

**Joint Implementation in Poland
and the Czech Republic:**

A Government Perspective

May 1996



**JOINT IMPLEMENTATION IN POLAND
AND THE CZECH REPUBLIC:
A GOVERNMENT PERSPECTIVE**

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Foreword

Many leading climate change experts have promoted joint implementation (JI) as a cost-effective and realistic means of mitigating climate change. Central Europe has been a popular site for JI projects because of its abundance of cost-effective project opportunities, the region's proximity to Western Europe, and the relatively advanced state of the local economies and infrastructure. The two articles contained herein examine JI from the perspective of Central Europe. This perspective sheds light on some of the difficulties and successes JI has encountered in this region.

The two papers are similar in approach: each was written by staff from energy efficiency centers in Central Europe based on interviews with and reviews by senior government officials. Their conclusions, however, diverge in many ways. The Polish paper concludes that the greatest barrier to JI in Poland is the lack of Polish administrative structures to set national policy on JI, promote JI, and review and approve JI projects. This paper also depicts the general administrative burden associated with developing a JI project, and describes several schemes for overcoming this and other barriers. The Czech paper, on the other hand, focuses on the economic incentives driving JI. Because of the lack of outside financing for JI projects in the Czech Republic, the Czech Government has been somewhat hesitant to develop a concrete policy to promote JI.

The issue which both papers address comes down to this: what barriers does JI face, why do they exist and are they surmountable? Identifying the barriers to JI is the first step in bringing these barriers down. These papers are an important contribution to JI's pilot phase because of their analysis of how JI works in practice from the perspective of the host country.

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Contents

Foreword	i
Assessment of Joint Implementation in Poland	1
Introduction	2
1. Poland's Position in the FCCC	2
2. Poland's Position on the JI Initiative	3
3. Status of Development of the JI Structure in Poland	3
4. U.S./Poland JI Relations	5
5. Conclusions	8
Figures	9
References and Related Documents	12
Assessment of Joint Implementation in the Czech Republic	13
1. Position of the Czech Republic in the UN Framework Convention on Climate Change	14
2. Historic Position of the Czech Republic in Relation to the JI Initiative	14
3. Current Position of the Czech Republic	15
4. Conclusions	16
Appendix 1: Dvůr Káňov Cogeneration Plant	17
Appendix 2: Reforestation in Krkonoše	24
Appendix 3	29
References and Related Documents	30

Assessment of Joint Implementation in Poland

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Introduction

Although the political and economic background behind Joint Implementation (JI) is significant, and worldwide discussion of JI (or as it is officially called, Activities Implemented Jointly) is very complex, JI's margin of uncertainty still remains large. Experience gained during this initial phase of JI will provide a better understanding for further, more precise procedures in the context of the Framework Convention on Climate Change (FCCC).

JI is potentially beneficial for all participants involved. Developed countries (JI initiators under the FCCC) may benefit by achieving greenhouse gas (GHG) reduction targets more economically. Developing countries and the Countries with Economies in Transition (CWEIT) may benefit by transferring environmentally sound technologies, by transferring resource-efficient schemes for economic activities, by improving local environmental conditions, and by raising social standards to levels existing in developed countries.

Poland expressed its interest in participating in the JI mechanism and is creating proper structures for managing future JI projects. This assessment reviews the status quo of the organizational arrangements for JI in Poland and provides an indication of JI's potential bottlenecks. This may help to make the JI mechanism more active at both the administrative (governmental) and implementation (industrial, energy sector) levels.

1. Poland's Position in the FCCC

In June 1992, during the "Conference on Environment and Development" in Rio de Janeiro, Poland signed the UN Framework Convention on Climate Change along with over 150 other countries. Poland ratified the Convention in July 1994, and became a Party to the Convention on October 26, 1994. Early in 1995, the Polish National Report was provided to the FCCC Secretariat and presented to the First Conference of Parties in Berlin.

By ratifying the Convention, Poland accepted the same obligations as the other Annex I countries. The most important of these obligations is "... returning by the end of the present decade to earlier levels of anthropogenic emissions of carbon dioxide and other greenhouse gases not controlled by the Montreal Protocol ..." (Article 4, paragraph 2a). The year 1990 was generally indicated as the reference year for the emission stabilization (Article 4, paragraph 2b).

The CWEITs were allowed by the Convention to apply "... a certain degree of flexibility ... with regard to the historical level of anthropogenic emission of greenhouse gases ..." (Article 4, paragraph 6). Poland adopted 1988 as the reference year for its first inventory of GHG. Two GHG inventories were developed in Poland: one for 1988 (the reference year under the Convention) and one for 1992. A comparison of the results of these inventories is given in Table 1.

Table 1. 1988 and 1992 GHG emission inventories in Poland, [Gg]

	CO ₂	CH ₄	N ₂ O	NO _x	CO	NM VOC
1988	483,700	6060	73	600	2730	>352
1992	359,439	2474	50	1283	1610	645

GHG emissions were significantly lower in 1992, mainly because of the economic recession which appeared as a side effect of political changes started in 1989 in Poland. Energy efficiency played a rather small role in reducing emissions.

The influence of both economic activity and energy efficiency on GHG emissions have changed since 1992, and it is expected that the changes will continue. Improvement of energy efficiency compensates somewhat for economic growth, so the resulting increase of GHG emissions is not expected to be severe.

2. Poland's Position on the JI Initiative

Since JI's inception, Poland has taken a positive position on it. This is expressed, for example, in Chapter 7.5 of the National Report, the relevant part of which states:

According to the decision of the Minister of Environmental Protection, Natural Resources and Forestry, Poland will join the implementation of the pilot phase of the mechanism (JI). The work group was called into being with the task of preparation of the detailed criteria for the start-up and implementation of such projects and the JI Secretariat with the task of supervising of the pilot phase implementation ...

Since the National Report was published, events have progressed as described in the following section.

3. Status of Development of the JI Structure in Poland

Poland has not yet established or authorized a JI administrative body. Because of this, potential foreign donor partners have to contact Polish enterprises and governmental agencies themselves. Contacting Polish government agencies about JI projects is complicated because no one agency has authority to approve JI projects, so most potential donors ask their embassies to facilitate contacts for them. This scheme (presented in Figure 1) does little to ensure the effective operation of JI in Poland. Therefore, the Ministry of Environmental Protection, Natural Resources and Forestry (MEPNR & F) has undertaken efforts to create a JI Secretariat. A Working Group on JI was organized with a mandate to define Polish criteria for JI projects and the Terms of Reference for the JI Secretariat.

The Terms of Reference were submitted to the proper Ministries and Central Offices for review. The document outlines how the Polish JI program will be structured. Specifically, it does the following:

- Establishes a single Polish statement related to the JI initiative;
- Defines the scope of activities for the JI Secretariat;
- Defines Polish criteria for JI projects ; and
- Defines the procedure for review and approval of JI projects.

In December 1995, the Economic Committee of the Council of Ministries approved the "Terms of Reference for the Polish Joint Implementation Secretariat."

The JI Secretariat's Scope of Activities

The Terms of Reference stated that the JI Secretariat would be created under the National Fund for Environmental Protection and Water Management (NFEP & WM). The NFEP & WM is experienced in managing projects involving bilateral and multilateral assistance, which are similar in nature to the potential JI projects. Also, the activities to be undertaken by the Secretariat are closely related to the Fund's Department of International Cooperation's current role of coordinating and preparing foreign-assisted investments.

The Fund will provide staff and funding as needed to carry out the roles of the Secretariat. According to an employee of the MEPNR & F who is familiar with the development of the Secretariat, the Secretariat will begin operating in the Spring of 1996.

Criteria for Polish JI Projects

The criteria that will be used to evaluate proposed JI projects in Poland serve three purposes:

- Ensuring that JI projects **during the Pilot Phase** comply with the standards or guidelines adopted by the Conference of Parties;
- Ensuring that JI projects are consistent with the National Environmental Policy of Poland, promote the principles of sustainable development, proper natural resource allocation, protection of the environment, and are profitable for Poland for the long term and from a comprehensive policy perspective, and
- Ensuring that public and private domestic financial resources devoted to implementing JI projects are used cost-effectively.

The criteria were defined at two ranked levels, which are described below.

Level I

The Level I criteria include two major restrictions imposed on JI projects in Poland. Although projects that do not meet these basic criteria should not be submitted to the Secretariat for consideration as JI projects, they are still desirable and encouraged by the government of Poland.

1. Only those projects which involve the contribution of technologies and equipment, or the financial resources to procure such technologies and equipment, will be endorsed as JI projects. Although projects which include only technical assistance, education, or training are valuable forms of foreign assistance, they will not be considered as JI projects.
2. Only projects which **directly** reduce the generation of GHGs in the production of goods and services by a) improving the efficiency of industrial processes and/or switching the fuel source, or b) reducing the GHG content of wastes through chemical, biological, or physical treatment processes or recycling, or absorbing GHGs from the atmosphere (e.g., carbon sequestration by planting trees) will be included as JI projects.

Level II

The Level II criteria are related to the FCCC criteria, although they have been broadened according to specific Polish policy priorities.

Criterion 1. For any JI projects, it must be possible to estimate **ex ante** the expected reductions in GHG emissions and monitor **ex post** the actual reductions in GHG emissions.

Criterion 2. JI projects should not lead to depreciation of other local or regional environmental quality indicators at the expense of achieving reduction in GHG emissions.

Criterion 3. JI projects should directly or indirectly motivate the cost-effective realization of environmental goals.

Criterion 4. JI projects should encourage the prudent use of natural resources and reuse or recycling of waste materials.

Criterion 5. JI projects should be compatible with, and promote to the greatest extent possible, utilization of modern production processes.

Criterion 6. JI projects should be sensitive to and compatible with macroeconomic policies at the national and regional administration levels.

Criterion 7. JI projects should only be undertaken by Polish enterprises which can reasonably be expected to be economically viable in the long term.

Procedure of Approval for JI Projects

The JI Secretariat will be the main institution overseeing JI projects. This office will have the primary responsibility for all proposed JI projects. The Secretariat will be responsible for communicating and coordinating with JI project participants and for reviewing their projects. The main objectives of the Secretariat include the following:

1. Ensuring effective development and implementation of JI agreements, contracts, and other supporting documents.
2. Providing effective communication with the Conference of Parties of the FCCC and with Polish Ministries through the MEPNR & F; providing assistance to foreign donors and Polish enterprises in communicating and solving problems related to JI projects.
3. Monitoring the implementation of JI projects and preparing reports for the FCCC Secretariat as required by the Conference of Parties of the FCCC.

JI projects will require approval from the MEPNR & F and acceptance of the donors' governments.

The major task of the Secretariat during the initial stage of project implementation will be to manage the review and approval processes and to serve as liaison between project proposers, donors, and Polish ministries and institutions.

The MEPNR & F will be the only governmental agency approving JI projects and representing the Polish government in official contacts with governments of foreign JI partners. For these purposes, the MEPNR & F will establish a JI Steering Committee under its Department of Environmental Policy. At the request of the Secretariat, this Committee will make recommendations to the MEPNR & F on project approval or rejection. Related ministries, and other institutions and experts will serve as advisors in the JI project review and approval process.

The Secretariat is solely responsible for monitoring and supporting the implementation of JI projects, as stated in the Terms of Reference. No other state institutions can be explicitly and officially involved in this process.

4. U.S./Poland JI Relations

The governments of both the United States and Poland have set up their JI programs based primarily on existing, well-proven structures. Figure 2 describes the current organization of JI activities, and the mechanisms for bilateral U.S.-Polish coordination on JI projects.

While the Polish and U.S. JI programs rely most on traditional, established institutions, both nations have also set up new administrative bodies specially created for JI: the U.S. Initiative on Joint Implementation (USIJI) and the JI Secretariat in Poland serve as liaisons between potential JI business participants and domestic governments. USIJI also undertakes initiatives to directly contact potential Polish JI partners, such as businesses, local authorities, government agencies.

JI Incentives

Although the 'donor' (U.S.) should take an active role in initiating and proposing possible JI contracts to the 'host' (Polish) partners, donor businesses will do so only when financial and business incentives are adequate. The donor's government can create credible incentives for JI projects, thereby encouraging businesses to initiate projects [the USA Energy Policy Act of 1992, Section 1605(b), and Ground Rules for the U.S. Initiative on Joint Implementation (1994)]. With appropriate incentives, the donor businesses can be competitive in the international market and can attract potential host business partners. The competitiveness and appeal of the donor's offer creates incentives for host business to become a JI project partner. The host government will approve a JI project when it feels the project has potential external benefits.

Assuming that the above incentives in the case of the United States (donor) and Poland (host) exist, why is the JI mechanism not as active as it could be? This question can best be answered by discussing the bottlenecks that may be obstructing JI projects and outlining some steps to overcome these bottlenecks.

Bottlenecks

The following problems may separately or jointly obstruct JI projects:

- The above assumptions about JI incentives are not valid.
- The existing incentives are not sufficient for activating potential JI partners.

The following discussion considers the latter problem and describes the possible barriers this would create for a host business.

Information

Most Polish businesses are not informed about JI and the potential for additional profits resulting from JI projects. The channels to disseminate the information have not been organized until now. After the Secretariat is established, the situation may begin to change, although, in the author's opinion, the structure should be enhanced by creating an additional participant in Poland who can serve as a business facilitator and developer for the JI projects.

Legal Status

The legal status of the JI initiative was not regulated until the Economic Committee of the Council of Ministries approved the JI Terms of Reference (December 1995). The JI Secretariat should and probably will undertake initiatives to issue additional regulations as needed.

Approval Process and Transparency

The approval process for JI projects should follow a clearly defined procedure. Presently, no one can enumerate and evaluate the costs and benefits of potential JI projects in Poland or in other countries. Because many of the costs and benefits are thus external to the market that ultimately regulates JI projects, estimating the economic effectiveness of a JI project is a large challenge for the decision makers who will approve JI projects. In order to promote the efficient implementation of the approval procedure for JI projects, the JI mechanism should be as transparent as possible. Otherwise, sooner or later, JI will become subject to political games in the host country, which could exclude the JI mechanism from the international relations of a given host country.

Additional Transaction Costs

JI projects entail transaction costs in addition to those normally occurring in a business relationship, and these additional costs can be significant. As a result, potential Polish business partners may feel that the costs outweigh the potential additional profits.

Governmental Control

The respective governments want JI projects to be monitored in order to ensure that they live up to their expectations and sufficiently mitigate or sequester greenhouse gas emissions. This detailed monitoring, however, may discourage potential JI partners—especially aggressive, young businesses which do not appreciate extensive monitoring. Confidence in one's business partners is of significant value to these young businesses; yet this confidence, and all other guarantees besides monitoring and verification, are automatically excluded from the JI scheme.

The Role of International Capital

If capital were a very scarce resource in CWEITs, then JI would have a more monopolistic position. In fact, JI projects have many competitors. Poland and the other CWEITs are interesting places for capital allocation for many reasons apart from JI (cheap labor, growing market, technological gap, etc.).

Polish Commitments to the FCCC

Because there are a limited number of cost-effective GHG reduction opportunities, JI projects reduce the domestic GHG reduction potential in the 'host' country. Eventually, this may lead to a situation in which this scarce 'resource' is exhausted. This may cause the Polish government to expect larger and larger macroeconomic benefits to balance the costs of transferring the GHG credits. The costs may become unacceptable to a donor country like the U.S. at a certain point, and Poland may start playing the donor's role.

The simulations carried out in the Polish GHG Country Study indicate a large GHG reduction capacity in Poland; therefore, this barrier should not play a significant role at least in the next decade.

The bottlenecks enumerated above may be grouped as follows:

- those related to organizational imperfections (information, legal status, lack of transparency, transaction costs);
- those which are inherently related to the JI concept (governmental control, additional transaction costs, FCCC commitments); and
- those not related to the JI mechanism exclusively (the role of international capital for CWEITs).

Steps to overcome these bottlenecks are discussed in the following subsection.

Next Steps

The organizational structure for JI in Poland is the main barrier to JI projects at present. The JI contacts will be much more effective after the JI Secretariat is created in Poland, although even then some of the barriers enumerated above may remain. The following steps are advised to overcome them.

Organization

The organization of JI could be improved by introducing business facilitator(s) and developer(s) into the JI scheme in Poland (see Figure 3.). It (they) could be a specialized, semi-scientific institution(s) which would help the Secretariat in monitoring the JI projects' results, and help JI business partners to prepare JI applications, and to represent them for the Secretariat. Such facilitators would also be useful for Polish JI business partners in their contacts with financial institutions, and in contacts with foreign JI business partners.

Approval Procedure and Transparency

The approval procedure for JI projects should enable decision makers to identify all external (not market-controlled) costs and benefits related to the projects. In order to achieve that objective, a list of potential external costs and benefits in Poland should be elaborated. All JI projects should be examined according to this list, item by item.

Furthermore, the approval process should be transparent. This would allow those involved in JI to:

- Respect the broad interests of the country;
- Minimize the number of situations in which the interest of lobbies would prevail over the interests of the country; and
- Make the JI process more credible for society.

Donor JI partners should cooperate with the host country to achieve the greatest possible transparency of the JI scheme.

5. Conclusions

- Poland is interested in the JI mechanism and has declared its willingness to participate in JI activities mainly as a 'host country.'
- The Polish Ministry of Environmental Protection, Natural Resources and Forestry has elaborated the Terms of Reference for the JI Secretariat and the Polish JI criteria. This document was approved by the Economic Committee of the Council of Ministries in December 1995.
- The JI Secretariat is being organized through the auspices of the National Fund of Environmental Protection and Water Management in Warsaw. The Secretariat will open in Spring 1996.
- Until the Secretariat is opened, the conditions for implementing JI projects will remain poor. After the Secretariat is opened, the organization of JI will improve in Poland but even then, some bottlenecks may remain.
- The author proposes that the Secretariat should administer and formally monitor JI projects. JI projects will need additional support in the form of specialized consulting, financial services, technical assistance (to assess GHG emission baselines, measure GHG emission reduction results and assess other external benefits and costs of projects, for example). Specialized facilitator(s) could provide these services. The author further recommends creating such facilitator(s) soon after the JI Secretariat is organized.
- The transparency of the JI mechanism (especially the approval process) is very important to JI's success. The Polish government should carry out obligatory examinations of JI projects to judge them according to a pre-defined set of potential externalities.

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Středisko pro efektivní využití energie
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Assessment of Joint Implementation in the Czech Republic

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1. Position of the Czech Republic in the UN Framework Convention on Climate Change

In June 1992, a representative of Czechoslovakia participated in the "Conference on Environment and Development" of the UN Framework Convention on Climate Change (UN FCCC). This UN convention obligated participating countries to stabilize their emissions of greenhouse gases (GHG), especially carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O), which are not monitored by the Montreal Protocol. (The Montreal Protocol deals with limiting chlorofluorocarbon, which damages the ozone layer.)

On 7 October 1993, after the formation of the independent Czech Republic on 1 January 1993, the Czech Republic acceded to the UN FCCC. This was done on the basis of government resolution CR Article 323 passed on 16 June 1993. The Czech Republic thereby became the thirty-sixth party of the convention. In consideration of its responsibilities stemming from this act, the Czech Republic released its first report on fulfillment of obligations related to accession to the conference according to articles 4 and 12 of the conference and from inclusion among economically developed countries according to Annex I of the conference.

The first inventory of greenhouse gases in the Czech Republic was taken with 1990 as the reference year. This inventory was realized in the framework of the US Country Studies Program. It was done according to IPCC/OECD methodologies, which were applied to the conditions in the Czech Republic. In addition to the basic strategy, which the methodology establishes with standard emission factors, more detailed strategies based on the results of domestic specialist studies and local environmental databases were also applied in many cases.

2. Historic Position of the Czech Republic in Relation to the JI Initiative

The Czech Republic first began to consider its policy on JI when U.S. and Czech partners proposed a JI fuel-switching project in Dvůr Králové in April 1993. Talks began at the initiative of three American companies (Wisconsin Electric Power Company, NIPSCO Development Company, Inc., and the Edison Development Company Project). With the cooperation of the Center for Clean Air Policy, these companies responded to the challenge put forth by the American government and decided to participate in the project to change the method of heating in the town. In addition to the aforementioned organizations and the Dvůr Králové municipal office, a Danish partner also became interested in the project.

One of the issues that arose as planning to implement the project began was the question of who would have administrative jurisdiction over JI. The Ministry of the Environment had not organized any governmental body which could deal with the given issue. Nor had any other organization been established in the Czech Republic which could deal with JI projects. As it turned out, the Director of the Cabinet of the Minister of the Environment of the Czech Republic (ME CR) expressed support for the Dvůr Králové-Býnov project in a letter to the American participants. Support for the project was not formally passed at any meeting of the ME leadership, nor did any government bodies working on climate change issues discuss or approve the issue.

At the time the Dvůr Králové-Býnov project was discussed, there was practically no information on JI in the Czech Republic. At this point in time, not even the American participants could manage to formulate clear rules according to which participation in the JI projects could be translated into emission credits transferred to the investor. Dvůr Králové-Býnov was not the only JI project in the Czech Republic. In addition, there was the Krkonoše project, which deals with afforestation of the Krkonoše mountains. Originally, the ME presumed that these two JI projects would suffice for the Czech Republic, even though it remained open to the idea of other projects. In view of this lack of clarity, the ME had difficulty defining its role and position vis-a-vis JI. As a result, its reactions to inquiries on the subject of JI in the Czech Republic were unclear.

In spite of this, at the first conference of participating parties in Berlin in 1995, František Benda, the Czech Minister of the Environment, expressed his support for JI in completion of Article 4.2 of the Convention (see the appendix to Article 1).

3. Current Position of the Czech Republic

At the present time, the Czech Republic's position toward JI remains unclear. While American companies have expressed interest in covering 7.5% of the total expenses of the Dvůr-Býňov project, this action itself is not important enough to convince the representatives of the ME CR of the necessity of forming a precise position on JI. Precedence is given to decisions on an ad hoc basis by the ME according to the importance of the project being proposed.

The Dvůr-Býňov project cannot serve as a model for other projects because it has gone through many changes during the course of negotiations. From the original conception of constructing a heating plant, the Town of Dvůr changed its conception of the project to include the construction of a cogeneration plant, which increased project expenditures. The increase in total expenses reduced the U.S. share of the investment. However, the originally calculated share for emission reductions on the American side was not adequately reduced in relation to the share of investments because the town had made these promises and the Americans were not responsible for the changes in the project. The project also has very little commercial financing. At the present time, the CR considers it to be important to open bilateral discussions, and the ME is willing to negotiate on individual concrete JI projects which will have utility for both sides.

The Czech Republic is a member of the Organization for Economic Co-Operation and Development (OECD); therefore, it is necessary to pose the question of whether it is at all suitable as a JI partner for U.S. parties. Economically, the republic is developing very rapidly and is approaching the level of developed countries. Thus, there is the idea that the Czech Republic should search out JI projects in other, less economically developed countries which would want money from the U.S. in the framework of JI. Despite the envisioned rapid development of the economy, the Czech Republic will not ask to become an Annex II country under the Framework Convention on Climate Change unless it is certain that, as a result of development, it will be possible to estimate the future CO₂ emissions with enough precision. The Czech Republic is not planning large-scale emission trading, but gives precedence to discussions of concrete projects.

Nonetheless, membership in the OECD does not directly affect JI projects in the Czech Republic. What will directly affect JI projects is whether they will be as effective as anticipated. Should U.S. companies want to participate in projects in the Czech Republic, lack of qualified local experts will not be a barrier. If projects in the Czech Republic are less expensive than in other countries, it is clear that they will be implemented and will bring results.

The ME is not turning its back on JI; the Ministry is open to discussions, which can generate various ideas and activities. However, it does not appreciate the long administrative negotiations which are associated with JI. The ME is going to concern itself only with projects having commercial value.

Representatives of the ME do not expect big increases in CO₂ emission trading, and they point to the firm resistance of China and other countries of the G-77 group to this practice as evidence. They are inclined to believe that the increase of this trade in the Czech Republic is unlikely.

Currently, the majority of countries do not yet have a clear opinion on JI. Czech policy at this point is to act in accordance with the FCCC Secretariat's decisions. The republic does not, however, intend to help draft criteria for emission trading.

Thus far, the ME has not felt the need for the Czech Republic to adopt a more definite standpoint on JI (besides stating that the CR generally agrees with JI). At the same time, it has already expressed its standpoint on the FCCC. A more detailed opinion of the Czech Republic can only be pieced together from speeches by representatives from the ME and

the Ministry of Industry and Trade, which do not always coincide with each other. For the time being, there has been no tendency to integrate these opinions.

The ME feels responsible for JI, and—especially in the beginning phases of the process—it is interested in the unified direction of JI process. The ME wishes to retain authority to make decisions related to offering credit for emission reductions. For the time being, the ME will not extend this authority to local governments. It is important that the ME be kept informed during the negotiation phase of each concrete project.

The fact that the ME supports the Regional Conference on Joint Implementation for Countries in the Process of Transition, which took place in Prague in April 1996, is an expression of the ME's commitment to JI.

The goals of this conference are the following:

- C To evaluate existing (ongoing and planned) and identify new joint-implementation projects between Annex I and Annex II Parties or among Annex I Parties to the UN FCCC;
- C To place JI in the context of national environmental and developmental priorities and strategies of countries in transition;
- C To promote the exchange of views between public and private parties; and
- C To contribute to the work of FCCC, particularly to a "framework for reporting" on JI projects.

4. Conclusions

In spite of apparently ambiguous statements by representatives of the ME on the subject of JI, it is clear that there is general interest in JI in the Czech Republic and that the ME does not have any interest in halting the spread of JI activities in the Czech Republic. However, it has not yet formed a suitable administrative structure nor has it named any officials to deal with this issue. Furthermore, the Czech Republic is unlikely on its own to develop JI rules, express its position clearly, or formulate its requirements for JI in the near future.

Clearly, the serious barriers to JI are not in the form of administrative complications or political positions, but rather in the lack of economic advantages of the JI project itself. Profitability must be guaranteed on both sides. If projects are found which contribute to a marked reduction in CO₂ emissions and are at the same time profitable, it will be possible to implement them in the Czech Republic.

It will not be difficult to get approval for mutually beneficial projects. At the same time, the representatives of the ME will not take a general agreement on JI seriously if it does not include concrete projects.

If American companies are interested in developing and implementing them, the Czech Government would be willing to talk about further concrete JI projects. However, it will be important to keep the representatives of the ME up to date from the beginning, providing them with concrete project proposals and information on the envisioned participation of the U.S. According to the latest information, talks on concrete projects are opening up at present. These could incorporate firms from France, Denmark, and Germany in the JI process.

Appendix 1: Důlní Cogeneration Plant

Identification of Project Participants

Partners

Czech Republic

City of Důlní

United States

The Center for Clean Air Policy (project development)

Investors

Czech Republic

City of Důlní

United States

Wisconsin Electric Power Company
NIPSCO Development Company, Inc.
Edison Development Company

Denmark

Ministry of Environment and Energy
Danish Environmental Protection Agency

Other Organizations

Bruun and Sorensen (environmental study for Důlní area)
Burmeister and Wain Scandinavian Contractors (main contractor)

Project information

Place

The Býnov heating plant is located in the city of Důlní. The new heating plant is constructed on the site of the former coal handling facility. The address is Teplicka 31/45, 405 22 Důlní IV, Czech Republic.

Technical description

The project reduces greenhouse gas emissions by producing heat and hot water with new, more efficient gas engines; by replacing lignite coal-fired boilers; and through efficiency measures. Two gas engines which produce 10.6 MWt and a peaking gas boiler are being installed. Water used to cool the two gas engines supplies hot water, which is used both for heat and potable hot water and will be distributed to the adjacent apartment blocks. Using the steam which results from the heat production, electricity is cogenerated and will be sold to one of several regional electricity distribution enterprises under a purchasing agreement. A facility to house the new gas engines is being constructed next to the existing district heating plant.

As for efficiency measures, the distribution network presently delivers heat in the form of steam to the apartment blocks. The present pipes will be replaced by new, better insulated pipes. With more efficient pipes, the plant will deliver hot water directly, eliminating the need for the steam to hot water conversion that currently occurs at the apartment buildings. The City of D...ín is planning to install meters at each apartment building to measure heat and hot water consumption. In the long term, the City is planning to install individual controls in each apartment to more efficiently regulate the delivery of these services.

Greenhouse Gas Mitigation Measure(s)

Fossil fuel switching, cogeneration, energy efficiency (for both the supply and demand sides).

Stage of Preparation

Engineering, Procurement, Construction.

Time Schedule

Phase	Start	Complete
<p>Project Development</p> <p>Environmental assessment, project identification, prefeasibility study, engineering feasibility study, acquisition of funds and necessary building and environmental permits, application as a JI project to U.S. and Czech Republic</p>	4/93	9/95
<p>Implementation</p> <p>Ground breaking ceremony, construction</p>	9/95	10/96 (expected)
<p>Evaluation/JI Monitoring</p> <p>Periodic measurements, analysis, external verification of greenhouse gas reductions</p>	10/96 (ongoing)	2020
<p>Anticipated Project Lifetime: 25 years</p>		

Environmental Effects

Old Býnov Plant					
Year	Heat Demand (TJ)	Electr. Product. (MWh)	Coal Consump. (tons)	CO ₂ emiss. (tons)	Alt. CO ₂ emiss. fr. (hard coal)
1996	107	0	12,800	19,582	19,356
...					
2001	96	0	11,478	17,560	17,357
...					
2020	94	0	11,213	17,515	16,957

New Býnov Plant						
Year	Heat Demand (TJ)	Elec. Produc. (MWh)	Gas Consump. (mil. cu. ft.)	CO ₂ emiss. (tons)	Cogen CO ₂ (tons)	Savings over CEZ fr. coal fr. system (tons)
1996	107	26,152	248	13,590	32,167	20,660
...						
2001	96	24,137	222	12,187	29,689	19,068
...						
2020	94	23,707	217	11,906	29,160	18,729

Total CO₂ Savings			
Year	Due to Fuel (tons)	Due to Cogen (tons)	Total (tons)
1996	5,992	20,660	26,652
...			
2001	5,373	19,068	24,442
...			
2002	5,249	18,729	23,978

Costs of Mitigation

The cost of mitigation is 4.48 USD/t CO₂. The cost of mitigation is calculated here from the point of view of the U.S. investor to whom the credits are allocated. This is a market price for the CO₂ credit. The sum of investments of the U.S. utilities (600,000 USD) that will receive the CO₂ credit is divided by the sum of the CO₂ which is to be reduced and transferred over the lifetime of the project (133,827 tons CO₂). (The calculation includes only the CO₂ reductions which result from the fuel switch, as these are the only reductions which are planned to be transferred. It does not include any CO₂ which is reduced due to cogeneration.) The calculation is thus:

$$\text{Total CO}_2 \text{ to be transferred} = (5,992 \text{ (yr 1)} + 5,868 \text{ (yr 2)} + 5,745 \text{ (yr 3)} + 5,621 \text{ (yr 4)} + 5,497 \text{ (yr 5)} + 5,373 \text{ (yr 6)} + (5249/\text{yr} \times 19 \text{ yrs}) = 133,827 \text{ t CO}_2.$$

$$600,000 \text{ USD} / 133,827 \text{ t CO}_2 = 4.48 \text{ USD/t CO}_2.$$

There are several ways of calculating the cost of mitigation. Another way is to divide total project costs by total CO₂ reduced for an overall cost/ton reduction figure. Project proponents caution that this calculation masks many important characteristics in a given project, such as the determinants of project costs and of GHG reductions themselves. The calculation does not account for the fact, for example, that some overall project costs may not directly involve GHG reductions. For these reasons, this total cost per total CO₂ reduction calculation may not enable meaningful project-to-project comparison. Nevertheless, it may be useful as an overall figure when considered in relation to similar projects. The calculation would be as follows for the Dvůř project (this calculation does not take into account interest over the lifetime of the project):

$$7.982 \text{ mil. USD} / 608,952 \text{ t CO}_2 = 13.11 \text{ USD/t CO}_2.$$

Other Environmental Effects

Emissions	Planned Mitigation
SO ₂	96.3 tons/year - almost 100% reduction
Particulates	3,190 tons/year, 100%

The City of Dvůř, which is situated in a valley, experiences one of the highest 24-hour ambient SO₂ concentrations in the highly industrialized region of Northern Bohemia. Concentrations in 1990-1991 exceeded World Health Organization (WHO) standards by ten times. Reducing SO₂, coal ash, and particulates is a high priority for the city.

The coal used at Býnov prior to the project was transported by truck from Most, a city 75 kilometers away. Eliminating this fuel source will reduce the amount of transportation-related air pollutants in the region. This will help the city to reduce its levels of ozone and coal dust suspended in the air.

The gas-powered engines will have much lower NO_x emissions than did the coal-powered plant.

Monitoring of Greenhouse Gas Emissions

After the project is implemented, a simple fuel throughput analysis will be used to calculate the CO₂ emissions. Annual consumption of natural gas will be drawn from the monitor used to determine payments for the gas supply. Using a fixed carbon content figure for natural gas from the Congressional Office of Technology Assessment, CO₂ emissions and emission reductions will be calculated for each engine and boiler at the plant. The fixed carbon value will be 3.3 lbs.

carbon per hundred cubic feet. The plant manager will be responsible for taking measurements and making calculations. These will be externally verified by the World Resources Institute.

Economic, Social, and Other Effects

Positive Effects on Public Health

In D•..ín, the medical community has noticed a strong correlation between the high concentrations of SO₂ and particulates and health problems among the resident population. Child mortality rates are twice the national rate, and life expectancy is approximately 5 years lower than the national average. Doctors estimate that half the pediatric patients in local hospitals have health conditions linked to air pollution. With improvements in air quality, the health of the population should show improvements. The following chart further suggests a correlation:

Diagnosis	D•..ín Area	Czech Republic
Diseases during pregnancy	0.4	0.1
Natal and postnatal complications	2.3	0.7
Respiratory diseases	132.7	79.0
Malignant tumors	3.1	1.9

Demonstration of the Benefits of Energy Efficient, Environmentally Friendly Technology Transfer

The demonstration of the economic feasibility of such projects will help lay the groundwork for further, similar projects. The project could help increase pressure on domestic manufacturers to produce similar equipment in order to compete on the market.

Employment

Jobs are created during the construction phase of the project. The Most coal mine, however, will sell less coal without the regular sale to the Býnov plant, but this is not expected to cause layoffs because the Býnov plant is small.

Capacity Building

Through this project, the local government learned first-hand of opportunities to improve air quality while focusing on greenhouse gas emissions. Operators and managers of the district heating plant will be working with state-of-the-art equipment, which can help other communities to learn about such technologies.

Residents have greater control over their heating demands and costs with installed meters and thermostats, which replaces the former system of opening and closing windows to regulate temperature.

Finances and Labor

Capital Cost (total)

US \$7,982,000

Financial structure

Equity

The City of D...ín 570,000 USD

Loans

Edison Development Company	200,000 USD	0% interest, 25-year loan
NIPSCO Industries	200,000 USD	0% interest, 25-year loan
Wisconsin Electric Power Company	200,000 USD	0% interest, 25-year loan
Czech State Environmental Fund	2,960,000 USD	7% interest, 8-year loan

Grants

Czech State Environmental Fund	2,960,000 USD
Danish Ministry of Environment and Energy	882,000 USD

Percentage of total capital cost provided by each source

Source	Percent
The City of D...ín	7.0
Edison Development Company	2.5
NIPSCO Industries	2.5
WEPCO	2.5
Czech SEF	74.5
Danish MoE	11.0
Total	100

Costs of Monitoring and Evaluation

Not yet available.

Share of Labor/Equipment

Equipment (gas engines):	Germany
Technology:	Denmark
Labor (main contractor):	Denmark
(construction subcontractors):	Czech Republic

Legal Framework

Type of Arrangement Between Parties Involved, Legal Basis for Project

A USIJI Certification Statement was signed between the Center for Clean Air Policy, Wisconsin Electric Power Company, Edison Development Company, and NIPSCO Development Company, Inc. The City of D...ín, Commonwealth Edison Development Company, NIPSCO Industries, and Wisconsin Electric Power Company signed an agreement on the loan and transfer of emissions reduction

The agreement contains the following conditions, which also depend on the attitude of the Czech government towards JI:

a) If the Czech government recognizes JI, American investors will get for their 30-year interest-free loan 100% of the CO₂ reductions resulting from the fuel switch. (This complies with the former arrangement referring to the fuel switch only. The Czech side should obey this in the name of fair play.)

b) If the Czech government does not recognize JI, the Town of D...ín will repay the Americans their share of the investment as a regular commercial loan. This arrangement also explains how the cost of mitigation has been calculated (cited in paragraph 3).

A purchasing agreement has been signed between the City of D...ín and Severoceska energetika a.s. (SEC) for the sale of electricity at 1.67 Czech crowns (Kc)/kWh (approx. 6 cents/kWh) during peak hours and 0.70 Kc/kWh (approx. 2.6 cents/kWh) during off-peak hours.

Legal Support from Governmental Bodies

The Czech Ministry of Environment provided a formal letter of approval. Approval was also obtained from the U.S. Department of Energy and the U.S. Environmental Protection Agency. The project was accepted into the USIJI pilot program.

Arrangement for Division of Greenhouse Gas Credits Throughout the Lifetime of the Project

The agreement on the loan and the transfer of the emission reduction allocates all the GHG credits accruing from the fuel-switching component of the project to Edison Development Company, NIPSCO Industries, and Wisconsin Electric Power Company.

Miscellaneous Issues

Main Obstacles Encountered During Project Development

Although the project was economically beneficial, environmentally beneficial, technically feasible, and in line with the priorities of the City of D...ín and the Czech Ministry of Environment, it was the first project of its kind and, as such, it encountered initial barriers, such as:

- ⊆ transaction costs that were higher than expected
- ⊆ legal complications concerning the privatization of the Býnov plant, which caused delays.

Appendix 2: Reforestation in Krkonoše

Project Participants

Partners

Czech Republic
Ministry of Environment
Krkonoše National Park

The Netherlands
FACE Foundation

Investors

The Netherlands
FACE Foundation

Other Organizations

The Netherlands
Department of Physical Geography and Soil Science
University of Amsterdam (research)

Czech Republic
Forestry Research Station Opočno(research)

Project Information

Place

Krkonoše National Park, Czech Republic

Technical Description

The project sequesters carbon dioxide by reforesting areas severely damaged by acid precipitation. The damage was caused by extremely high levels of industrial emissions in the Black Triangle Area. As a result of reduced emissions, reforestation has not only become possible, but also necessary, as it enables the forest to retain its natural regenerative capacity.

Funding is committed for 20 years, although the rotation period of the forest is 120 years (the baseline is calculated for the first 20 years, with a horizon of 50 years).

The first phase of the project (3 years, 1992-1994) consisted of afforestation of approximately 1500 hectares, mainly with indigenous Norway spruce (*Picea abies*). During this phase, research into the most efficient methods of afforestation and forest management was conducted and seeds for the whole project were obtained. The research helped determine which terrain characteristics favor the growth and development of young trees. It also established that a mixed forest

accelerates the degeneration of the sward that develops in response to a combination of acid deposition, monoculture and climate.

The operation plan for the second phase (1995-1997) has set the pace of afforestation at 600 hectares per year. In 1995, 620 hectares were afforested. Research further confirmed that a small part of the original 16,000 hectares is unsuitable for reforestation and an area of approximately 6,000 hectares is well suited for rehabilitation by natural regeneration. In consideration of the research findings, Krkonoše National Park proposed that the area to be planted be reduced and the remaining hectares per annum be planted in Šumava National Park, another area in need of reforestation of local species.

Greenhouse Gas Mitigation Measure(s)

CO₂ sink (sequestration)

Stage of Preparation

Operation and monitoring

Time Schedule

Project Development	Start	Complete
Research	10/92	Ongoing
Implementation		
Phase 1	1992	1994
Phase 2	1995	1997
Continuation		2011
Evaluation/JI Monitoring	Ongoing	2011

Environmental Effects

Calculations for sequestration in the absence of the project are not available.

Length of Project (years)	Calendar Year	Annual Increase of Afforested Area (ha)	Total Area Afforested Since 1992 (ha)	Leaf Area per Hectare of Afforested Area (ha)	Amount of CO ₂ Sequestered Each Year (t CO ₂)	Cumulative Sum CO ₂ Sequestered (t CO ₂)
1	1992	500	500	0.50	450	450
2	1993	500	1,000	0.80	1,170	1,620
3	1994	500	1,500	1.20	2,250	3,870
4	1995	620	2,120	1.55	3,978	7,848
5	1996	600	2,720	2.14	6,293	14,141
6	1997	600	3,320	2.63	9,133	23,274
7	1998	600	3,920	3.15	12,539	35,813
8	1999	600	4,520	3.67	16,502	52,315
9	2000	600	5,120	4.08	20,913	73,228
10	2001	600	5,720	4.42	25,682	98,910
11	2002	600	6,320	4.75	30,812	129,722
12	2003	600	6,920	5.06	36,281	166,003
13	2004	600	7,520	5.36	42,070	208,073
14	2005	600	8,120	5.58	48,092	256,165
15	2006	600	8,720	5.88	54,439	310,604
16	2007	600	9,320	6.09	61,020	371,624
17	2008	600	9,920	6.37	67,904	439,528
18	2009	600	10,520	6.68	75,114	514,642
19	2010	600	11,120	6.87	82,537	597,179
20	2011	600	11,720	7.09	90,198	687,377
50	2041		1,1720		179,568	5,418,389

Source: Independent expert, Engineer Marek, Institute of Landscape Ecology, Academy of Sciences CR

Amount of Mitigation

Project Lifetime (years)	Total Amount of Mitigated CO ₂ During Project (t of CO ₂)	Annual Amount of Mitigated CO ₂ (thousand t CO ₂ /year)	Annual CO ₂ Mitigation per Hectare (thousand t CO ₂ /ha/year)
20	687,377*	34.4	2.94
50	5,418,389*	108.4	9.25
120	11,328,000**	94.4	8.05

* calculated by Engineer Marek
** calculated by FACE Foundation

Average amount of CO₂ mitigated per year and hectare: 7.91 [tons CO₂/hectare/year]

Average amount of carbon mitigated per year and hectare: 2.16 [tons C/hectare/year]

Cost of Mitigation

Calculation for a 20-year project: 46.10 USD/ton CO₂ (calc.: 31.69 mil. USD/687,377 t CO₂)

Calculation for a 120-year project: 2.80 USD/ton CO₂ (calc.: 31.69 mil. USD/11,328,000 t CO₂)

Note: FACE is developing a model for calculating carbon sequestration.

Other Environmental Effects

Strengthening of the ecological stability of the reforested area, increased habitat area, decreased risk of soil erosion, improvement of hydrological stability of the region, enhancement of natural revitalization processes.

Monitoring of Greenhouse Gas Emissions

A new monitoring information system which combines the use of satellite images with project data and field work has been under development during this project. The development of the vegetation can be traced through satellite images taken at regular intervals, and poor growth or felling can be quickly identified by ground checks. Linked with the proper data, the information system can provide an instant overview of the state of a certain project or area. The system is made available to the project partners as well.

Economic, Social, and Other Effects

Not specified.

Finances and Labor

Capital Cost

Phase 1, 1992-1994:	US \$5,460,000 (1996)	9,050,000 NLG
Planned cost for whole project:	US \$31,690,000 (1996)	52,500,000 NLG

Financial Structure

Equity

None

Loans

None

Grants and Other Subsidies

FACE/Phase 1, 1992-1994:	US \$5,460,000 (1996)	9,050,000 NLG
Whole Project:	US \$31,690,000 (1996)	52,500,000 NLG

Percentage of Total Capital Cost Provided by Each Source

FACE: 100%

Legal Framework

Type of Arrangement Between Parties Involved, Legal Basis for Project

Contract signed between Krkonoše National Park and FACE.

Legal Support from Governmental Bodies

A Memorandum of Understanding was signed between Czech Ministry of Environment and FACE. As for the Dutch side, Sep (Dutch Electricity Generating Board) established the FACE Foundation in order to use forests to sequester CO₂ emissions. Sep has requested the Dutch government to acknowledge this effort by accrediting the CO₂ sequestered by FACE afforestation projects so far. The Ministry of Housing, Spatial Planning, and Environment is sympathetic to this request, but the government position is that as a signatory to the Climate Convention, the Netherlands is committed to withholding the accreditation of these kinds of activities that take place outside the Netherlands until international agreements have been reached on joint implementation.

Arrangement for Division of Greenhouse Gas Credits Throughout the Lifetime of the Project

FACE becomes the owner of all greenhouse gas credits generated by the project.

Appendix 3

Mr. Chairman, Distinguished Delegates,

The Czech Republic assumes full responsibility and cooperation in fulfilling the mandates of the UN Framework Convention on Climate Change. Our support and involvement in protecting the global environment is closely aligned with our efforts in environmental protection in the Czech Republic.

As you know, the previous regime in the Czech Republic was preoccupied with a centrally controlled economy and systematically abdicated their responsibility to protect the environment and human health. Unfortunately, the result of this extensive development was severe damage and deterioration of our environment. The policies of the previous regime have placed a serious burden on our children and grandchildren. Clearly, this type of ignorance must be avoided on a global scale where the consequences may be irreversible and result in global disasters. In order to prevent global environmental damage, the precautionary principle must be applied in its full strength.

We are aware of the fact that the emissions of greenhouse gases are relatively high in our country as compared with the majority of our European neighbors. The reason for this is based on the previous practice of extensively utilizing coal based energy sources. The former system of government contradicted the principles of the free market and sustainable development. In the first stage of restoring a democratic society, this approach was abandoned by the Czech people and subsequently, after 1989, emissions of greenhouse gases decreased.

Notwithstanding these positive developments, fears are sometimes expressed that the emissions of greenhouse gases will return to 1990 levels or even increase as a consequence of the current economic growth in the Czech Republic. Rough estimates of our present situation indicate that the on-going modernization of our industry, the gradual removal of energy subsidies and the positive impact of new and improved environmental legislation will prevent these emissions from returning to their previous levels. The government of the Czech Republic has also launched several programs to encourage energy savings and to enhance the use of renewable energy sources. In this respect, we have achieved synergy between our objectives for the transition process and our objectives for the protection of the environment.

The Czech Republic is interested in international cooperation under the Framework Convention. We are fully aware that the stabilization of greenhouse gas emissions, which we hope to achieve by 2000, requires large changes in our industry, transport, agricultural and residential sectors. It will also be necessary to protect and care for our forests which represent the primary sinks for carbon dioxide and which have been heavily damaged by previous emissions of sulphur dioxide and nitrogen oxides.

For these reasons, we support international cooperation to mitigate climate change and stabilize greenhouse gas emissions. We believe that the positive results may occur through joint implementation of policies and measures as provided for in Article 4.2 of the Convention. The Czech Republic is very willing to cooperate with OECD and EC countries to share experience and coordinate national policies and measures in areas of interest.

Finally, the Czech Republic, as a good neighbor of the Federal Republic of Germany, is pleased that the COP 1 is taking place in Berlin. I very much appreciate the efforts of our German friends to organize this conference in a cooperative spirit.

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