government permits	Determination – approval of PDD by Independent Entity	5,000–25,000[44]
Finalise project design, procurement, and contracting	Marketing of Credits	Internal costs or if external brokers used payment likely to be due when payments received from buyer – see below
	Total Up-front Costs:	40,000–65,000
Construction/Implementation Activities		
Construction, operation, sales, maintenance and administration activities	Verification by Independent Entity	3,000–15,000 per year
	Transaction activities – transfer of carbon credits	If brokers are utilised success fee in region of 1–15% of emission reduction value
	Possible fee to cover the costs of the JI Supervisory Committee	No decision taken on possible fee
	Risk Mitigation – optional	1–3% of credit revenue yearly. Mitigates loss of incremental value as a result of project risk. Buyer may take this risk

[42] Depends on complexity of project.
[43] Depends on complexity of the project and sources of greenhouse gases.
[447] Depends on complexity of project, and location of the project.

Table 7. Upfront Project Preparation Costs/Payments under current Carbon Credit Purchasing Programmes

	Project proposal and Baseline	Determination	Comments
Prototype Carbon Fund (PCF) of the World Bank payments/costs.	40,000 Euros for baseline and MP	33,000 Euros	These payments are negotiable and PCF may require proponent to cover them.
Dutch ERUPT programme JI Payments (May 2000)	22,689 Euros to 34,035 Euros	Maximum of 11,344 Euros	Verification costs are not included
Dutch CERUPT programme payment (Nov 2001 and ERUPT programme of Dec 2001)	25,000 Euros	12,500 Euros	Costs for verification are not included

Table 8. Emission reduction prices

Programme	Price per ton of CO_2
Prototype Carbon Fund (PCF) of the World Bank	Between 4.5-5.5 Euros assuming high quality credits. Average price about 3.15 Euros. Price depends on risk profile of the project.
ERUPT – Dutch Government programme (prices paid under Programme in 2000)	Between 5 – 9 Euros

be obtained per tCO_2, and the total number of validated years over which the credits can be generated (i.e. the crediting period). If the costs are high when compared to the revenue stream then the project sponsor is unlikely to proceed in developing the project as a JI project. The only way to overcome this obstacle is to provide grants to cover some of the upfront costs of designing a JI project, to pay a higher price per ton of CO_2, and/or to pay a proportion of carbon revenues upfront.

In general the JI project costs are not proportional to size but sometimes almost similar whether the project is 1 MW or 1000MW, so the larger the project the more likely it is that the revenue stream will be large enough to warrant developing the project as a JI project. This may be overcome through bundling where a series of small but very similar projects (i.e. involving the same project proponent, financial structure, technology, project timeline, etc) are grouped into one project vehicle or structure.

5.3 RISKS AND UNCERTAINTIES

The implementation of most projects is subject to risks and uncertainties. However, additional risks arise for JI projects. These are:

Policy risks and political risks

Policy risks largely arise from the fact that the JI guidelines are to a considerable extent vague and are currently open to different interpretations. Subsequently, the rules as interpreted in the Handbook can be subject to change. This can be considered a policy risk. A political risk would be developing a project as a potential JI project before the host Party has appointed institutions and established procedures to approve projects i.e. there is a risk that the project

might be rejected as being a JI project by the host Party. Other national government policy risks relate to whether the host Party will meet the eligibility requirements, discussed in 2.3, Volume B. Any Party (whether as a host or investor) sanctioning such activities before they have complied with the eligibility requirements will ultimately bear the risk that emission reductions will not be recognised and not result in the issuance of ERUs under the terms of the Protocol.[45]

From the project proponents perspective it is most important that the host country is (or will be) eligible to host a JI project, because if they are not then the project cannot lead to the issuance of ERUs. If the buyer (whether it is a government or a legal entity) finds that it is not eligible to acquire the ERUs the project proponent can always search for a new buyer.

Market risk

These are risks related to immature markets like pricing of emission reduction credits. This price will be quite sensitive to policy development in key countries, and also to fluctuations in fossil fuel prices, since the price of fossil fuels is an important determining factor for emissions reduction costs.

Credit risk

The emission reductions of a JI project are estimated at the start of the project, i.e. prior to implementation. It is not clear at that point whether these emission reductions can actually be generated. The risk of delivery of the credits is additional to the risk of delivery of the conventional output of the project.

Mitigating Risks

Risks might be shared or reduced by identifying, defining and allocating them in ERU purchasing contracts. From the project proponents perspective it is preferential if the ERU purchaser assumes these risks, but this will be subject to negotiations. The investor or host Party might cover these risks by making arrangements with export or import credit organisations. The global insurance industry has been looking at offering insurance packages in relation to JI risks but these are at a developmental stage.

5.4 CONTRACTUAL ISSUES

The ERU purchasing contract will set out the terms and conditions of payment between the seller and buyer. It is important, especially considering the uncertainties surrounding the JI mechanism, that the project proponent covers in a legal contract the main issues that will affect payment delivery. Some of the key issues that will have to be covered in an ERU purchasing contract include[46]:

- *Compliance with international and domestic legal requirements*
- *Allocation of rights to ERUs.* It is crucial that it is clear that all entities who potentially might have a claim on the ERUs, such as equipment suppliers, electricity/heat purchaser, host government, agree on the allocation of emission reductions, and which project participant has the right to act as the seller of ERUs.
- *Allocation of risks and guarantees*
- *Definition of what exactly is being sold/bought.* This could be emission reductions that may or may not become ERUs. There is obviously a major difference between the two.
- *Sale and purchase conditions.* Description of the vintage and number of emission reductions or ERUs to be delivered by the seller to the buyer. This should also cover any rights to credits beyond the scope of the contract, i.e. due to the risk of non-delivery the project proponent may only want to guarantee delivery of 80% of the credits the project is expected to generate. The buyer may want the rights to the additional 20% of emission reductions.
- *Delivery.* This concerns the capacity to deliver and the imposition of delivery obligations. This will involve agreement on delivery dates or trigger events. It should also cover the issue of when ownership will accrue to the buyer – after verification,

[45] Examples of where entities are already developing JI projects in anticipation that the ERUs generated from them will be transferable and recognised under the terms of the Protocol include the World Banks Prototype Carbon Fund the Dutch Governments ERUPT programme. Both programmes bear the risk that host countries might not meet their eligibility criteria for JI and will thus be unable to transfer the ERUs from their account and register to those of the investor country.

[46] IETA Discussion Paper 02-01 "Carbon Contracts Cornerstones", paper drafted by Baker & McKenzie, April 2002

or after ERUs issued by host Government, etc. Delivery issues will also concern shortfalls in, or non-delivery of, the quantity of emission reductions agreed, and will cover the issues of financial penalties, or repayments of upfront costs, etc.

- *Evidence of Validity of Emission Reductions.* The contract should outline what documentation is required, who will deliver it to whom, and when. This could include – PDD, verification reports, and issuance and transfer of ERUs by the host Government.
- *Price and Terms of Payment.* The contract will define the price, and how inflation and taxation will be accounted for. The contract will also define whether the payments will be upfront, paid on delivery, or an option. It should also cover the issue of penalties for late payments, and the method of payment.
- *Liabilities and Indemnities.* Decisions need to be made on any limitations on liabilities and whether indemnities are required.
- *Default, Termination and Remedies.* The issue of defaults, such as the failure by seller to deliver emission reductions should be specified, and the consequences of defaults (termination or remedies) defined.
- *Confidentiality.* The contractual parties need to define what information is confidential.
- *Arbitration and Dispute Resolution.* The contract should outline procedures for dispute resolution.
- *Taxes, Levies and Charges.* This should stipulate who has to pay any taxes, levies, and charges. For JI this is likely to include an administration fee requested by the Supervisory Committee, although no decision has been made on this yet.

VOLUME B:
GUIDE TO THE JI POLICY FRAMEWORK

1 INTRODUCTION

This Volume of the Handbook provides background information on the international policy process and the JI policy status of the BASREC states. Chapter 2 outlines the international policy process, which gave rise to the concept of joint implementation, and sets out the requirements that a Party have to meet in order to participate in the JI mechanism. The requirements largely relate to a national Government's ability to account and report the emissions from its sources of GHGs, as well as setting up systems to account for, and report on, the trade in ERUs and AAUs.

Chapter 3 examines the Activities Implemented Jointly (AIJ) experiences of the BASREC States, which has provided valuable knowledge on establishing project based mechanisms. Chapter 4 outlines the BASREC states current policy positions and experience in relation to JI, which could be a particularly useful reference for project proponents[47].

2 POLICY BACKGROUND & THE EVOLUTION OF JOINT IMPLEMENTATION

2.1 UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC)

The problem of climate change was recognised in the 1970s. To address the problem of climate change a series of on-going intergovernmental conferences have been held.

The first landmark in the development of international climate change policy was the adoption of the United Nations Framework Convention on Climate Change (UNFCCC) in 1992 in New York. The objective of this Convention is the stabilisation of greenhouse gas concentrations in the atmosphere at a level that prevents dangerous anthropogenic interference with the climate system (Article 2, UNFCCC). The UNFCCC has been ratified by over 180 countries and the Convention entered into force in 1994.

The supreme body of the Convention is the Conference of the Parties (COP). The COP comprises all states that have ratified the Convention. It held its first meeting (COP-1) in Berlin in 1995 and will continue to meet on a yearly basis unless the Parties decide otherwise. The role of the COP is to promote and review the implementation of the Convention. It will periodically review existing commitments in light of the Convention's objective, new scientific findings, and the effectiveness of national climate change programmes. The COP can adopt new commitments through amendments and protocols. In December 1997 it adopted the Kyoto Protocol containing quan-

[47] To provide some context, Appendix E provides information on the greenhouse gas (GHG) emissions profiles and Kyoto commitments for each Baltic Sea country and for the region as a whole.

Table 9. Overview of Conferences of the Parties

Date	Conference of the Parties (COPs)	Key Policy Development
1995	COP-1 in Berlin	Agreement on a mandate for a process leading to the development of a protocol to limit GHG emissions. Launch of a pilot phase for project-based emission reductions carried out jointly between Parties to the UNFCCC, called Activities Implemented Jointly.
1996	COP-2 in Geneva	Continuation of negotiations on the development of a Protocol to the UNFCCC.
1997	COP-3 in Kyoto	Adoption of a Protocol to the UNFCCC, known as the 'Kyoto Protocol'. The Protocol established quantified emission limitation and reduction commitments for the industrialised countries.
1998	COP-4 in Buenos Aires	Adoption of the Buenos Aires Plan of Action, which sets out a programme of work to operationalise the Kyoto Protocol agreement. COP 6 was set as the deadline for adopting key decisions related to the plan.
1999	COP-5 in Bonn	Progress was made on technical issues but no major decisions on how to proceeed were agreed.
2000	COP-6 in The Hague	Parties were not able to reach consensus on a package of decisions under the Buenos Aires Plan of Action. It was therefore decided to continue the negotiations at a second part of COP-6.
2001 July	COP-6 Part II in Bonn	Adoption of the Bonn Agreement. Key breakthrough creating a political consensus enabling work on implementing the Protocol to continue.
2001 Oct/Nov	COP-7 in Marrakech	Adoption of the Marrakech Accords. Further decisions on central aspects of the Protocol agreed, including resolution of a number of key issues related to JI and CDM.
2002	COP-8 in New Delhi	Further decisions on the technical systems under the Kyoto Protocol, i.e. regarding monitoring, reporting and the CDM Executive Board. Adoption of the Delhi declaration.

tified emission limitation and reduction commitments for developed countries. Table 9 provides an overview of the COPs held to date.

The Conference of the Parties will also serve as the meeting of the Parties to the Kyoto Protocol. This body, the COP/MOP, will meet during the same period as the COP. Parties to the Convention that are not Parties to the Protocol will be able to participate in the COP/MOP as observers, but without the right to participate in decision making.

2.2 THE KYOTO PROTOCOL

In December 1997, the Kyoto Protocol was adopted during COP-3 of the UNFCCC. Along with the UNFCCC, the Kyoto Protocol forms the legal basis of the process to mitigate greenhouse gas emissions. The Protocol is made up of a number of Articles, which set out the rules, modalities and procedures for the Parties in meeting their GHG emission obligations under the Protocol. Parties listed under Annex B have taken on GHG emission reduction and limitation commitments.

The most important aspect of the Kyoto Protocol is the commitment by developed countries and economies in transition to reduce their GHG emissions at least by 5% compared to 1990 levels in the commitment period, 2008–2012.

The Protocol will enter into force 90 days after it has been ratified by at least 55 Parties to the UNFCCC, including developed countries representing at least 55% of the total 1990 CO_2 emissions from this group.

The Protocol established three market-based mechanisms to facilitate the achievement of GHG emission reduction commitments. These are 'emissions trading' (ET), Joint Implementation (JI), and the Clean Development Mechanism (CDM) – see box 4 below. The aim of the mechanisms is to maximise the cost-effectiveness of climate change mitigation by allowing Parties to pursue opportunities to cut emissions abroad as a complement to domestic action.

It is set out in the international rules that the use of the Kyoto mechanisms should be supplemental to domestic action in meeting commitments. Domestic action should constitute a significant element of the effort made by each Party included in Annex I to meet its commitments.[48]

Box 4: Kyoto mechanisms – definitions

The Kyoto Protocol created three flexible mechanisms, known as the 'Kyoto mechanisms', to facilitate the accomplishment of the objectives of the Protocol. The mechanisms allow Parties to the Protocol to meet their commitments in a more cost-effective way compared to fulfilling commitment by domestic measures only.

Joint Implementation (JI) – Article 6 of the Protocol. JI refers to an Annex I Party implementing a climate change mitigation project together with another Annex I Party. JI allows for the acquisition and transfer of emission reduction units (ERUs) in the period 2008–2012, arising from such projects. ERUs transferred are subtracted from the host Party's assigned amount and added to the investor Party's assigned amount. Most JI projects are likely to take place in economies in transition.

The Clean Development Mechanism (CDM) – Article 12 of the Protocol. CDM refers to climate change mitigation project implemented in a non-Annex I country, which do not have a commitment under the Kyoto Protocol. CDM allows for the creation of certified emission reductions (CERs) from 2000 arising from such projects. CERs are added to the investor or purchaser (Annex I) Party's assigned amount.

Emissions Trading (ET) – Article 17 of the Protocol. ET allows for the trade between Annex I Parties of Assigned Amount Units (AAUs), i.e. parts, of their assigned amount of greenhouse gas emissions. Under this mechanism, countries that emit less than their assigned amount as agreed under the Protocol, can sell surplus AAUs to countries whose emissions have increased beyond their total commitment. Such transfers do not necessarily have to be directly linked to emission reductions from specific projects.

[41] Decision 15/CP.7.

Box 5. Definitions used for emission reductions related to the flexible mechanisms

ERUs – *Emission Reduction Units* – the technical terms for the verified emission reductions as an output of JI projects, as defined by the Kyoto Protocol. Each unit represents one metric ton of CO_2 equivalent.

CERs – *Certified Emission Reductions* – the technical term for the emission reductions as the output from CDM projects, as defined by the Kyoto Protocol. Each unit represents one metric ton of CO_2 equivalent.

AAs – *Assigned Amounts* – the total emissions that an Annex I Party may emit over the commitment period 2008–2012, and still fulfil its commitment, as defined by the Kyoto Protocol.

AAUs – *Assigned Amount Units* – the tradable component of the Assigned Amount of an Annex I Party as issued pursuant to the rules of the Kyoto Protocol, Each unit represents one metric ton of CO_2 equivalent.

RMUs – *Removal Units* – a unit relating to credits generated from land use, land use change and forestry activities (LULUCF). RMUs cannot be taken over to a subsequent commitment period. Each unit represents one metric ton of CO_2 equivalent.

2.3 JOINT IMPLEMENTATION

Joint Implementation (JI) refers to the case where an Annex I Party may transfer or acquire ERUs resulting from climate change mitigation projects in another Annex I Party. In this case both Parties have commitments under the Kyoto Protocol. Generally, JI refers to projects by any two Annex I countries. In practice JI projects are likely to be hosted in countries in Central and Eastern Europe (including Russia) that are economies in transition.

Projects starting as of year 2000 may be eligible under JI. However, the ERUs can only be issued for the crediting period 2008–2012.[49] Emission reductions generated pre-2008 could potentially be rewarded through forward sales, and/or a transfer, of a corresponding volume of AAUs under Article 17 (Emissions Trading) during the first commitment period. Project proponents interested in securing value for pre-2008 emission reductions will have to negotiate this issue with the host and investor Parties.

It should be noted that in order to transfer AAUs, the Parties involved have to meet all the eligibility criteria for participating in Emissions Trading, which are the same as the eligibility criteria for participation in JI First Track projects.

Annex I parties can authorise legal entities to participate in JI activities. The Party will remain responsible for meeting its commitments under the Kyoto Protocol. It should be noted that a legal entity authorised by an Annex I Party to participate in JI can only transfer and/or acquire ERUs if the Party that provided the authorisation to participate is eligible to transfer and acquire ERUs.[50]

In order to participate in JI a Party has to:[51]

1. **Be a Party included in Annex I** of the UNFCCC with a commitment inscribed in Annex B of the Protocol.
2. **Designate a focal point for approving projects.** Parties have to appoint a focal point that is responsible for approving JI projects. Approval from Parties involved is a requirement for a JI project. Parties are to inform the Secretariat of its designated focal point.
3. **Have in place national guidelines and procedures for approving JI projects,** including consideration of stakeholder comments as well as for monitoring and verification. These guidelines and procedures should assist project proponents in assessing projects and facilitate project preparation.

[49] Draft decision Article 6/CP.7, paragraph 5.
[50] Decision 16/CP.7, Annex, Section D, paragraph 29.
[51] Decision 16/CP.7, Annex, Section D, paragraph 20 and 21.

In order to transfer and/or acquire ERUs Parties have to:[52]

- Ratify the Kyoto Protocol.
- Calculate and record its assigned amount (AA) for the commitment period as required under Article 3, paragraphs 7 and 8.
- Establish a national system for the estimation of GHG emissions[53].
- Establish a national registry[54]. The national register should register and account for the issuance, holding, transfer, acquisition and retirement of ERUs, CERs, AAUs and RMUs.
- Submit annually a GHG inventory report.[55] For the first Commitment Period the inventory report should include GHG emissions from the energy sector, industrial processes, agricultural sector, waste, solvent and other product use, and an inventory on sinks.
- Submit the supplementary information on the Assigned Amounts. Supplementary information is required in order to distinguish between emission reductions coming from JI projects, Emissions Trading and CDM.

A Party is able to use the First Track procedures if it meets all the above eligibility criteria for transferring and acquiring ERUs. Those that do not will be able to follow the Second Track as long as they have ratified the Protocol and have established both their Assigned Amounts and national registries.

To be a host to JI project, a Party has to demonstrate that it has met the eligibility requirements. A Party will be considered to have met the requirements 16 months after the submission of its report to facilitate the calculation of its assigned amount and to demonstrate its capacity to account for its emissions and assigned amount, unless the enforcement branch of the compliance committee finds that it has not met the requirements, or at an earlier date, if the enforcement branch has decided that it is not proceeding with any questions of implementation relating to these requirements indicated in reports of the expert review teams of the Kyoto Protocol and has transmitted this information to the secretariat[56].

Volume A of this Handbook elaborates on the procedural differences between the two tracks and provides guidance to project proponents on how to develop a JI project under the Second Track.

A Party that meets the First Track requirements can at any time choose to use the Second Track JI procedures.

The earliest date that the eligibility of countries to participate in JI can be determined is dependent on the date of the first COP/MOP. The earliest date that the JI Second Track is likely to be operational partly depends on when the JI Supervisory Committee is established and functioning (se section 2.2.4 in Volume A). The JI Supervisory Committee will at the earliest be established at the meeting of the first COP/MOP. The Supervisory Committee will accredit Independent Entities and each Second Track JI project will have to be determined (validated) by an Independent Entity.

The Secretariat, in due course, will maintain a publicly available list of countries that meet the eligibility requirements for JI First and Second Track projects, and those that have been suspended.[57] The current JI policy status of each of the BASREC countries is presented in Chapter 4 of this Volume.

[52] Decision 16/CP.7, Annex, Section D, paragraph 21.
[53] Kyoto Protocol, Article 5, paragraph 1.
[54] Kyoto Protocol, Article 7, paragraph 4.
[55] Kyoto Protocol, Article 5, paragraph 2, and Article 7, paragraph 1.
[56] Decision 16/CP.7 Annex D, paragraph 22
[57] Decision 16/CP.7 Annex D, paragraph 27

3 AIJ PILOT PHASE IN THE BALTIC REGION STATES

In 1995, at the first Conference of the Parties in Berlin (COP-1), the Parties launched a pilot phase to gain practical experience in developing emission reductions jointly. This pilot phase is also referred to as Activities Implemented Jointly (AIJ). Under AIJ, an Annex I Party can implement a project that reduces emissions in the territory of another Party, including a developing country. However, it was also decided that no credit could be gained from the resulting emission reductions under the AIJ phase. The purpose was a learning by doing exercise.

In reporting on their AIJ projects, Parties are expected to use a Uniform Reporting Format (URF), in order to maximize the comparability of information gained under AIJ. The pilot phase was due to conclude by 2000. However, COP 5 decided to prolong it beyond that date to continue the learning process. To date, the programme is still operational.

Several of the countries in the Baltic Sea Region have participated in this pilot phase and the experience gained from the development of projects in the region has contributed to the knowledge and understanding of JI that has enabled it to become a key policy tool in meeting the emission reduction objectives of the Convention and Kyoto Protocol.

This section presents the experience of the BASREC states with Activities Implemented Jointly (AIJ) Pilot Phase.

3.1 DANISH AIJ EXPERIENCE

Denmark has not been involved in any AIJ-projects, but has a long tradition for bilateral programmes and project implementation in the new democratises around the Baltic Sea in the energy field, including reductions of CO_2. .

3.2 ESTONIAN AIJ EXPERIENCE

Estonia has participated in 21 AIJ projects as a host country, all implemented with Sweden. Estonia has not set up an official AIJ office or procedures for assessing, registering and implementing the AIJ projects. Projects have been analysed and assessed on an ad hoc basis.

The AIJ projects with Sweden have been realised in the fields of fuel switching, energy efficiency, replacing outdated combustion technologies in the district-heating sector, and improving energy conservation in apartment buildings. The total emission reduction for all 21 projects is estimated at about 100,000 tonnes of CO_2 per year. Sweden has been a pioneer among the Parties to the UNFCCC in implementing AIJ projects in Estonia. They provided loans to the project proponents implementing the fuel switch and energy efficiency measures. In line with the character of the AIJ pilot phase the projects were carried out to gain experience with JI activities and the emission reductions generated will not be transferred and sold to Sweden.

3.3 FINNISH AIJ EXPERIENCE

Finland did not participate in the Activities Implemented Jointly (AIJ) pilot phase. However, in 2000 the government of Finland decided set up a Finnish Pilot Programme for JI and CDM projects. In contrast with the AIJ Pilot Programme, the Finnish Pilot Programme intends to develop projects that are awarded emission reduction credits and that comply with all the emerging rules of the Kyoto Protocol. This is so that the projects can be eligible as official Joint Implementation projects and result in emission reductions that can be verified in accordance with Article 6 of the Kyoto Protocol.

3.4 GERMAN AIJ EXPERIENCE

Germany participated in the activities implemented jointly (AIJ) pilot phase, and was open to participation as both an investor and host Party. The German AIJ programme is not a formal programme and there is no funding available for the participants, but assistance in setting up AIJ projects is provided by Germany's federal Ministry of Environment. The Ministry provides assistance in setting up AIJ projects, providing contacts in the host countries, negotiations with host countries as well as evaluation of the projects.

There was a great interest among private companies in the pilot phase and about 40 initiatives were submitted. However, so far only nine AIJ projects have been realised and implemented. Most, but not

all, projects have been accepted and registered with the UNFCCC. There are also some projects that are still in the verification phase. The projects were developed in the period 1996–1998.

All projects involve either the development of renewable energy projects or energy efficiency projects in countries including Bulgaria, China, Costa Rica, Dominican Republic, Japan, Libya, Netherlands, Palestine, Poland, Portugal, Russia, Sierra Leone and the Czech Republic.

3.5 LATVIAN AIJ EXPERIENCE

Latvia actively participated in the AIJ pilot phase in order to gain experience with Joint Implementation. However, no formal programme, office or procedures for assessing the eligibility of AIJ projects has been set up. All projects developed as AIJ projects and registered as such with the UNFCCC have been assessed on an ad hoc basis.

Latvia has been involved in 24 AIJ projects. Most of the 24 AIJ projects have been developed in co-operation with Sweden in the NUTEK/STEM programme. Moreover, three AIJ projects have been developed with the Dutch government under their AIJ programme and one project has been developed in co-operation with the German AIJ programme. In the co-operation with the Dutch programme, an independent third party has validated all baseline studies and monitoring plans. This was based on an initiative of the Dutch government and also paid for by them. The total emission reduction for all 24 projects is estimated at about 100,000 tonnes of CO_2 per year.

Most of the AIJ pilot projects involve energy efficiency, including improvement of energy efficiency in buildings (for example through insulation), energy efficiency in district heating systems, distribution and consumption. Other projects involve fuel switching and the introduction of renewable energy sources in district heating and in boilers for heating, cogeneration projects, and a wind power project with Germany.

The Latvian government has not taken a position yet as to how to account for the emission reductions achieved by the AIJ pilot projects. Apart from the position of the Latvian government this will of course also depend on bilateral agreements with each of the investor countries, as well from further international decisions.

3.6 LITHUANIAN AIJ EXPERIENCE

Lithuania has been involved in ten AIJ projects, all implemented with Sweden, through participation in the Swedish Programme for an Environmentally Adapted Energy System (EAES). The projects aim to reduce GHG emissions by converting heating plants to the use of bio-fuels, and introducing efficient energy distribution systems in district heating plants. The total emission reduction potential for all ten projects is estimated at about 70,000 tonnes per year. The total investment of the projects implemented under the Lithuanian AIJ programme is worth more than US$ 4 million on favourable terms.

Moreover, a number of projects have been carried out on energy saving and renewable energy with the support from Denmark and World Bank (e.g., Klaipeida Geothermal Demonstration Project and bio-gas demonstration plants in Rokai).

3.7 NORWEGIAN AIJ EXPERIENCE

Norway has participated in the UNFCCC Activities Implemented Jointly (AIJ) Pilot Phase since 1995. The Norwegian AIJ programme was based on bilateral cooperation and on multilateral co-operation through the World Bank. In the bilateral projects, with Slovakia, Costa Rica and China, the host countries have been responsible for most of the implementation and follow-up. In the multilateral projects with Poland, Mexico, India and Burkina Faso, the World Bank was responsible.

The Norwegian projects have been financed through a governmental Climate Change Fund, which was established in 1991. Private sector involvement in pilot projects has been very limited. The AIJ shares of the total investment cost vary from 2 % (Poland) up to 100 % (India). Furthermore, the reduction costs per tonne CO2 vary from 0.1 US$ (Burkina Faso) up to 18 US$ /tonne CO_2 (Mexico). However, such figures are difficult to compare; some of them are from projects in advanced stage of implementation, others are just calculations. It should be underlined that there seems to be a substantial difference in the methods of calculation.

Projects under the AIJ pilot phase include energy

efficiency projects (both at the supply and at the demand side), fuel switch and projects in the forestry sector.

Of the seven projects supported, four of them were in co-operation with the World Bank and three were bilateral projects. The total investments in these projects are about US$ 130 million. Norway contributed about with about US$ 18 million of this total, which accounted about 14% of the total investments. The aggregated potential for CO_2 reductions from these projects are estimated to 7.7 millions of tonnes CO_2 over the projects' lifetime, which varies from 4–30 years.

3.8 POLISH AIJ EXPERIENCE

Poland has been involved in three AIJ projects. The AIJ projects have been implemented with the Netherlands (two projects implemented, improvement of energy efficiency in a district heating system and improvement of energy efficiency of a CHP plant including fuel switch) and Norway (one project underway, fuel switch and energy efficiency in residential buildings). The estimated total emission reductions are 309,200 tonnes of CO_2 per year.

3.9 RUSSIAN AIJ EXPERIENCE

Russia has been involved in hosting nine AIJ projects with the USA, Germany and the Netherlands. The projects are concerned with afforestation, reforestation, fuel switching, fugitive gas capture, landfill methane, and energy efficiency in heat and power production and heat distribution sectors. The total emission reduction for all 9 projects is estimated at about 70,000 tonnes per year. 6 of the 9 AIJ projects have been officially approved by the Russian Federation and by the investing country but didn't find real investors from private sector.

3.10 SWEDISH AIJ EXPERIENCE

In the period 1995–1999 Sweden initiated more than 60 projects as part of its contribution to the pilot phase of Activities Implemented Jointly. By the year 2000, 65 AIJ projects in five countries had been implemented by Sweden as an investor country, including 21 projects in Estonia, 22 in Latvia, 9 in Lithuania, 1 (one) in Poland and 12 in the Russian Federation. The projects in Poland and Russia were pending letters of endorsement by the host countries and were thus not yet formally registered as AIJ projects at the UNFCCC Secretariat. The annual total GHG emission reductions of these projects were estimated at 220,000 tons of CO_2 in 2000. The total expected accumulated GHG emission reductions are estimated at about 4 million tonnes.

Most of the Swedish AIJ projects have been realised in the district-heating sector. There are three different project types: boiler conversions form fossil fuels to wood fuels, renovation of distribution networks, and energy efficiency improvements in residential buildings.

The Swedish AIJ Programme has provided useful experience in four main areas. First, it has contributed to the development of Swedish national policies and guidelines for participation in project-based mechanisms under the Kyoto Protocol, i.e., JI and CDM. Second, it has been utilised for methodological work related to the project cycles of JI and CDM, such as baselines, monitoring, reporting and verification. Third, it has built capacity in host countries and provided valuable input for them in formulating national policies for AIJ and JI. And fourth, the programme has been an important contribution to co-operation on climate change in the Baltic Sea Region.

4 BALTIC SEA REGION STATES JI POLICY

4.1 DENMARK

4.1.1 JI Focal Point

The Ministry of Environment is responsible for the climate policy in Denmark, including the Danish commitments and negotiations under the UNFCCC. The Danish Energy Authority under the Ministry of Economic and Business Affairs is responsible for the use of JI within the energy policy as an instrument to fulfil the Danish commitments.

The contact details for receiving information on JI in the field of energy are:

Mr. Hans Jürgen Stehr
Danish Energy Authority
44 Amaliegade
DK-1256 København K
Phone: +45 33 92 67 00
Fax: +45 33 92 68 37
E-mail: hjs@ens.dk

4.1.2 JI Policy Status

The Danish Government is very interested in Danish participation in JI projects as an investor Party. In the Danish strategy for support to Eastern Europe JI will be an important element. According to the strategy, the government has decided that in 2003 EUR 17.5 million will be allocated to activities related to the Kyoto-mechanisms, especially JI.

For this purpose Denmark has developed a manual for JI and CDM projects, with a set of guidelines for stakeholder consultation. The rules in the manual are an interpretation of the JI guidelines and will serve as assistance to project proponents, interested in developing JI and CDM projects.

4.1.3 JI Eligibility Status

Denmark ratified the Protocol in June 2002, simultaneously with all other EU member states. Denmark has not designated any national authority yet, however information regarding the further progress made could be received from the contact person mentioned above. Denmark intends to follow and be in compliance with the JI First Track requirements by 2006. Regarding its participation as an investor in JI projects Denmark foresees that there might be countries hosting JI projects that cannot meet all requirements for First Track JI. Therefore, projects under Second Track JI will also be accepted, where Denmark will follow the rules and verification procedures established by the Supervisory Committee.

Until EU determines its internal burden sharing, the final establishment of the Assigned Amounts will not be possible. A national registry has been established in Denmark. Denmark has met the conditions to submit an annual GHG inventory report to the UNFCCC.

4.2 ESTONIA

4.2.1 Current JI programmes and Bilateral Agreements

At this moment Estonia is participating in the Finnish JI Pilot programme. Under this programme two JI projects are being developed and two JI project are approved in Estonia. Since spring 2001 the Ministry of the Environment has been negotiating with Finland, Sweden, Germany, the Netherlands and Switzerland to conclude a bilateral agreement or sign a Memorandum of understanding to co-operate in JI activities, which will be hosted by Estonia. The Governments of Estonia and Finland signed an agreement on Joint Implementation of emission reductions of greenhouse gases in December 2002.

4.2.2 JI Focal Point

The government of Estonia has appointed the International Cooperation Department of the Ministry of Environment as the responsible authority for climate change issues and as the UNFCCC focal point. The Ministry was also responsible for the Estonian AIJ activities.

UNFCCC focal point:
Ministry of the Environment
International Cooperation Department
Mr. Andres Kratovits
Director General
Tel: (+372) 62 62 841
E-mail: Andres.kratovits@ekm.envir.ee

4.2.3 JI Policy Status

Estonian Ministry of the Environment has started drafting the National Programme for the reduction of GHG emissions for the years 2003–2012. The programme establishes among others a more detailed GHG monitoring programme and includes an overview of possible mitigation measures in different economic sectors. Moreover, the programme includes a range of cost effective policies and measures, which reduces emissions and will bring benefits to the economy and to people's life.

The National programme will also include a chapter on Joint Implementation with relevant procedures and guidelines for developing JI projects hosted by Estonia. The programme and JI procedures and guidelines are estimated to be ready in the summer of 2003.

Estonia is interested in awarding emission reductions from JI projects that have been generated prior to 2008. These should be transacted according to the specific conditions agreed between Estonia and the investor Party involved, and according to the UNFCCC guidelines, which implies that they will be transacted as AAUs under Article 17 of emissions trading. Estonia is very interested in participating in emissions trading under Article 17 of the Protocol.

4.2.4 JI Eligibility Status

Estonia ratified the Kyoto Protocol in 2002. The idea is to follow the JI Second Track procedures for developing JI projects. At this moment Estonia does not have an accounting system for its AA or a national registry in place. It is expected that a national registry will be in place around the end of 2004 or the beginning of 2005.

The Ministry of Environment is responsible for setting up the national GHG inventories. Work on the inventories is supervised by a number of experts of the Ecological Institute and carried out by experts from the University. Estonia has submitted its third national communications to the UNFCCC.

4.3 FINLAND

4.3.1 Current JI and CDM Pilot Project Programme

In the year 2000 the Finnish government established a Pilot Programme for JI and CDM projects for which a budget of 8.5 million euros (for years 2000–2002) has been made available. The aim of the Pilot Programme is to gain experience and educate the Finnish government and project proponents on the issues specific to the JI and CDM, including the JI/CDM project cycle. In order to guide project proponents, the Programme also includes Guidelines for developing JI and CDM projects. It is expected that these guidelines will help in developing CDM/JI projects, which have relatively high probability of being in compliance with the rules of CDM and JI once they are put into operation.

The aim of the programme is also to develop the projects developed under the Programme as real JI or CDM projects. Therefore, it is not likely that the Pilot Programme will accept any JI projects before the host Party accepts a project as a JI project. Under this programme two JI projects are being developed in Estonia. Both projects involve fuel switching for district heating boilers, replacing oil and oil shale with biomass. The projects are located in small villages in Estonia and are expected to result in a total of 15,000-20,000 tons of CO2 reductions for both projects. This estimate has been based on the baseline study that has been carried out for both projects. The projects and estimated emission reductions have not been validated yet. The transaction costs related to the development of the baseline study and the determination will be paid for by the Finnish government.

Finland and Estonia intend to develop the two projects as formal JI projects and thus they are developed in accordance with the emerging rules for JI. Finland and Estonia signed a specific Emission Reduction Purchase Agreement (ERPA), which also stated that 100% of the credits generated would be transferred from Estonia to Finland, once generated.

Apart from these two projects with Estonia, there are some other projects in the pipeline. These include some JI projects in Latvia and Lithuania.

4.3.2 Other Programmes and Bilateral Agreements

Finland has invested 10 m US$ in the Prototype Carbon Fund, which provides them a share of the total amount of carbon credits the PCF is buying on behalf of all their investors.

In order to facilitate the development of JI projects, Finland has signed various Memorandums of understanding with countries in the Baltic Sea Region including Estonia, Latvia, Lithuania, Poland and Ukraine. The content of these Memorandums of understanding is basic and they only lay down a very general framework for JI co-operation. For this reason, Finland is in the process of finalising negotiations on a Framework Agreement with Estonia specifying details of JI cooperation and building a foundation for project agreements to be concluded by designated national authorities.

4.3.3 JI Focal Point

The Finnish government has appointed the Ministry of Foreign Affairs as the focal point for the Finish Pilot Programme as well as for approving JI projects. The Ministry for Foreign Affairs is in charge of the implementation of the Pilot Programme and ultimately decides whether to further finance and develop potential JI and CDM projects. For that purpose the Ministry of Foreign Affairs has set up a Steering Group in which members of other ministries are participating including the Ministry of Finance, the Ministry of Agriculture and Forestry, the Ministry of Trade and Industry, and the Ministry of the Environment.

Co-ordination details for questions regarding Pilot Programme or JI:
Ministry of Foreign Affairs
Mr. Ismo Ulvila
Finnish Environment Institute
P.O. Box 140
FIN-00251 Helsinki
FINLAND
Phone: 358-9-40300421
E-mail: ismo.ulvila@vyh.fi

Ministry of Trade and Industry:
Mr. Seppo Oikarinen
Energy Department
P.O. Box 32
FIN-00023 Government
FINLAND
E-mail: seppo.oikarinen@ktm.fi

4.3.4 JI Policy Status

Finland did not develop specific procedures or a policy for developing JI projects. The guidelines of the Finnish Pilot programme can be considered as guidance for the project proponent, but are not a formal procedure or policy for involvement in Joint Implementation projects.

Finland has recently finished its climate change strategy report. From this it can be concluded that Finland does not have to participate in JI or CDM in order to meet their legally binding Kyoto commitment. However, it has been decided to still get involved in JI and CDM activities. The credits purchased through these mechanisms will then function as a back up or buffer, in case extra emission reduction credits are needed to meet the commitment. This is the main reason for setting up the Finnish Pilot Programme.

Finland aims to gain emission reductions from JI projects that are generated prior 2008, and trade these as AAUs under Article 17. This will be negotiated on a bilateral basis with the host Party. The aim is to include a specific paragraph on this issue in the emission reduction purchase agreements with the host Party, which Finland has already signed with Estonia.

4.3.5 JI Eligibility Status

Finland has ratified the Kyoto Protocol together with all other EU countries in May 2002. Finland intends to follow and be in compliance with the First Track requirements, but it is unlikely that they will host projects that result in transfers of credits to other Annex I countries. However, regarding their participation as an investor in JI projects they foresee that there might be countries hosting JI projects that cannot meet all requirements for First Track JI. Therefore, projects under the Second Track will also be accepted, where Finland will follow the rules and verification procedures set by the Supervisory Committee.

Finland recently submitted its third national communications to the UNFCCC. The Ministry of Environment is the Ministry responsible for setting up the national communications and GHG Inventory. Within the Ministry a specific working group with experts has been formed, with specific expertise on GHG emission quantification. They will meet on an ad hoc basis.

There is no national registry or system in place yet, but it is expected that Finland can meet all First Track eligibility criteria by the end of 2004 at the earliest and by 2007 at the latest.

4.4 GERMANY

4.4.1 Current JI programmes and Bilateral Agreements

There are some preliminary negotiations on JI co-operation, including Memorandums of understanding. So far, no Memorandums of understanding have been signed.

Apart from being active with JI projects, one of the German states has set up a domestic tender under which JI projects can be submitted. This tender is implemented and regulated by the state of Hessen. The German state of Hessen intends to open a pilot purchasing programme for CO_2 credits over the period 2005–2009. The total allocated budget amounts EUR 1.3 million. The tender is intended for projects based in Hesse, but 20% of their target can be met by purchasing JI credits. It is expected that the CO_2 emission reductions will be purchased at a price varying from 2-10 EUR per tonne of CO_2.

4.4.2 JI Policy Status

At the beginning of 2002 the Emission Data group within the Federal Ministry of Environment set up an governmental working group to set up a national system and to deal with gathering data for establishing Germany's national GHG inventories. The working group is in the process of finding out how to best comply with the eligibility requirements for the First Track JI. With that purpose another group has been established that is doing research on how other countries are organising themselves for participation in the First Track. This group started work in April 2002. Germany expects that by 2005 they will have in place a national system and a national registry. Because they still have to define the GHG inventory for the base year, which is 1990 for Germany, it is expected that Germany will not be able to provide data on its Assigned Amounts before 2006.

At the moment Germany does not have specific and formal procedures, structures and tools for assessing and developing JI projects. At this moment, a Handbook for assessing JI and CDM projects is under development. The procedure included in the Handbook is based on the idea that the Ministry of Environment will be involved in the development of a JI and CDM project at an early stage of project development, rather than only at the evaluation stage. It is assumed that an interaction between the government and the project proponent at an early stage will increase the amount of successful JI and CDM projects. It is expected that the Handbook will be finalised by the autumn of 2002.

4.4.3 JI Focal Point

Joint Implementation is the responsibility of the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety.

The Federal Environment Ministry, BMU states that JI and CDM are an ecologically effective instrument that can contribute significantly to limiting emissions of GHGs. The contact details for receiving information on JI are:

Joint Implementation Coordination Office (JICO)
Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
Unit: AG Z II 6
11055 Berlin / Germany
Contact person: Thomas Forth
Phone: +49 1888 305 – 2357
Fax: +49 1888 305 – 2349
E-mail: Forth.Thomas@bmu.de

The JICO will be reorganized in the course of the development of the JI strategy. Decisions on reorganization were expected by the end of 2002.

4.4.4 JI Eligibility Status

Germany ratified the Protocol along with the EU. Germany is determined to meet all the requirements for participating in both JI first track and second

track before 2008. However, at this stage no exact dates can be provided stating which participation criteria will be met by which date (i.e. when a national registry, national system, GHG inventory, etc. will be in place).

4.5 ICELAND

4.5.1 JI Focal Point

The Ministry for Environment and the Department of International Affairs has the responsibility for JI.

Co-ordination details for questions regarding JI:
Mr. Halldor Thorgeirsson
Ministry for the Environment
International Affairs
Vonarstadi 4
IS-150 Reykjavik
Tel +354 560 9600
Fax: +354 562 4566
E-mail: halldor.thorgeirsson@umh.stjr.is

4.5.2 JI Policy Status

Iceland ratified the Kyoto Protocol in May 2002. Iceland meets almost 70% of its total energy needs from renewable energy sources. This makes it difficult to further reduce GHG emissions domestically.

4.5.3 JI Eligibility Status

There was insufficient information available on the eligibility status of Iceland to participate in JI. No Ministry or national authority has been appointed for JI activities in Iceland to date.

4.6 LATVIA

4.6.1 Current JI Programmes and Bilateral Agreements

The Prototype Carbon Fund (PCF) from the World Bank invested in a landfill methane recovery project in Latvia (the Liepaja project), which is the first project of the PCF for which a baseline study has been completed and determination has been carried out. For this purpose the Latvian government signed a carbon purchase agreement (CPA) with the PCF, stating that the emission reductions realised as a result of the project will be transferred to the PCF. The emission reductions are estimated at about 80,000 tonnes of CO_2 equivalents per year. This includes the transfer of emission reductions that are realised prior to 2008. The Dutch government has also approached the Latvian government about signing a Memorandum of understanding for transferring carbon credits to through the ERUPT programme. However, so far both countries have not come to an agreement.

Although Latvia did not co-operate with Finland in the AIJ pilot phase, in 2001 both countries signed a Memorandum of understanding to co-operate in developing JI projects. This Memorandum of understanding includes an intention to work together and is not legally binding like the agreement between Latvia and the PCF.

4.6.2 JI Focal Point

The National focal point for AIJ as well as JI projects is the Ministry of Environmental Protection and Regional Development. This Ministry is also the co-ordination point for the Convention on climate change and issues concerning the Kyoto Protocol and acts as the co-ordination point for AIJ projects and for the project with the PCF from the World Bank.

UNFCCC and AIJ Focal Point:
Ministry of Environmental Protection and Regional Development
Officer Department of the Environment Protection
Ms Ingrida Apene
Senior Desk
Peldu Str. 25
LV-1494 Riga
Phone : (371-2)702-6508
Fax: (371)782-0442
E-mail: ERNA@varam.gov.lv

It is foreseen in the Joint Implementation strategy that a JI focal point will be nominated before July 2003.

4.6.3 JI Policy Status

Latvia does not have formal procedures or regulations for approving JI projects and such procedures and guidelines did not exist either for AIJ projects. Because of their experience with the PCF and also the request of some other countries to sign Memorandum of understandings and agreements for transacting carbon credits, the government has developed a JI

Conception (2002–2012). The key goals of the document are to promote the prevention of the global climate change and create the foundation of a JI policy targeted at the attraction of additional investment for the implementation of environmentally friendly and energy efficient projects.

The Cabinet of Ministers approved the JI Conception in April 2002 and confirmed the policy options that Latvia will participate actively in JI processes and for Latvian experts to search for and prepare potential JI projects and organise the tender for investors for project implementation.

NGO's and municipalities will be involved in the decision making process and until a decision has been made, no further activities with regard to JI will be undertaken.

The government has also developed a JI Strategy (2002–2012). The Cabinet of Ministers approved the strategy in October 2002. The goal of the JI Strategy is to promote climate change mitigation by attracting investors to JI projects.

The objectives of the Strategy are to:

- Carry out procedures to assure that Latvia confirms with the JI Track I requirements.
- Develop the necessary legal acts.
- Create the institutional system and implement the related activities.
- Define tasks of institutions involved in JI projects and collaboration to support the JI cycle.
- Identify deadlines, responsible entities and the needed financial resources to implement activities.

The Strategy foresees the establishment of a JI Commission (as a Steering Committee for the JI Strategy) and a JI Group. The JI Group will prepare JI project approval, monitoring and verification guidelines and requirements for Independent Entities, as well as identify potential projects and project hosts, organise tenders for project, verify JI documents, etc. However, funding will be needed for the establishment of the JI group.

With regard to awarding credits that have been realised prior to 2008, no official position has been taken yet. However, for the project with the PCF emission reductions realised prior to 2008 will be transferred to the PCF. These will be subtracted from the AA and transacted as AAUs under Article 17, and will conform to the regulations as included in the JI guidelines.

4.6.4 JI Eligibility Status

The Saeima (Parliament) of the Republic of Latvia ratified the Kyoto Protocol on 30 May 2003, and President of the Republic of Latvia signed the Law on Kyoto Protocol on 13 June 2002. Latvia deposited the Kyoto Protocol ratification document on 5 July 2002.

Latvia would like to follow JI First Track project procedures, however it recognises that meeting the eligibility criteria for the First Track requires a lot of effort, for which Latvia does not have the resources. Latvia also feels that investor countries prefer to go ahead with JI Second Track, because they are not confident that the Latvian and other Eastern European Party inventories are reliable.

At the moment all national inventories have to be and have been prepared by only one person. There is a lack of expertise and capital for setting up national inventories and a national registry, which are required for participation in JI Second Track projects. Latvia will need support from UN or UN like organisations, in order to be able to report and calculate accurately on their Assigned Amounts. It is estimated that at least seven experts are needed (preferably local experts) in order to prepare and carry out all activities to be eligible to participate in Second Track projects.

Latvia submitted its third national communication to the UNFCCC Secretariat in 2001. An in-depth review of the Third National Communication and an in-country review of the annual inventories under UNFCCC were carried out in 2002.

4.7 LITHUANIA

4.7.1 JI Focal Point

The Environmental Quality Department in the Ministry of Environment is responsible for the Lithuanian AIJ projects. The contact details are:

The Environmental Quality Department
Ministry of Environment
A. Jaksto str 4/9
LT-2600 Vilnius
Lithuania
Fax. +370 52 663663

4.7.2 JI Policy Status

Capacity building is of the highest importance in Lithuania. Financial support is needed for:

1. Establishment of a national system for the estimation of anthropogenic emissions by sources and removals by sinks of greenhouse gases.
2. Computerized national registry to account for accounting and tracking changes in assigned amount.
3. Developing a team of experts for preparation of annual greenhouse gas inventories, elaboration of periodic national communications and the realisation of the use of the Kyoto mechanisms.

4.7.3 JI Eligibility Status

Lithuania ratified the Kyoto Protocol in November 2002. But there are some barriers to ratification, because of the projections of Lithuanian economic development, which foresees a revival of the industry sector and increase of energy demands. Calculations show that after the closure of the Ignalina nuclear power plant, emissions in Lithuania will significantly increase. Projections shows that after both reactors of Ignalina are closed down in 2010 and electricity produced in the plant is generated in combined heat and power plants, CO_2 emission caused by fossil fuel combustion will be similar to 1990 level. Therefore, after the start of an intensive industrial development, increased energy demands, and unfavourable changes of fuel balance structure, Lithuania may have difficulty in implementing its commitments under the Kyoto Protocol. There are real financial and social barriers for the ratification of the Kyoto protocol.

4.8 NORWAY

4.8.1 Current JI Programmes and Bilateral Agreements

In December 2001, Norway and Romania signed an agreement on a bilateral Joint Implementation project under the Kyoto Protocol. This is the first project Norway is involved in that is designed to facilitate a transfer of credits. Norway will contribute with about 5 million NOK (equal to about 550,000 US$) to the project in 2002, which accounts for about 10% of the project investment. It is estimated that the project will reduce the CO_2-emissions with about 500,000 tonnes over the 15-year project period starting in 2002. Norway will receive about 35,000 tonnes of CO_2 annually or in total 170,000 tonnes of CO_2 for the first commitment period 2008–2012. The cost of the emissions reductions is about 30 NOK/tonne of CO_2 (3.3 USD per tonne of CO_2), which is relatively inexpensive compared to many national measures in Norway.

Norway has contributed 10 million US$ to the Prototype Carbon Fund (PCF) under the World Bank, which provides carbon credits from the JI and CDM projects the PCF purchase credits from. Credits are distributed in relation to the economic share of the investors.

4.8.2 JI Focal Point

A JI focal point has not been established yet.

4.8.3 JI Policy Status

Norway will make use of the Kyoto mechanisms in addition to domestic measures in order to meet its Kyoto commitment. The Government has stated that Norwegian business and industries should be the main driving force in participation and financing of JI and CDM projects. The Government has decided to introduce an early domestic trading system from 2005. The early trading system will include industries that so far has been exempted from the wide covering CO_2-tax (introduced in 1991) or other climate motivated measures. A broad trading system is to be introduced from 2008, replacing the CO_2-tax system.

It is the intention that credits gained through use of CDM and JI will be credited under the domestic quota system in line with the rules and guidelines under the Kyoto Protocol.

4.8.4 JI Eligibility Status

Norway ratified the Protocol on 30 May 2002. In the White Paper no. 15 (2001–2002) it is stated that Norway plans to take the necessary steps and prepare for an operative phase of the Kyoto mechanisms with regard to establishment of a national registry, focal point, etc.

4.9 POLAND

4.9.1 Current JI Programmes and Bilateral Agreements

Poland has been implementing five JI projects. The JI projects have been/are being implemented with:

1. The Netherlands (two projects: A biomass fuelled district heating system and a wind power project);
2. Canada (Two projects: One large and one small hydropower project);
3. Finland (One project: CHP with fuel switch).

The estimated total emission reductions are 274,285 tonnes of CO_2 per year.

4.9.2 JI Focal Point

The government of Poland has attributed the National Fund for Environmental Protection and Water Management the responsibility of JI (and AIJ) activities. The National Fund has organised a JI Secretariat, which is responsible for the preparation of project proposals.

Co-ordination details for questions regarding Pilot Programme or JI:
Head of JI-Secretariat Mrs. Jolanta Galon-Kozakiewicz
National Fund for Environmental Protection and Water Management
International Department, JI- Secretariat
Konstruktorska 3 A
PL-02-673 Warsaw
Poland
Tel: +48 22 849 2280
Fax: +48 22 849 2098
E-mail: jolantak@nfosigw.gov.pl

4.9.3 JI Policy Status

The Government of Poland strongly supports the use of JI as an important means to obtain the objectives of the Convention and the Kyoto Protocol. It has signed Memorandums of Understanding with the governments of the Netherlands, Canada, Finland, and Norway stating its intention to exchange emission reductions accrued from the implemented JI projects in Poland should they meet the eligibility requirements.

4.9.4 JI Eligibility Status

Poland ratified the Kyoto Protocol in December 2002.

4.10 RUSSIA

4.10.1 JI Focal Point

Russia has not yet designated a national authority for JI. An Inter-Agency Commission of the Russian Federation on Climate Change Problems co-chaired by the Russian Federal Service for Hydrometeorology and Environmental Monitoring (Roshydromet) and the Ministry of Economic Development and Trade (MEDT) co-ordinates the national climate policy, represents the Russian Federation in international fora and considers AIJ project proposals and their co-ordination. The Commission includes representatives from key ministries and businesses like heat and power production and gas companies.

Co-ordination details for questions regarding AIJ:
Head of Roshydromet Mr. Alexandre Bedrtisky
Federal Service for Russia for Hydrometerorology and Environmental Monitoring (Roshydromet)
12, Novovagankovsky Pereulok
123242 Moscow
RUSSIA
Tel: +7-095 252 1389
Fax: +7-095 252 2216
E-mail: bedr@mecom.ru

4.10.2 JI Policy Status

There is no governmental body responsible for JI in Russia at present. Since Russia has not made official decisions on ratification yet, there is no JI policy in Russia at present, but only separate efforts of ministries and organizations interested in JI realization. If Russia ratifies the Protocol, it is likely that a governmental body will be appointed with responsibility for JI. Draft agreements on JI with several countries like Sweden, Denmark, and The Netherlands are at the stage of consideration by the Ministry of Economy, Ministry of Energy, Ministry of Natural resources and Ministry of Foreign Affairs. However, differences in ministries opinions on these agreements slows down the decision making process. However, the capacity building process goes on with the Ministry of Energy, Energy Carbon Facility, CPPI as well as regional organizations developing methodologies on JI, monitoring and other issues covered by the Kyoto protocol. General principles of Climate policy in the Energy sector are stipulated in the Energy strategy of the

Russian Federation that is under consideration by the Russian Government.

4.10.3 JI Eligibility Status

Mr. Mikhail Kasyanov, the Chairman of the Russian Government said in his opening remarks on 11 April 2002 that he is for ratification of the Kyoto Protocol. Noting that Russian emissions decreased during last 10 years he stressed necessity to discuss problems related to the attraction of investments to solve environmental problems and to decrease energy intensity of the economy. There is no doubt that Russia will meet quantitative commitments under the Kyoto protocol. However a lot of effort needs to be made first of all to develop the strategy of the construction of the future GHG emissions monitoring system.

4.11 SWEDEN

4.11.1 Current JI Programmes and Bilateral Agreements

The Swedish Governent has assigned the National Energy Agency (STEM) with the responsibility of preparing and implementing JI projects within its International Climate Investment Programme. The total budget of this programme is about SEK 250 million for the period 1998–2004. Sweden is also participating in the World Bank Prototype Carbon Fund.

Sweden is discussing bilateral JI agreements with Estonia, Romania, Russia, Lithuania and other East European countries.

4.11.2 JI Focal Point

Sweden has not yet designated a national authority for JI. Information regarding further progress of JI in Sweden can be obtained from National Energy Agency:

Mr. Klas Tennberg
P.O. Box 310
631 05 Eskilstuna
Sweden
Phone: + 46 16 544 2000
Fax: +46 16 544 2264
E-mail: klas.tennberg@stem.se

4.11.3 JI Policy Status

A parliamentary commission has been appointed in order to propose guidelines for Sweden's policy with respect to the flexible mechanisms, including JI. The government shall in 2004 consider a national target for green house gas emissions that includes the use of flexible mechanisms.

Since 1998, the National Energy Agency has been responsible for developing and testing AIJ, CDM and JI projects. In 2001 the Swedish government appointed a Chief Negotiator to negotiate JI agreements with other interested governments. Such agreements will facilitate Swedish JI projects in other countries.

Sweden has not yet decided if and how to award emission reductions from JI projects to legal entities that are generated prior to 2008.

4.11.4 JI Eligibility Status on Eligibility of JI

Sweden ratified the Protocol along with other EU member states in May 2002. It is expected that Sweden will have a national registry system in place within a year. Sweden is not likely to discriminate between First and Second Track JI.

4.12 CONCLUSIONS

Most of the Parties included in BASREC have ratified the Kyoto Protocol. All the BASREC states are looking to meet the requirements to participate in JI and are in the early stages of developing the systems to meet them. Projects starting after 2000 can be eligible for JI. However, the foundations for JI are still developing. The Kyoto Protocol has not yet entered into force, institutions are still lacking and countries are working to meet the eligibility criteria to utilise JI. With the rules and procedures still evolving projects can at this moment only be developed as informal JI projects, where the Parties involved agree that the project becomes an official JI project once ERUs can officially be generated.

APPENDIX A: JI-PROJECT EXAMPLE – FUEL SWITCH FROM COAL TO NATURAL GAS IN A COMBINED HEAT AND POWER PLANT

INTRODUCTION

An example project has been invented for the purpose of providing a simplified case study that primarily explains how a baseline could be constructed. This project example involves a heat and electricity supply system based on lignite, where the financial means have been inadequate for maintenance and renovation in the recent past. The location of the project is a small to medium sized city. The running costs of the energy supply and distribution system are high and the energy efficiency low.

The City Council has analysed the situation and can find financial means for investments in the energy supply system that will prolong the technical lifetime of the system, but without significantly improving the energy efficiency and the emissions of CO2 and local pollutants such as particulates.

If additional finance could be raised the City Council would have preferred to invest in a new Combined Heat and Power (CHP) plant using natural gas as a fuel and to expand the district-heating network to cover all the small independent networks in the area. The electricity generated will be provided to the grid.

The City Council has approached a private sector proponent who is interested in developing the CHP plant using Joint Implementation for financing the difference between the preferable project and the affordable project. The project described includes the establishment of the new CHP plant but not the expansion of the district-heating network as this aspect falls outside the project boundary.

PROJECT CHARACTERISTICS

The proposed JI project involves the replacement of the existing lignite-based heat and power supply by a new gas fired combined cycle CHP plant. The amount of power produced by the new CHP project will increase compared to the amount of power generated in the current situation due to the improved efficiency of the CHP plant. The following information can be provided on the project:

1. **Project category**
   Combined Heat and Power, including fuel switch from lignite to natural gas and retrofit of the existing heat distribution system. This results in an increased efficiency of heat and power generation.

2. **Project capacity**
   The project capacity is 250 MW_e and 330 MW_h.

3. **Estimated project output**
   The output of the project is estimated to be 1125 GWh/year electricity and 5346 TJ/year heat with operations in estimated 4500 equivalent full load hours.

4. **Fuel use**
   Natural gas 10 636 TJ/year

5. **Efficiency of technology used**
   The CHP plant will have an average electricity efficiency of 38% and a heat efficiency of 50%. This can be improved by lowering the temperature of the district heating system and running more on full capacity by adding heat storages, but that is not included in the current project.

6. **The technical lifetime of the project**
   The technical lifetime of the project is estimated to be at least 25 years.

7. **The project implementation plan**
   The detailed design of the plant is planned to start at the beginning of 2003. The project will be in operation 1½ year after the final construction permits have been awarded. Therefore, the estimated start date is the second half of 2004.

8. **Starting point of the emissions baseline**
   The starting point of the emissions baseline is set as the planned starting date of operations – 2004.

9. **Description on the actual performance of the facility that is going to be replaced/rehabilitated**
In the current situation heat is produced by the lignite fired CHP plant and the heat-only boilers. Given the financial status of the municipality it is likely that the equipment would have continued to be used until 2012 with incidental replacement of old parts to continue operation.

10. The current lignite fired heat and power plants have an effective capacity of 150 MW electricity and 330 MW heat. It has an electricity efficiency of 25% and a heat efficiency of 55%. The plant is currently running for 4500 equivalent full load hours/year and is producing 675 GWh electricity and 5346 TJ heat per year. The fuel consumption is 9 720 TJ lignite pr. year. Given the age of equipment, it is assumed that the efficiency of the electricity generation decreases to 20% in 2012.

11. Electricity in the country is generated on a mix of nuclear power, coal fired electricity and natural gas. Previous studies have developed a standardised benchmark for the country, which is 560 tCO_2/GWh, and over a 30 year period slowly decelerating to 410 tCO_2/GWh. This benchmark has been accepted by the host government and is applicable for the categories: renewable electricity, CHP electricity and other power generating projects under 100MW.

12. **The sector within the project will be operating**
The project operates in the heat and power sector. The power generated will be connected to the national grid system. The district-heating sector is generally suffering from lack of financing for maintenance and replacement into new plants. The limited funds that are available have not been enough to cover the needs from the entire sector. Investment in new electricity generation capacity in the country is unclear. It is expected that in the long run (2030) the country will switch to natural gas fired power plants.

APPLICATION OF PROCEDURES

In the example the project boundary is set to cover those emissions that are significant and under the control of the project proponent.

Figure 1 – Baseline case

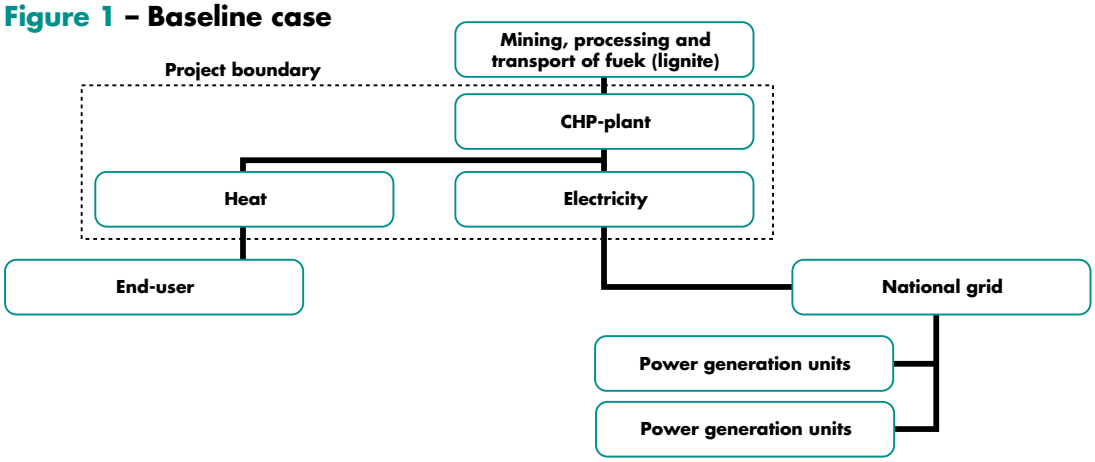


Figure 2 – Project case

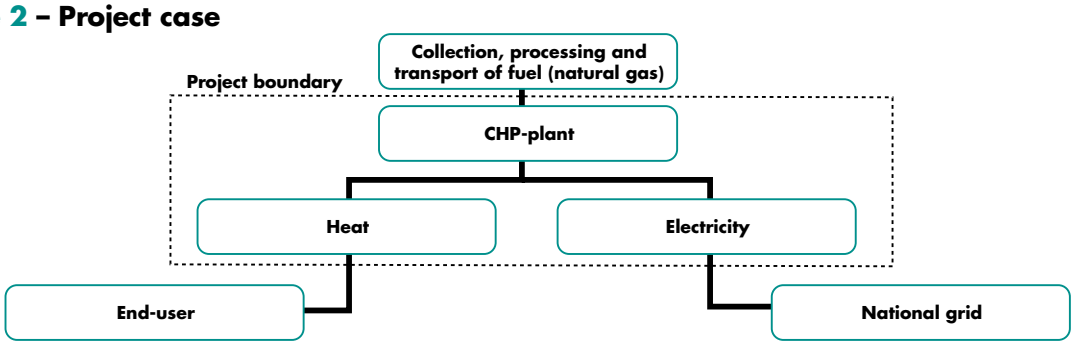


Table 1. Emission sources of the project

Emissions:	Baseline	Project	Status*
Direct on-site	CO_2 emissions related to the lignite consumed by the CHP-plant.	CO_2 emission related to LNG consumed by LNG plant	Significant
	Emission related to implementation of O&M	The emissions related improvements in the heat transport and distribution system	Insignificant
		Emission related construction of plant	Insignificant
Indirect on-site	Emission related to energy used for operation of plant (such as cooling, heating, electricity for equipment)	Emissions related to energy used for operation of plant (such as cooling, heating, electricity for equipment)	Insignificant
Direct off-site	Emissions related to transport of spare parts	Emissions related to transport of equipment of the new plant	Insignificant
	Emission related to transport of fuels	Emission related to transport of fuels	Insignificant
Indirect off-site	Emission related to electricity generation which will be avoided by new electricity generation		

* Note – when the difference between the baseline and project situation is more than 1% of the total emission (reductions) of the project, the source is qualified as significant

Project boundaries and GHG emissions

Figure 1 and 2 depict the project boundaries in the baseline case and in the project case.

The GHG emissions that are under control of the project are shown in table 1. CO_2 is the main GHG emissions source that will be emitted as a result of the project activity – the production of heat and power. The other GHG are not significant and have not been accounted for. On basis of the classification in table 1 it can be concluded that relevant emission sources are:

- CO_2 emission related to fuel consumption of the CHP plant
- Emission related to electricity generation.

BASELINE APPROACH

To compare the CO_2 emissions of the proposed natural gas CHP project with the baseline emissions, the baseline emissions of the project are split into two components:

1. Historic CO_2 emissions related to the lignite CHP plant
2. CO_2 emissions related to the electricity displaced by the extra electricity generated by the natural gas CHP plant.

CALCULATION OF BASELINE EMISSIONS

1. *Historic CO_2 emissions related to the lignite CHP plant:* For the first component, data will be collected from the lignite combustion by the existing CHP plant. Lignite consumption patterns of the past years can be used in combination with the IPCC emission factors for lignite or country specific emission factors for the lignite used, if available. The IPCC default value for lignite is: 10.67 tCO_2/TJ. This makes the CO_2 emissions: 9720 TJ * 106.7 tCO_2/TJ = **1037 $ktCO_2$/year.**

2. *CO_2 emissions related to the electricity displaced by the extra electricity generated by the natural gas CHP plant:* The excess electricity is determined by comparing the electricity generation of the new CHP plant (1125 GWh) with the output of the old facility (675 GWh), which makes 450 GWh per year. This electricity will be supplied to the national electricity grid and thus data on the performance and emissions from other grid connected electricity plants will be included in the baseline. The project could choose to establish a project specific baseline based on approaches in the literature. But given the existence of grid benchmark in the case country (see consideration 11), the standardised carbon emission factor (CEF) of 560 tCO_2/GWh is chosen, which makes the annual CO_2 emissions related to the displaced electricity production: 450 * 560 = **252 $ktCO_2$/year for the first year.** It is assumed for simplicity that there is no net change in the national power demand over the years. It should be noted that this estimate is valid only for the emissions of the first year. In accordance with our assumptions above (cf condition 11) this baseline emissions will decrease over the years to 450*410 = 184,5 kt CO_2/year, when the power system gradually switches to natural gas. The additional emissions reductions and the flow of ERUs will decline accordingly.

BASELINE CONDITIONS

A number of baseline conditions need to be analysed to test the additionality of the project (i.e. would the project have taken place anyway?). As an example, one such condition in Eastern Europe is EU accession. Relevant questions regarding the EU accession and our CHP project are:

What impact will the EU accession have on government budgets?

- The EU may require more budget discipline and thus little government budget available for investment in CHP district heating. It may also reinforce privatisation of district heating and thus making even less government resources available for it;

If EU accession will promote electricity market liberalisation, what impact is that going to have?

- The adoption of legislation to open up the power markets is an important element to further analyse. If natural gas CHP of this scale is perceived by market forces as a competitive technology, the project is not likely to be additional. If on the other hand, CHP is conceived of as not competitive, it is not likely to be part of the baseline and will thus be additional.

If EU accession is going to spur economic growth in our case city and improve investment climate in the case country, what impact will that have?

- Clearly, if it is expected that EU accession will turn out favourably for private sector investment in private CHP plants, our CHP case study might be considered as business as usual and thus not qualify for JI.

What if EU accession is going to lead to tighter local pollution control?

- It may turn out that the old plant would not meet the standards of the new EU environmental legislation. In that case the municipality may be forced to close down the old lignite CHP plant anyway and the calculated CO_2 emissions are not an appropriate baseline. Instead the emissions could be compared to cleaner alternatives such as those from an efficient coal-fired CHP plant.

It is for the project proponent to analyse how future legislation in the case country will affect the project, how EU accession may affect future legislation in the country and how the exact conditions are likely to affect the investment case of this JI project[58].

CALCULATION OF PROJECT EMISSIONS

The calculations of the project emissions are based on an estimate of the total amount of natural gas that will be consumed on an annual basis by the new CHP plant. In order to calculate the total emissions expressed in CO_2 the amount of natural gas consumed has been multiplied with the CEF for the natural gas fuel.

[58] These consequences on scope and conditions for JI of BASREC countries accession to EU will be the subject of future work of BASREC.

It is assumed that the natural gas consumption will remain constant over the total crediting period. This implies that the GHG emissions from the project will remain constant during every year in the defined crediting period. The emission factor for natural gas, taken from the IPCC, is

56.1 tCO_2/TJ. Annual CO_2 emissions of the project are: 10,636 TJ * 56.1 tCO_2/TJ = 597$ktCO_2$.

LEAKAGE

In the example no direct leakage of any significance has been identified. No activities will be outsourced and it is not expected that the demand for heat or electricity will increase due to a more efficient production of heat and power by the project.

There is a risk that a more reliable heat source will result in higher demand and thus higher emissions but also higher electricity production superseding emissions on the large power plants. These considerations have been included in the monitoring plan.

CALCULATION OF EMISSION REDUCTIONS

The net emission reduction for the first year of operation can be calculated as the difference between the baseline emissions and the project emissions. This gives the following results:

Baseline emissions	1,037 $ktCO_2$ + 252 $ktCO_2$
Project emissions	597 $ktCO_2$
Leakage	0 (not applicable)
Net annual emission reductions	**692 $ktCO_2$**

APPENDIX B: REFERENCES

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BMU: Position of the Federal Government Regarding the Introduction of EU. Sep. 2001

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Prototype Carbon Fund of the World Bank, www.prototypecarbonfund.org

UNFCCC (United Nations Framework Convention on Climate Change): Report of the conference of the Parties on its third session, held at Kyoto from 1 to 11 December 1997 (COP 3)

UNFCCC: Report of the Conference of the Parties on its fourth session, held at Buenos Aires from 2 to 14 November 1998 (COP 4). Buenos Aires, 1998

UNFCCC: Report of the Conference of the Parties on its Fifth Session, Held at Bonn from 25 October to 5 November 1999 (COP 5). Bonn, 1999

UNFCCC: Report of the Conference of the Parties on the first part of its sixth session, held at The Hague from 13 to 25 November 2000 (COP 6). Hague, 2000

UNFCCC: Report of the Conference of the Parties on the first part of its seventh session, held at The Marrakech from 29 October to 11 November 2001 (COP 7). Marrakech, 2001

APPENDIX C: RELEVANT HOME-PAGE LINKS

Danish Energy Agency: www.ens.dk

Danish Environment Ministry: www.mim.dk

Danish Environmental Protection Agency: www.mst.dk

Estonian Environment Ministry: www.envir.ee

European Commission – European Climate Change Programme: http://europa.eu.int/comm/environment/climat/eccp.htm

Finnish Ministry of the Environment: www.vyf.fi

Finnish Ministry of Trade and Industry: www.ktm.fi

German Environment Ministry: www.bmu.de

Icelandic Environment Ministry: www.environment.is

Latvian Environment Ministry: www.varam.gov.lv

Lithuanian Environment: www.am.lt

Norwegian Environment Ministry: www.environment.no

Polish Environment Ministry: www.mos.gov.pl

Russian Federation Ministry of Energy: www.mte.gov.ru

Swedish Government: www.sweden.gov.se

Swedish Energy Agency: www.stem.se

Website of the United Nations Framework Convention on Climate Change (UNFCCC): www.unfccc.int

World Bank Group: www.worldbank.com

APPENDIX D: INSTITUTIONS AND RELEVANT CONTACT PERSONS

1. LIST OF UNFCCC FOCAL POINTS

Currently, the website of the Secretariat provides a list of UNFCCC focal points, often these are the authorities that were responsible for AIJ projects. It should be noted that this list is not fully up to date and that not all focal points included in the list automatically serve as official Designated Focal Point for approving projects.

Denmark
Mr. Mikkel Aaroe-Hansen
Ministry of Environment
Danish Environmental Protection Agency
Strandgade 29
DK-1401 København K
Tel: +45 32 66 01 00, Fax: +45 32 66 04 79

Estonia
UNFCCC focal point:
Ministry of the Environment
International Cooperation Department
Mr. Andres Kratovits
Director General
Tel. (+372) 62 62 841
E-mail: Andres.kratovits@ekm.envir.ee

For practical AIJ issues contact:
Ministry of the Environment
Environmental Management and Technology Department
Mrs. Heidi Hallik
Senior Officer
Tel. (+372) 62 73 062
E-mail: heidi.hallik@ekm.envir.ee

Finland
Ministry of Foreign Affairs
Mr. Ismo Ulvila
Finnish Environment Institute
P.O. Box 140
FIN-00251 Helsinki
Phone: 358-9-40300421
E-mail: ismo.ulvila@vyh.fi

Ministry of Trade and Industry:
Mr. Seppo Oikarinen
Energy Department
P.O. Box 32
FIN-00023 Government
E-mail: seppo.oikarinen@ktm.fi

Germany
Joint Implementation Coordination Office (JICO)
Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
Unit: AG Z II 6
11055 Berlin
Contact person: Thomas Forth
Phone: +49 1888 305 – 2357, Fax: +49 1888 305 – 2349
E-mail: Forth.Thomas@bmu.de

Iceland
Co-ordination details for questions regarding JI:
Mr. Halldor Thorgeirsson
Ministry for the Environment
International Affairs
Vonarstadi 4
IS-150 Reykjavik
Tel: +354 560 9600, Fax: +354 562 4566
E-mail: halldor.thorgeirsson@umh.stjr.is

Latvia
UNFCCC Focal Point:
Ministry of Environmental Protection and Regional Development
Officer Department of the Environment Protection
Ms Ingrida Apene
Senior Desk
Peldu Str. 25
LV-1494 Riga
Phone: (371-2) 702-6508
Fax: (371) 782-0442
E-mail: ERNA@varam.gov.lv,
ingrida.apene@varam.gov.lv

Lithuania
The Environmental Quality Department
Ministry of Environment
Str. A. Jaksto 4/9
LT-2600 Vilnius
Fax. +370 52 663663
E-mail: A.Daubaras@aplinkuma.lt

Norway
No JI contact point has been appointed yet.

Poland
Co-ordination details for questions regarding Pilot Programme or JI:
Head of JI-Secretariat Mrs. Jolanta Galon-Kozakiewicz
National Fund for Environmental Protection and Water Management
International Department, JI- Secretariat
Konstruktorska 3 A
PL-02-673 Warsaw
Tel: +48 22 849 2280, Fax: +48 22 849 2098
E-mail: jolantak@nfosigw.gov.pl

Russia
Co-ordination details for questions regarding AIJ:
Head of Roshydromet Mr. Alexandre Bedrtisky
Federal Service for Russia for Hydrometeorology and Environmental Monitoring (Roshydromet)
12, Novovagankovsky Pereulok
123242 Moscow
Tel: +7-095 252 1389, Fax: +7-095 252 2216
E-mail: bedr@mecom.ru

Sweden
Ministry of Environment
Mr Per Rosenqvist
SE-103 33 Stockholm
Phone: +46 8 405 1000

Ministry of Industry, Employment and Communications
Mr Olle Björk
SE-103 33 Stockholm
Phone +46 8 4051000
E-mail: olle.bjork@industry.ministry.se

For information on JI, please also contact:
Swedish National Energy Agency
Mr Klas Tennberg
P.O. Box 310, SE-631 05 Eskilstuna
Phone: + 46 16 544 2000

2. EUROPEAN COMMISSION'S CLIMATE CHANGE PROGRAMME

Commission of the European Communities: Communication from the Commission on the implementation of the first phase of the European Climate Change Programme. Brussels, Oct. 2001. Com (2001) 580 final. (direct link: www.europa.eu.int/eur-lex/en/com/pdf/2001/com2001_0580en01.pdf)

3. SECRETARIAT TO THE UNFCCC

P.O. Box 260124
D-53153 Bonn
Germany
Tel: +49 228 815 1000, Fax: +49 228 815 1999
E-mail: secretariat@unfccc.int
Website: www.unfccc.int

4. NORDIC COUNCIL OF MINISTERS

Nordic Council of Ministers
St Strandstrade 18
DK-1255 Copenhagen K
Denmark
Tel.: +45 33 960200

5. COUNCIL OF BALTIC SEA STATES

Council of Baltic Sea States (CBSS)
CBSS Secretariat
Strömsborg,
P.O. Box 2010
SE-103 11 Stockholm
Sweden
Tel +46 8 440 19 20
E-mail cbss@cbss.st

Country	Population millions		Per capita income (GDP/capita) 1000 USD/cap.		Emissions of GHG Mio. ton CO_2-eq.		GHG/capita Ton CO_2-eq/capita		GHG/GDP Ton CO_2-eq/ 1000 USD		Kyoto Commitments (& EU Commitments under Burden Sharing Agreements) % of base year, 1990
	1999	1999	1990	1999	1990	1999	1990	1999	1990	1999	
Denmark	5,32	5,32	18,4	23,5	69,6	73,2	13,53	13,75	0,73	0,59	- 8 (- 21.01)
Estonia	1,44	1,44	8,5	7,4	40,7	19,9	25,92	13,79	3,06	1,86	- 8
Finland	5,17	5,17	16,6	21,3	75,2	76,2	15,08	14,76	0,91	0,69	- 8 (0)
Germany	82,09	82,09	16,3	21,2	1209	982	15,23	11,97	0,94	0,56	- 8 (- 8.6)
Iceland	0,28	0,28	18,2	24,2	2,6	2,7	10,10	9,64	0,56	0,40	+ 10
Latvia	2,43	2,43	7,5	5,5	35,7	13,4	13,35	5,50	1,79	1,01	- 8
Lithuania	3,70	3,70	5,5	5,9	51,5	26,9	13,85	7,28	2,52	1,23	- 8
Norway	4,46	4,46	18,5	24,2	52,1	56,2	12,29	12,59	0,67	0,52	+ 1
Poland	38,65	38,65	5,1	8,1	564,3	400,3	14,80	10,35	2,91	1,27	- 6
Russia*	10,16	10,16	7,8	6,4	211	116,9	20,50	11,51	2,64	1,78	0
Sweden	8,86	8,86	17,7	20,8	69,4	70,7	8,11	7,98	0,46	0,38	- 8 (4.0%)
Region	162,56	162,56	12,8	16,6	2381,2	1838,7	14,98	11,31	1,17	0,68	N.A.

* This is only the part of Russia that is connected to the Baltic Sea