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The Linking Directive and the Potential for Joint Implementation in the Baltic Sea Region

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Nordic Council of Ministers
Store Strandstræde 18
DK-1255 Copenhagen K
Phone (+45) 3396 0200
Fax (+45) 3396 0202

Nordic Council
Store Strandstræde 18
DK-1255 Copenhagen K
Phone (+45) 3396 0400
Fax (+45) 3311 1870

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Preface

This report examines how the Directive 2004/101/EC of the European Parliament and of the Council (the so-called "Linking Directive") affects the potential for joint implementation projects in the Baltic Sea Region. Joint implementation is a mechanism to reduce greenhouse gas emissions according to the Article 6 of the Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC).

The report was commissioned by the Climate Group of the Nordic Council of Ministers in December 2006 (climate project no. 124). The project leader in the Council was Mr. Bent Andersen from Danish National Environmental Research Institute, University of Aarhus.

The report is based on a literature review and contacts to the relevant government officials. The authors would especially like to thank Ms. Urszula Allam-Pelka (Ministry of the Environment, Poland), Ms. Astrida Celmina (Ministry of the Environment, Latvia), Mr. Jakob Forman (Ministry of the Environment, Denmark), Mr. Vytautas Krusinskas (Ministry of the Environment, Lithuania), Mr. Anthony Pearce (Swedish Energy Agency), Ms. Karin Radiko (Ministry of the Environment, Estonia), Dr. Wolfgang Seidel (Federal Environment Agency, Germany), Ms. Eve Tamme (Estonian Environment Information Centre) and Ms. Sara Viljanen (Ministry of the Environment, Finland). All the conclusions are however those of the authors (see below).

The report has been prepared by Dr. Harri Laurikka, Mr. Juha Ollikainen, Dr. Andrius Tamosiunas and Mr. Aleksi Lumijärvi at GreenStream Network Ltd. during December 2006 – March 2007.

The Climate Change Policy Working Group does not necessarily share the views and conclusions of the report, but looks at it as a contribution to our knowledge about the effects of the Linking Directive on the potential for joint implemention projects in the Baltic Sea Region.

Oslo, April 2007
Jon Dahl Engebretsen
Chairman of the Climate Change Working Group

Abbreviations

AA	Assigned amount
AAU	Assigned Amount Unit
AIE	Accredited Independent Entity
BASREC	Baltic Sea Region Energy Co-operation Council of the Baltic Sea States
BAU	Business As Usuall
CER	Certified Emission Reduction
CDM	Clean Development Mechanism
CO_2	Carbon Dioxide
COP/MOP	Convention of Parties Serving as Meeting of Parties of the Kyoto Protocol
ERPA	Emission Reduction Purchase Agreement
ERU	Emission Reduction Unit
EU ETS	European Union Greenhouse Gas Emission Trading Scheme
GHG	Greenhouse Gas
GIS	Green Investment Scheme
IE	Independent Entity
ITL	International Transaction Log
JI	Joint Implementation
JISC	JI Supervisory Committee
LoA	Letter of Approval
LoE	Letter of Endorsement
LULUCF	Land-use, land-use change and forestry
MoE	Ministry of Environment
MoU	Memorandum of Understanding
NAP	National Allocation Plan
NAP2	National Allocation Plan for the period 2008–2012
NGO	Non-Governmental Organisation
PCF	Prototype Carbon Fund
PIN	Project Idea Note
RES-E	Electricity from Renewable Energy Sources
UNFCCC	United Nations Framework Convention on Climate Change

Summary

The Directive 2004/101/EC of the European Parliament and of the Council (the "Linking Directive") establishes a link between the European Union Greenhouse Gas Emission Trading Scheme (EU ETS) and the project-based mechanisms of the Kyoto Protocol to the United Nations Framework Convention on Climate Change. The Linking Directive allows installations within the EU ETS to use emission reduction units from joint implementation (JI) and certified emission reductions from the clean development mechanism in order to comply with the emission caps in the scheme. This increases the geographical scope of the EU ETS considerably and aims at cost-efficiency.

The Linking Directive also sets provisions for avoiding double counting in determination of emission reductions within the EU. If JI projects reduce emissions of EU ETS installations directly, an equal amount of EUAs must be cancelled by the operators of those installations. If JI projects reduce emissions of EU ETS installations indirectly, an equal amount of EUAs must be cancelled from the national registry of the Member State. These provisions will considerably reduce the potential for JI in EU Member States. This was not foreseen, when the Kyoto Protocol was drafted back in 1997. The Linking Directive has hence significantly changed the position of JI as a mechanism to respond to the emission reduction commitments.

This report examines the significance of the Linking Directive for the JI potential in the Baltic Sea Region. The double counting provisions set by the European Commission for JI host countries are first reviewed. Secondly, the status and implications of the Linking Directive in the countries of the Baltic Sea Region is described. Finally, an overview is given on the country studies and on the total potential for JI, the results are compared with JI potential elsewhere, and the prospects of *Green Investment Schemes* are discussed.

Implementation of the EU Linking Directive has been finalised in seven out of eight Member States in the Baltic Sea Region. The approaches for implementation have been diverse. All EU Member States in the Baltic Sea Region allow JI projects in the non-trading sector. Denmark, Finland, Germany, Latvia and Sweden do not allow JI projects with impacts on the trading sector. Lithuania only allows JI projects having an indirect impact on the trading sector. Poland allows existing JI projects with direct impact, but new projects only with an indirect impact. Estonia in principle allows all kinds of projects.

The EU Member States in the Baltic Sea Region have been well presented in the JI market. There are 33 JI projects having reached the vali-

dation/determination level in five countries (Estonia, Germany, Latvia, Lithuania, Poland). The expected volume of ERUs amounts to 9.3 $MtCO_2e$. This is some 6% of the currently expected volume of ERUs (143 $MtCO_2e$). The magnitude of the current set-asides in draft National Allocation Plans for 2008–2012 is some 33.1 $MtCO_2e$. Some 9.8 $MtCO_2e$ remains available for new projects affecting the trading sector in Poland, although the number is uncertain until the NAP2 is clear.

The Russian Federation is a key player in JI market. Currently, the proportion of Russia is 20% of JI projects and over 50% of the total expected volume of ERUs. In addition, the realistic potential exceeds 250 $MtCO_2e$ and can well be much more depending to a great extent on the institutional set-up.

The Linking Directive has significantly cut the potential for JI in the EU Member States of the Baltic Sea Region. Our estimate is that the potential has been reduced by 70 – 80% assuming the current magnitude of the set-asides and ignoring LULUCF and transport projects.

A conservative estimate on the *remaining potential* for JI in the Baltic countries and Poland is between 50 – 70 $MtCO_2e$. This potential is *not* to be regarded as the *likely supply of ERUs*, which takes into account project-level feasibility and risk factors. In the current situation of the international climate policy, it is clear that unless the remaining potential for JI is tackled quickly, it will not be available anymore.

In this situation, *Green Investment Schemes (GIS)*, in which revenues from international emissions trading of assigned amount units are directed to environmental and/or social projects, may become more attractive for project developers, as the project potential for GIS can to a great extent overlap with the potential for JI. However, GIS can be implemented also with time horizons exceeding 2008 – 2012, which is typically the (current) crediting period of JI projects. This would increase incentives for project developers.

Green Investment Schemes do not affect the potential for JI yet. No schemes have been published in the Baltic Sea Region until now, though there are a few under examination and Latvia is likely to announce a scheme first. The details of the potential schemes and hence their impact on JI are therefore completely open. In the context of the EU ETS, it is likely that any potential GIS will however include projects generating at least other kinds of environmental benefits than greenhouse gas emission reduction (e.g. capacity building, waste water treatment, reduction of SO_2, NO_x and VOC emissions).

1. Introduction

1.1 Background

The Directive 2004/101/EC of the European Parliament and of the Council (the "Linking Directive") establishes a link between the European Union Greenhouse Gas Emission Trading Scheme (EU ETS) and the project-based mechanisms of the Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC). The Linking Directive allows installations within the EU ETS to use emission reduction units (ERUs) from joint implementation (JI) and certified emission reductions (CERs) from the clean development mechanism (CDM) in order to comply with the emission caps in the scheme. This increases the geographical scope of the EU ETS considerably and aims at cost-efficiency. The Linking Directive lowers the price of EU Emission Allowances (EUA), in particular in the period 2008–2012.

The Linking Directive also sets provisions for avoiding double counting in determination of emission reductions within the EU. If JI projects reduce emissions of EU ETS installations directly, an equal amount of EUAs must be cancelled by the operators of those installations. If JI projects reduce emissions of EU ETS installations indirectly, an equal amount of EUAs must be cancelled from the national registry of the Member State.

These provisions will considerably reduce the potential for JI in EU Member States. This was not foreseen, when the Kyoto Protocol was drafted back in 1997. The Linking Directive has hence significantly changed the position of JI as a mechanism to respond to the emission reduction commitments.

1.2 Objective of the Report

The objective of this report is to examine the *significance of the Linking Directive for the JI potential in the Baltic Sea Region*. Relevant aspects to be analysed are e.g. how the Linking Directive and JI related regulation is implemented, how double-counting rules affect the JI potential, how Green Investment Schemes affect JI activities and how climate policy affects the demand for and supply of ERUs.

1.3 Basic Concepts

Joint implementation (JI) refers to Article 6 of the Kyoto Protocol to the United Nation Framework Convention on Climate Change (UNFCCC). JI allows Annex I Countries of the Convention to implement projects that reduce emissions, or increase greenhouse gas removal by sinks, in the territories of other Annex I Countries. Emission reduction units – ERUs – generated by such projects, can then be used by investing Annex I Countries to help meet their emissions targets. To avoid double counting, a corresponding subtraction is made from the host country's Assigned Amount (AA), i.e. the country quota.

JI projects must have the approval of the countries involved, and must lead to emission reductions or removals that are additional to any that would have occurred without the project. This implies that the ERUs generated by a project are effectively calculated by substracting project emissions from counter-factual emissions in the *baseline scenario*. Projects starting from the year 2000 that meet the above mentioned rules may be listed as JI projects. However, ERUs may only be issued after 2008. Implementation of a JI project depends on the institutional framework of the participating countries: if the framework is well-developed and fulfils certain criteria, an easier procedure, the so-called 1st track can be applied. In other cases, JI projects must be implemented in accordance with the procedure and guidelines set and supervised by the JI Supervisory Committee (JISC), the governing body in the UNFCCC.

The future emission reductions from some 150 JI projects have already been traded on the market. It is expected that the number of projects will increase after the official launch of the JI 2nd track procedure on the fifth meeting of the JISC on October 27–28, 2006.

The aim of the *European Union Greenhouse Gas Emission Trading Scheme (EU ETS)* is to help EU Member States achieve compliance with their commitments under the Kyoto Protocol. The EU ETS is a cornerstone in Member States' fight against climate change. It is the first international trading system for CO_2 emissions in the world covering over 11,500 energy-intensive installations across the EU, which represent close to half of Europe's emissions of CO_2. These installations include combustion plants, oil refineries, coke ovens, iron and steel plants, and factories making cement, glass, lime, brick, ceramics, pulp and paper. Each EU Member State needs to determine how the emission reduction commitment is allocated between the EU ETS sector or the *trading sector*, other sectors (*the non-trading sectors*) and the State. This is made in the *National Allocation Plan* (NAP). Currently, the EU Commission is evaluating Member States' draft NAPs for the period 2008–2012 i.e. *NAP2*s.

Division between the trading sector and the non-trading sector also affects JI projects, even on a project level. For example, biogas projects

affect the EU ETS only if the gas is utilised for grid-connected electricity generation or heat generation in larger than 20MW boilers, whereas collection and destruction of methane is free from limitations set by the Linking Directive.

In addition to JI, there is another possibility to trade with emission reductions from identifiable projects: the *Green Investment Schemes (GIS)*. GIS can be relevant in countries, which are net sellers in the context of the Kyoto Protocol. These countries can use Article 17 of the Kyoto Protocol to sell their surplus Assigned Amount Units (AAUs). One option is to establish a Green Investment Scheme (GIS), in which the country sells AAUs, but earmarks the funds for different kinds of environmentally and/or socially beneficial investments. Compared with simple AAU trading between governments, the transparency of GIS regarding the use of the funds may be attractive for buyers.

Another major benefit of GIS compared to JI is flexibility regarding:

- what can be regarded as "green" and "greening"?
- when can such "greening" occur?

Since the UNFCCC does not provide rules or regulations specifically for GIS, a GIS can take a broader, more flexible, and life-cycle perspective on the emission reductions and on other project benefits.

1.4 Contents of the Report

This report will first review the double counting provisions set by the European Commission for JI host countries in Chapter 2. The first references to avoid double counting in the Linking Directive have been specified in a Commission decision (2006/780/EC) on avoiding double counting within the EU ETS.

In Chapter 3, the status and implications of the Linking Directive in the countries of the Baltic Sea Region is reviewed. It is explored how the Linking Directive has been implemented in the EU countries; what kind of procedures are in place for JI projects; and what is the status of JI project development. In selected countries, Estonia, Latvia, Lithuania, and Poland, the outlook for the emerging Green Investment Schemes is also briefly evaluated. In the case of Estonia, Latvia, Lithuania, and Poland, the potential for JI and changes in it due to the Linking Directive are reviewed based on the existing literature. The situation in Russia is also looked at as a reference to the situation in the EU Member States.

Chapter 4 makes an overview on the country studies and the implications of the Linking Directive on the potential for JI. The results are compared with JI potential elsewhere in Europe. Chapter 5 concludes.

2. Provisions for a JI Host Country within the EU

According to the Commission's recent Decision (2006/780/EC), EU Member States *must* present in their second national allocation plans a set-aside table for the projects that will cause *trading sector project-reductions*. Trading-sector project reductions are defined as reductions or limitations in emissions of installations falling under the emissions trading directive (2003/87/EC) due to project activities for which a Member State hosting the project activity issues emission reduction units (ERUs) or certified emission reductions (CERs). The Commission has determined in detail how the set-aside table shall look like (Annex I of the Decision).

Member States *may* include in NAP2 another set-aside for trading sector project-reductions for which it *intends* to issue a Letter of Approval. Again, the Commission has determined in detail how the set-aside table shall look like (Annex II of the Decision). Planned project activities using the same methodology to reduce emissions for which no Letter of Endorsement has been issued yet may be grouped together under one column in the set-aside table.

The set-aside tables shall be made available on the publicly accessible website of a Member State's registry.

ERUs and CERs that represent trading-sector project-reductions may be issued up until 31 December 2012. The preconditions for doing this are:

- each such issuance is preceded by the conversion of an equivalent amount of allowances from one of the set-asides into AAUs; and
- the Commission is informed thereof.

If the allowances in the "obligatory" set-aside are not converted into AAUs, they may be sold to the market or, in the case of a direct impact to an EU ETS installation, issued to the installation. If the allowances in the "voluntary" set-aside are not converted into AAUs, they must be cancelled.

If a Member State wishes to approve JI projects as a host country after the deadline for the submission of the national allocation plan, it must inform the Commission thereof prior to the issuance of the Letter of Approval. The information must include an independent verifier's report stating that the project does not result in double counting.

3. Country Reviews

3.1. Denmark

Denmark has implemented the Linking Directive as an amendment to the Law on CO_2 allowances[1]. The amendment[2] entered into force on July 1st, 2005. In addition, an order[3] was given in April 2006 to guide the approval process of JI projects.

The Act defines that projects considered as carried out in Denmark in order to generate JI credits may only be initiated and implemented after receiving a "permit" i.e. the Letter of Approval from the Minister of the Environment. A permit may be given only if carried out by a physical or legal person not domiciled in Denmark. The application for the permit must be written in Danish or English and include the following documentation:

- the Project Design Document;
- the determination report;
- Letter of Approval of the investor country, if available;
- CVs for the applicant's personnel involved in project implementation;
- applicant's references for similar projects;
- the latest financial statements of the applicant; and
- report on the compliance of the project with the prevailing Danish climate strategy.

JI projects which directly or indirectly limit greenhouse gas emissions from EU ETS installations may not receive permits. Furthermore, the permit may not be given if the project is considered to be in conflict with Danish law, EU law or international commitments, including guidelines, procedures and modalities adopted pursuant to the UN Climate Convention and the Kyoto Protocol. The permit may be refused if the Minister of the Environment determines that the applicant does not possess the necessary technical or economic requirements and therefore may not be considered as qualified to carry out the project. The application handling fee is some EUR 5 400.

The potential for JI in Denmark's territory seems very small due to the ban on direct and indirect impacts on the EU ETS installations and the

[1] Law no. 493 of 9 June 2004 on CO_2 allowances.
[2] Law no. 410 of 1 June 2005
[3] Order no 386 of 27/04/2006

ban on F-gas emissions. There are no on-going JI projects in Denmark, no Letters of Approval have been issued and there are no applications waiting for the Letter of Approval.

Status of ji in a nutshell – Denmark

Designated Focal Point:	Danish Ministry of the Environment Environmental Protection Agency Strandgade 29 DK-1401 Copenhagen K Denmark Mr. Jakob Forman Phone:+45 32 66 02 26, +45 32 66 01 00 Fax:+45 32 66 04 79 Email: jaf@mst.dk
Status of Legislation	Amended law on CO2 allowances in force since July 1st 2005 (Law no. 410 of 1 June 2005) Order 386 of 27/04/2006 in force since May 14th 2006 (“Bekendtgørelse om ansøgning om tilladelse til projekter og godkendelse af JI- og CDM-kreditter”)
Number of JI projects in the country territory	0 at determination level 0 in the JISC procedure 0 given LoAs
Volume of Expected ERUs in the country territory (Mt)	0 at determination level 0 in the JISC procedure 0 given LoAs

3.2. Estonia

Estonia has transposed the Linking Directive into the legislation through a new Ambient Air Protection Law. It was adopted in March 2007.

The Environmental Management and Technology Department of the Estonian Ministry of the Environment is the Designated Focal Point for JI in the country. It co-operates in the climate policy issues with the Climate and Ozone Bureau of the Estonian Environmental Information Center, which operates under the administration of the Ministry of the Environment. In the case of the Testing Ground Facility, the focal point co-operates with the Ministry of Economic Affairs and Communication.

The government of Estonia approved a National Programme for the Reduction of GHG Emissions in 2002. A Commission on the Kyoto Protocol Flexible Mechanisms was established in the end of 2003 under the government of Estonia. The Commission includes representatives of the major ministries, biggest enterprises and NGOs.

The government’s attitude toward JI is positive. Also the EU ETS related projects are supported if the requirements of the Linking Directive are fulfilled. Additionally, Estonia has been willing to allow early crediting in JI projects.

Despite the positive attitude, there are no formal JI procedures in Estonia. JI Guidelines have been drafted and will soon (some issues are still

waiting for clarification) be submitted to the UNFCCC secretariat. In the end of 2006 the Designated Focal Point had granted the official Letter of Approval (LoA) for 6 projects, expected to generate approximately 1.5 MtCO2e GHG emission reductions until 2012. Additionally, 9 projects had been granted a Letter of Endorsement (LoE) by that time.

In practice, the JI approval procedure is a typical two-step procedure.

- *Project Idea Note (PIN) and the Letter of Endorsement (LoE):* In the first stage a PIN is required in order to receive the LoE from the Ministry.
- *Project Design Document (PDD), validation / determination report, Emission Reduction Purchase Agreement (ERPA) and the Letter fo Approval (LoA)***:** In the second stage the project proponent shall prepare the PDD, carry out the validation / determination, and negotiate the ERPA, in order to receive the LoA. In addition, the Ministry may require additional information on the project before granting the LoA.

Moreover, in order to get the LoA the buyer country (or the country that has authorized a private entity to carry out a JI project) must have signed a Memorandum of Understanding (MoU) with the government of Estonia. Currently Finland, Denmark, Netherlands, Sweden and Austria have signed a MoU with Estonia.

In the set-asides of its revised draft NAP2[4] Estonia has allocated 0.94 MtCO2e for approved projects (with LoA), and 9.2 MtCO2e for JI projects on earlier phases of development indicating a JI potential of about 10 MtCO2e for the period 2008–2012 within the EU ETS sector, mainly electricity generation based on renewable energy sources. Of the approved projects' set-aside, 0.80 MtCO2e has been allocated for wind power, and 0.15 MtCO2e for biomass and biogas projects. Of the projects not yet approved 3.37 MtCO2e has been allocated for 8 wind power projects with incomplete documentation, about 4.86 MtCO2e for other windfarms, 0.91 for 3 biogas projects and 0.06 for 2 hydro projects.

The draft NAP2 states that a number of new wind power JI projects is expected to be initiated during the coming years and, in the case they are eligible, they will be considered in the frame of the second trading period. The current set-aside of not approved projects includes about 500 MW wind power capacity. In addition to this, planning of 5 offshore wind farms is on-going. *The NAP2 states that they will most probably be included in the set-aside.*

As the finalization of the NAP2 and the set-asides will close the window for JI projects affecting the trading sector, the remaining JI potential in addition to the previously mentioned projects and amounts is limited to

[4] Numbers for the set-aside are from the updated version, which was released on February 6th 2007 and sent to the Commission.

sectors with no impacts on the trading sector. Of these, the most potential sectors are probably fossil fuel substitution by wood fuels in heat only boilers, and landfill gas capture projects. The former sector could have an emission reduction potential of around 0.5 $MtCO_2e$ annually. The estimate is based on ECON (2002) and includes fossil-fuelled boilers between 1–20 MW. Boilers below 1 MW are assumed to be too small to be implemented as JI projects. If we assume that these projects could be realized by 2009 at earliest, they could theoretically generate approximately 2 $MtCO_2e$ until 2012.

Table 1. JI potential in Estonia from the perspective of the Linking Directive and the set-asides in the Estonia's draft NAP2.

Identified JI Potential				
Impact of Linking Directive and NAP2 on potential	**Type of impact on EU ETS**	**Sector/measure**	**Potential ($MtCO_2e/a$)**	**Type of estimate*, additional notes and sources in ()**
No potential	Direct	N/A	N/A	N/A
	Indirect	Wind power	1.3 (at least)	Wind power projects included (or to be included) in the set-asides (Estonian NAP2 proposal)
		Other RES-E	0.2	Approved or endorsed projects (biomass, biogas, hydro) included in the Estonian set-asides (Estonian NAP2 proposal)
	Case dependent	Biomass	0.5	Fossil fuel substitution by wood fuel in heat boilers, maximum technical potential (REC 2005)
		Agriculture biogas (energy use)	N/A	-
No limitations	Not any	Landfill gas	0.0	Based on ECON (2002), Keskonnaministerium (2006)
		Agriculture biogas collection and destruction	N/A	-

* "JI potential" means potential estimated to be exploitable by JI. Only part of the other potentials is feasible for JI.

According to ECON (2002), emission reductions from landfill gas capture projects could possibly amount up to 0,4 $MtCO_2e$ until 2012. In principle these projects could be realized and would not have any impacts on the EU ETS (assuming that only methane capture and destruction is included in the JI potential). However, the Directive 1999/31/EC, which Estonia will implement until 16th July 2009, regulates that landfills should have gas capture systems. Therefore, these projects are likely to be treated as baseline projects, and additionality is difficult to prove.

There are no concrete plans for GIS in Estonia yet. Preliminary discussion has been carried out with some potential buyers.

Status of ji in a nutshell – Estonia

Designated Focal Point:	Ministry of Environment Environmental Management and Technology Department Narva mnt 7a 15172 Tallinn Estonia Ms. Karin Radiko Tel. +372-626 2977 Fax. +372-626 2801 Email. karin.radiko@envir.ee
Status of Legislation	Ambient Air Protection Law adopted in March 2007
Number of JI projects in the country territory	11 at determination level 3 in the JISC procedure 6 given LoAs
Volume of Expected ERUs in the country territory (Mt)	3.1 at determination level 1.1 in the JISC procedure 1.5 given LoAs

3.3. Finland

The government of Finland has implemented the Linking Directive through two acts. Firstly, the government amended the Emissions Trading Act (683/2004) in February 2007. The amendments specified the emissions allowance allocation criteria included in the draft NAP2. The bill also included guidance on how the Linking Directive should be implemented in Finland. According to the bill, it is not possible to implement JI projects that directly reduce GHG emissions of EU ETS installations in Finland.

However, this bill does not state whether it is allowed to implement other kinds of JI projects in Finland. This has been dealt with in the second Act on the Use of the Kyoto Mechanisms (109/2007)[5], which was also approved by the Parliament and entered into force in February 2007.

The Designated Focal Point for JI is the Ministry of the Environment. Within the country territory, the Ministry may only allow JI projects that do not affect the trading sector at all. Several other preconditions have been specified, such as:

- the investor country has ratified the Kyoto Protocol and has a commitment in Annex B of the Protocol;
- the applicant is a legal person domiciled in Finland;
- the applicant has a solid financial standing and a real possibility to participate in the project;

[5] http://ji.unfccc.int/JI_Parties/Parties/Documents/Finland1.pdf

- the project fulfils the requirements set by the Kyoto Protocol; the decisions of COP/MOP; the article §11 b 6 of the EU ETS directive; and it can otherwise be regarded as feasible;
- the project is not in conflict with the Finnish legislation; and
- there is an acceptable plan for verification of the emission reductions

Unless there is a letter of approval from the investor country, Finland's letter of approval is conditional for reception of such an approval. Finland's letter of approval includes an authorisation to participate in the project. The authorisation is valid during the period, in which the applicant can receive ERUs. In the case of multiple organisations participating the project, authorisations are given separately for each entity.

The Ministry of the Environment approves the verifiers that can be used in JI projects. The verifiers do not need to be AIEs or accredited verifiers of the EU ETS. The verifiers need to fulfil the following requirements:

- the verifier is a registered legal person in Finland or in another EEA country or a part of such a legal person;
- the verifier is functionally and economically independent on the project;
- the verifier has the necessary financial resources for the verification process and for the potential compensation for damage;
- the verifier has the necessary equipment, devices, tools and information management systems;
- the verifier has enough of qualified personnel for the estimation of greenhouse gas emissions of the project to be verified;
- the verifier has a sufficient knowledge on the JI-related regulations and decisions in the UNFCCC and the Kyoto Protocol.

The Ministry of the Environment may in its approval of the verifier set conditions for the verification process. The Ministry may also set more specific rules or guidance on monitoring of the emissions, monitoring reports, verification reports, approval process of the verifiers, evaluation of the requirements on the approval, and on implementation of verification.

When the verifiers are carrying out tasks related to public administration, the verifiers need to follow the laws regulating the publicity of state administration[6].

There are no JI projects on-going in Finland, and there are no applications for LoE/LoA under review.

[6] Laws 621/1999, 13/2003, 434/2003 and 423/2003.

Status of ji in a nutshell – Finland

Designated Focal Point	Ministry of the Environment Environmental Protection Department PO Box 35 FIN 00023 Government Finland Ms. Kristiina Isokallio Director, Central and East European Cooperation Phone: +358 20 490 7360 Fax: +358 9 1603 9515 Email: kristiina.isokallio@ymparisto.fi
Status of Legislation	Emissions Trading Act (683/2004) Act on the Use of the Kyoto Mechanisms (109/2007)
Number of JI projects in the country territory	0 at determination level 0 in the JISC procedure 0 given LoAs
Volume of Expected ERUs in the country territory (Mt)	0 at determination level 0 in the JISC procedure 0 given LoAs

3.4. Germany

The Linking Directive has been implemented in Germany through an Act on the introduction of project-based mechanisms in accordance with the Kyoto Protocol[7], which entered into force on September 30th, 2005. According to the Act, JI projects within the territory of Germany are possible with the following conditions:

- Germany and the investor country comply with the eligibility requirements for the JI First Track.
- the project documentation conforming to the requirements of the Kyoto Protocol and the Marrakech Accords[8] and the objectively and accurately prepared validation report indicate that the project is expected to achieve an additional emission reduction;
- the project activity does not cause any severe adverse environmental impacts;
- there are no facts to justify the assumption that the project initiator is unable to offer the required guarantee for proper implementation of the project activity; and
- the investor country is willing to admit project activities within its national territory under comparable conditions.

Approval will be granted for a limited period, at maximum until 31 December 2012. The Designated Focal Point is the Federal Environmental Agency (Umweltbundesamt, UBA).

[7] Projekt-Mechanismen-Gesetz (ProMechG): Gesetz zur Einführung der projektbezogenen Mechanismen nach dem Protokoll von Kyoto, zur Umsetzung der Richtlinie 2004/101/EG und zur Änderung des Kraft-Wärme-Koppelungsgesetzes.

[8] See Appendix B to the Annex to decision 16/CP.7 of the COP to the UNFCCC.

The Act says that if a project activity directly or indirectly reduces emissions of greenhouse gases of an EU ETS installation, then "*the reduction in emissions shall form part of the baseline emissions*" when calculating the emission reduction. A similar treatment is applied, if the project receives public funding the purpose of which is other than "*to safeguard investments*". Public funding in this context covers the remuneration of electricity according to the Renewable Energy Sources Act and the premium payable for electricity from combined heat and power installations according to the Heat-Power Cogeneration Act.

These provisions are important, since they basically approve generation of ERUs only to the extent, where a project does not affect the trading sector. Indeed, Germany has not planned to include any set-asides for JI in its NAP2.

Letter of Approval will be granted upon submission of a written application by the project initiator to the competent authority (the Federal Environmental Agency, Umweltbundesamt). The application must include:

- the project documentation; and
- the validation report.

The project documentation must be prepared according to the Marrakech Accords, and any prevailing more specific guidance related to these. The competent authority will confirm receipt of application and the documents, and advise the project initator within two weeks, if any additional documents or information are needed. The project documentation and the name and address of the Accredited Independent Entity will be published. Decision on the approval will be made within 2 months after the reception of all documents. The cost of the LoA depends on the size of the project: for projects less than 250 000 ERUs in total, it will cost between EUR 250–3750, for projects larger than 250 000 ERUs in total, it will cost EUR 0,015 per ERU, however not more than EUR 19 500[9].

Verification reports must be confirmed by the Federal Environment Agency. An application must be written to the Agency including the monitoring report and the verification report. This will be made if:

- the project activity was undertaken in accordance with the project documentation on which approval was based, and in particular, the monitoring report complies with the requirements of the validated monitoring plan;
- the verification report was prepared accurately and objectively; and
- the verification report indicates that double counting on the basis of direct or indirect emission reductions, or double crediting on the basis of public funding are excluded.

[9] Projekt-Mechanismen-Gebührenverordnung (ProMechGebV), November 16th, 2005.

The project initiator and the accredited independent entity appointed to conduct verification shall be given an opportunity to voice their opinions on the material facts of the confirmation.

Immediately following confirmation of the verification report, the Federal Environment Agency will notify the registry. The registry administrator shall transfer the verified and confirmed number of ERUs to the account designated by the project initiator. The same fees as in the case of LoA are applied for the confirmation of the verification reports.

There are three JI projects in validation/determination phase in Germany, all reducing methane emissions. In the end of 2006 the Federal Environmental Agency was reviewing 60 proposed JI projects within the country territory. This number includes applications for LoA and requests for preliminary assessment. Most of the projects are mine gas projects in North Rhine Westphalia. The other projects are dealing with fuel switch or energy efficiency. All the projects have raised various questions (concerning technical, methodological and legal matters, e.g. regarding additionality and combined effect of several environmental policy instruments).

Until the end of 2006 Germany had approved two JI projects within the country territory. Decisions on the mine gas projects were expected in the second quarter of 2007. Regarding the other PINs further procedures were expected to depend on additional documents and information required from project developers.

Status of ji in a nutshell – Germany

Designated Focal Point	Federal Environment Agency German Emissions Trading Authority (DEHSt) PO Box 33 00 22 14191 Berlin Germany Dr. Enno Harders Head of Department E 1 Email: enno.harders@uba.de Dr. Wolfgang Seidel Head of Division E 1.5 Email: wolfgang.seidel@uba.de Phone: +49 30 8903 5050 Fax: +49 30 8903 5103
Status of Legislation	Act on the introduction of project-based mechanisms ("ProMechG") in force since September 30th 2005> Order on the fees related to project mechanisms (ProMechGebV) in force since September 30th, 2005
Number of JI projects in the country territory	3 at determination level 1 in the JISC procedure 2 given LoAs
Volume of Expected ERUs in the country territory (Mt)	1.0 at determination level 0.3 in the JISC procedure 0.7 given LoAs

3.5. Latvia

Latvia's JI strategy[10] from the year 2002 defines the institutional framework for project identification and attraction of investors, and specifies JI related responsibilities. Latvia implemented the JI related regulations including the Linking Directive on February 7th, 2006[11]. According to the strategy Latvia actively pursues to identify JI projects. The Latvian JI project cycle is as follows:

- *Project Idea Note (PIN) and endorsement:* the project developer submits a PIN to the Latvian Ministry of the Environment (MoE), which evaluates the PIN and sends feedback to the project developer within 14 days. If MoE requires improvements in the PIN, an adjusted PIN has to be resubmitted within 14 days.
- *Project submission and public commentation:* After MoE has supported the project with no further proposals or objections, project developer has 90 days to prepare and deliver a project submission to MoE. A project submisson contains descriptions on the baseline, expandability[12] and monitoring. Within 7 days after MoE has accepted the project submission, it publishes the submission for public commentation for 30 days. Within a time period of 7 days after the end of the commenting period, MoE informs the project developer of the comments received and specifies a time limit by which the comments shall be evaluated and, where necessary, taken into account. The project initiator adjusts the project submission accordingly.
- *Validation* is performed by an inspection authority, which submits a validation report to the project developer and MoE within 30 days after reception of the project submission.
- *Host Country Approval:* After reception of the validation report, MoE prepares a project submission to be examined by the Monitoring Committee, an interministerial organ chaired by MoE. The committee provides a proposal for the project approval to MoE, which finally approves the project.
- *Implementation and monitoring* are supervised by MoE. Monitoring reports shall be submitted to an inspection authority, which submits verification reports to MoE, who finally assigns the ERUs.

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[10] Latvia's JI strategy is lined in two statements adopted in 2002: "Concept on the Implementation of JI Projects under the Kyoto Protocol to the UN aFramework Convention on Climate Change, 2002 – 2012" and "Strategy of JI Projects under the Kyoto Protocol to the United Nations Framework Convention on Climate Change for 2002 – 2012".

[11] Cabinet regulation No 115 Adopted 7 Feb 2006: "Regulations Regarding Implementation of Project Mechanisms under the Kyoto Protocol to the United Nations Framework Convention on Climate Change and Activities Related to Allocation and Utilisation of Emission Reduction Units, Certified Emission Reduction Units, Removal Units and Assigned Amount Units".

[12] "A document in which a project initiator has compiled the requirements prescribed by regulatory enactments in the field of environmental protection, technological, technical or financial information regarding the measures planned for the implementation of the project." (See Footnote 9 above) .

In order to implement a JI project in the Latvian territory, the investor country must sign a Memorandum of Understanding with Latvia. By the end of 2006 Latvia had signed JI related co-operation agreements with Denmark, Austria, Germany, the Netherlands and Finland.

The Latvian regulations do not restrict JI projects affecting the EU ETS emissions, but potential project proposals affecting the trading sector will be evaluated separately. However, the Latvian NAP2 proposal does not include any set-aside for JI projects, because for now the country has not admitted any Letter of Approvals. Unless this is changed in NAP2, it will not be possible to receive any ERUs through reduction of emissions in the trading sector in 2008–2012 (see Section 2).

Table 2 and Table 3 summarise the JI potential in Latvia from the perspective of the Linking Directive and the set-asides in the Latvia's draft NAP2.

Table 2. JI potential in Latvia from the perspective of the Linking Directive and the set-asides in the Latvia's draft NAP2.

Identified JI Potential				
Impact of Linking Directive and NAP2 on potential	**Type of impact on EU ETS**	**Sector/measure**	**Potential ($MtCO_2e/a$)**	**Type of estimate*, additional notes and sources* in ()**
No potential	Direct	N/A	N/A	N/A
	Indirect	Wind power	0.92	Potential under coal-fired power generation baseline (REC 2005), no potential, unless set-aside is established
		Small hydro	0.05	Potential under coal-fired power generation baseline (REC 2005), no potential, unless set-aside is established
No limitations	Case depend-ent	Biomass	0.2	Potential under oil baseline (REC 2005)
		Agriculture biogas (energy use)	0.07	Potential under oil baseline (REC 2005)
	Not any	Landfill gas	0.65	JI potential (ECON 2002)
		Agriculture biogas collection and de-struction	0.6	JI potential (ECON 2002)

* "JI potential" means potential estimated to be exploitable by JI. Only part of the other potentials is feasible for JI.

Table 3. GHG emissions in Latvia in 2010 in accorcance with BAU scenario presented in NAP2 and recogniced JI potential.

Sector	Estimate on GHG emissions, annual average in 2008–2012 ($MtCO_2e/a$)	Recognised emissions reduction potential
Sectors covered by the EU ETS	4.1	Potential capped at 0 Mt/a by the set-asides
- Energy generation	3.0	1.0
- Industrial processes	0.3	
- Other	0.8	
Sectors not covered by EU ETS	10.7	
- Energy generation	0.8	0.2
- Industrial processes	0.2	
- Commercial and institutional, residential and Agricultural energy use	1.6	
- Transport	4.2	
- Agriculture	1.8	0.6
- Waste management	1.1	0.7
- Other	1.0	

Hydro and wind power projects would reduce energy sector's emissions indirectly, but the current NAP2 proposal does not include set-asides for reducing emissions from the trading sector.

Biogas and biomass potential could be utilised with no effect on the trading sector as far as projects target heat-only production in boilers below 20 MW. There should be JI potential for conversion of small district heating boilers from oil to wood, but quantitative estimates on the potential are missing. In any case, the potential for such projects is limited, because only 0.8 Mt of energy sector's emissions are outside the EU ETS. Energy generation, agriculture and waste management seem to be the most relevant sectors for JI projects. The remaining sectors cannot be regarded as attractive for JI. Typically, projects are not large enough.

Currently, one JI project has been implemented in Latvia – Liepaja municipal waste management project – and JI projects on biogas collection in agricultural farms are planned in the near future.

Latvia may be one of the first countries, which will establish a GIS scheme. World Bank has finalised a study discussing the options on the design of the Latvian GIS scheme. Latvia intends to make national decisions on the GIS design and start negotiations with potential buyers during the first half of 2007. In the middle of March 2007, the Latvian ministry of environment was announced to be publishing a proposal for a GIS in forthcoming weeks. According to preliminary information, the funds from AAU sales are planned to be directed into renewable energy, energy efficiency and education of climate issues. The government will channel funds in large projects, but also smaller project can receive funding through pooling. While the proposal is discussed between ministries,

ministry of the environment will prepare secondary legislation including more details than the current proposal. Austria, Belgium, Finland, Japan and the Netherlands have expressed their interest to purchase AAUs from Latvia.

Status of ji in a nutshell – Latvia

Designated Focal Point:	Ms. Astrida Celmina Head of Pilot Projects Implementation Division Department of Climate and Renewable Energy department Ministry of Environment Peldu str. 25, Riga, Republic of Latvia Phone: (+371) 7026 538 Fax: (+371) 7820 442 E-mail: astrida.celmina@vidm.gov.lv
Status of Legislation:	JI project cycle including the Linking Directive has been implemented by the Cabinet regulation No 115 (adopted 7 Feb 2006)
Number of JI projects in the country territory	1 at validation/determination level 0 in the JISC procedure 0 given LoAs
Volume of Expected ERUs(Mt)	0.38 at validation/determination level 0 in the JISC procedure 0 given LoAs

3.6. Lithuania

Lithuania has implemented the Linking Directive into the national legislation through two orders. The first order[13] regulates JI project cycle management. It forms the legal basis for procedures in the JI cycle and determines the responsibilities of state institutions. Another order[14] sets the legal basis for inventory, issuance and trade of emission units.

The European Commission made a decision on the Lithuanian NAP2 proposal on November 29 of 2006, which required the country to cut the allowance allocation by 47%. Lithuania is currently working with the required changes with the Commission, and has already submitted a revised proposal. It is expected that the Lithuanian NAP2 will get its final form soon.

All the regulations above indicate that there is no possibility to do JI projects directly affecting the EU ETS sector in Lithuania.

Lihuania aims to integrate the current emissions trading legislation by implementing a new act. The Ministry of the Environment, in cooperation with the Lithuanian Environment Protection Investment Fund, will prepare a law proposal on the management of Lithuania's obligations to reduce emissions. Before the act itself, a concept document for the strategy is planned and prepared. The law proposal, which is planned to be

[13] the Order of Minister of Environment on the approval of the rules for JI projects implementation (No D1-183, April 1, 2005)

[14] Order of the Minister of Environment (No D1-542, November 11, 2005)

finalised during the fourth quarter of 2007, should cover all Kyoto mechanisms including JI management and regulation procedures. The law is planned to be an upper level act compared to the acts currently used. At the moment the first, confidential draft of the law proposal is under preparation.

Ministry of the Environment is the Designated Focal Point. It is responsible for:

- Coordination of JI implementation including development of the related legal framework;
- Decisions on JI projects in cooperation with relevant institutions;
- Organisation of monitoring for JI projects;
- Developing criteria for JI projects;
- Reporting to the UNFCCC on JI related issues.

JI projects in Lithuania must follow the procedure below:

Issuance of Letter of Endorsement (LoE) (at maximum 60 days):

1. The project owner prepares and submits a PIN to the Ministry of the Environment (MoE). If the JI project is related to the energy sector, the PIN shall also be submitted to the Ministry of Economy.
2. MoE forwards the PIN to a National Institution (NI), which is authorized by MoE to act as an Independent Entity (IE). The Lithuanian Environment Investment Fund (LEIF) has been authorized to act as a NI.
3. A supervision council under LEIF reviews the PIN and provides its recommendations to LEIF.
4. LEIF formulates its conclusions on the PIN and submits them to MoE. LEIF may use 45 days to evaluate the PIN. If the JI project is related to the energy sector, conclusions on the PIN are also required from Ministry of Economy in a parallel 45-day process. Ministry of Economy informs MoE in writing about its conclusions regarding the PIN.
5. MoE prepares a final conclusion on the PIN. MoE informs the project owner, and potentially issues a Letter of Endorsement, not later than 15 days after the date LEIF submitted its conclusions.

Issuance of Letter of Approval (LoA) (at maximum 105 days):

1. The project owner prepares a PDD and submits it to the authorized independent entity as well as to LEIF for information.
2. The independent entity validates the PDD. In parallel to the validation, the PDD is provided for public consultation for not less than 4 weeks by the independent entity.

3. The independent entity prepares a validation report and submits it to the project owner and to LEIF (recommended) within six to eight weeks from the date of order of validation;
4. LEIF publishes the validation report on its website for 45 days.
5. If no comments are received within the 45-day period, LEIF officially informs the project owner and issues the Letter of Approval. Letter of Approval shall be issued not later than 45 days after the publication of the validation report. LEIF submits a copy of the LoA to MoE and MoEc (if the JI project is related to the energy sector). In parallel, data on the JI project is registered by LEIF in the national emissions registry.

Project implementation

1. The project owner may start project implementation. The project owner is responsible for monitoring of emission reductions according to the requirements;
2. The project owner has a right to hire an independent entity for monitoring and accounting;
3. Monitoring reports must be submitted at least once a month to the independent entity (and to LEIF as a recommendation) for review;
4. Based on the monitoring results, the independent entity prepares a verification report and submits it to LEIF;
5. Received verification reports shall be published for 15 days on the website of the independent entity (and of LEIF as a recommendation);
6. If no comments are received, the verification report is submitted to LEIF's review and further approval by the JI Supervisory Committee;
7. Upon the approval of the report by the JI Supervisiory Committee, ERUs are registered in the national emissions registry.

The Lithuanian NAP2 proposal, in its current form, states the following related to the JI potential in the country:

- JI projects might result in an emission reduction of 0.24 $MtCO_2e/a$;
- A set-aside of 0.2 million allowances per annum is reserved for JI projects affecting the EU ETS sector;
- An emission factor of 0.629 tCO_2/MWh_{el} is applied for projects affecting grid-electricity.

Currently there is at least one project at validation, which indirectly affects the trading sector. This wind power project cuts about 46 000 allowances (or about the fourth) from the proposed reserve. It therefore seems to that there is no room for many new similar JI projects. Tables 3 and 4

summarise the Lithuanian JI potential from the perspective of the Linking Directive and the set-asides.

Table 4. JI potential in Lithuania from the perspective of the Linking Directive and the set-asides.

		JI Potential Identified		
Impact of Linking Directive and NAP2 on potential	**Type of impact on EU ETS**	**Sector/measure**	**Potential ($MtCO_2e/a$)**	**Type of estimate*, additional notes and sources* in ()**
Exploitation of potential not possible	Direct	Renowation of existing power generation capacity	some (at least 2 relevant targets for JI)	JI potential (ECON 2002)
Potential capped at 0.2 Mt/a	Indirect	Wind power	0.1	Potential (REC 2005) under the baseline proposed in NAP2
		Small hydro	0.9	Potential (REC 2005) under the baseline proposed in NAP2
	Case dependent	Biomass	Low	The indications of MoE
		Solar energy	0.4	Potential under oil baseline (REC 2005)
		Geothermal energy	0.2	Potential under oil baseline (REC 2005)
		Landfill gas (energy use)	0.01	Potential under oil baseline (ECON 2002)
No limitations		Energy efficiency measures in various sectors	4.1	Potential under oil baseline (REC 2004), most of the potential probably not relevant for JI, because of small size of potential project
		Improving district heating systems	not quatified	JI potential (ECON 2002)
	Not any	Landfill gas (collection and destruction)	0.6	JI potential (ECON 2002)
		Reduction of N_2O emissions	1.0	Own estimate

- ‘‘JI potential’’ is potential estimated to be exploitable by JI. From other potentials only part is feasible for JI.

Table 5. GHG emissions in Lithuania in 2010 in accorcance with BAU scenario presented in NAP2 and recognised JI potential (changes in land-use and forestly are excluded from the table).

	Estimate on 2010 emissions (BAU, excluding closure of Ignalina Plant), MtCO2e/a	Recognised JI potential
Sectors covered by the EU ETS	20.5	Potential capped at 0.2 Mt/a by the set-aside
- Energy sector	9.0	max. 0.2 Mt/a
- Industry	7.2	N/A
Sectors not covered by EU ETS	13.9	
- Energy sector	1.4	up to 0.5 Mt/a
- Industry	2.8	1.0 Mt/a
- Transport	4.7	
- Other combustion of fuel	1.6	
- Agriculture	1.7	
- Water treatment	0.3	
- Waste management	1.3	0.6 Mt/a

In the second period of the EU ETS slightly over half of Lithuania's GHG emissions fall under the EU ETS: about 86% of energy sector's emissions, and 72% of other industrial sectors' emissions will be covered.

Under the prevailing circumstances JI projects in the trading sector do not seem to be possible. Projects with only indirect impacts on the trading sector can typically be found in the energy sector. These include for example renewable electricity and demand side energy efficiency projects. Their potential is limited at 0.2 Mt/a by the set-aside.

There seems to be some potential for JI in the sector outside the EU ETS. This includes possibilites to increase utilisation of geothermal energy, energy efficiency projects, agricultural projects and waste management projects. However comparatively small BAU emissions do not indicate a significant potential in the relevant sectors for JI. Information on the biomass potential contradict, but the potential is probably very small. During the last few years MoE has warned companies in the energy sector that the biomass resources for industrial purposes are inadequate.

Currently four JI project have reached the validation stage. Projects are based on landfill gas utilisation, tail gas flaring, biomass energy and wind power. Projects will produce 181,000 ERUs per year in total and 45 000 per year on average.

In the end of 2006 there were no concrete plans to implement a GIS in Lithuania. One reason for that is that MoE and the Ministry of Economy have no sufficient human resources with relevant expertise to develop a

strategy and plan for the GIS. GIS is mentioned only in one act[15], the main purpose of which is to set strategic directions towards implementation of JI[16].

Status of ji in a nutshell – Lithuania

Designated Focal Point:	Ministry of Environment A. Jakšto 4/9 LT-01105 Vilnius Lithuania Ms. Jurga Rabazauskaite Senior Desk Officer of Air Division Environment Quality Department Phone: +370 5 266 3508 Fax: +370 5 266 3663 Email: j.rabazauskaite@am.lt
Status of Legislation:	JI projects cycle (including requirements of the Linking Directive) is regulated by Order of Minister of Environment on the approval of the rules for JI projects implementation (No D1-183, April 1, 2005). The country plans to implement a higher level act on the Kyoto mechanisms in 2007 in order to summarise the current regulation.
Number of JI projects in the country territory	5 at determination level (as of March 2007) 3 in the JISC procedure (as of March 2007) 0 given LoAs (in the end of 2006)
Volume of Expected ERUs in the country territory (Mt/a)	1.0 at determination level (as of March 2007) 0.5 in the JISC procedure (as of March 2007) 0 given LoAs (in the end of 2006)

3.7. Poland

Point Carbon's and Vestis Environmental Finance's rating of JI host countries (December 2006) ranks Poland as the third interesting host country for JI.

The formal regulation for JI including legislation implementing the Linking Directive is not in place yet. However, the related legislation is under development and the country has already established well developed infrastructure for JI. Noteworthy is that Poland is not going to issue Letters of Endorsement (LoEs) or Letters of Approval (LoAs) for JI-projects until the legislation is in force.

Currently the Ministry of the Environment is preparing a law[17] implementing the JI procedures and the Linking Directive. The law will be a

[15] Order of Ministers of MoE and Moeconomy on strategic directions and distribution of functions among state institutions for implemenatation of JI mechanism as to Kyoto Protocol of UNFCCC, No D1-279/4-193, May 19, 2004.

[16] Legal act No D1-183, April 1, 2005, sets detailed procedures for JI cycle implementation and administration.

[17] „Law on the certified emissions units, the emissions reduction units as well as allocated emissions allowances and also on the national inventory and forecast of emissions of green house gasses, also emissions trading as well as other emitted substances".

key document in implementation of the Kyoto mechanisms in Poland. It is expected that the law is adopted during the first half of 2007.

Poland's JI Focal Point is the Department of Global Environmental Issues and Climate Change of the Ministry of the Environment (MoE). Project approval is under responsibility of the Department of Environmental Protection Instruments (DEPI) of the MoE. JI Secretariat is in the National Fund for Environmental Protection and Water Management (NFEP&WM). The secreteriat has an advisory role in JI projects. It reviews the proposed projects and prepares recommendations for the Ministry. In accordance with the draft law the National Administrator managing the registry for European Union Allowances (KASHUE) will take responsibility for JI projects cycle administration from the NFEP&WM.

Polish JI procedures[18] include the following steps and responsibilities:

1. *Memorandum of Understanding (MoU)/Letter of Intent (LoI) between Poland and an investor country***,** is under responsibility of Department of Foreign Funds Management (DFFM) and Department of Environmental Protection (DEP) of Ministry of Environment (ME).
2. *Preparation and evaluation of a project proposal* is under responsibility of the JI Secreteriat. The Secreteriat prepares the proposal together with project's participants and selected Polish authorities. It also submits the proposal to the Minister of Environment for approval.
3. *Preliminary approval*. Relevant Polish authorities comment the proposal. Also external experts may be included. Finally, Minister of the Environment makes a decision on the approval.
4. *Annex to MoU/LoI* includes specification of responsibilities of parties and determination of necessary documention (for example baseline, credit shares and schedule for the project are specified).
5. *Project implementation and monitoring* is under responsibility of the JI Secretariat and the project participants.
6. *Reporting phase* consists of report preparation for the UNFCCC, acceptance report by the investor country, submission of the report to the Ministry of Environment for approval, registration of approved report by the JI Secretariat and delivering the approved report to UNFCCC and project parties.

Poland will admit a Letter of Approval only for projects, where the country of the buyer has relevant agreements with Poland. Poland has Memoranda of Understanding or other agreements targeting cooperation in JI projects with Canada, Finland, Denmark, Japan, Prototype Carbon Fund

[18] For more information, see http://www.climate.pl/pages/english/polishjisecretariatd.htm. (The transfer of the resposibility of the project cycle managemet may affect the responsibilities under the project cycle).

(PCF) and the Baltic Sea Region Energy Co-operation Council of the Baltic Sea States (BASREC).

The Polish NAP2 proposal includes a set-aside of 1.8 $MtCO_2$/a for JI projects affecting the emissions covered by the EU ETS. The reserve is earmarked for already approved or endorsed projects. In addition the NAP2 includes a set-aside (reserve for auctioning) of 2.6 $MtCO_2$/a proposed to be utilizable for JI projects not yet approved, and only with an indirect impact on the EU ETS. However, the latter part is in contrast with the EC guidelines, which require the set-asides to be determined specifically for JI and EUAs cancelled, not auctioned, if there are not enough of JI projects (see Section 2). In its decision on March 26th 2007, the Commission decleared:

> "According to its national allocation plan and the replies to the questions from the Commission, Poland has approved such [JI] projects and has indicated that pursuant to Article 3(1) of Decision 2006/780/EC a set aside is proposed to be established. However, the Commission considers at this stage that there is no sufficient reassurance that all double-counting effects of relevant project activities have been included by Poland in this set-aside. In particular, project activities involving methane capture lead to double counting if the methane is combusted to generate electricity. Poland is obliged to correctly implement Article 11b of the Directive and Decision 2006/780/EC by including all double-counting effects of relevant project activities in and thus increasing the size of this set-aside and by notifying the Commission thereof."

Table 6 summarises JI potential in Poland from the perspective of the Linking Directive and set-asides in the Poland's draft National Allocation Plan for the second period of the EU ETS.

Proposed set-asides would make it possible to implement JI projects affecting the trading sector up to 4.4 $MtCO_2$/a in total. Some 2.6 $MtCO_2$/a is left for new JI projects.

Poland has also potential for JI projects outside the trading sector, for example, part of biomass and geothermal energy potential. The Polish district heating sector has about 1000 coal-fired heat only boilers, from which many do not fall under the EU ETS. There is also some potential for biogas projects in waste management and farming sectors.

Technical potential for geothermal energy in Poland has been estimated at 50–420 TWh/a (IGES 2006, NC4 of Poland 2006). Under oil baseline this could yield an emission reduction of 15–120 $MtCO_2e$. According to experts, part of the potential could be suitable for JI (IGES, 2006; REC, 2004). However, feasible potential in the context of JI remains unclear. Geothermal applications can be implemented only in a limited territory containing a limited number of relevant heating sources. The NC4 of Poland to the UNFCCC states that deep location of underground geothermal water deposits further limits the use of the potential. Currently the total capacity of existing geothermal applications in Poland is 34 MW_{th} (indicating about 0.2 TWh in terms of energy use).

Table 6. JI potential in Poland from the perspective of the Linking Directive and the set-asides.

Impact of Linking Directive and NAP2 on potential	Type of impact on EU ETS	Sector or measure	Potential recognised by literature reviewed, $MtCO_2e/a$	Type of estimate*, additional notes and sources* in ()
Potential capped at 4.4 Mt/a (max 2.6 Mt/a for new projects)	Direct	Coal to gas switch in electricity generation	60–80	Technical potential (ECON 2002, IGES 2005)
	Indirect	Wind power	2.5	JI potential under coal baseline (ECON 2002, IGES 2005)
		Small hydro	1.25	JI potential under coal baseline (ECON 2002, IGES 2005)
	Case-dependent	Biomass	85	Derived from technical potential of 250 TWh/a, coal baseline (ECON 2002)
No limitations		Measures in district heating sector	> 3	JI Potential (ECON 2002)
		Geothermal energy	> 15	JI Potential (ECON 2002, IGES 2005)
	Not any	Landfill gas (collection and destruction)	1–3	JI potential (ECON 2002)
		Mining (degasification of hard coal beds)	1.0–1.2	REC (2004), own calculations
		Agriculture (manure management)	limited	JI potential is limited because of fragmentation of farming (IGES 2005)

* "JI potential" means potential estimated to be exploitable by JI. Only part of the other potentials is feasible for JI.

Degasification of hard coal beds offer the highest emissions reduction potential in the mining sector (REC 2004). The total potential is estimated at 80 m3/a, of which 12 m3/a is currently captured. Capture and destruction of the rest would generate an emissions reduction of 1 MtCO2e/a. In addition, energy use of the captured gas (680 000 MWh/a) could reduce emissions by around 0.2 $MtCO_2e/a$.

Currently Poland does not have official decisions either on implementing or developing a GIS. The Polish government is however considering this option as one of the possible solutions for managing AAUs surplus. The decision depends also on bilateral talks and negotiations with interested Parties to Kyoto Protocol. The draft law and selected other provisions would enable development of a GIS in Poland.

Status of ji in a nutshell – Poland

Designated Focal Point:	Ministry of the Environment Department of Global Environmental Issues and Climate Change Wawelska 52/54 St. 00-922 Warszawa Mr. Jacek Jaśkiewicz Tel.: (+48 22) 57 92 656 Fax: (+48 22) 57 92 463 e-mail: Department.of.Global.Environmental.Issues.and.Climate.Change@mos.gov.pl
Status of Legislation:	The Polish Emissions Trading Law (entered into force in the beginning of 2005) Law of managing emissions allocations (not yet in force, will implement linking directive)
Number of JI projects in the country territory	13 at determination level 3 in the JISC procedure 9 given LoAs
Volume of Expected ERUs in the country territory (Mt)	4.0 at determination level 0.9 in the JISC procedure 2.9 given LoAs

3.8. Russia

Russia, unlike the other Baltic Sea Region countries reviewed in this report, does not participate in the EU ETS. However, Russia is an important benchmark in the context of JI due to its large potential for JI projects.

This potential may become available, if Russia will fulfil the requirements set by the UNFCCC to participation in JI projects and the Kyoto Mechanisms in general. At the moment, many preconditions for JI, such as the denomination of a Designated Focal Point, are still missing. An intergovernmental meeting involving five Russian ministries has been reported to agree on the details of JI procedures on December 29th, 2006. According to the agreement, the Ministry of Economic Development and Trade will be the Designated Focal Point. The draft procedure has been reviewed by ministries and submitted to the government for approval. It has been expected that the procedures could be adopted by the government in March 2007.

Potential regarded as "realistic" exceeds 50 million ERUs per annum, and probably well over. The proposed JI procedures (see above) do not include any restrictions to the volume. IGES (2005) has described the potential based on the Russia's Third National Communication (NC3). NC3 outlines two programs which would generate annual GHG emissions reduction of 330 MtCO2e in total by increasing use of natural gas, energy efficiency measures in consumption and distribution, establishing less GHG intensive capacity and optimizing energy generation. IGES (2005) assumes that considering the financial and administrative difficulties of the Russian state, it is highly possible that the programs will be

realised only partly. It is unclear which part of the described potential could be exploited by JI, but JI potential could range in hundreds of $MtCO_2$ per year. Karmali (2004) has presented similar range of the potential and separated it into different sectors (Table 7) conclusion on potential.

Table 7. JI potential in different sectors in Russia (Karmali 2004).

Sector	JI potential in MtCO2e/a
Power generation	150
District heating	10
Coal Mining	13
Natural Gas	79
Iron and Steel	55
Aluminum	10
Landfills	4
Total	320–380

Recent estimates are more cautious. IGES (2005) has estimated that the due to the institutional problems, its possible that only 30 $MtCO_2$/a can be utilised in Russia and Ukraina together. RAO UES, controlling some 70% of the Russian power production ja 30% of heat production has estimated that its emission reduction potential 2008–2012 is some 20 Mt/a, of which advanced projects represent some 3 Mt/a (Petrovsky 2005). ICF International (2006) states that there is a potential of around 100 million ERUs' generation annually in Russia. Kajaste (2006) has presented a little lower figure, realistic JI potential in the range of 50–60 $MtCO_2$/a.

Currently, ERUs of some 13.8 Mt/a are in the validation/determination phase in Russia, of which five (representing some 11.1 Mt/a) have entered the verification procedure under the JISC.

GIS

The concept of GIS was originally developed in order to green Russian AAU surplus. The country would have a very large amout of AAUs to sell, and a GIS scheme could be a useful tool in attracting the buyers. The first report on a Russian GIS was developed already in 2002[19].

The process to establish a GIS has been progressing slowly in Russia, but the recent developments have been promising. The most optimistic estimates suppose that Russia could achieve eligibility to sell AAU:s during 2008.

Negotiations on the GIS have been iniatied by potential buyers of AAUs, whereas the Russian government has been less enthusiastic. There

[19] Climate Strategies (2002). A Russian Green Investment Scheme: Securing Environmental Benefits from International Emissions Trading.

are several barriers hampering the implementation of the GIS scheme. In contrast to most other CEE countries, Russia has no legislative act to be used for managing AAUs by the government. Authorities' responsibilities on the Kyoto related issues are unclear yet, and divided between several ministries and agencies. A representative of the World Bank has stated that the awareness on the Kyoto mechanisms in general and on their opportunities is low, and there is not enough of analytical work on the strategies to manage the AA (Avenchenkov 2006).

Russia has also faced some problems in achieving eligibility for AAU trading. Russia submitted its initial report under Article 7, paragraph 4, of the Kyoto Protocol to the UN secretariat in late February 2007 and after the date UN has 16 months to decide on the approval of the report or changes to be required. Russia has also suffered some problems in establishing the registry, but now Federal Centre for Geological Systems (the administration of the registry) has stated that the Russian registry could be connected to the International Transaction Log (ITL) in summer 2007. It has been estimated that Russia could solve problems with the eligibility relatively easily, if there was a political will and consensus to do that.

In 2005, the World Bank made some €550,000 available for a study on a GIS in Russia. The World Bank has presented e.g. the following thoughts on the potential GIS design in Russia:

- A special consideration should be given to the impact of GIS to the inflation rate;
- GIS should be connected to one of important reforms envisaged to be implemented by the Government (municipal sector, for example);
- GIS could be connected to the energy safety concept, which has currently been on the agenda of G-8;
- GIS should be flexible to ensure financing of both public and private sector projects and partnerships using market friendly instruments;
- GIS should be flexible to accommodate bilateral and multilateral negotiations and preferences in implementation.

The government of Russia did not endorse the project, and in the beginning of December 2006, the World Bank decided to put the project on ice. However, it left door open for Russia to continue with the negotiations. Russia is currently considering potential GIS concepts, but any fast steps on the issue are not expected. If the Russian government agrees on a concept, the preparation of a governmental act begins. On January 11th, 2007, the Ministry of Industry and Trade was reported to submit a revised proposal on GIS to the government apparatus. On January 26th the prime minister of Russia finally signed a decree, which allowes MEDT to agree with the World Bank on initiation of the feasibility study on GIS. It also gives MEDT responsibility to implement activities under the agreement.

Status of ji in a nutshell – Russia

Designated Focal Point:	Not yet in place (expected in Q2/2007)
Status of Legislation:	Legislation not yet in place (expected in Q2/2007)
Number of JI projects in the country territory	31 at determination level 23 in the JISC procedure 0 given LoAs
Volume of Expected ERUs in the country territory (Mt by 2012)	72 at determination level 64 in the JISC procedure 0 given LoAs

3.9. Sweden

Sweden has implemented the Linking Directive through an amendment[20] of the act on emissions trading. The amendment, which is in force since July 1st 2006, was preceeded by a memorandum[21].

According to the act, the Swedish government or an organisation denominated by the government (projektmyndigheten) can determine:

- preconditions for participation in JI projects;
- issuance of ERUs; and
- the use of ERUs for compliance in the EU ETS.

The Designated Focal Point in Sweden is the Swedish Energy Agency (Energimyndigheten). The Agency is therefore responsible for authorisation of private companies to participate in JI and for the approval of projects. The Agency can authorise Swedish companies and foreign companies with an account in the Swedish emissions trading registry. The Agency has published an order[22] on the approval of JI and CDM projects in December 2006.

Sweden expects to be eligible for track 1 JI, but has decided to use the determination and verification procedure of the Joint Implementation Supervisory Committee (JISC). An application for implementing a JI-project in Sweden therefore requires:

- mandatory permits and documentation required by Swedish law for the project;
- a project design document (PDD) adhering to the criteria in the Kyoto protocol and subesequent decisions thereunder, including relevant decisions by the JISC;
- a preliminary determination by an accredited operational entity according to provisions by the JISC;

[20] SFS 2006:643
[21] De projektbaserade mekanismerna enligt Kyotoprotokollet och länkdirektivet Ds 2005:19.
[22] STEMFS 2006:4

- other information required in an application template downloadable at the website of the Agency[23]. These include e.g. information on the buyer of the ERUs.
- in the case of hydro power projects exceeding 20 MW the applicant must show that the project fulfils the relevant international and Swedish standards[24].

The Swedish Energy Agency has estimated that there will not be a high number of JI projects, if any, in the country territory. Measures to reduce greenhouse gas emissions are expected to become expensive, and the double counting provisions reduce the potential significantly. Sweden has made no set-aside for JI projects that affect the emissions trading sector in its NAP2 proposal. The government of Sweden has assessed that the probability of such projects is very small, because most projects do not fulfil the additionality requirement. For example, it is difficult to show that wind power projects are additional in Sweden, since there are a number of other policy instruments aimed at reducing emissions.

Status of ji in a nutshell – Sweden

Designated Focal Point:	Department of Energy System Analysis and Climate Change Swedish Energy Agency P.O. Box 310 SE-631 04 Eskilstuna Mr. Anthony Pearce Phone: +46 16 544 22 53 Fax: +46 16 544 20 99 Email: fp-ji@energimyndigheten.se
Status of Legislation:	The law amending the law on trade with CO2 allowances in force since July 1st 2006 (SFS 2006:643) Swedish Energy Agency's order 2006:4
Number of JI projects in the country territory	0 at determination level 0 in the JISC procedure 0 given LoAs
Volume of Expected ERUs in the country territory (Mt)	0 at determination level 0 in the JISC procedure 0 given LoAs

[23] www.stem.se

[24] These refer to WCD (2000) and Swedish Committee for Water and Dam Issues (2005).

4. Overview on JI Potential

4.1. Aggregated Potential

In this Section, the potential for JI in the Baltic Sea Region is summarised based on the country reviews in Section 3. It is however important to define more specifically first what is understood with "potential". The total potential in EU member states consists of the potential affecting the trading sector (areas A, B and C in Figure 1) and the potential that does not affect the trading sector (areas D and E in Figure 1). The EC guidelines for double counting exclude some of the potential (area A) in the trading sector by requiring the set-asides to be determined. Hence, the remaining potential in the trading sector (area B) is given by the set-aside less the current project pipeline affecting the trading sector (area C). The remaining potential in the non-trading sector (area D) is given by the potential less the current project pipeline in the non-trading sector. In the following, we will therefore differentiate between:

- the total potential i.e. A+B+C+D+E;
- the potential after participation in the EU ETS i.e. B+C+D+E; and
- the remaining potential after the existing project pipeline i.e. B+D

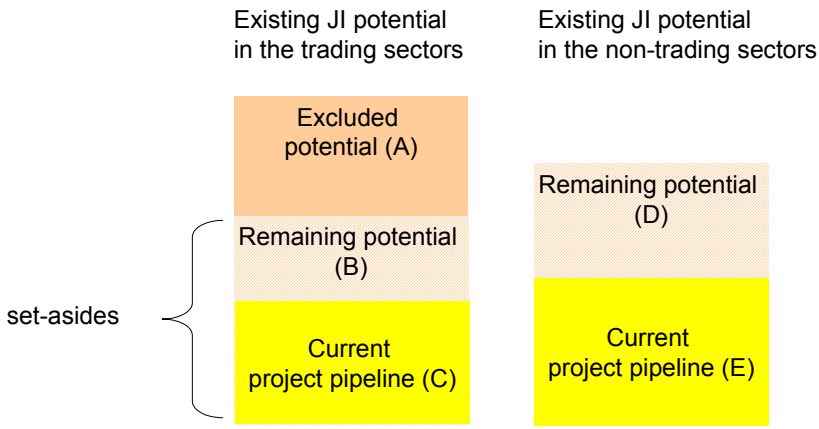

Figure 1. Potentials for JI in EU Member States.

Furthermore, the conventional distinctions between theoretical, technical and economic potentials must be noted. In the following, the term "potential" is used partly with different level of accuracy. Potentials B, C, and E

are given with high accuracy[25], whereas information on A and D only allows a rough estimation of the magnitude of the feasible potential. The latter excludes all project-level feasibility and risk factors, such as public acceptance, lack of financing etc. which must be evaluated or may be encountered during the project development. Therefore, potential D is not to be regarded as "realistic potential". Potential A is included only to a limited extent in order to evaluate the overall impact of the Linking Directive on JI potential.

In the current JI project pipeline, there are 33 projects[26] in the EU Baltic Sea Region, which have reached validation / determination level. This is some 21% of the total number of 158 JI projects. The projects will generate some 9.3 million ERUs, which is only around 6% of the total expected volume of ERUs (143 million ERUs) from validated/determined projects. The proportion of Russia is 20% of JI projects and over 50% of the total expected volume of ERUs.

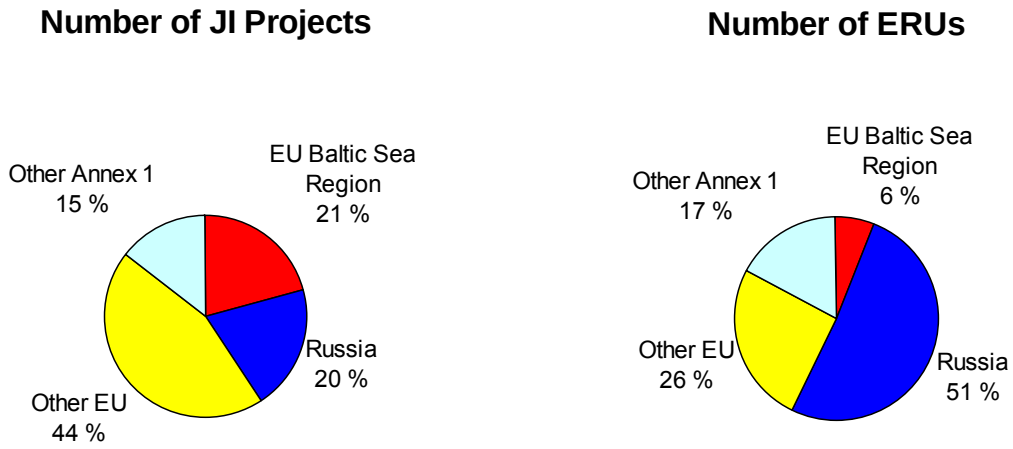

Figure 2. EU Baltic Sea Region and Russia in the current JI project pipeline (validated or determined projects as of March 14th, 2007), Sources: UNEP Risø and Worldbank.

According to GSN's estimate, some 6.5 million tonnes of the current project pipeline affects the trading sector (= area C in Figure 1), whereas some 2.7 million tonnes is obtained from the non-trading sectors (= area E). Based on the recent information from NAP2s, the set-asides informed to the Commission amount to some 33.1 million tonnes. This leaves for the remaining potential in the trading sector some 26.5 million tonnes. However, it must be noted that this figure to a significant extent includes projects that are not in the validation phase yet, but have already been initiated and/or received a Letter of Endorsement from host countries. In other words, the remaining potential for *new* projects affecting the trading

[25] Note however that the estimate is based on draft NAP2s.

[26] The estimate is based on the database of UNEP Risø Centre as of March 14th, 2007. The Liepaja Solid Waste Management Project in Latvia has been added to the numbers.

sector is according to GSN's estimate *at maximum* some 9.8 Mt. This number must further be considered very uncertain until NAP2s are clear, since the draft NAP2s presented have not necessarily taken into account the Commission's guidance on the double counting provisions (see Section 2).

Therefore, the remaining potential for new JI projects can mainly be found in the non-trading sector (= area D). Such project types are e.g.

- plant rehabilitations or fuel conversions in combustion installations smaller than 20 MW_{th};
- abatement of methane (CH_4) emissions without electricity production; and
- industrial projects to reduce nitrous oxide (N_2O) emissions.

The potential in the non-trading sector was analysed here in Estonia, Latvia, Lithuania, and Poland. A conservative estimate on the remaining potential in the non-trading sector (Potential D) of these countries amounts to some 40–60 Mt, of which the majority is in Poland (Table 8).

Table 8. JI Potential in selected EU Member States 2008 – 2012.

Country	Projects Validated / Determined (C+E)				Set-asides	Remaining potential (B)		Remaining Potential (D)
	All[1] (Number)	All[1] (Mt)	Non-EU ETS (E in Mt)	EU ETS (C in Mt)	(B+C) (Mt)	PINs (Mt)	New (Mt)	(conservative estimate, Mt)
Estonia	11	3.0	0.1	2.9	10.1	7.2	0	1 – 2
Latvia	1	0.3	0.3	0	0	0	0	4 – 6
Lithuania	5	1.0	0.6	0.4	1.0	0.6	0	8 – 10
Poland	13	4.0	0.8	3.2	22.0[3]	18.8[3]	9.8[3]	30 – 40
Germany	3	1.0	1.0	0	0	0	0	N.A.[2]
TOTAL	33	9.3	2.7	6.5	33.1	26.6	9.8	≈ 40 – 60

1) Sources: UNEP Risø and Worldbank
2) Not explored here
3) Depends on the final form of the NAP2

The estimate (40–60 Mt) must be treated with caution for several reasons. First, the data on which the estimate is based, is partly incomplete and out of date. Second, the estimate must be regarded as 'conservative' compared to some numbers presented in the literature. Third, the estimate does not take into account any project-level feasibility or risk factors, which are necessary in order to map "realistic potential". In particular, it is questionable if and how long there are enough incentives at the project-level to initiate projects: in the current climate policy context (JI crediting period 2008–2012, no post-Kyoto agreement) the window of opportunity to implement JI projects is closing rapidly.

Fourth, the potential in the non-trading sector in Germany was not explored. Germany's emissions outside the trading sector amount to some

1670 Mt during 2008–2012 (BMU, 2006). Even a small percentage reduction of this figure might increase the potential estimated above considerably. The focal point in Germany has been reviewing over 50 JI projects, mostly abating methane emissions. If the projects fulfil additionality and other requirements of Germany, the volume from these projects might be over 10 Mt. Further, there may also be some, but limited, opportunities for JI in Denmark, Finland and Sweden.

Finally, the estimate and discussion above has excluded opportunities for some project types, in particular land-use, land-use change and forestry (LULUCF) projects and projects in the transport sector. The reasons and outlook for these are briefly discussed in Section 4.2.

4.2. Remaining Potential by Project Type

The estimated remaining potential for JI (Areas B + D in Figure 1 ≈ 50 – 70 Mt) comprises renewable energy projects and projects to reduce methane and nitrous oxide emissions (Figure 3).

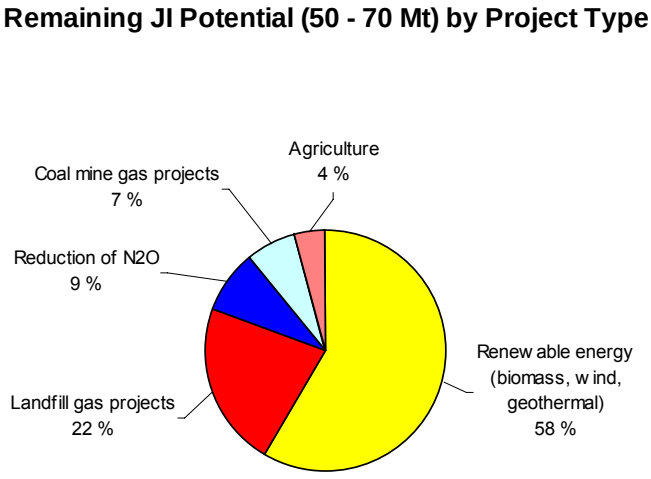

Figure 3. Estimated remaining JI potential by project type.

In the above discussion, the opportunity to apply certain project types, such as land-use, land-use change and forestry (LULUCF) projects and projects in the transport sector, for JI has been omitted. The basic reason for this is that the practical applicability and attractiveness of these project types for JI remains unclear. Until now, there is only one JI project in the LULUCF sector and none in the transport sector.

Also, the Linking Directive does not allow the use of ERUs from forestry activities in the EU ETS[27]. In other words, only Parties to the Kyoto

[27] Article 11a.3 of the directive 2003/87/EC: All CERs and ERUs….may be used in the community scheme….except for CERs and ERUs from land-use, land-use change and forestry activities

Protocol can use ERUs from LULUCF projects for compliance, which further limits the number of interested investors.

Possibilities to accomplish JI projects related to Article 3.4 of the Kyoto Protocol (e.g. forest and cropland management) depend on the decision of the host country to utilize Article 3.4. This Article allows, in the first commitment period, an Annex I Party to choose if it takes into account the measure above in calculation of the Assigned Amount.

The literature reviewed contained following notions on afforestation in the the Baltic countries and Poland. The development plan of *Estonian* forestry anticipates afforestation of 300 000 ha of unused agricultural land, which will increase sinks approximately 1.3 Mt by 2020. *Latvia* has more than 500 000 ha unmanaged agricultural land. In accordance with the "with measures" scenario (NC4 of Latvia) anticipated state support should create an afforestation volume of 1 000 ha per year. In the "with additional measures" scenario, all suitable unmanaged agricultural land, (200 000 ha) and land covered by shrubs (40 000 ha) will be afforested by 2020. This would imply afforestation of 16 000 ha per year. Estimated difference of forest-related sinks between these scenarios is about 1.8 $MtCO_2$ in 2015. Afforestation is also a part of the *Lithuanian* Long-term Development Strategy. According to its NC4, *Poland* has adopted a national program with a target to increase Poland's forest cover from 28% to 30% by 2020. This would require an afforestation of 680 000 ha, and increase sinks of about 3 MtCO2 by 2020. It has been assumed that JI could be used as part of this effort (IGES 2005).

The fact that the Baltic countries and Poland have afforestation/reforestation programs in place may raise questions on additionality of LULUCF related JI activities in the countries. The literature reviewed included hardly any discussion on the issue. It is therefore open, if and how JI projects connected to the programs, or overlapping with the programs, could be considered additional.

The transport sector emissions in the Baltic Sea Region countries amounted to 264 Mt in 2004, of which two thirds was emitted in Germany and 16% in the Baltic countries and Poland. It has been estimated that the JI potential e.g. in Polish public transport sector alone amounts to some 3 Mt (IGES 2005). In the context of JI, transport sector projects face however several sector-specific challenges, such as cost of emission reductions, level of transaction costs, monitoring of emission reductions, and overlap with other public financing.

4.3. Impact of the Linking Directive

In order to estimate, how much the Linking Directive has affected the potential for JI in the EU Baltic Sea Region, it is possible to examine the

change in the volume of GHG emissions in the likely sectors for JI. With the following assumptions:

- JI potential in the area is mainly found in the Baltic countries and Poland;
- JI in the transport sector, as well as in the case of agricultural soils and land-use, land-use change and forestry is unlikely due to the low current activity; and
- after the Linking Directive the remaining JI potential is determined by set-asides and opportunities to reduce CH_4 and N_2O emissions as well CO_2 in energy installations smaller than 20 MW_{th}; and

As set-asides partly determine the remaining JI potential, their magnitude effectively determines the significance of the Linking Directive. Based on the premises above, it can be concluded that the scope for emission reduction projects – ignoring the set-asides – in the EU Baltic Sea Region decreased by around 80–85% due to the Linking Directive. If the magnitude of the current set-asides is taken into account, the scope for JI has decreased by around 70–80%.

This kind of an analysis gives only an indicative figure for the magnitude of the impact, a more precise estimate would need to be made with a bottom-up analysis, which was beyond the scope of this study.

The significance of the EU Baltic Sea Region as a host for JI projects depends less on the Linking Directive and the magnitude of the set-asides than on the factors affecting JI potential elsewhere. The JI potential of the EU Baltic Sea Region (≈ 70–90 Mt) is fairly small compared with the uncertainties concerning, in particular the JI potential in Russia and Ukraine. In Russia alone, the realistic potential exceeds 250 Mt and can well be much more depending to a great extent on the institutional set-up, which is until now not there. The total potential from JI has been estimated at 450–2800 Mt without impacts on the EU ETS installations and 1 100–3 450 Mt with indirect impacts on the trading sector (IGES 2005). These numbers are based on the recognised emissions reduction potential suitable for JI. Estimates on the likely ERU supply are substantially smaller: Point Carbon (2005) expects some 250 Mt of ERUs into the market. This estimate is partly based on the development of the JI *market* (or growth rates of the number of different types of projects in different phases of development), partly on potential estimates in selected sectors.

5. Conclusions

Implementation of the EU Linking Directive has been finalised in seven out of eight Member States in the Baltic Sea Region (Table 9). The approaches for implementation have been diverse. All EU Member States in the Baltic Sea Region allow JI projects in the non-trading sector. Denmark, Finland, Germany, Latvia and Sweden do not allow JI projects with impacts on the trading sector. Lithuania only allows JI projects having an indirect impact on the trading sector. Poland allows existing JI projects with direct impact, but new projects only with an indirect impact. Estonia[28] in principle allows all kinds of projects. Some of the information in Table 9 may change during the finalisation of NAP2s.

Table 9. Status of implementation of the Linking Directive.

Country	Implementation of the Linking Directive	Direct impact on the trading sector allowed	Indirect impact on the trading sector allowed	Set-aside (Mt)
Denmark	Implemented	No	No	-
Estonia	Implemented	Yes	Yes	0.9 (approved) 9.2 (identified)
Finland	Implemented	No	No	-
Germany	Implemented	No	No	-
Latvia	Implemented	No	No	-
Lithuania	Implemented	No	Yes	1
Poland	Implementation expected in Q2/2007	Yes (existing) No (new)	Yes	9 (existing) 13 (new)[1]
Sweden	Implemented	No	No	-

[1]Depends on the final outcome of NAP2

The EU Member States in the Baltic Sea Region have been well presented in the JI market. There are 33 JI projects having reached the validation/determination level in five countries (Estonia, Germany, Latvia, Lithuania, Poland). The expected volume of ERUs amounts to 9.3 Mt. This is some 6% of the currently expected volume of ERUs. The magnitude of the current set-asides in draft National Allocation Plans for 2008–2012 is some 33.1 Mt. Some 9.8 Mt remains available for new projects

[28] In Estonia, no new projects are allowed. The set-asides are based on already identified projects.

affecting the trading sector in Poland, although the number is uncertain until the NAP2 is clear.

The Linking Directive has significantly cut the potential for JI in the EU Member States of the Baltic Sea Region. Our estimate is that the potential has been reduced by 70–80% assuming the current magnitude of the set-asides and ignoring LULUCF and transport projects.

A conservative estimate on the *remaining potential* for JI in the Baltic countries and Poland is between 50–70 $MtCO_2e$. This potential is *not* to be regarded as the *likely supply of ERUs*, which takes into account project-level feasibility and risk factors. The estimate ignores certain project types, such as transport sector projects and land-use, land-use change and forestry projects. It also excludes opportunities for JI in Denmark, Finland, Germany, and Sweden. The major challenge for project developers in these countries is to identify feasible, but additional JI projects.

In the current situation of the international climate policy, it is clear that unless the remaining potential for JI is tackled quickly, it will not be available anymore. This risk is already now present at project level: project developers evaluate, if the prospect to obtain ERUs during, say, 2009–2012 is still worth the effort of going through the JI procedure and paying the related transaction costs? In this situation, Green Investment Schemes (GIS) may become more attractive for project developers, as the project potential for GIS can to a great extent overlap with the potential for JI. However, GIS *can* be implemented also with time horizons exceeding 2008–2012, which is typically the (current) crediting period of JI projects. This would increase incentives for project developers.

Green Investment Schemes do not affect the potential for JI yet. No schemes have been published in the Baltic Sea Region until now, though there are a few under examination and Latvia is likely to announce a scheme first. The details of the potential schemes and hence their impact on JI are therefore completely open. In the context of the EU ETS, it is likely that any potential GIS will however include projects generating at least *other kinds of environmental benefits* than greenhouse gas emission reduction (e.g. capacity building, waste water treatment, reduction of SO_2, NO_x and VOC emissions).

Sammandrag

Europeiska parlamentets och rådets direktiv 2004/101/EC (“Länkdirektivet”) länkar det europeiska systemet för handel med utsläppsrätter med de projektbaserade mekanismerna enligt Kyotoprotokollet inom ramen för Förenta Nationernas klimatkonvention. Länkdirektivet gör det möjligt för verksamhetsutövare som omfattas av handelssystemet att utnyttja utsläppsminskningar från projekt under *mekanismen för ren utveckling* (Clean Development Mechanism) och *gemensamt genomförande* (Joint Implementation) för att möta kraven i det europeiska systemet för handel med utsläppsrätter. Detta ökar den geografiska täckningen av handelsystemet och förbättrar kostnadseffektiviteten.

Länkdirektivet innehåller dessutom regler om hur projekt som minskar utsläpp från anläggningar som redan omfattas av handelssystemet ska kunna ligga till grund för utfärdande av utsläppsminskningsenheter. Detta kan ske under förutsättning att man undviker ett dubbelt utnyttjande av en sådan minskning i form av tillgodohavanden från projekt och överskott av utsläppsrätter. För att undvika dubbelt tillgodoräknande för JI-projekt som direkt påverkar anläggningar inom handeln med utsläppsrätter, bör verksamhetsutövare annullera ett antal utsläppsrätter som motsvarar antalet till anläggningen utfärdade utsläppsminskningsenheter. För JI-projekt som indirekt påverkar utsläpp från anläggning inom handeln med utsläppsrätter bör den nationella registermyndigheten annullera ett antal utsläppsrätter som motsvarar antalet utfärdade utsläppsminskningsenheter. Reglerna för undvikande av dubbelt tillgodoräknande förväntas minska potentialen för JI-projekt. Detta förutsågs inte då Kyotoprotokollet skrevs år 1997. Länkdirektivet har sålunda haft en stor inverkan på JI-projektens roll i mötandet av klimatåtagandena.

Denna rapport undersöker Länkdirektivets inverkan på JI-projektpotentialen i Östersjöområdet. Först behandlas EU-kommissionens regler för värdländerna för undvikande av dubbelt tillgodoräknande. Därefter beskrivs Länkdirektivets status och implikationer för staterna i Östersjöområdet. Till sist ges en översikt per land och ett estimat på den totala JI-projektpotentialen. Projektpotentialen i Östersjöområdet jämförs med JI-potentialen i andra värdländer. Därutöver diskuteras utsikterna för gröna investeringsprogram (Green Investment Scheme, GIS).

Länkdirektivet har implementerats av sju av EU:s åtta medlemsstater i Östersjöområdet. Implementeringssättet varierar. Alla medlemsstater tillåter JI-projekt inom den icke-handlande sektorn. Danmark, Finland, Tyskland, Lettland och Sverige tillåter JI-projekt inom den handlande sektorn. Litauen tillåter enbart projekt som indirekt inverkar på anläggningar inom den handlande sektorn. Polen tillåter inga nya projekt som

har en direkt inverkan på den handlande sektorn. Estland tillåter vardera typen av projekt.

EU-medlemsstaterna i Östersjöområdet har varit väl representerade på JI-marknaden. Sammanlagt 33 projekt är i valideringss- eller determineringsskede i fem länder (Estland, Lettland, Litauen, Polen och Tyskland). Projekten förväntas generera en utsläppsminskning (ERU) på sammanlagt 9,3 Mt CO_2e, vilket är cirka 6 procent av den förväntade ERU-volymen (143 Mt CO_2e). Reserven för JI-projekt i förslagen till tilldelningsplaner för den andra handelsperioden är cirka 33,1 Mt CO_2e. Polen har reserverat 9,8 Mt CO_2e för projekt inom den handlande sektorn. Den exakta siffran är inte ännu känd.

Ryssland är en nyckelaktör på JI-marknaden. Ryssland står för cirka 20 procent av JI-projekten i dagsläget. Över 20 procent av ERU-volymen förväntas komma från Ryssland. JI-potentialen i Ryssland uppskattas till 250 Mt CO_2e. Den kan dock vara mycket större beroende på institutionella faktorer.

Länkdirektivet har minskat JI-potentialen avsevärt i EU-medlemsstaterna i Östersjöområdet. Vi uppskattar att potentialen har minskat med 70–80 procent som följd av Länkdirektivet om vi antar att reserven för JI-projekt inte kommer att ändras och om vi inte beaktar LULUCF- eller transportprojekt.

En konservativ uppskattning på den resterande potentialen för JI-projekt i Baltikum och Polen är 50–70 Mt CO_2e. Denna potential bör inte betraktas som sannolikt utbud på ERU eftersom den inte tar i beaktande genomförbarheten av enskilda JI-projekt. JI-potentialen förväntas minska ytterligare om det inte sker förändringar i klimatpolitiken.

Gröna investeringsprogram kan i en sådan situation vara ett attraktivt alternativ för projektutvecklare. GIS är ett sätt för länder att idka internationell utsläppshandel så att inkomsterna av handel med *tilldelade utsläppsenheter* (Assigned Amount Units) öronmärks för investeringar som minskar utsläpp av växthusgaser eller medför andra positiva miljöeffekter eller sociala effekter. GIS är i flera fall ett alternativ för JI. GIS-projekt kan pågå även efter år 2012 utöver den typiska krediteringsperioden 2008–2012 för JI-projekt. Sålunda kan GIS-projekt ge starkare ekonomiska incentiv för projektutvecklare.

Gröna investeringsprogram inverkar inte ännu på JI-potentialen inom Österjöområdet. Inga gröna investeringsprogram har ännu offentliggjorts i Östersjöområdet. Ett antal investeringsprogram är dock under planering. Lettland förväntas komma ut med det första. GIS-programmens inverkan på JI-potentialen i Östersjöområdet är sålunda inte känd. Potentiella gröna investeringsprogram inom EU förväntas inte bara minska utsläppen av växthusgaser utan även generera ett antal andra positiva miljöeffekter, t.ex. kompetensutveckling, rening av avfallsvatten och minskning av utsläpp av SO2, NOx och VOC.

References

Avenchenkov (2006). Green Investment Scheme in Russia: Opportunities and Problems. The World Bank. [Seminar Paper from Moscow GHG Market Forum, April 3–4, 2006]

BMU (Bundesministerium für Umwelt, Naturschutz, und Reaktorsicherheit) (2006). Nationaler Allokationsplan 2008 – 2012 für die Bundesrepublik Deutschland. Berlin, 28.06.2006.

ECON Centre of Economic Analysis (2002). JI Country Study.

ICF International (2006). Creating Value With Joint Implementation Projects in Russia. [http://www.icfi.com /Markets/Energy/doc_files/ji-projects-russia.pdf].

IGES (Institute for Global environmental Strategies (2005). Option Survey for Japan to acquire credits from abroad

Kajaste (2006). How Renewable Energy Technology Investments Can Benefit from Joint Implementation. Baltic Sea Region Testing Groud Facility Nordic Environment Finance Corporation. [Paper in a seminar held in Turku, June 13th 2006].

Karmali (2004). JI in Russia: Capacity Building and Business Opportunities. ICF Consulting. [Presentation in COP-10, BuenosAires Dec 2004].

Pertsovsky (2005). JI Projects in the Russian Power Industry. [Presentation in COP11, Montreal, 8.12.2005].

Point Carbon (2005). Carbon Market Analyst issue 16. Dec. 2005. - CDM & JI supply forecast: Opening the floodgates.

REC (The Regional Environmental Center for Central and Eastern Europe) (2004). Assesment of JI potential in CEE countries.

REC (Regional Environmental Center for Central and Eastern Europe) (2005), JI Potential in Central and Eastern Europe.

Swedish Committee for Water and Development (2005). Future Dams.

UNEP Risø (2007). JI Pipeline Overview. www.uneprisoe.org

WCD (World Commission on Dams) (2000), Dams and Development – a New Framework for Decisionmaking.