

# *Capacity for Climate Protection In Central and Eastern Europe*

## *Activities Implemented Jointly (AIJ)*

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# Foreword

The Kyoto Protocol<sup>1</sup> to the United Nations Framework Convention on Climate Change (UNFCCC) specifies greenhouse gas (GHG) emissions reduction targets for countries included in Annex I of the Convention. These emission reductions have to be achieved by 2008-12. Domestically, the 38 industrialized nations in Annex I can reduce GHG emissions or enhance GHG sinks within their own territorial borders or jurisdictions. Internationally, the Kyoto Protocol includes four “flexibility” instruments, which enable countries to achieve these reductions with other states. The intention of the mechanisms is to allow emission reductions at the lowest possible costs. The Protocol mechanisms include:

- emissions trading;
- joint implementation (JI);
- the clean development mechanism (CDM); and
- the regional bubble formed by the European union member states.

Only two of these mechanisms - emissions trading and JI - can be used within Annex I by all 38 industrialized or transition countries. CDM is a mechanism to be implemented only between an Annex I country and a developing country. In addition, two of these mechanisms - JI and CDM - are project-based and envision investment in projects to reduce GHG emissions. The project-based mechanisms have not yet entered a phase where investor and recipient countries can transfer emission credits. Nevertheless, experience in implementing such projects is being gained through a pilot phase known as Activities Implemented Jointly (AIJ).

The papers presented in this publication focus on the experience of four Annex I Economies in Transition (EITs) in implementing AIJ projects. The country reports from Bulgaria, the Czech Republic, Poland and Slovenia provide examples of country efforts in building a national JI system to streamline investment. At the same time they illustrate the significant hurdles that governments and the Conference of the Parties to the Convention need to address to make JI investment cost effective and attractive for recipient and investor countries.

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<sup>1</sup> Protocol accepted at the Third Conference of Parties of UNFCCC in December 1997.

# Learning by Doing in CEE

The objectives of this summary, the following case studies (developed by regional non-government organizations), and input from an international Advisory Committee - to WRI and the REC's Capacity for Climate Protection in Central and Eastern Europe Project - are to draw lessons from CEE experience with Activities Implemented Jointly (AIJ) projects and to provide information on the rules set by governments and the Conference of the Parties (COP). Delegates of the COP, potential project investors, and other stakeholders interested in the flexibility mechanisms created under the Kyoto Protocol may profit from these reviews of AIJ projects in the region.

The Kyoto mechanisms offer a challenge and opportunity to channel investment into more sustainable energy and industrial projects while lowering the overall cost of compliance with the ambitious emissions reduction targets set in the Protocol. But making the mechanisms work is not simple. A well-structured project-based crediting program under the Kyoto Protocol will have to simultaneously perform three difficult tasks. First, the project must demonstrate real reductions in greenhouse gas (GHG) emissions. Second, host firms must receive an adequate supply of capital and technology to make the project worthwhile to them. And finally, investing firms must receive enough "emission reduction units" (ERUs) from the JI or Certified Emissions Reductions (CER) from Clean Development Mechanism (CDM) projects to make the project interesting from their perspective.

The case studies on AIJ experience in the region illustrate the importance of good governance to successful market programs. The CEE countries wishing to engage in JI will need to increase the attention and resources they give to implementing the Kyoto Protocol. Specifically, countries must pay more attention to making themselves attractive targets for investors seeking cost-effective CO<sub>2</sub> reductions opportunities and to integrating JI into their overall development goals. At the same time, many of the problems highlighted in the case studies can only be remedied by decisions taken by the international process, specifically at the Conference of the Parties to the Climate Convention.

## **Good Governance in National Programs:**

A meaningful and effective project-based program under the flexibility mechanisms of the Kyoto Protocol requires decisions and actions by national governments to:

- 1 Align and integrate JI into national priorities and a long-term national development vision.* The four case studies indicate that AIJ projects are being implemented on a piece-meal basis rather than by using a single long-term strategy to link economic development, technological innovation, and climate objectives. Currently, the key sectoral reform strategies (e.g., energy) of Annex I Economies in Transition (EITs) fail to incorporate climate objectives, while AIJ projects fail to reflect changes in the larger socioeconomic framework;
- 2 Specify clear legal authority and competencies for project selection and approval.* It is already clear that AIJ projects involve uncertainty concerning how and by whom projects are selected and approved. This leads to substantial transaction

costs, including those related to search, negotiation, and approval. Questions that need to be addressed by recipient governments include: Which department(s) have the legal authority to "select and approve" AIJ projects? How easy is it to follow and monitor the procedures? How difficult is it for potential investors and host firms, as well as NGOs and public interest groups, to find reliable, easy-to-understand information about project selection and approval?;

- 3 *Establish implementable project selection criteria.* Some of the case-study countries (e.g., Bulgaria, the Czech Republic, and Poland) have developed selection criteria. However, case studies indicate that criteria are too general and usually function as suggested guidelines rather than mandatory obligations. Countries need to develop and implement clear, transparent and actionable project selection and approval criteria; and
- 4 *Set up systems to ensure transparency of decisions, public oversight of project performance and provide information to the business community.* Most Annex I EITs in CEE have already committed to transparency and public participation in environmental matters by signing and planning to ratify the *Aarhus Convention on Access to Information, Public Participation in Decision-Making, and Access to Justice in Environmental Matters*. This framework is applicable to both country JI programs and specific AIJ/JI projects, as the latter are in sectors specified by the Aarhus Convention's Annex I. The application of the Aarhus principles to JI projects will require that governments create channels so that NGOs and other constituencies can participate in national JI program design, AIJ/JI project selection and approval processes, and monitor and make public information about AIJ/JI project performance.

These four key components of a national system for project-based flexibility mechanisms will streamline decisionmaking, reduce transaction costs and motivate participation by the private sector. They will also encourage individual projects to stimulate capital inflows and technological innovation in support of long-term national development objectives; and involve civil society in the creation of checks and balances to make certain that GHG reductions are achieved by each project under the Kyoto flexibility mechanisms.

### **International Governance Decisions and Guidance from the COP:**

A national system in a recipient country, however, may be confronted by three issues at the core of project-based flexibility mechanisms: baselines, additionality and credit-sharing. These issues are currently being discussed by governments, expert groups, and the subsidiary bodies to the Convention. The CEE case studies and Advisory Committee discussions suggest specific problems that require decisions and/or guidance by the COP.

*Baselines:* Experience with AIJ in CEE underscores the need for a set of common rules, or at least guidelines on baseline assessment. Case studies illustrate that for many AIJ projects, selecting and evaluating baselines consumed considerable time and effort and thus generated high transaction costs. In addition, discrepancies in baseline assumptions were frequent and led in turn to high levels of uncertainty (e.g., the Czech Republic, Poland, Bulgaria). The lack of local expertise in baseline assessment not only added to the uncertainty but also made the AIJ/JI benefits controversial. Therefore guidance and/or a

common set baseline rules is needed to reduce uncertainty and transaction costs. The COP should create and adopt an independent mechanism for baseline review and validation. Such a mechanism should also identify and train experts in recipient countries.

*Additionality:* The case studies raise two particular issues which should be considered in developing the rules for the assessment of project additionality: whether commercially viable projects or projects implementing existing legislation (e.g., previously enacted air pollution standards) should be considered additional under the flexibility mechanisms rules. The COP should specify what criteria are useful in defining additionality, and especially whether to prohibit projects in the "commercially viable" and "existing legislation" classes. If a "commercially viable" or "existing legislation" ban is not adopted by the international community, there remains a need to clearly define a framework to reduce uncertainty in determining the "additional" component of a project that either makes economic and financial sense or achieves the objectives of existing national legislation.

*Credit-sharing:* Although the AIJ pilot does not allow emissions reduction credits to be applied to the Kyoto Protocol targets, the subject did arise in the region. The case studies suggest concerns over two credit-sharing principles: how to share credits between the investor and the host, and how long a project should be able to produce credits. The second question - duration of credit-sharing agreements - has to reconcile two conflicting interests: those of the investors, interested in generating credits throughout the life of a project; and the host country, whose future commitments are unclear (Annex I CEEs' first commitment period expires in 2012). A detailed assessment of experience in the pilot AIJ phase and guidance from the OECD Annex I Expert Group can help governments in weighing the benefits and liabilities in the credit-sharing agreements they are likely to form.

An overall conclusion from the AIJ experience in CEE is that the level of uncertainty is so high that governments, investors, and NGOs are cautious in their assessment and/or involvement in AIJ. Stakeholder caution is likely to increase in a crediting regime, and therefore uncertainties and bottlenecks should be addressed to support effective JI programs. The COP should consider and set clear rules for assessing project baselines and additionality before entering into crediting regimes.

National governments that wish to engage in flexibility mechanisms also need to make considerable investment in building the national institutional and policy infrastructure to support project-based flexibility mechanisms. Without an institutional infrastructure in place, JI and CDM projects are unlikely to become cost-effective mechanisms for emissions reduction, technological innovation, and economic growth. This infrastructure would need to have clear operational selection and approval criteria integrated into local and national development objectives; streamlined institutional procedures; transparency and public oversight and participation; stable and favorable investment climate for *both* domestic and foreign investors; and finally, local capacity for baseline and additionality assessment and project validation.



# Joint implementation and its pilot phase in Bulgaria

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## **1. BULGARIAN POLICY TO ADDRESS CLIMATE CHANGE**

Bulgaria signed the Framework Convention on Climate Change (FCCC) in Rio de Janeiro and ratified the Convention in March 1995. It also signed the Kyoto Protocol and can keep its commitment to maintain its greenhouse gas (GHG) emissions below those in the base year. Pursuant to Article 4 of the FCCC, Bulgaria adopted 1988 as a base year, which is representative of the overall national development potential and more appropriate for comparisons in the long term. The agreed target for Bulgaria under the Kyoto Protocol during the first commitment period (2008-2012) is an 8 percent reduction, amounting in real terms to 626,025 million tons of CO<sub>2</sub> equivalent.

The underlying principles of the national climate change policy were developed on the basis of Bulgaria's desire to join international efforts towards solving climate change problems to the extent possible given the national economy and with an eye toward attracting foreign investments that might promote implementation.

The main share of GHG emissions in Bulgaria comprise energy related CO<sub>2</sub> emissions, and their share is expected to increase further if the current energy intensive production pattern is not replaced by energy-efficient options. Consequently, the focus of GHG mitigation policies and measures in Bulgaria is to improve energy efficiency and thus mitigate GHG emissions (mainly CO<sub>2</sub> emissions) in the energy sector and in energy-related activities in other sectors of the Bulgarian economy, including the household sector. The priority focus on the energy sector does not preclude opportunities to reduce GHG emissions in other sectors of the national economy, such as transport, industry, agriculture, construction, etc.

The Bulgarian national policy to address climate change is developed and coordinated by the Ministry of Environment and Waters (MEoW). The basis and the framework of this policy are officially stated in the First and the Second National Communications (1996, 1998)<sup>2</sup>, elaborated by an Interministerial Committee supported by independent organizations and experts and under the coordination of the MEoW. The State Energy and Energy Resources Agency, the State Energy Efficiency Agency and the Ministry of Industry are important actors on this committee.

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<sup>2</sup> Second National Communication on Climate Change, Republic of Bulgaria, Ministry of Environment and Waters and Energoproekt PLC, April 1998

The MEoW developed an Action Plan in September 1999. It is expected that it will be approved by the Council of Ministers and will become an official document of the Government.

## **2. JOINT IMPLEMENTATION MECHANISM: AN ADVANTAGE FOR BULGARIA**

Preliminary studies show that it would be difficult for Bulgaria to achieve the Kyoto reduction target. It will be necessary to pursue consistent policy and to apply new measures to reduce GHG emissions once the nation's economic recovery begins. The projected overall GHG emissions for the first commitment period (2008-2012), according to the baseline scenario for energy sector development, exceed the Kyoto reduction target by about 10 percent. When compared to the projected emissions, the reduction target is not achievable using either the baseline or the intermediate scenarios of the country's development. Major roadblocks to achieving the target are associated with the lack of funds to support mitigation measures and projects. International collaboration and partnership are therefore considered essential for meeting the reduction target. (1)

The Joint Implementation (JI) mechanism, recommended by the UNFCCC and reaffirmed by the Kyoto Protocol, is considered a useful tool for enabling the country to fulfill its commitments. With respect to JI, the viewpoint of the Republic of Bulgaria, stated in the National Communications, is as follows:

- JI is economically effective because it allows achievement of least-cost maximum global reduction of GHG emissions;
- JI mechanisms would facilitate penetration of state-of-the-art technologies into the country;
- JI is a voluntary activity under the responsibility of two or more parties that has to be undertaken and/or accepted by the governments of the two counterparts.

The JI mechanism corresponds to the national priorities of restructuring the national economy, increasing the competitiveness of Bulgarian products in international markets, and attracting foreign investment to the country during the transition period. JI also has the potential to bring priorities together from an environmental and economic point of view. The investing country achieves greenhouse gas abatement at a lower cost while, for Bulgaria as a host country, JI offers the prospect of improving the local environment and encouraging economic growth. As Bulgaria is interested in joining the European Union (EU), these measures would also help the country come closer to meeting the existing policies of the EU.

There is no specific legislation in Bulgaria in support of JI activities. However, the existing legislative situation is not an obstacle for the implementation of JI projects.

An important facet of JI projects in Bulgaria is that conditions in the country allow exclusive possibilities for reduction of the emissions of carbon dioxide and other greenhouse gases at much lower costs than would be needed for attaining the same results

in the developed European countries. JI is, in the Bulgarian economic situation, an attractive business. Payback periods are shorter than five years. Savings in capital investment, due to energy efficiency measures, are estimated at 1.3 times the cost of those energy efficiency measures. (3)

### **3. ACTIVITIES IMPLEMENTED JOINTLY IN BULGARIA**

#### **3.1. The Political Approach**

Bulgaria expressed readiness to participate in the initial pilot phase of JI – the Activities Implemented Jointly – in order to show its interest in the mechanism and to gain experience. It was also expected that the AIJ projects would help to involve the business community and to increase confidence in the economic, technical and environmental benefits of the projects.

The MEoW, in its capacity as designated national authority for AIJ, established contacts with a number of Annex I countries with developed market economies: The Netherlands, Italy, Norway, etc.

The negotiations between the governments of Bulgaria and the Netherlands led to the signing of a Framework Letter of Intent. Some further activities followed, which led to the start of the only Bulgarian AIJ project. The collaboration between the two governments became a catalyst for Bulgarian activities in the field.

#### **3.2. Institutional Set-up**

The JI/AIJ activities are currently coordinated by a small unit within the Air Protection Department of the MEoW. The unit involves a senior expert, who is the national contact for the UNFCCC, as well as several supporting experts. The activities of the unit are complemented with the support of experts from other relevant institutions. Decisions on selection of projects are taken after coordination with the appropriate ministries and governmental agencies through official correspondence.

The necessity of establishing a specific unit for regulation of JI activities on the national level is well understood. Specific support for institution-building is expected from the Dutch government. The Dutch Ministry of Environment suggested defining a study to facilitate the formulation of methodology, criteria, rules and procedures regarding Bulgarian and Dutch JI activities. The study will recommend the structure and functions of the JI unit which will later handle overall national JI activities. There have also been discussions about establishing a Steering Committee to make final decisions and a Consultancy Group for project preparation in accordance with international requirements.

#### **3.3. Criteria for Project Selection**

There are no officially accepted and announced criteria for JI project selection. However, the following recommended criteria for JI were outlined by the Bulgarian MEOW at the Dutch-Bulgarian workshop on JI in November 1998:

- Project investment should be grants, not loans; and projects should not be commercially feasible.
- Projects should be supported by national priorities facilitating the process of transition to a market economy and economic development.
- National climate change policy efforts should not be decreased because of JI.
- Environmental impact assessment of the projects is desirable.
- Existing foreign aid must not be replaced by JI.
- Local experts should be involved in JI projects.
- A reliable GHG inventory is needed for the establishment of baselines.
- Economic agreements on JI should last for a maximum of ten years.
- Credits should be formally approved on an annual basis, based on project emission reductions.

These criteria reflect, to a great extent, both the specific national priorities during the transition period and the international requirements for JI projects. At the same time, some of the criteria mentioned (the first one for example) should be further discussed and developed.

### **3.4. Projects Proposed and Selected**

Following the priority focus of JI activities in Bulgaria on the energy sector - the producer of the largest share of GHG emissions in the country - the first projects selected and proposed by the government for AIJ involved district heating companies.

The project in Pleven DHC was selected as an example that identifies aspects important for capacity building in the context of the JI process. The complete procedure of establishing a baseline, monitoring results, etc. will be implemented within the project.

### **3.5. Public Awareness**

Although JI is an economically feasible way for Bulgaria to reduce GHG emissions, awareness about the benefits of JI is limited. More work needs to be done to increase public knowledge about the JI mechanism, especially among the business community, which is expected to initiate JI projects .

Information dissemination and promotion should become one of the tasks of the JI unit. Nongovernmental institutions and organizations should be involved in the process. Currently, a very limited number of NGOs are working in the field of JI.

#### **4. THE AIJ PILOT PROJECT FOR THE PLEVEN DISTRICT HEATING COMPANY**

The governments of Bulgaria and the Netherlands have signed a Memorandum of Understanding to set up pilot JI projects by the year 2000. An energy efficiency project for the state owned District Heating Company (DHC) in Pleven<sup>3</sup> was chosen for such a project. The district heating company in Pleven supplies heat and hot water to residential customers and heat and steam to industrial customers. Electricity produced is sold to the national grid.

Through a combination of technical innovations and strategic economic and financial input, the project attempts to address greenhouse gas emissions at two essential points. Under the project, the DHC management will be provided with the technical tools to monitor, measure and regulate the production and distribution of heat. At the same time, a set of economic and financial monitoring tools to measure and monitor the overall performance of the Company itself will be developed.

##### **4.1. Current Situation**

The company's operational capacity is presently based on 3 steam boilers of 75 t/h each (Belarus), 2 steam boilers of 125 t/h each (Czech), 3 turbines of 12MW (Russian) and 2 water boilers of 100 Gcal/h. Feedstock is natural gas. Fuel oil with 3.5 percent sulphur is used as substitute in case of storage of gas supply. Distribution of heat and hot water is affected through two major lines, with 1,270 substations and a total length 165 km. Industrial steam is supplied via six steam mains to 32 industrial companies. Electricity supply to the national grid takes place at the factory gates.

The production process is based on supply of heat and hot water – mainly for domestic supply to some 36,500 apartments – and steam for industrial supply. Sixty-four percent of production goes to residential customers and 36 percent to industrial ones. The electricity is a by-product which has to be supplied to the national grid at a fixed price.

Residential consumers pay a fixed price for their energy consumption, which is presently below cost level. The DHC is paid a subsidy by the government for the total supply to residential customers. Prices have been increased regularly over the past few years and further increases will be affected until, by 2001, residential prices will be at cost level plus a small margin. All government subsidies will be eliminated by the end of 1999. The price

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<sup>3</sup> At present all operating district heating companies are state property, except the DHC of Sofia, which was transferred to the municipality of Sofia in 1996.

for electricity to the national grid is below the cost, but this will be reviewed by the government during 1999.

## **4.2. Project Description**

### **Objectives**

The main objective of the project is to increase the efficiency of the steam boilers by 2-3 percent, and the overall efficiency of the DHC by 7 percent. Implementing the steam boiler efficiency measures will result in a 3,500 tonne reduction in annual emissions of carbon dioxide in flue gas. In accordance with the Memorandum of Understanding, the reduced carbon dioxide emissions will be shared between Bulgaria and the Netherlands.

### **Energy Efficiency Measures**

The project includes the following priority energy efficiency measures:

- A new monitoring and control system for steam boiler No.4, which will control:
  - ◆ The ratio of gas/air based on oxygen content in the flue gas.
  - ◆ The temperature and pressure of the overheated steam.
  - ◆ The level of water in the drum.
  - ◆ The flow of the overheated steam (replacement of the flow transmitter).
  - ◆ The quality of water in the drum.
- Monitoring of all relevant analogue and discrete parameters of the Industrial Software system.
- New instruments, valves and a new monitoring and control system for steam boiler No.5, which will control at least the same parameters as the system for steam boiler No.4.
- Measurement of the carbon oxide content in the flue gas of steam boilers No.4 and No.5.
- Measurement of outgoing steam in the main pipelines to the industries and the hot water heat exchangers. The measurements will be connected to the new monitoring and control system, in order to optimize steam production.
- Upgrading of the level measurement and control in the degasification units for the feed water system.

- Measurement and control of the main parameters of turbines No.2 and No.3.

The new equipment, monitoring and control system will be supplied by the Dutch party.

### **Project Cost**

The total cost of the project is US\$ 480,000, which will be covered by the Dutch party. The project cost includes hardware, consultants, baseline study, monitoring study and training components.

### **Implementation**

The present members of the consortium – comprised of Tebodin, TNO, EWR and TETIVA - for the AIJ project in Pleven will have the following responsibilities:

- Tebodin Consultants & Engineers (The Netherlands) will be responsible for project management. Tebodin will make a business plan, coordinate the design and implementation of the hardware and software in the project and execute procurement.
- TNO (The Netherlands Organization for Applied Scientific Research) will be responsible for AIJ procedure.
- TETIVA Ltd. (Bulgaria) will be involved in the engineering phase, and is responsible for supervision of the installation phase. TETIVA will also be involved in the baseline study and monitoring of the AIJ procedure.
- EWR (The Netherlands) will be involved in the training program in the area of building structure, measurement of the heat and energy consumption, and maintenance.

### **4.3. AIJ Procedures**

A registration was submitted at the Joint Implementation Registration Centre in the Hague immediately after the approval of the Inception Report.

As a follow-up, the general information provided will be supported by a baseline study through measurements and/or calculations. This study will produce a document which establishes an objective, systematic and reproducible review of the situation regarding greenhouse gas emissions and other environmental aspects, before the start of the AIJ project.

After technical implementation and the transfer of know-how, the reduction in greenhouse gas emission and other pollutants should be demonstrated during a period of monitoring, using a study to produce a report on the new situation.

#### **4.4. Strategy of the State Energy and Energy Resources Agency for the DH sector<sup>4</sup>**

##### ***Price Policy***

The main steps of the price policy will be:

- Regular increase of residential prices for district heating. This process, which began in 1997, should begin to cover costs. Efficient production should be reached by the end of 2001. At the same time, the generic subsidy to the heat supply companies will by then be completely dismantled.
- Prices for supply to industrial customers is to be freely negotiated between the supplier and buyer. The price for electricity supply to the national grid will be increased up to a level that at least covers production cost, in order to give the district heating companies an incentive to produce electricity.

Redirecting the state subsidy from the district heating companies to low income individual customers will require a substantial reduction of the transmission losses from 20 percent to about 10 percent on average. Due to the present technical state of production at the distribution network DHC Pleven has a rather high cost price compared to other DHCs in the country.

##### **Transfer of ownership from the State to the Municipality**

There will be a step-by-step transfer of the ownership of the district heating companies from the state to the private sector and the municipalities:

- By the end of 1999, all activities that are not directly related to heat and power production and distribution (including maintenance activities) will be set up as independent legal entities and will be privatized.
- Opening of the privatization procedure for DHCs is expected by the end of 2000.

The Municipality of Pleven expects to be granted ownership rights over Pleven DHC. The municipality has worked out a master plan for the Pleven energy supply, of which about 90 percent will be related to the role of the Pleven DHC. It should serve as a basis for the decisions on the development of and future investments in the DHC.

Presently, about 56 percent of all housing that could be connected to the DHC network has been connected. Work has begun on the connection of a new residential area in the city, which includes about 25,000 people. The construction of a new main pipeline and 24 new substations has been contracted. The new houses should all be equipped with individual metering and individual control systems. All schools in Pleven will be equipped with thermal regulation valves.

#### **4.5. Conclusions**

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<sup>4</sup> National Strategy for Development of Energy and Energy Efficiency till 2010, Sofia, August 1998

- The project is in its Initial Stage of Baseline Study, so the approach for baseline identification cannot yet be ascertained. The baseline study is to be carried out in full conformity with the relevant guidelines of the JI Registration Centre in The Hague.
- The project respects the requirement for additionality. Otherwise the activities included in it would not be implemented.
- The basis for the calculations of the environmental effects and their additionality is not clear from the available information. It is not clear whether the calculations take into account the influence of any other technical measures expected to be implemented during the project lifetime. This is important because the measures included in the AIJ project are limited to measurement and control.
- The second stage, a monitoring study, will start from the beginning of the year 2000. After completion of this stage, information about the project as a pilot project for AIJ will be disseminated.
- The accepted principle for distribution of emission credits is not clear.
- Information about the project is not sufficiently available either to the parties that might be interested in such projects or to the public.

## **5. GENERAL CONCLUSIONS AND RECOMMENDATIONS**

Climate change and JI are relatively new policy concerns for Bulgaria. This could be said for environmental protection activities in general prior to the political changes in 1989. The rapid progress in the country's environmental policy during the past few years, and the success that Bulgarian authorities have achieved in this area, give grounds for optimism that there will be real progress in the area of climate change as well.

It is clear that the Bulgarian government has to speed up the development of further policies to address climate change, including the JI mechanism. The opportunities to gain experience and to build institutional and personal capacity during the JI pilot phase were not effectively utilized. There were some factors that acted as barriers to this process. These were mainly the national economic crises and their influence on all sectors and on the investment climate in the country.

In this situation, international support proved to be a factor of crucial importance and an incentive for JI/AIJ policy elaboration and domestic actions. It is obvious that some impending local actions should be undertaken in order that international support can be effective:

- The infrastructure needed for day-to-day co-ordination of the JI activities and for the selection of priorities and projects should be established as soon as possible. To establish this infrastructure, increased efforts toward capacity building are necessary.
- Uncertainties about procedures for implementing JI projects should be resolved.

- The criteria for selection and the rules for development of JI projects and the role of different actors in the process should be elaborated after an open public discussion.
- National methodology for project baseline identification and measurement of emissions reduction should be developed and implemented.
- In the future, JI should include a major role for private companies, in order to improve the investment climate. This also reaffirms the importance of public and private cooperation.
- Success factors for JI projects include local incentives.
- More active information dissemination to companies and NGOs should be considered.

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# Evaluation of activities implemented jointly in the Czech Republic

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## 1. CAPACITY OF THE CZECH REPUBLIC AS A HOST COUNTRY FOR AIJ PROJECTS

According to the Kyoto Protocol, the Czech Republic will have to stabilize its GHG emissions at 8 percent below 1990 levels. Because of the economic downturn from 1990-1993, the level of GHG emissions in 1995 was about 76 percent of 1990 emissions. Czech Republic tradable reduction potential for JI projects was examined by the World Bank in 1998<sup>5</sup>. The World Bank considered two scenarios for high and low economic growth linked to two mitigation scenarios, as well as marginal abatement costs for GHG reduction. It estimated a favorable gap between actual and Kyoto-targeted emissions in the Czech Republic of about 10 - 30 million tonnes of CO<sub>2</sub> in 2005. Due to the great uncertainty about future emissions and an unstable economic situation, this study recommends using at maximum 1-2 percent of national emissions during the initial trading period (2000-2005). This represents about 1,5 million tonnes of CO<sub>2</sub> annually. The Strategy of Earth Climate System Protection in the Czech Republic, accepted by the Czech Government, recommends using 0 - 1.550 million tonnes of CO<sub>2</sub> annually, while factoring in the uncertainty regarding completion of the Temelin nuclear plant.<sup>6</sup> According to the World Bank study, the lowest reduction costs are in the energy sector.

### 1.1 The state of AIJ in Czech Republic

After COP-2, a national contact point for AIJ was established within the Foreign Relations Department of the Czech Ministry of Environment.

In April 1997, the Czech Ministry of Environment (MoE) published rules<sup>7</sup> for AIJ projects. They have six articles, which require that:

- Applications for accepting AIJ projects must be submitted in writing to the Ministry of Environment for assessment, and must contain financial, legal and technical documentation.

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<sup>5</sup> A National Strategy for Joint Implementation in the Czech Republic, The World Bank, Prague 1998.

<sup>6</sup> The Strategy of Earth Climate System Protection in Czech Republic, Resolution No. 480/99 of Czech Government from 17 May, 1999

<sup>7</sup> See note

- Applicants should specify their financial sources, stating the share of investment of the partner from the investor country and enclosing a statement by the partner and the approval of the relevant competent body of the investor country.
- Evidence must be given that a significant emissions reduction (at least 10% per annum from the baseline) shall occur through:
  - ◆ replacement or modification of existing technology or parts of it,
  - ◆ additions to the existing technology of "end of pipe" equipment.
- With projects resulting in long-term sequestration of CO<sub>2</sub>, the project should increase the overall stability of forest ecosystems and respect the principles of biodiversity protection.
- In addition to reducing greenhouse gas emissions, the project must bring about additional positive environmental impacts compliant with the State Environmental Policy of the Czech Republic. A project might also contribute to the development of infrastructure, provide employment, etc.
- Foreign firm's investments into subsidiaries located in the Czech Republic, made solely to meet emission limits, shall not be considered as AIJ projects.
- Except for general rules that describe measures that are in the Convention or COP decision, there are no precise regulations for assessment of additionality. The only guidance is that the project achieve a 10 percent CO<sub>2</sub> reduction in comparison with initial states.

The AIJ projects are assessed by a working group consisting of officials from the financial and foreign relations departments of the Czech MoE. This group recommends to the Minister of Environment whether to accept or reject the projects.

At the initial phase of AIJ/JI, the government plays two roles: supporting and regulatory.

During the fully developed JI the government will act mainly as a regulator in order to fulfil its compliance with UNFCCC and the Kyoto Protocol. In this phase the regulatory role will be separated from that of support, which will be carried out by either the State Environmental Fund or the Czech Energy Agency.

The capacity of the Czech MoE for assessing, approving and monitoring AIJ/JI projects is not sufficient. The World Bank study (1998) provides some useful recommendations for the institutionalization of the JI process in the Czech Government, but these recommendations are yet to be implemented.

Recently a Czech MoE team was established to prepare more detailed rules and procedures for approving AIJ and JI projects. The new rules should be ready by the end of 1999.

In September 1999, three AIJ projects were approved by the Czech Republic MoE and one was pending. The projects are listed in the following table.

Description, location	Investor country	Project lifetime (years)	Expected emissions reduction (1000 tonnes of CO <sub>2</sub> )	Total costs (USD)	Investment (USD)
Conversion from coal to gas, Decin-Bynov	USA	25	872	8,800,000	600,000 loan
Reforestation, Krkonose and Sumava Mountains	Netherlands	15 <sup>8</sup>	9,834	31,600,000	31,600,000
Modernization of cement factory, Cizkovice	France	5	168	5,900,000	5,900,000
Biomass heating plant, Hostetin	Netherlands	15	49	923,000	393,000

In July 1997 the Czech MoE signed an agreement with the German Ministry of Environment, Conservation and Nuclear Safety on the pilot project "Ecological Generation of Heat and Electricity in Cheb". Article 1 states that the project "will fulfill the aim of activities implemented jointly in accordance with Decision No. 5 of the First Conference of Parties of UN FCCC"<sup>9</sup>. This project, which has not yet been submitted in appropriate form to the Czech MoE, is not described in this study.

In October 1999, the Ministry of Environment working group recommended accepting a project focused on reconstructing a power/heating plant at Skoda Mlada Boleslav. This project is also not described in this study, as it came up for approval after the study's completion .

<sup>8</sup> According to unofficial information, this project will be finished by the end of 2000 and will not go to II phase.

<sup>9</sup> Agreement mentioned above between Czech and German Ministry of Environment

## 2. EVALUATION OF CURRENT AIJ PROJECTS IN CZECH REPUBLIC

### 2.1 Decin Bynov

#### 2.1.1 Project Description

Decin's District Heating Plant Bynov is presently being converted from use of lignite coal to gas and cogeneration. The distribution's energy efficiency is also being improved. The converted plant will have four gas motors and two gas boilers (for peak utilization) and will provide heating and hot water for local apartment blocks. A total of 2,553 fewer tonnes of CO<sub>2</sub> will be emitted annually from the plant starting in the year 2002. In 1998 emissions (on-site plus off-site) were reduced to 36,938 tonnes of CO<sub>2</sub> and by 2002 they will be further reduced to 34,385 tonnes. The total lifetime of the project is planned to last 25 years. Reduction of on-site emissions will be achieved by the new fuel and by increasing energy efficiency. Off-site reductions of GHG emissions will be achieved through cogeneration, which will reduce energy consumption from the national utility grid.<sup>10</sup>

#### 2.1.2 Investment and distribution of credits

The project is financed by the City of Decin, the State Environment Fund, the Danish MoE and the following US partners: the Center for Clean Air Policy (consultant), Wisconsin Electric Power Company (WEPCO), Edison Development Company and NIPSCO Industries (investors). Their contributions are listed in the table below:

Investor	Amount (USD)	Type of contribution
City of Decin	960,000	Investment
State Environmental Fund	3,200,000	Grant
Danish Ministry of Environment	840,000	Grant
State Environmental Fund	3,200,000	Loan
WEPCO	200,000	Loan
Edison Development Co.	200,000	Loan
NIPSCO	200,000	Loan
Total	8,800,000	

In 1995, the US investors made an agreement with the City of Decin, in which they requested all on-site emissions reductions be transferred to them. Over the project's lifetime, this transfer represents about 121,400 tonnes of CO<sub>2</sub>, or the equivalent of about 5 USD/tonne of CO<sub>2</sub>. On-site emissions represent about 15 percent, while the US share of

<sup>10</sup> JI Project Decin-Bynov, City of Decin, November 1996

investments represents only 7 percent. As their contribution was in the form of a loan to be repaid by the citizens of Decin at the end of the project, the credits would come even more cheaply to the investors.

The agreement mentioned above was revoked by the Czech MoE, having been concluded without its participation and approval. Nevertheless, the project itself was approved.

The question of distributing credits in different forms of investment (loans, grants) is discussed in the World Bank study. According to the study, the calculation of fair distribution of credits could be based on comparison of opportunity costs.

### **2.1.3 Baseline and additionality**

The baseline compares coal emissions with gas emissions, accounting also for decreased heat demand as a result of newly installed thermostats.

Additionally, according to the 1991 Czech Air Pollution Act, all air pollution sources should have reduced SO<sub>2</sub> emissions substantially by the end of 1998. All district heating plants similar to the Decin plant are refurbished or are currently being refurbished. As the most typical method of refurbishing is coal to gas conversion, it was necessary to convert the fuel in the Decin heating plant by the end of 1998 in to comply with the legislation.

More realistic baseline calculations should, therefore, be based only on the increased energy efficiency of distribution. Financial analysis demonstrated that the project would not be commercially viable unless 40 percent of the total costs were covered<sup>11</sup>. The grants from the Czech State Environmental Fund and the Danish MoE (see previous section) cover 45 percent of the project costs, making the involvement of US investors unnecessary.

### **2.1.4 Conclusions**

This project, or a similar one, would have been realized to comply with Czech legislation, without the financial help of US investors. Accordingly, such projects should not be accepted by the authorities as JI.

## **2.2 Reforestation in the Krkonose and Sumava Mountains**

### **2.2.1 Project Description**

Areas damaged between 1950 and 1990 by either acid rain (Krkonose Mountains) or inappropriate silviculture (Sumava Mountains) are presently being reforested. Emphasis has been placed on mixed-species planting, with the goal of achieving a sustainable forest of native species.<sup>12</sup>

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<sup>11</sup> Ibid

<sup>12</sup> JI Project Reforestation in the Krkonose Mountains

Foreign participators include the FACE Foundation (investor) and the University of Amsterdam (research), both institutions from the Netherlands. The project has also been submitted to the Dutch Joint Implementation Registration Centre (JIRC).

The project was initiated in 1992 in conjunction with a research program carried out by the University of Amsterdam and Opcno Forestry Research Centre. The project has been implemented in several phases: 1) from 1992 to 1994; 2) from 1995 to 1997; and 3) since 1998 and ending by 2000. After the first phase of implementation, it was recommended that certain areas - such as those that would recover spontaneously and those thought to be too severely damaged to recover - be left out of the project. By the end of 1998, 4021 hectares were planted in the Krkonose Mountains and 1573 hectares in the Sumava Mountains. Evaluation and Joint Implementation monitoring has also been an ongoing process. The Forest Stewardship Council<sup>13</sup> standards for sustainable forest maintenance have been applied to the project, and the first figures about sequestered CO<sub>2</sub> will be known by the end of 1999.

### **2.2.2 Baseline and additionality**

FACE initially calculates carbon sequestration with the CO<sub>2</sub>FIX model, and observes the development of biomass in the field. The baseline determines what the development of biomass would have been if the project had not been carried out. The net CO<sub>2</sub> sequestration can be determined by comparing these two scenarios.<sup>14</sup>

But the project's additionality is not justified transparently in the project documentation. According to Czech law<sup>15</sup>, deforested areas designated for silviculture need to be reforested within two years of logging. Consequently, a project similar to this one would have been carried out regardless.

### **2.2.3 Investment and distribution of credits**

The planting portion of the project is financed by the FACE Foundation. Total costs are estimated at 31.6 million USD. A total of 11.3 million tonnes of CO<sub>2</sub> was projected to be sequestered during the project's lifetime. The revised estimate is somewhat lower -- 9,834,120 tonnes of CO<sub>2</sub><sup>16</sup>, or about 3.2 USD/tonne CO<sub>2</sub><sup>17</sup>. The new forests and their wood products belong to the Krkonose National Park and the Sumava National Park. The parks' management is obligated to manage the forests for at least 99 years after planting, and it is expected that the project will be profitable during this period. According to the contract between FACE and National Park Management approved by Czech MoE, the FACE Foundation will receive future carbon credits for those 99 years<sup>18</sup>, but the project's

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<sup>13</sup> FACE Annual Report 1998

<sup>14</sup> Ibid

<sup>15</sup> Act 289/1995, 31, Art. 6

<sup>16</sup> FCCC/SB/1999/INF.1

<sup>17</sup> JI Project Reforestation in the Krkonose Mountains

<sup>18</sup> Contract Documents for CO<sub>2</sub> Offset, FACE, November 1992

lifetime, according to FCCC listing, is now shortened to 15 years<sup>19</sup>. According to unofficial information, this project will be finished by the end of 2000 and will not go to JI phase.

#### **2.2.4 Conclusions**

It seems that this project will have a positive impact on the environment. Emphasis is being placed on use of native species, and increased biological diversity and diversity of age is also being stressed. The main problem, however, is that the project does nothing more than fulfill legislation that would have had to be fulfilled regardless, so in effect it does not fulfill the criteria of environmental additionality. According to available sources, the financial additionality is fulfilled.

The very long period for transfers of credits could become a potential problem for the Czech Republic. In the event that there are more similar projects, it would reduce the ability of the Czech Republic to comply with future commitments for carbon reduction. It also can increase the cost for future reduction, as it is possible to expect that the investors will then look for cheaper opportunities.

### **2.3 Modernization of the Cizkovice Cement Factory**

#### **2.3.1 Project Description**

The participants of the project include Lafarge (France), Lafarge Ceska Republika, Ltd. and Lafarge Cizkovice, a.s.

The aim of project is to improve productivity and cement quality, while also increasing efficiency and reducing electricity consumption. At the same time, the plant will increase production (from 600,000 to 900,000 tonnes of cement per year) and will be brought into line with Czech environmental standards. Expansion is a part of Lafarge's industrial development policy<sup>20</sup> and is unrelated to any AIJ project.

The Lafarge Group provides all investments. The first phase of the project will take five years. At the end of this period, the project will be reviewed and the AIJ will either be continued or terminated. The total reduction of CO<sub>2</sub> is expected to be 168,000 tonnes of CO<sub>2</sub> during the duration of the joint activity.<sup>21</sup>

#### **2.3.2 Baseline and additionality**

The baseline calculation is divided into two parts. At the present production level (600,000 tonnes of cement per year), the gain from AIJ activity is calculated to be the difference between expected emissions from the plant without reconstruction (but accounting for improved efficiency of Czech power stations and reduced average energy

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<sup>19</sup> See note 18

<sup>20</sup> Evaluation of Lafarges Proposal to Modernize the Cement Work at Cizkovice as a candidate for AIJ, FFEM Secretariat, 1997

<sup>21</sup> Ibid

consumption of Czech cement plants) and emissions after reconstruction. This reduction is calculated to be 13,200 tonnes of CO<sub>2</sub> per year.

For production above the present level, it is assumed that the amount of cement not produced at Cizkovice would be produced in another plant, probably at the one with the most efficient production. Thus, the reference efficiency of production is the efficiency of the best plants in the Czech Republic, excluding Cizkovice. Efficiency of production of cement is then converted to CO<sub>2</sub> emissions. The gain from AIJ for this part of the production (300,000 tonnes of cement) is calculated to be 20,400 tonnes of CO<sub>2</sub> per year.<sup>22</sup>

This method of baseline calculation, however, calls for an independent assessment. There is no guarantee that increasing production in one cement factory will lead to decreased production in another (a significant amount of cement produced in Czech Republic is exported). As the improvement of efficiency represents about 7 percent and increase of production 50 percent, the overall amount of emitted CO<sub>2</sub> will be much higher than before realization of the project.

Neither is the additionality of the project explained in the project documentation. However, one of the reasons given by the applicant for the project is that the factory had to be modernized in order to be brought into line with Czech environmental standards.

### **2.3.3 Investment and distribution of credits**

The project is funded entirely by Lafarge Group. The total investment is 31.9 million USD, and investment connected with emissions reduction is 5.9 million USD. With a total reduction of 168,000 tonnes of CO<sub>2</sub>, this comes to 35 USD/tonne.

### **2.3.4 Conclusions**

The key issue with this project is whether a company investing in its own subsidiary in a host country can be considered for an AIJ project. The calculation of emissions reduction is based on the assumption that an increase of production in Cizkovice will cause a decrease of production in other cement plants. Moreover, this project is a part of the company's commercial strategy, and there is no obvious reason to support it with a transfer of CO<sub>2</sub> credits.

## **2.4 Biomass heating plant in Hostetin**

### **2.4.1 Project Description**

This project, unlike the others, was not approved by the Czech Ministry of Environment during the preparation of this study.

Individual heating systems in 68 households in the village of Hostetin in eastern Moravia will be replaced by a central biomass heating plant, with supplemental solar heating. The

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<sup>22</sup> Ibid

project includes construction of the new heating plant with boiler (733 kW) and four solar panels, training of technical staff and setting up a new information centre for biomass and other renewable energy sources.

The project's foreign partners are the PSO program of the Dutch Ministry of Finance, with the Twente Energy Institute (TEI) as applicant (the SENTER agency of the Ministry of Finance as investor), Biomass Technology Group (BTG) as executing member and KARA Energy Systems as manufacturer. The Czech participants are the Municipality of Hostetin as recipient and investor, Veronica Ecological Institute as local project manager, Bio Pal as local technical assistant, and the State Environmental Fund together with the Czech Energy Agency as donors.

The total emissions reduction is expected to be about 49,000 tonnes of CO<sub>2</sub> equivalent during the project lifetime (15 years).<sup>23</sup>

#### **2.4.2 Baseline and additionality**

The baseline assumed that the emissions of GHG during the next 15 years will not change if the project is not realized. The calculation of the reference emissions level is based on fuel and electricity consumption in households and specific emissions figures for the stoves, accounting also for the emissions from fuel transport and methane generation during biological degradation of waste wood. Emissions-saving calculations assume that emissions from combustion of wood fuel are cancelled by the growing process of the biomass, so that in the end, emissions are only produced in connection with fuel transport.

The question is whether it is correct to assume that the level of GHG emissions will remain constant if the project is not realized. There is a large program of gas pipeline construction in the Czech Republic, and even if the conditions in Hostetin are not suitable (Hostetin is a small village, distant from existing gas pipelines), construction of gas pipelines to the village would probably occur in the next 15 years if the biomass plant is not developed.

#### **2.4.3 Investment and distribution of credits**

The total cost of the project is expected to be about 923,000 USD. 393,000 USD is covered by the SENTER agency; the rest will be covered by the Czech participants (the Municipality of Hostetin, the State Environmental Fund and the Czech Energy Agency). The distribution of credit will be done according to the share of investment.

#### **2.4.4 Conclusions**

The project precisely meets the criterion of additionality regarding gas heating as an alternative. Regarding the baseline, the assumption that the level of emissions will remain constant for 15 years without realization of the project needs reassessment. For such

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<sup>23</sup> Hostetin Biomass Heating Project, Annex to Registration Form, SENTER, September 1999

projects, the standardized baseline should be prepared in the form of emissions reduction per heat or energy unit.

### **3. FINAL CONCLUSIONS**

The AIJ pilot has been very useful as a learning phase for the Czech Republic. The realized projects showed that there are a number of issues to which Czech authorities, NGOs and the concerned public should pay attention. Experience with AIJ projects in the Czech Republic has proved that there is a strong need for clear and transparent criteria and procedures for project approval. The evaluation of additionality is absolutely essential for JI or AJI projects.

Some of the projects described were created in order to fulfill Czech legislative requirements. These types of projects should in the future be excluded from JI as they would have been undertaken regardless, and thus have no additionality.

Furthermore, such schemes would place domestic investors at a disadvantage - both foreign and domestic investors are required to fulfil legislative and regulative requirements but only foreign investors are able to receive credits. This is an especially important point with regards to fulfillment of the Air Protection Act and other air protection standards. This should also be kept in mind regarding the Forestry Act.

Special attention should be paid to companies that invest in their Czech subsidiaries, because it is more difficult to separate the JI parts of these projects from other company investments.

The sharing of credits is another important issue - the investment amount and the credit shares for the foreign investor were out of balance in one of the evaluated projects. In this project it was also impossible to distinguish whether the investment was made in order to reduce CO<sub>2</sub> emissions or whether it was part of a commercially feasible investment strategy.

Currently, information on some projects is difficult to obtain and the available documentation often omits important data. Public participation in JI projects (as a part of the EIA process) could significantly increase the effectiveness of these projects and should be required. It will be essential to provide full public access to information on JI projects in all stages.

There is a great deal of uncertainty about future emissions in the Czech Republic, as well as about the economic stability of the country. We therefore recommend that the Czech Government limit use of JI for the first commitment period. Furthermore, it is evident that projects in which carbon credits are given out over a longer period of time could undermine the Czech Republic's ability to comply with future carbon reduction commitments. It is therefore in the interest of the Czech Republic to limit the validity of credits to the end of the current commitment period, i.e., to the year 2012. Czech authorities should only make longer term commitments when carbon reduction levels for the time period are absolutely clear.

The Ministry of Environment must regulate JI projects. Based on experience gained in other areas, however, it is clear that this role as a regulatory body cannot be held simultaneously with the roles of JI promoter or JI project developer. Other state agencies can carry out these tasks.

Up to this point, the JI project selection was investor-driven, and the opportunity to use JI as a tool to stimulate certain technologies was not used. JI seems to be a good tool to support market penetration of renewable energy sources. The best possible manner in which to use this opportunity is to create a short list of technologies - renewable energy sources - that will be able to receive credits on the basis of real energy production. A fixed baseline (based on emissions from gas-produced energy or electricity) can be set up for those technologies. Thus it would be possible to use JI as a means to support renewables without affecting the state budget in any way.

#### **4. RECOMMENDATIONS**

Evaluation of the projects has led us to conclude that the Czech Government should undertake the following steps:

- The Ministry of Environment should be made the regulator of JI.
- Public involvement in project evaluation should be ensured - e.g., by releasing the proposed projects for public comments.
- Because of the uncertainty regarding future emissions in the Czech Republic as well as the country's unstable economic situation, a maximum of 0.5 percent of national emissions in the first commitment period should be allotted for JI. Carbon credits should be limited to the end of the first commitment period.
- A committee of experts should be created to evaluate JI project proposals and to give recommendations to the Ministry of Environment regarding the acceptance of JI projects.
- A list of projects with fixed baselines should be drawn up. A baseline should be set at GHG emissions per unit of heat or electricity production from current gas heating and electricity production plants. This list should be limited to the following renewable sources:
  - solar heating and solar electricity
  - wind mills
  - ◆ small-scale water power plants
  - ◆ biomass energy or electricity
  - ◆ biogas

- If the Czech Republic decides to continue its current practice of case by case project approval (including individual baselines), it will be necessary to establish a set of criteria according to which JI projects will be evaluated. The criteria should be available to investors, together with clear procedures on how to apply for JI projects.

As an absolute minimum, the following points should be included in the criteria:

- Projects that simply help fulfill Czech legislative requirements should be excluded from JI.
- Investors should be prohibited from receiving a greater percentage of carbon credits than the percentage of their investment in the project.
- Investors should be able to demonstrate that the JI element of the project is additional to a "business as usual" investment. In other words, a project should not be accepted as JI if it is simply part of a least-cost investment strategy.

The project must show a minimum 10 percent reduction of emissions per annum.

# The joint implementation procedure in Poland

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## **1. THE CRITERIA AND PROCEDURE FOR APPROVAL OF AIJ/JI PROJECTS IN POLAND**

Since 1994 Poland has been a Party to the Climate Convention. In addition, Poland signed the Kyoto Protocol (which obliges it to reduce its emissions by 6 percent of its 1988 base year level in the period 2008-2012); however, it does not intend to ratify the Protocol in the near future. In accordance with the plenipotentiary powers delegated by the Prime Minister, the Minister of Environmental Protection, Natural Resources and Forestry (hereafter the Minister of Environmental Protection) coordinates the implementation of the commitments under the Climate Convention.

As an Annex-I country, Poland may participate in JI as both the party which finances projects and the party which hosts them. Because of the relatively low costs of reducing greenhouse gas emissions and the well-developed institutional support structure to permit the implementation of investment projects, Poland is primarily interested in the latter of these roles and is perceived as such on the international scene. The management of AIJ projects now under way in Poland is coordinated by the JI Secretariat established in December 1995, which now functions within the structure of the Climate Convention Office, seated at the National Fund for Environmental Protection and Water Management, the largest Polish institution to finance the implementation of environmental policy, under the supervision of the Minister of Environmental Protection.

The JI Secretariat developed evaluation criteria to select those projects that best serve Poland's interests. These criteria include the following provisions (Uniform Reporting Format, 1999):

- Prior to the beginning of each JI project, it must be feasible to estimate the expected emission reduction; after the implementation of the project, it must be feasible to estimate the real reduction.
- JI projects should not lead to deterioration of other local/regional environmental quality indicators. Where proposed JI projects might lead to increases in air pollution, waste water discharges, or waste disposal, appropriate mitigation measures should be incorporated into the JI project.

- JI projects should directly or indirectly result in cost-effective realization of environmental goals. Where JI projects involve the installation of new capital equipment, they should also lead to a net reduction (or at least no increase) in the facility's costs of meeting current and anticipated environmental standards (e.g., standards resulting from harmonization with the European Union environmental directives and/or other international treaty commitments). Thus, process changes and new technologies that prevent pollution are encouraged.
- JI projects should encourage economical use of natural resources and their re-use or waste recycling.
- JI projects should favor the use of advanced production processes and contribute to their promotion to the greatest possible extent.
- JI projects should comply with macro-economic policies at the national and provincial levels.
- Projects should be undertaken only by such Polish partners as could be expected to be solvent in the long-term.

In addition, projects implemented as part of AIJ must meet the requirements which result directly from decisions taken by the Parties to the Convention, e.g., each project should be formally approved by the governments of the cooperating countries; it also must meet the requirement of environmental additionality, that is, it should be demonstrated that the project brings specific, measurable, long-term effects in climate change prevention which would not emerge without the project's implementation.

The implementation procedure for AIJ projects in Poland has a number of stages (Uniform Reporting Format, 1999) as follows:

1. The first stage involves the preparation of a proposal by the project proponent (a foreign company) and its Polish partner, to be submitted to the JI Secretariat. This proposal should contain detailed technical specification of the project, information regarding the manner of its implementation and monitoring of its effects. The information submitted should make it possible to identify the environmental effect to be achieved.
2. The second stage is that of project approval. After obtaining documentation from the project proponent, the JI Secretariat passes the information regarding the project to all interested institutions (governors of provinces, ministries and experts) seeking their opinions. The notification that the proposal has been submitted is also passed to the Director of the Department of Environmental Policy and European Integration of the Ministry of Environmental Protection which notifies the Minister of Environmental Protection.
3. The Minister of Environmental Protection appoints a Steering Committee for the project, consisting of the Director of the Department of Environmental Policy and European Integration, the Head of the JI Secretariat, representatives of other

Departments of the Ministry of Environmental Protection, representatives of the Chief Inspectorate for Environmental Protection and various experts. The Steering Committee verifies the proposal, clarifies all related uncertainties and, in the course of its work, submits its recommendations concerning the project to the Minister of Environmental Protection.

4. At the following stage, the project is approved and designated for implementation. When the recommendations of the Steering Committee are positive, the proposal is considered approved by the Polish government. After the official signing of an agreement between the Polish Government and the Government of the country from which the project proponent originates, the project may be implemented within the framework of the AIJ/JI program.
5. The last stage consists in monitoring the environmental effects achieved as a result of the implementation of the project and reporting on such effects and experiences gained in its implementation to the Secretariat of the Framework Convention on Climate Change. The Polish JI Secretariat is responsible for the correct execution of this work.

Despite adoption of the project selection criteria and procedure, a number of problems persist. The Secretariat lacks sufficient staff and resources to adequately evaluate proposals or monitor project results. Project implementers have complained of bureaucratic inefficiency in negotiating the bilateral agreements required by the UNFCCC.

## **2. AIJ/JI PROJECTS IN POLAND**

Over the four years of its work, the JI Secretariat has received more than 60 AIJ programs/proposals. In practice, there are three AIJ programs currently being implemented in Poland: fuel switching and energy efficiency measures (in collaboration with Norway), an energy supply system for the town of Byczyna (with the Netherlands) and sustainable heat and power improvements for public networks in the town of Szamotuly (with the Netherlands). The first AIJ program, co-financed by the Government of Norway, GEF and the Polish partners, was launched in 1996. To date, the Norwegian program consists of 31 separate individual projects now under different implementation stages (JI Secretariat, 1999a). These are:

- Twenty-two coal to gas conversion projects (and 5 additional projects on "the waiting list") executed in non-industrial, small and medium-sized boiler-houses;
- Nine projects for energy efficiency improvement in new residential buildings.

The financing for these projects consists of:

- A grant in the amount of 25 million USD allocated by GEF to Poland,
- A grant from the Government of the Kingdom of Norway in the amount of 1.1 million USD,

- The Polish government's own funds in the amount of 22 million USD (including the financial assets of the National Fund and the Provincial Funds for Environmental Protection and Water Management, credits allowed by the Bank for Environmental Protection, and the Polish investors' own funds).

The expected overall environmental effect achieved as a result of the program implementation will be the reduction of carbon dioxide emissions by 278,911 Mg CO<sub>2</sub>/year. In the case of coal to gas conversion projects, the environmental effect was calculated as the difference in emission levels between new coal-fired boiler-houses and new gas-fired boiler-houses. In the case of projects for energy efficiency improvement in new residential buildings, the environmental effect is the difference in emission levels between a new building erected in accordance with the Polish Standard (for heat insulation of buildings) and a new building erected using advanced energy efficiency technologies. Additional information on the program is given in Table 1.

In addition, the Polish Government signed an agreement with the Government of the Netherlands, under which 14 projects were pre-qualified and evaluated for possible implementation as JI programs (JI Secretariat, 1999a). Under this program, two pilot projects were selected and they are now under way: the heating systems for two towns: Byczyna and Szamotuly. The Byczyna project involves the use of modern gas boilers to replace the existing coal boilers (with a total output of 4.4 MW). The Szamotuly project involves energy efficiency improvement in the process of heat energy production by fuel conversion (from coal to gas) and cogeneration. The total cost of the projects is estimated at 1,356,000 USD, where the AIJ component represents 912,000 USD. The environmental effect expected as a result of the project's implementation is the reduction of carbon dioxide emissions by 6,966 Mg CO<sub>2</sub>/year. This effect is calculated as the difference in emission levels from the areas of the two towns in 1997 (before the investment project was started) and the emission levels following the modernization. It is not clear how environmental effects have been calculated and how they have been split between domestic measures and the AIJ component. Additional information on the program is given in Table 1.

Table 1. Selected AIJ projects in the course of implementation

(The authors' own elaboration after Napieraj, 1999)

<b>Projects implemented on the basis of the Polish-Norwegian agreement</b>	
Project type	Fuel conversion (coal to gas) in small and medium-sized non-industrial boiler-houses
Number of projects under way	21 (including 1 finished one)
Implementation time <sup>*</sup>	17 years
Economic efficiency of projects <sup>**</sup>	4.6 - 64.2 USD/1 ton of reduced CO <sub>2</sub>
Expected environmental benefits	175,874 Mg CO <sub>2</sub> x 17 years = 2,989,858 Mg CO <sub>2</sub>
<b>Projects implemented on the basis of the Polish-Dutch agreement</b>	
Project type	Co-financing of energy saving schemes in new residential buildings
Number of projects under way	4 buildings (with total of 121 apartments)
Implementation time <sup>*</sup>	50 years
Economic efficiency of projects <sup>**</sup>	98 - 130 USD/1 ton of reduced CO <sub>2</sub>
Expected environmental benefits	152 Mg CO <sub>2</sub> x 50 years = 7600 Mg CO <sub>2</sub>
<b>CO<sub>2</sub> EMISSION REDUCTION/YEAR</b>	<b>181,026 Mg CO<sub>2</sub>/year</b>
<b>TOTAL ENVIRONMENTAL EFFECT</b>	<b>3,072,458 Mg CO<sub>2</sub>/year</b>

*\* the period during which the environmental effect is achieved in the form of emissions reduction.*

*\*\* in accordance with the methodology adopted by the JI Secretariat in Poland, the economic efficiency is calculated as the reduction cost of a unit of accumulated emissions (i.e., achieved over the duration of the implementation/life of an investment project). Economic efficiency of the project can be also understood as the cost of carbon reductions.*

Moreover, two programs proposed by the Netherlands await approval by the Polish Government (JI Secretariat, 1996b). One involves the construction of a bio-gas intake facility at a solid waste landfill and the other entails the use of waste wood for heat energy generation. Six programs have also been proposed by Switzerland (all of them designed to convert coal-based heating to systems based on gas/oil). Sweden has proposed one program (landfill gas disposal). The Dutch and Swedish programs await approval by the Minister of Environmental Protection, whereas the Memorandum of Understanding has still to be signed for the Swiss project. The expected environmental effect to be achieved as a result of the implementation of the above programs is a carbon dioxide emission reduction of about 96,215 Mg CO<sub>2</sub>/year.

### 3. ANALYSIS OF AIJ/JI PROGRAMS

The reduction of greenhouse gas emissions was recognized as one of the priorities of the Environmental Policy of the State; moreover, one of the basic principles of this policy is to enter into foreign cooperation in order to enhance the effectiveness of environmental protection programs. Consequently, the implementation of AIJ/JI programs is consistent with the spirit of Polish environmental policy. An effective arrangement was the early establishment of the JI Secretariat and its affiliation with the National Fund for Environmental Protection and Water Management. As the largest financial institution to support environmental projects in Poland, the National Fund has great experience in selecting good projects, which, in this case, can be recognized as AIJ/JI programs, as well as in supervising their implementation and monitoring the environmental effects achieved. In addition, owing to the situation of the JI Secretariat at the Fund, the financial assets obtained within the framework of AIJ/JI can be combined with the Fund's own assets, as a result of which these projects can channel support to priority climate protection projects in Poland. Despite these positive aspects, a careful analysis of the AIJ/JI projects implemented to date and those projected brings attention to a number of issues, the most important of which follow:

- **There is no firm concept as to how the JI mechanisms could apply in the implementation of environmental policy in Poland.** JI promises the potential for substantial funds to support the implementation of programs to protect climate and improve air quality in the country. Moreover, the development of an effective concept of how JI may be used and how such a program would be implemented could bring long-term benefits to the Polish economy through the development of the marketing of services and production in the area of energy efficiency, the development of renewable energy sources, and the creation of new jobs.
- **Given the lack of a firm concept regarding JI mechanisms, projects awaiting implementation are selected very randomly.** Additionally, Polish actors do not submit the list of projects to be implemented within the JI framework, rather they only approve the projects proposed by foreign partners. In consequence, the selected projects are those where GHG emissions reductions are cheapest, although a large number of projects could be implemented on a commercial basis. In the absence of a

more effective policy, the AIJ/JI projects will tend to concentrate on the least-cost reduction options and Poland may lose the opportunity to attract projects that are more compatible with other environmental priorities.

- **The narrow diversity of project types also results from the adoption of the principle of reduction cost minimization as the project selection criterion.** The application of a simplified procedure for cost and benefit estimation dooms some project types to rejection. As a result, the overwhelming proportion of projects, both those under way and those proposed for implementation, are cheap and simple coal to gas/oil conversion projects (out of 37 projects, 30 contain the component of energy carrier replacement). Although these efforts bring a positive environmental effect, as many experts (Hille 1996, Wiúniewski 1998) believe, it is precisely these sort of investment projects that impede the development of energy efficiency programs and production based on renewable resources in Poland. Projects such as these not only drain financial resources allocated to environmentally friendly modernization of the energy sector, but also diminish the interest of local governments in alternative energy development programs (i.e., if local authorities will invest in new natural gas pipelines and boilers they will not be interested in switching energy systems from conventional ones to renewables until they receive return from the investment cost or until the end of the equipment lifetime, which is usually 30 years). Moreover, since projects involving the replacement of an energy carrier and energy generation efficiency enhancement (at the source) are not accompanied by actions to rationalize energy use by end users (e.g., by installation of heat energy consumption meters), the environmental effect achieved is dissipated (e.g., instead of diminishing the amount of heat taken up, users open their windows).
- **In respect to fuel conversion projects, it is also difficult to say that the criterion of environmental additionality is satisfied.** Most boiler-houses being modernized are old, technologically obsolete facilities, which would be modernized regardless. The modernization process of local heating systems under way in a large number of regions in Poland indicates that advanced, highly efficient facilities are being installed in boiler-houses. Many of these projects are implemented on a commercial basis (e.g., in Silesia), where power boiler replacements usually involve the component of energy efficiency enhancement at the point of end use (Beblo, 1999 - unpublished information). This fact should be considered when developing principles for elaborating reference scenarios for Polish JI projects, assuming likely technological developments in cases where a given project fails to be implemented. Due to the high level of energy waste in Poland, a large potential for profitable energy efficiency and fuel switching measures has been identified. Recent changes in energy pricing are expected to speed up the expected technology change. Energy prices were formerly heavily subsidized during the socialist era; this is no longer true. Today high utility bills create a strong incentive for various commercially viable efficiency projects. Such projects should not be eligible as AIJ/JI activities, as they would likely be undertaken anyway. The issue of additionality should be resolved with greater precision.

- **Public participation is not envisaged at any stage of the approval and verification of AIJ/JI projects.** Representatives of local NGOs do not take part in discussions on the feasibility of implementation of projects (only representatives of local governments are invited to present opinions); neither are representatives of environmental NGOs invited to take part in the work of the AIJ/JI project Steering Committees. The exclusion of NGO representatives and local communities from the decisionmaking process contradicts UNFCCC principles.
- **The economic criteria for the selection of undertakings carried out within the framework of AIJ projects are unclear.** The economic efficiency of coal to gas conversion projects implemented under the Polish-Norwegian agreement varies between 4.6 and 64.2 USD/1 ton of reduced CO<sub>2</sub> (i.e., by 1400 percent). Such a large difference may indicate the lack of consistent methodology for evaluating the economic aspects of individual projects.
- **There are no clear rules for determining the environmental effect of AIJ projects.** This is indicated by the adoption of different implementation times for similar projects (15 years for Dutch projects to modernize heating systems in towns, where the main investment projects involve coal to gas conversion in municipal boiler-houses; and 17 years for Norwegian coal to gas conversion projects in non-industrial boiler-houses). Given the rate of technological change in energy efficiency (new advancements which raise electric and thermal energy efficiency by several dozen percent appear every 7-10 years), it is unrealistic to accept the 50-year implementation time for energy efficiency projects in new buildings.

#### 4. CONCLUSIONS AND RECOMMENDATIONS

1. JI projects may play an essential role in the implementation of Polish environmental policy and the mobilization of additional funds for environmental purposes. The legally binding limits to greenhouse gas emissions as provided under the Kyoto Protocol must come into force before interested foreign partners begin project implementation. Countries such as Poland should demonstrate an active engagement in this field and regard the ratification of the Protocol as one of their foreign policy priorities.
2. Under the plenipotentiary powers extended by the Prime Minister, the Minister of Environmental Protection is authorized to approve AIJ/JI projects, making the Ministry of Environmental Protection responsible for developing a strategy for using the JI mechanism to implement the government's environmental policy. Unfortunately, to date this policy has not been worked out. As a result, AIJ/JI projects are selected on a random basis, and selection consists in approving (or rejecting) proposals submitted to Poland rather than in actively seeking investors who would support recognized priority programs. In consequence, the following is recommended:

- Developing a National Strategy for using the JI program to implement priorities of government environmental policy. In addition to experts, representatives of NGOs should assist in developing the Strategy;
- Estimating a viable “emission budget” that would meet the costs for the duration of JI projects, in keeping with the long-term premises of Polish economic policy. Such a budget would enable the identification of the optimum level of government funding support for JI projects. Otherwise, there is the risk that only JI projects requiring contingent benefits will be approved;
- Preparing, on the basis of the National Strategy, a list of projects to be implemented under the JI program. This list should give priority to projects which bring long-term benefits to Poland and ensure that sustainability principles are satisfied (i.e., promote renewable energy sources and energy efficiency). Representatives of NGOs, provincial authorities and local governments should take part in preparing this list;
- Obliging the JI Secretariat to promote the listed projects and to actively search for investors interested in implementing them.

3. The JI Secretariat established within the structure of the National Fund for Environmental Protection and Water Management administers AIJ/JI projects. This solution is an effective one, and complements the positive fact that clear criteria have been adopted to select projects which will serve Poland's interest best. However, they should be complemented with the following indicators:

- Projects selected for implementation should meet positive economic efficiency and financial non-feasibility standards. JI funding support should ensure projects' financial feasibility. A failure to adopt such a criterion would disturb the market of environmental protection funding and encourage support to be granted to projects performed purely on a commercial basis;
  - The maximum project implementation time (i.e., the period over which the donor country would receive credits) should be fixed at 10 years. Otherwise, the proponent would continue to gain credits despite the creation and availability of new, more advanced solutions with greater benefits for the environment. Without such a fixed implementation time, the development of energy efficiency technologies and energy provision from renewable sources may be curbed or arrested;
  - Only projects which gain public acceptance should be approved. Public participation should be encouraged within the framework of an environmental impact assessment performed for each project.
4. The procedure for selection and approval of JI projects should be more open and transparent. This may be achieved by appointing representatives of NGOs to take part in the work of JI project Steering Committees. A public information campaign should form part of the National Strategy.

5. The JI Secretariat in Poland, despite its early establishment, has not accumulated substantial experience. By September 1999, agreements on the implementation of AIJ projects were concluded with only two countries. Compared with both the expenditures incurred by Poland for air protection investment projects (about 1 billion USD in 1997) and the foreign assistance funds expended for this purpose (about 10 million USD annually over the 1990's), the value of AIJ projects under way (2 million USD) is slight. Consequently, the experience gained in the course of the AIJ implementation phase may be too small to ensure that projects are efficiently managed. Therefore, it is recommended that work should be sped up in approving AIJ projects awaiting acceptance from the Polish government.

- It should be borne in mind, moreover, that the implementation of the projects in question will also bring other environmental effects in the form of reduced emissions of sulfur dioxide, nitrogen oxides and particulate matter, and will substantially contribute to the local improvement of the state of the environment.
- According to the April 6, 1999, letter of Mr. M. Michalik, Deputy Minister of Environmental Protection, to Mr. P. Samecki, Undersecretary of State at the Office of the Committee for European Integration, Poland will approve Swiss projects provided that the provisions obliging Poland to transfer part of GHG emission credits to its Swiss partners are omitted from the agreement (i.e., on the condition that these projects are regarded as AIJ).

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# Evaluation of Activities Implemented Jointly in Slovenia

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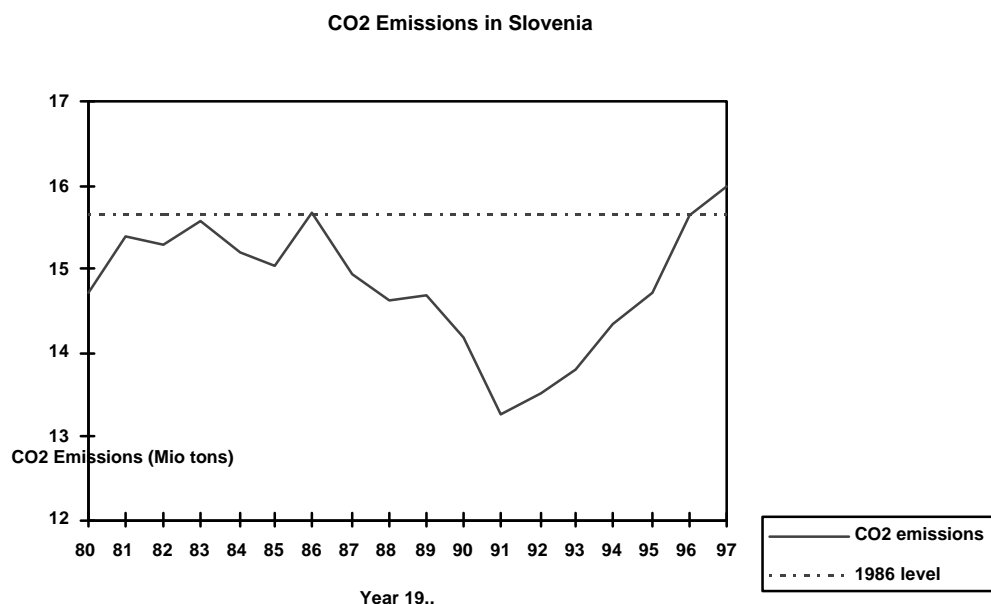
Slovenian E-Forum, Society for Energy Economics & Environment

## 1. SLOVENE OBLIGATIONS REGARDING CO<sub>2</sub> EMISSIONS

### 1.1. CO<sub>2</sub> Emissions in Slovenia

Due to the collapse of Yugoslavia and its constituent six republics, and the resulting collapse of the planned economy, Slovenia went through an economic contraction in the early 1990s and CO<sub>2</sub> emissions fell. However, after the Slovene economy's recovery, with the support of a successful redirection of exports to foreign markets, CO<sub>2</sub> emissions increased rapidly between 1993 and 1996, and continue to increase at a more moderate but still substantial annual rate.

Figure1: CO<sub>2</sub> emissions in Slovenia from 1980 to 1997



Source: <http://www.sigov.si/mop/index.htm>

As demonstrated in the table below, the relative composition of total CO<sub>2</sub> emissions has changed during the economic transition period. Previously, transport represented only 17 percent of all CO<sub>2</sub> emissions, a share that has now increased to 32 percent. CO<sub>2</sub> emissions from industrial combustion have fallen from 23 percent to 13 percent. Emissions produced by the energy sector and technological processes have remained essentially unchanged.

Table 1: CO<sub>2</sub> emissions (in 1,000t) and shares (in percent) by sectors in Slovenia in 1986 and in 1990-97.

Sector	1986	1990	1991	1992	1993	1994	1995	1996	1997
Energy	8833	7376	7376	7713	7828	7701	8046	8499	8291
sector*	56%	52%	56%	57%	56%	54%	54%	54%	52%
Transport	2678	3429	2968	3122	3699	4138	4454	5061	5102
	17%	24%	22%	23%	27%	29%	30%	32%	32%
Industrial	3543	2726	2310	2119	1740	1996	1707	1546	2081
combustion	23%	19%	17%	16%	13%	14%	12%	10%	13%
Technological	608	641	600	570	540	520	533	535	530
processes	4%	5%	5%	4%	4%	3%	4%	4%	3%
Together	15662	14172	13254	13524	13807	14335	14740	15641	16004

\*Thermal power plants, heating stations, heating boiler installations, household heating

Source: <http://www.sigov.si/mop/index.htm>

The source of the highest increase in CO<sub>2</sub> emissions is liquid fuels<sup>24</sup>. CO<sub>2</sub> emissions from solid fuels are decreasing, mainly due to decreased coal use in industry and households. Still, the CO<sub>2</sub> emissions from solid fuels represent a considerable share of all CO<sub>2</sub> emissions.

Although Slovenia is a country in economic transition, its CO<sub>2</sub> emissions pattern compares with that of highly developed West European countries. There are many similarities in the

<sup>24</sup> In the time period 1990-1996 the number of passenger cars and trucks has increased 26 and 30 percent respectively (Statistical Yearbook of RS, Statistical Office, Annual publication). In the same period the number of passenger kilometers increased by 65 percent (Draft working paper, Arhenius project). Part of the emissions increase in this sector originates from the gasoline sold to the users coming from neighboring regions of Italy and Austria; who are taking advantage of substantially lower gasoline price in Slovenia as well as some other advantages ("Casino tourism", attractive prices for individual one-day or weekend arrangements). Unofficially, it is estimated that in 1997 around 15 percent of all gasoline – and thus emissions which are calculated on that basis – was sold to the "gasoline tourists" (based on the unofficial statements of Pavel Gantar, the Minister of Environment and Spatial Planning on July 20, 1999). The Slovene government expects that in the future the margin in fuel price in both neighboring EU countries will further decline which should lead toward considerable decrease of the "gasoline tourism" emissions.

CO<sub>2</sub> emissions of Slovenia and the European Union, as reflected in the increase of emissions from various sectors.

But there are also considerable differences: in the period 1990-1995, transport CO<sub>2</sub> emissions in Slovenia increased by approximately 40 percent, a growth rate of more than four times that of the EU. In the same period, industrial emissions decreased by more than 30 percent – again, four times faster than in the EU. The decrease in industrial emissions is a result of a reduction in the use of coal and electricity in this sector.<sup>25</sup> There are differences in the "other use" sector too: In Slovenia, emissions in this sector are increasing, while in the EU they are decreasing. Emissions from the electricity sector are decreasing, both in Slovenia and in the EU.<sup>26</sup>

Table 2: Changes of CO<sub>2</sub> emissions sector shares (in percent) in Slovenia and in the EU in the period 1990 -1994

Sector	Growth in period 1990-1994 [percent]		Sector share in 1994 [percent]	
	EU	SLO (95)	EU	SLO
Electricity sector	-4	-5 (-2)	31	32
Industry	-8	-27 (-37)	23	16
Transport	+8	+30 (+40)	26	30
Other use	-8	+20 (+27)	20	22
Together	-3	+2(+4)	100	100

The sector "other use" includes economic activities (except: C, D, F and I from NACE classification), household use (except personal transport), agriculture and building

NOTE: Sectoral disaggregation differs from the one in Table 1.

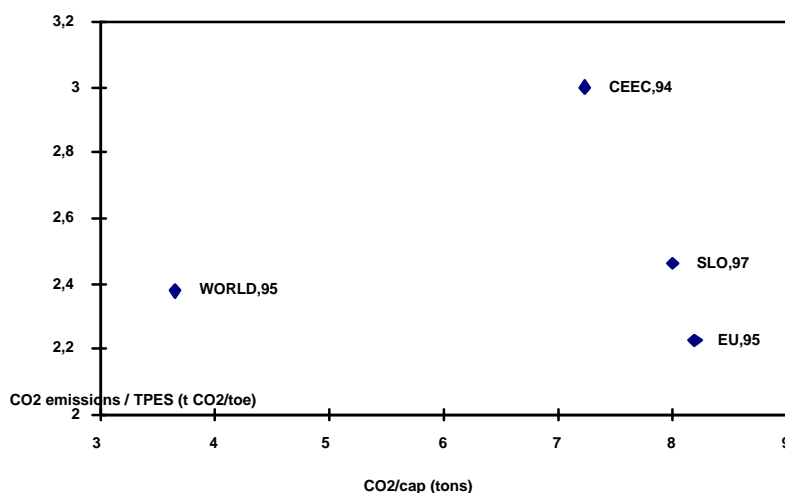
Source: Climate Change: Fall in CO<sub>2</sub> Emissions Only Temporary, Europe Energy, n 468, May 1996, pp. II-1/II-2. Statistical Yearbook of Energy Economy, Ministry of Economic Affairs and IPCC Default Emission Factors.

In 1997 there were 8 tons of CO<sub>2</sub> emissions per capita in Slovenia, and this figure has continued to increase. However, CO<sub>2</sub> emissions are still lower than in the EU, where in 1995 the figure was 8.2 tons of CO<sub>2</sub> emissions per capita. For comparison, the figure below indicates the world average and CEE averages. It also details a comparison of the specific CO<sub>2</sub> emissions per unit of used energy.

<sup>25</sup> Use of electricity in this sector is high in compensation to other countries.

<sup>26</sup> Urbanè, 1999.

Figure 2: CO<sub>2</sub> Emissions per Capita (in tons) and CO<sub>2</sub> Emissions per Total Primary Energy Supply (in tons CO<sub>2</sub>/toe) for Slovenia, EU, CEE countries and the World



Remark: CEE countries include Albania, Bulgaria, Czech Republic, Hungary, Poland, Romania, Slovakia and countries in the territory of former Yugoslavia

Source: Energy in Europe. 1997 - Annual Energy Review. Special Issue - September 1997. Luxembourg: Office for Official Publications of the European Communities, 1997

## 1.2. Slovenia and the Kyoto Protocol

Slovenia signed the Kyoto Protocol on October 21, 1998, according to which, in the period 2008-12, Slovenia is obliged to reduce its greenhouse gas (GHG) emissions by 8 percent below 1986 emissions levels. Slovenia selected 1986 as a base year, when CO<sub>2</sub> emissions were at their highest (15.7 million tons) due to large increases in domestic production of lignite, steel, and aluminum. After the collapse of the "socialist market economy" in the late 1980s, CO<sub>2</sub> emissions decreased, only to begin increasing again in 1991 until they again reached 1986 levels in 1996. By 1997 CO<sub>2</sub> emissions had already exceeded 1986 levels.<sup>27</sup>

<sup>27</sup> In 1994, the use of domestic coal for individual heating was limited by the Decree on the Emissions of Air Pollutants from the Burning Devices (Off. J. RS, 74/1994, pp. 4184-4185). In 1995, a programme to change the fuel used to heat individual buildings was launched, with the support of the Environmental Fund of Slovenia. It resulted in a large increase in the share of natural gas and liquefied petroleum gas used in households. Domestic coal has been almost completely replaced. Until 1997, the policy was designed to replace wood biomass – a CO<sub>2</sub> neutral energy carrier – with gas or light oil. Recently, policy makers have recognized that the disadvantage of the wood biomass is not the wood biomass as an energy carrier but obsolete technologies of its processing and energy use, high costs of replacement of obsolete technologies and supply schemes by modern management of natural resources and modern technologies of processing, transport and converting wood biomass to heat.

### **1.3. Slovene Climate Change Policy**

#### **1.3.1. The National Program for Environmental Protection**

The National Program for Environmental Protection (NPEP), adopted on September 16, 1999, sets climate change amongst the country's environmental protection priorities. The NPEP outlines principles for equalizing the burden of emissions reduction costs among various key sectors. The NPEP also details measures for the preparation of strategic documents and financial instruments.<sup>28</sup>

#### **1.3.2. The Energy Law and Climate**

The Energy Law was also adopted on September 16, 1999. This law introduced guidelines for a safe and reliable energy supply based on market principles, established the institutional set up for the grid-bound energy carriers (electricity, gas) market, and addressed the dynamics of opening the market to foreign investment. The Energy Law also introduced sustainable development principles by giving priority and support to energy efficiency, use of renewable energy sources and environment protection, including the clean-up of past damage.

The law directs energy policy toward GHG emissions reduction and also emphasizes use of renewable energy sources and implementation of energy efficiency programmes.<sup>29</sup> The provisions for setting up "a free market" with "green electricity" are also given.<sup>30</sup> The law signifies a turning point in energy policy and is one of the most important pieces of legislation dealing with climate change issues. However, its implementation will face structural, as well as systemic barriers, and resistance from socially and political powerful monopoly energy suppliers.

#### **1.3.3. The CO<sub>2</sub> tax in Slovenia**

Slovenia is the first CEE country to implement a CO<sub>2</sub> tax. The tax came into force on January 1, 1997, and was initiated at a rate of approximately EURO 5.5 per ton of CO<sub>2</sub>, followed by a March 1998 increase to EURO 16 per ton of CO<sub>2</sub>.<sup>31</sup>

The cost of the CO<sub>2</sub> tax is shifted to consumers. Since October 1998 some exemptions among taxpayers have been allowed. Companies that own or manage devices using fossil fuels for energy production can get an allowance for non- CO<sub>2</sub> taxed fossil fuels use. Since

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<sup>28</sup> Urbancic et al.,1999a.

<sup>29</sup> Urbancic et al.,1999a.

<sup>30</sup> In Article 19 of The Energy Law, it says there are no limitations on market entry of qualified producers of electricity – i.e. producers who are generating electricity with high efficiency and/or on the basis of the renewable energy carriers – of up to 1 MW. Further on, in the Article 27 it is assured that the distribution tariffs for the electricity from qualified generation must be based on the principle of minimal costs. (Draft of Energy Law, version of final reading in Parliament, September 10, pp. 7 and 9).

<sup>31</sup> Tomsic, 1998.

October, the Decree also includes a scheme of incentives for energy efficiency measures and new low-emissions power producers.

Initially the tax, which was considered more of a fiscal policy instrument and not an important tool of environmental/climate policy, was implemented quietly. However, perception of the tax changed after it was substantially increased in 1998. Some energy-intensive producers of energy saving goods (rock-wool insulation, for example) and the Chamber of Industry protested the increase. The Ministry of the Environment, which initiated the tax, responded with considerable attention to the concerns of industry and to the proposal of energy efficiency experts on how to integrate incentives for stimulation of energy efficiency into the tax mechanism. After meetings between representatives of the ministry, industry, experts and NGOs, a consensus was reached in autumn of 1998.

In 1998, the money collected with the CO<sub>2</sub> tax represented 2.1 percent of all budget income. Exemptions are targeted to stimulate substantial CO<sub>2</sub> emissions reductions while keeping the financial burden low. The considerable budget contribution of the CO<sub>2</sub> tax has not been accompanied by an increase in government spending on the environment, or with a program for reduction of GHG. But the tax's budget contribution does provide a good opportunity for environmental NGOs to lobby for a general environmental spending increase and to demand the tools, measures and incentives needed to form a comprehensive climate policy.

## **2. THE STATE OF AIJ/JI IN SLOVENIA**

At the first Conference of Parties (COP-1) in Berlin, the Activities Implemented Jointly (AIJ) projects were accepted as the pilot phase of Joint Implementation (JI) projects.<sup>32</sup>

According to the April 7, 1995 decision of the COP, AIJ projects are to be implemented on a voluntary basis. In Slovenia, no such projects have been implemented.

However, there are some activities for preparation of the GHG Emissions Reduction Programme. The results will partly be included in the First National Communication to the UNFCCC. The ongoing studies in the energy field are:

- Urbancic A., Merse S.: Technical Options for CO<sub>2</sub> Reductions to Reach the Kyoto Target for Slovenia - A Contribution to the National Program for Environmental Protection. Technical Report, Ljubljana: Jozef Stefan Institute-DP-7863, March 1998. (In Slovene.),
- Tomsic M: Reduction of GHG Emission, Methodology of Design of Strategies and Assessment of Effectiveness of Emission Reduction Potential. DRAFT Technical Report, Ljubljana: IJS, 1999. (in Slovene), and
- A. Urbancic et al.: Potentials for GHG reduction in IPCC sector energy - survey and analysis of measures, Technical Report, IJS-DP-7953, Ljubljana 1999. (In Slovene.)

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<sup>32</sup> Decision 5/CP.1.

## 2.1. Slovene policy and position on AIJ/JI

Formerly, foreign investors interested in AIJ/JI projects in Slovenia were met with the government's lack of interest. The Slovene government is focused on what it considers to be more important issues, such as accession to the EU.<sup>33</sup>

Additionally, most of the proposals have involved either environmentally sensitive/risky technologies (like incinerators), proffered by half-privatized companies with bad environmental records; or large infrastructure investments proposed by companies in state or municipal ownership. Implementation of these projects would be a "hard sell" from a financial and/or public acceptance perspective, even if climate issues had more priority than they currently do. From 1991 on, the political agenda was dominated by the management of economic recovery following the collapse of the former Yugoslavia, conflicts over denationalization and privatization, and the growing importance of compliance with EU rules. This left little space for issues like integrated environmental protection and climate change, which are well integrated in the agendas of more developed countries.

It should be noted that, of all countries involved in the "Capacity for Climate Protection in CEE" project, as well as the five CEE countries<sup>34</sup> that are first in line for full EU membership, only Slovenia was not an internationally recognized until 1991. Slovenia also continues to be burdened by the political and economic collapse of the other former Yugoslav republics.<sup>35</sup>

The Slovene government is aware of its international obligations to reduce emissions, and agrees that something must be done<sup>36</sup>. The government's view is that Slovenia is not capable of reducing CO<sub>2</sub> emissions without assistance and that the country will have to use JI projects or emissions allowance trading to reach its Kyoto target. The Government is

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<sup>33</sup> According to the interview with Mr. Andrej Kranjc, Counselor to the government, Hydrometeorological Institute of Slovenia, Ministry of Environment and Spatial Planning of Slovenia, on October 5 1999.

<sup>34</sup> Besides Slovenia, this group also includes: Czech Republic, Estonia, Hungary and Poland.

<sup>35</sup> From the countries that are included in the project, the latter is in a large extent also true for Bulgaria.

<sup>36</sup> Mr. Pavel Gantar, Minister of Environment and Spatial Planning – after being informed of preliminary results of on-going studies on national climate change strategy – unofficially (in conversation with Mr. Kranjc and one of the authors of this text in July 1999) recognized that Slovenia will have to use JI and emissions trading, otherwise there are only a few chances to meet the Kyoto target on time.

preparing its GHG Emissions Reduction Strategy, which should be finished by the end of this year.<sup>37</sup>

Although in Slovenia there are no current AIJ/JI projects, energy efficiency measures are being undertaken, such as<sup>38</sup>:

- An information and awareness building programme: publications, seminars, workshops, exhibitions and similar events are organized on a regular basis.
- Advisory services: Energy Advisory Network ENSVET for households, energy advising to large industrial energy consumers, and local energy concepts.
- An energy auditing programme.
- A demonstration programme of energy efficient technologies.
- Financial and tax incentives: financial incentives for small energy saving measures in households, tax incentives for energy efficient household appliances, and financial incentives for energy efficiency investments.
- Fund for energy efficiency investments.

## **2.2. Agents and Network of Climate Policy in Slovenia**

### **Slovene Government**

After the environmental summit in Rio de Janeiro, the Slovene government in 1994 appointed Mr. Andrej Kranjc from the Ministry of Environment-Hydrometeorological Institute of Slovenia as coordinator for climate change issues, including AIJ/JI issues. Mr. Kranjc is now the national coordinator for UNFCCC and at the same time secretary of "The Slovene Committee for Climate Change Issues." In June 1995, Mr. Kranjc organized a meeting to define a strategy for identifying potential AIJ projects, bringing together representatives of industry and government, including the Ministry of Environment and Spatial Planning, the Ministry of Economic Relations and Development and the Ministry of Economic Affairs.

Industry representatives suggested AIJ projects in the course of two following meetings, but no strategy has been drafted. This is due largely to the fact that the Ministry of Environment and Spatial Planning does not regard climate issues and AIJ as strategic

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<sup>37</sup> According to the interview with Mr. Andrej Kranjc, Counselor to the government, Hydrometeorological Institute of Slovenia, Ministry of Environment and Spatial Planning of on October 5, 1999.

<sup>38</sup> Iterative Closed Loop - IRP Modeling Framework in Slovenia. Phare Energy Framework Contract. Final Report. 1997, pp. 3 and 7.

national environmental policy priorities, thus depriving the issue coordinator of needed administrative and technical support.

The political circumstances supporting this situation consists of strong attempts by the politically influential energy supply side investment lobby to pass the extensive National Energy Action Programme (NEAP).<sup>39</sup> This programme favors the renewal and expansion of supply side options, with a special emphasis on the use of low energy value-high sulphur concentration and expensive domestic brown coal for the new (TET3) 200 MW unit of Trbovlje Thermal Plant, which after 2004 would replace the old 120 MW unit (TET2) currently operating without expensive desulphurization facilities.<sup>40</sup>

However, none of the many NEAP drafts have been in line with the National Development Strategy, since it would demand an average increase of state budget investments in the energy (electricity) sector from 1.2 percent to 2.3 percent of GDP until 2010<sup>41</sup>. The NEAP has never been officially approved by the Government of Slovenia and has not been given parliamentary approval.

In September 1997, the Slovene government established "The Slovene Committee for Climate Change Issues." This committee aids the government in making development decisions related to climate change. Tasks of this committee include<sup>42</sup>:

- cooperation in implementing the state policy related to climate change;

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<sup>39</sup> The National Energy Action Program was drafted from 1994 until the end of 1997. It has predicted an investment of approximately ECU 4-5 billion is needed in order to meet Slovene energy needs until 2010. Approximately two thirds of the investment has been placed in conventional electricity generation (hydro and thermal power plants). None of the versions of the document in question have even mentioned the concept of "sustainable development" nor have the GHG emissions from energy (electricity) sector been taken into account as a policy making criteria. (Source: National Energy Action Program, draft version from October 1996; EGS-RI, Maribor: 1996. )

<sup>40</sup> The financial construction of TET3 was challenged on the national referendum which resulted conversion of the TET3 project into (environmental) modernization, an extended life time of TET2 (until 2019), changed financial construction and slow shut-down of the coal mine Trbovlje - Hrastnik (until 2015). From 1992 until early 1998 the Government, respectively MEA and the Prime Minister, strongly supported the investment which was challenged first by the Ministry of Environment and Spatial Planning-Hydrometeorological Institute of Slovenia, and SE-F, but later on also from the majority of the parties in opposition, because the GHG emissions from TET3 would represent some 8 percent of current GHG emissions in the country.

The political contradictions and clashes on TET3 investment, which have culminated in 1998, had an important consequence: for the first time they have brought CO2 and climate change issues on the political agenda and attracted the attention of the media.

<sup>41</sup> The non-compliance of NEAP with the strategy in question has been issued by the economists of the state Institute of Macroeconomic Analysis and Development, claiming that the state investments in energy sector can not exceed 1.2 percent of the budget, if the goals of the strategy are to be achieved. (Source: Contributions to the National Energy Action Program, WEC - Slovene National Board. Ljubljana : 1996.)

<sup>42</sup> The Resolution of the Establishment of the Slovene Committee for Climate Change Issues, Off. J. RS 59/97, pp. 4874.

- cooperation in preparing the Slovene positions for the Conferences of the Parties;
- cooperation in preparing the national report, as anticipated by UNFCCC;
- preparing opinions on environment protection documents regarding the national programme and other national development programs from the fields of energy, transport, agriculture and forestry, which also refers to the UNFCCC.

The members of the Slovene Committee for Climate Change Issues are named on the following pages. Responsibility for various Committee tasks remains unclear. It is not clear, for example, when the Minister of Environment and Spatial Planning is acting as president of the Committee and when he is representing the ministry responsible for co-ordination and implementation of climate change policy. These two roles are incompatible and can create a conflict of interests.

The Committee's responsibilities and agenda should be defined and subjected to precise procedures. The same is also necessary for the hierarchy of tasks, national coordinator reporting procedures and the president's responsibility to initiate and define policy statements, which serve as a basis for the national position in the COP meetings and within international negotiations.<sup>43</sup>

In addition, the preparation of the First National Communication to the UNFCCC is now managed on a contractual basis, as Mr. Bostjan Paradiz is no longer a Ministry of Environment and Spatial Planning employee.

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<sup>43</sup> Further on, it seems that the role of the Committee - defined by its internal act - does not correspond totally to the role of the Committee, presented within the NPEP (The Resolution of the Establishment of The Slovene Committee for Climate Change Issues, Off. J. RS 59/97, pp. 4487).

THE SLOVENE COMMITTEE FOR  
CLIMATE CHANGE ISSUES  
President: Minister of Environment  
and Spatial Planning: Mr. Pavel GANTAR

Secretary  
Mr. Andrej KRANJC  
Counselor to the government,  
Hydrometeorological Institute

NGO  
representatives

Government  
Representatives

Ms Andreja  
URBANËË  
Slovenian E-  
forum

State secretary at the Ministry of  
Environment  
and Spatial Planning  
Mr. Radovan TAVZES

Ms Sonja  
RECEK  
Society for  
Permaculture

Hydrometeorological Institute of  
Slovenia  
Mr. Dusan HRËEK

Ms Janja LEBAN  
Chamber of  
Economy

State secretary at the Ministry of  
Economic Affairs  
Mr. Robert GOLOB

Mr. Ivan GAMS  
Slovene Academy  
Science and Art

State secretary, Ministry of Transport  
and Transport Communications  
Mr. Igor ZAJC

State secretary at the Ministry of  
Agriculture,  
Forestry and Nutrition  
Mr. Maksimiljan MOHORIË

NATIONAL  
COORDINATOR  
FOR UNFCCC  
Mr. Andrej KRANJC  
Ministry of Environment and  
Spatial Planning-  
Hydrometeorological  
Institute

responsible for  
The First National  
Communication  
to UNFCCC  
Mr. Bostjan PARADIZ

PROFESSIONAL  
GROUPS

Waste  
Ministry of Environment and  
Spatial Planning

Traffic  
Ministry of Traffic and Traffic  
Communications

Agriculture  
Ministry of Agriculture, Forestry  
And Nutrition

Energy  
Ministry of Economic Affairs

State secretary at the Ministry of  
Economic  
Relations and Development  
Ms Snasana ÈANAK

State secretary at the Ministry of  
Foreign Affairs  
Mr. Marjan MAJCEN

State secretary at the Ministry of  
Science  
and Technology  
Ms Verica TRSTENJAK

State secretary at the Ministry of  
Finance of RS  
Mr. Zdravko PRAZNIK

State secretary at the Ministry of  
Education and Sport  
Ms Margareta JERAJ

State secretary at the Ministry of  
Health Service  
Ms Vesna TERNIFI

Although the Committee has been working for two years, there has been little progress on AIJ/JI. The Slovene government is now preparing, pursuant to the Kyoto Protocol, a GHG Emissions Reduction Strategy. This strategy will include estimates for Slovene AIJ/JI capacity and needs.<sup>44</sup>

### **Business Community**

Industry has demonstrated little interest in playing the role of the AIJ promoter, as it is focusing its energies on privatization and company and market restructuring. The following proposals have, however, been raised<sup>45</sup>:

1. Waste incineration at the cement plant in Trbovlje<sup>46</sup>;
2. Waste incineration at the cement plant in Anhovo<sup>47</sup>;
3. Waste incineration at the aluminum factory TALUM in Kidricevo<sup>48</sup>;
4. The natural gas-based cogeneration plant and distance heating in Maribor<sup>49</sup>;
5. The natural gas-based cogeneration plant in Ljubljana<sup>50</sup>;

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<sup>44</sup> According to the interview with Mr. Andrej Kranjc, Counselor to the government, Hydrometeorological Institute of Slovenia-Ministry of Environment and Spatial Planning, on Oct. 5, 1999.

<sup>45</sup> According to the interview with Secretary of Environment of the Chamber of Economy of Slovenia Ms Janja Leban on October 8, 1999.

<sup>46</sup> According to the interview with the director of the cement factory in Trbovlje Mr. Janez Malovrh (October 11), the project was stopped by the decree of Municipality of Trbovlje, which has prohibited waste incineration before any feasibility study and EIA study have been initiated. Besides, the company was expecting to be a large beneficiary in construction of TET3.

<sup>47</sup> In the opinion of the director of the Salonit Anhovo Ltd. (interview on October 11) the company was at that time faced with both economy decline and public outcry over its long negative impact on human health and environment due to decades of use of asbestos (extremely carcinogenic) substances in the production process. It was obvious that any new investment in the technology which could lead to the new environmental disputes has been out of question from the very beginning.

<sup>48</sup> There are ongoing activities on the feasibility study of the project. The project is part of the national waste treatment strategy as defined in the National Environmental Action Program (Source: Ministry of Environment and Spatial Planning, Ljubljana, 1999, pp. 34-38).

<sup>49</sup> The project has been raised within the PHARE supported program "The city of Maribor." A demonstration zone of energy efficiency and the feasibility study for 60 MWe cogeneration plant was made in 1996. However, neither the transparent legal basis has been given, nor the negotiation process between ELES and TOM Maribor (public energy enterprises) has resulted in defining technical and economic framework conditions which would make investment financially viable for (foreign) private investors. Nevertheless, the project has no AIJ background. (Source: the interview with Mr. Mitja Kranjc, Director of TOM Maribor on October 12, 1999.)

<sup>50</sup> Besides, the same problems as in the case of TOM Maribor also occur in Ljubljana; the unsolved (political) conflicts between the mayor and the Holding of the City of Ljubljana is the

6. The biogas-based small scale cogeneration plant on Ljubljana's waste disposal site at Barje<sup>51</sup>;

7. The conceptual preparation of the tramway project in Ljubljana<sup>52</sup>.

The electricity sector remains in state ownership with a disaggregated industrial structure. Since the government's energy policy has focused on keeping prices down to battle inflation – one of the government's most important macroeconomic priorities – it has not been willing to implement production costs based-pricing, and consequently is also unwilling to internalize external cost in electricity generation.<sup>53</sup> Since the government not only controls the selection of the sector's top management, but is also involved in the sector's day-to-day technical operations, management was neither capable nor willing to take on any activities which would lead toward GHG emissions reduction. On the contrary, during the 1997-98 campaign for state subsidies/credit guarantees for a new domestic, brown coal fired 200 MW power plant in Trbovlje, the representatives of the electricity sector denied any need for a GHG reduction policy by claiming that the emissions from the sector already have been reduced by 10 percent as a result of a decline of energy intensive industries<sup>54</sup>.

Until June 1999, when the new Law on Foreign Investment was approved by parliament, Slovenia was relatively closed to foreign investments.<sup>55</sup>

### **NGO Community**

Until now only three Slovene environmental NGOs have attempted to play an active role in the climate change policy: The Institute for Climate Change of the Slovene Ecological Movement, the Slovenian E-Forum and the Association of Nuclear Physicists. Additionally, Umanotera, the Slovene Foundation for Sustainable Development and the Institute for Sustainable Development, both based in Ljubljana, and the Association of

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main reason that the project didn't succeed as an AIJ option. (Source: the interview with Mr. Janez Groelj, director of the Public Enterprise Energetika Ljubljana, on October 12, 1999.)

<sup>51</sup> The project was finished in 1997, however not as an AIJ. The cogeneration unit is in fact producing only electricity.

<sup>52</sup> Mr. Bojan Dekleva, interviewed (October 13, 1999) about this issue as the responsible official of the Municipality of Ljubljana, does not know anything about the potential AIJ background of the activity in question. He has been in charge of the transport and traffic issues in Municipality only since the beginning of last year and has not been able to name any person who might have requested information.

<sup>53</sup> Based on the statement of the director of the national electricity transmission company ELES Mr. Ivo Banic, expressed at the TV round table discussion about the future of Slovene coal mining sector, broadcast on the 1st National TV program on Oct. 11, 1999; in this manner approximately EURO 0.8 billion was transferred from electricity to the other sectors since 1990.

<sup>54</sup> Contributions to the National Energy Action Program, WEC - Slovene National Board; Ljubljana: 1996.

<sup>55</sup> The impact of the law on the AIJ and JI will be assessed by a corresponding expert before the new version of the report is submitted.

Permaculture have shown some interest in this issue. The Slovene Academy of Science and Arts is closely aligned with the above mentioned Institute for Climate Change.

The Institute for Climate Change was established in 1994 as a non-profit private institute within the Slovene Environmental Movement, the NGO with the largest constituency in Slovenia. The institute is staffed by one self-employed person, Mr. Timi Ecimovic, its director. Aside from spreading the message that state and international climate change policy is a bureaucratic "conspiracy" that does not take the public into account, the institute focuses mainly on international events and activities related to climate change and opposes IPCC's approach and methodology, as well as all governmental activities in line with IPCC. The Institute for Climate Change is a member of the European Environmental Institute based in Tübingen, Germany<sup>56</sup>.

Slovenian E-forum (SE-F) was established in 1993 and has a staff of two full-time employees. It has the support of some 40 experts from the fields of environmental science, economy, geography, energy engineering and energy planning, who constitute the majority of its constituency. Prior to 1997, its climate policy approach was limited to focusing on climate issues as a part of energy policy and as a tool for opposing economically inefficient or environmentally unfriendly policy options. After 1997, the group gave more priority to climate change. The SE-F put climate change in all its aspects – including international emissions trading and JI projects – on its agenda as an essential future strategic task. Together with Umanotera, SE-F was successful in placing the issue of air quality as a priority on the National Environmental Action Plan. SE-F was also successful in lobbying for the inclusion of "sustainable development" and "energy services" concepts, and the opening of the market for "green electricity", into new energy legislation<sup>57</sup>.

The Association of Nuclear Physicists, an NGO of professionals in the field of nuclear energy, was the first NGO to issue leaflets on climate change and launch public campaigns on the issue, with the goal of promoting nuclear energy as an essential option to efficiently deal with the danger of global warming. The NGO also publicly challenged the construction of the TET3 coal fired power plant by protesting that the plant's contribution to GHG emissions was a powerful argument against the investment.

Nature conservation NGOs, which make up a majority of the Slovene environmental NGO community and have a long-standing tradition, are focused mostly on the conservation of particular species or habitats and do not see climate change as an actual threat. That is, they are not concerned to point of pursuing the issue within or outside the NGO community<sup>58</sup>.

Considering that neither the Ministry of Environment and Spatial Planning nor any other Slovene Ministry or private foundation has funded NGO activities related to climate change, and considering also that sustainable development NGOs form a minority of the larger environmental NGO community, it is not surprising that the issue isn't significantly important within the NGO sector. Furthermore, anecdotal evidence demonstrates that no Slovene NGO has yet to officially integrate into any of the global, EU and/or CEE NGO-

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<sup>56</sup> According to the interview with Mr. Timi Ecimovic on October 13, 1999.

<sup>57</sup> Source: documents of SE-F.

<sup>58</sup> Klemenc A.; Marega M., 1997.

networks. Members of Slovene and international NGOs do, however, meet occasionally at NGO climate change conferences and events.

As was shown in the previous chart, NGO representatives participate on the National Committee for Climate Issues. Because some NGO representatives also work for national research institutes, undertaking research regarding national climate strategy, the NGO community is well provided with expert knowledge in the field. Nevertheless this double role of NGO representatives serving as government employees in national scientific institutions, while representing the NGOs as a "watchdog" on national policies, could lead to conflicts of interest. The situation is paradigmatic for the position of NGOs and their members in Slovene environmental policy in general. Because of the small number of experts and the weak NGO community, the same people are simultaneously working on behalf of the government and – as the only persons with professional background and understanding of the issues – representing NGOs on government bodies. If the institutional development of the environmental NGO community would receive more government support, more impartial persons could take the role of NGO representatives on governmental bodies. Nevertheless, thus far there have not been any apparent conflicts of interest, either between the experts and their employers or within the NGO community. And government funding for research that ultimately educates NGO representatives has substantially improved the outputs of the National Committee for Climate Change Issues.

### **2.3. Importance of climate policy for EU accession**

In order to join the European Union, Slovene environmental legislation will have to be harmonized with EU directives. This is already the case with the majority of Slovene environmental legislation. The remaining work will have to be completed before 2002. Directives for GHG emissions monitoring mechanisms and reports have also been accepted.<sup>59</sup>

### **2.4. Slovenia - investor or host country for AIJ/JI?**

In the future, Slovenia will need foreign investment for financing domestic energy efficiency and other GHG emission reducing projects. So far, no studies about Slovene AIJ/JI capacity have been undertaken.

In the future, Slovenia will try to reduce its CO<sub>2</sub> emissions according to the GHG Emissions Reduction Strategy, which is expected to be prepared by the end of this year and will probably include the following options:

- reducing CO<sub>2</sub> emissions through energy efficiency, energy conservation, fuel substitution and renewable sources use;
- buying emissions trading allowances on the international market;

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<sup>59</sup> According to the interview with Mr. Andrej Kranjc, Counselor to the government, Hydrometeorological Institute-Ministry of Environment and Spatial Planning, October 5 1999.

- using forests as a CO<sub>2</sub> sink (if this were considered an internationally accepted CO<sub>2</sub> sink).

Domestic emission trading is theoretically possible, but is not viable for Slovenia, because the Slovene market is too small for such activities.<sup>60</sup>

## 2.5. Criteria for AIJ/JI

In Slovenia the criteria for AIJ/JI have yet to be developed. First, the national GHG emissions reduction strategy (which is expected to be prepared by the end of this year) will have to be approved. Only then will AIJ/JI criteria be developed.<sup>61</sup>

## 3. FORESTS MANAGEMENT IN SLOVENIA

Forests cover more than one half of Slovenia's territory and represent its essential geographic characteristic. Slovenia's forest density of 55 percent ranks it fourth among European countries. Forests have primarily been preserved in higher and steeper locations, which are less suitable for agriculture, and where the significance of protection is even higher. Most Slovene forests are located within areas of beech (44 percent), fir-beech (15 percent) and beech-oak (11 percent) sites, indicating relatively high timber production capacity.<sup>62</sup>

As a result of Slovenia's nearly 50-year-long post-war forest management programme, timber supplies have been replenished and tree quality has improved. This period saw a 26 percent increase in forest area and a 109 percent increase in growing stock.<sup>63</sup> Thanks to proper forest management over the past decades Slovenia in this regard stands well in comparison with other European countries.<sup>64</sup>

### 3.1. The Denationalization Process

After the collapse of the "social market economy" in the late 1980s and early 1990s, many Slovenians began to request the return of property that had been nationalized after the Second World War. Among these requests were calls for the return of forest property.

The people's rights to receive returned property are spelled out in the 1991 Denationalization Law.<sup>65</sup> Slovenia's Constitutional Court emphasized that the purpose of the law is to correct injustices perpetrated by the state against property owners after the Second World War. The law does not cancel the nationalization legislation. For economic

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<sup>60</sup> According to the interview with Mr. Andrej Kranjc, Counselor to the government, Hydrometeorological Institute-Ministry of Environment and Spatial Planning, Oct. 5 1999.

<sup>61</sup> According to the interview with Mr. Andrej Kranjc, Counselor to the government, Hydrometeorological Institute-Ministry of Environment and Spatial Planning, Oct. 5 1999.

<sup>62</sup> Slovenian Forests and Forestry, 1998, pp. 3, 5.

<sup>63</sup> Slovenian Forests and Forestry, 1998, pp. 16.

<sup>64</sup> Mlinsek, 1997, pp. 42.

<sup>65</sup> Winkler, 1997, pp. 59.

and political reasons, the Denationalization Law does not seek to restore the country to the pre-Second World War status quo regarding property, but to correct injustices – sometimes with cash compensation. Anyone whose property was nationalized may apply for redress. The government determines how much compensation is due, and whether it should be given in the form of physical property or money. These decisions are made on a case-by-case basis, and take into account such factors as the public interest, agricultural activity of the claimant and the means of acquisition.<sup>66</sup>

Among the more controversial groups laying claim to forests via the denationalization process is the Roman Catholic Church, which in many cases gained its property rights by kings' or emperors' decrees (as a reward for co-operation in wars and campaigns of Christianization and Germanization) and later by sharing power with other authorities.<sup>67</sup> Another potentially controversial claim comes from a group of German landowners who formerly lived on Slovene territory and are now requesting from 4,000 to 40,000 hectares of forests.<sup>68</sup>

When the Denationalization Law was first adopted, it was estimated that there would be claims on 132,300 hectares of forest land, but by February 1997 there were requests for 172,800 hectares.<sup>69</sup> According to the Agriculture Areas and Forests Fund, by February 1998, 72,000 hectares of forest land had been returned due to denationalization requests.<sup>70</sup>

Because of the denationalization process, the forest ownership structure is changing every day. The table below represents the owners' structure of forests for 1997 and 1998.

Table 3: Forest ownership structure (in hectares and in %) for Slovenia in 1997 and 1998

Year	State owned forests		Private forests		Other forests		All together (hectares)
	(hectares)	(%)	(hectares)	(%)	(hectares)	(%)	
1997	376.221	33,9	711.006	64,1	22.483	2,0	1.109.710
1998	372.282	33,5	713.926	64,3	24.798	2,2	1.111.006

Source: The Slovene Forest Institution Report on Forests in Year 1998, 1999, pp. 6.

<http://www.sigov.si/zgs-sfs/index.html>

Table 3 indicates that the denationalization process has decreased the area of state owned forests and increased that of private forests. However, the total forested area in Slovenia is increasing, a fact attributable to wild reforestation of abandoned grassland, which over the last few years has been grown over by bushes and young forests.

<sup>66</sup> Sinkovec, 1997, pp. 28.

<sup>67</sup> Sinkovec, 1997, pp. 34.

<sup>68</sup> Zupancic, 1997, pp. 67.

<sup>69</sup> Zupancic, 1997, pp. 65.

<sup>70</sup> <http://www.sigov.si/zgs-sfs/index.html>

The problem with spreading ownership over a wider group is that the new owners' management of forests is less controlled or coordinated. The pattern of the first half of this century is being repeated, as timber merchants benefit from the owners' desire to cut and sell timber in order to purchase a car or build a house.<sup>71</sup> Typically, individual owners regard forests as a chance to make a quick profit. Planned and possible forest cutting volume exceed forest management projections for the 1991-2000 period by 7.4 percent in 1997, 8.2 percent in 1996, 10.8 percent in 1995 and 7.8 percent in 1994.<sup>72</sup> This data gives national forest management institutions cause for concern about the future of Slovene forests.

Slovenia now faces questions about balancing the rights and needs of individuals with those of the community. The issue could be described as follows: should individual forest owners be guided only by gaining profit or should they also consider the public's interest in forests<sup>73</sup> – including the need for forests as a living space for many plant and animal species, their importance in conserving and protecting water supplies, their use of CO<sub>2</sub> in oxygen production, etc. If all the forests are returned to those making applications via the denationalization process in Slovenia, only about 22 percent of forests will remain publicly owned.<sup>74</sup>

### **3.2. Forests - GHG sinks?**

Methodologically as well as politically, the controversial issue of greenhouse gas (GHG) sinks is of great importance for Slovenia and its climate policy. However, the issues of forest management and the contribution of wood use to energy policy are far more important. Wood still represents about 4-5 percent of total primary energy supply and provides about 20 percent of space heating<sup>75</sup>. Utilization of wood for energy is the most important issue with respect to the climate policy within the space heating sector<sup>76</sup>.

Preliminary conclusions of an integrated approach to dealing with GHG emission reduction suggest that – considering potential macroeconomic and regional development effects – increased volume of biomass and efficiency in its conversion to heat are one of the best costs/benefits options in dealing with CO<sub>2</sub> reduction.

Presently, there are no forest-related activities in Slovenia that would result in "additional" GHG reduction. According to Mr. Kranjc<sup>77</sup> forests in Slovenia are probably ineligible for AIJ/JI projects. However, this is dependent on the GHG Emissions Reduction Strategy.

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<sup>71</sup> Mlinsek, 1997, pp. 45,47.

<sup>72</sup> <http://www.sigov.si/zgs-sfs/index.html>.

<sup>73</sup> Sinkovec, 1997, pp. 13.

<sup>74</sup> Winkler, 1997, pp. 56.

<sup>75</sup> The Energy Policy of Slovenia. Paris : IAE, 1998, pp. 16, 34.

<sup>76</sup> Removal of the Barriers for Energy Use of Biomass in Slovenia, 1996, pp. 3.

<sup>77</sup> The interview with Mr. Andrej Kranjc, Counselor to the government, Hydrometeorological Institute of Slovenia, Ministry of Environment and Spatial Planning of RS, on 5th October 1999.

#### **4. FINAL CONCLUSIONS**

1. Slovenia is the only CEE Annex I country which has already exceeded the base year CO<sub>2</sub> emissions.
2. The CO<sub>2</sub> emission pattern by sectors in Slovenia is very similar to the pattern of developed (EU) countries.
3. Slovenia has not entered any AIJ nor has it designed a JI projects policy.
4. Since the mid 1990s Slovenia is progressively improving energy efficiency (especially in industry), however, despite having a direct impact on climate issues energy policy, has not yet been directly linked to the climate change policy.
5. In 1997, Slovenia introduced a CO<sub>2</sub> tax as a fiscal instrument of the budget policy. Substantial redesign and increase of the tax in 1998 made this instrument important not only for budget revenues but also for climate policy.
6. The instrumentalization of climate-policy-relevant budget revenues (CO<sub>2</sub> tax) and expenditures are far from being balanced.
7. The symbolic importance of climate change policy for integration of environmental and nature protection issues with the issues of employment, regional development and environmental modernization of the industry and energy sector has not yet been recognized by government or within the NGO and business communities.
8. Until recently, climate change issues have not been considered relevant either by national policy makers or for environmental policymaking, even though considerable progress has been made in the energy efficiency policy (especially in industry). However, climate change issues are still predominantly seen as an additional burden/barrier and not as a challenge/solution for other issues.
9. As a complex policy issue, AIJ and JI are known only to a few experts.
10. Despite the improved acknowledgement of climate change issues and the ongoing sector studies, the political will to install and support corresponding institutional capacities is lacking.
11. Ongoing studies suggest that the climate change issue is very complex and

Slovenia will probably not be able to achieve the Kyoto target without JI projects and emissions trading.

12. There are no transparent divisions of tasks and competencies (support, monitoring, reporting) within the government, and precise procedures within The National Committee for Climate Change Issues are lacking.
13. Most NGOs lack any governmental (Ministry of Environment and Spatial Planning) support in dealing with climate change issues.

## **5. RECOMMENDATIONS**

14. Create a committee of experts (or use the Slovene Committee for Climate Change Issues), who will learn from the experience of AIJ in other countries. This will help the Slovene committee to set criteria for evaluating AIJ and JI projects proposals in Slovenia.
15. Raise public awareness of climate change issue as a challenge and opportunity through the media and by supporting NGO training activities as well as awareness raising, promotion and information campaigns.
16. Slovene NGOs should be supported in taking an active role in international NGO networks on climate change issues. The representation of Climate Action Network, Climate Alliance (climate policy in local communities) and Fifty-Fifty Network (schools) in Slovenia as well as active networking should begin and secure support of government and international structures.
17. Organize a set of meetings with representatives of business, experts and NGO communities on climate change (and related) issues.
18. The Government should take a comprehensive approach in climate policy by integrating issues of bio-diversity, management of natural resources, regional development (especially rural areas), use of renewable energy sources and energy efficiency. Examples: removal of the barriers for third party financing (TPF) in energy efficiency in the public and households sector; subsidies for the cleaning and maintenance of forests should be related to the sustainable management and energy use of wood biomass. This would also enable Slovenia to take a more consistent and active negotiation

position (on the issue of GHG sinks for example) within the international negotiation process.

19. Governmental institutions should invite applications for support of climate change related projects.

20. More attention and support of the Government should be given to energy efficiency in the public sector and the use of renewable energy sources.

21. The Government should clearly distinguish roles and responsibilities as well as set up a structured and transparent agenda for the National Committee for Climate Change Issues. In addition, the National Committee for Sustainable Development should start its activities and take a comprehensive stance while focusing on climate policy as a challenge and opportunity.

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