

Regional environmental cooperation and preventive environmental policy in Central and Eastern Europe

*Egbert Tellegen*¹

One of the heritages of the former communist regimes in Central and Eastern Europe is environmental decay. The old political system has disappeared but many hot-spots of dangerous forms of environmental pollution have remained. The process of economic transformation has led to a drastic reduction of production and consumption and, as a consequence, to the decline of some forms of pollution. In spite of that, it has also resulted in a deterioration of existing forms of environmental control. On top of this the introduction of a Western-style market economy implies new forms of environmental stress, varying from disposables replacing returnable packing to growing quantities of cars, roads, and traffic pollutants.

All sorts of environmental problems in Central and Eastern Europe have been frequently described and analysed in recent years. The primary interest of this chapter is the role of regional cooperation in environmental problem-solving. The chapter begins with a short discussion of relatively old forms of international cooperation in the fields of measurement and abatement of air and water pollution, followed by a discussion on European environmental cooperation since 1989 and the role of environmental issues in the extension of the European Union. The latter part of the chapter is devoted to recent developments in regional cooperation to reduce energy use and waste production. Environmental problems in Central and Eastern Europe have often been defined as problems of inefficient and wasteful use of natural resources. A main, if

not the most important, challenge for environmental policy in this part of the world is to reduce the excessive use of natural resources such as minerals and fossil fuels. For this reason, the discussion of regional environmental cooperation will focus on developments in the fields of energy conservation and waste minimization.

The territory

The term "Central and Eastern Europe" is used to refer to those European countries that were governed by communist regimes until the revolutionary changes of 1989 and the disintegration of the Soviet Union and Yugoslavia. It is not intended to offer equal or, in size or number of inhabitants, proportional attention to the different parts of Central and Eastern Europe.

Early forms of regional cooperation

Cooperation within Western and Eastern Europe

Forms of regional environmental cooperation developed within Western and Eastern Europe long before the fall of the Berlin Wall in 1989. In Western Europe both the Council of Europe and the European Community were active in the fields of environmental and nature protection. The Council of Europe, founded in 1949, has been mentioned as "the first broadly based international body to have the environment on its work programme" (Haigh 1987, 373). It developed activities in the fields of nature conservation and environmental pollution control. The European Economic Community, founded in 1957, gradually extended its competence to environmental issues, if only in order to avoid economic advantages for countries with low environmental standards. In Eastern Europe, Bulgaria, Czechoslovakia, Hungary, Poland, Romania, and the Soviet Union worked together in the Council for Mutual Economic Assistance (COMECON), which was founded in 1949. Within COMECON both bilateral and multilateral forms of cooperation developed (Lisitzin 1987). In 1988 a common declaration between the European Community and COMECON was signed, followed by a special environmental conference in Sofia in 1989 (Baker 1996, 157). East-West cooperation on single environmental issues started much earlier, and will be discussed below.

Transboundary air pollution

The reduction of air pollution has long been recognized as a common interest of Eastern and Western European countries, even though some

countries suffer more from transboundary air pollution than others. Both natural conditions (in particular prevailing wind directions and sensitivity of ecosystems) and economic activities in neighbouring countries (such as energy production and other industrial activities) may contribute to these differences. Among the European countries, Russia is a net importer of air pollution, most of which originates from other members of the former Eastern bloc (Kljoev 1997, 6).

In 1975 the Helsinki Conference on Security and Cooperation in Europe (CSCE) took place. After that meeting, the Soviet Union wanted to continue the process of détente in fields other than human rights and arms control, and proposed to discuss environment, energy, and transport issues (Levy 1993, 81). In 1979, negotiations within the framework of the Economic Commission for Europe (ECE) of the United Nations led to the adoption of the Convention on Long-Range Transboundary Air Pollution (LRTAP). This convention was ratified by 32 countries in Eastern and Western Europe and North America (the United States and Canada). Even before 1979, the ECE had already initiated the development of a European Monitoring and Evaluation Programme (EMEP) for transboundary air pollution. Under the umbrella of EMEP, Meteo Synthesising Centres were founded in Moscow (known as MSC-East) and Oslo (known as MSC-West) (Van der Weij 1993, 37). Research was concentrated at the International Institute for Applied Systems Analysis (IIASA) in Laxenburg, Austria.

Within the framework of the LRTAP convention, various protocols were adopted to cover different air pollutants. In 1985, 18 countries signed the Helsinki Protocol and thereby committed themselves to reducing SO₂ emissions by 30 per cent by 1993, as compared with the level of emissions in 1980. Under the 1988 Sofia Protocol, the signatories were committed to stabilizing NO_x emissions to 1987 levels by the year 1994. A third protocol, signed in Geneva in 1991, aims to limit emissions of volatile organic compounds (VOCs) in 1999 to a level 30 per cent below that applying in 1988 (Hordijk 1991). All the Western countries and most of the Eastern European countries had reached the 30 per cent SO₂ reduction target in 1993. Many Western countries achieved a much larger reduction of SO₂ emissions.

In 1994, the member states of the LRTAP agreed upon a new SO₂ reduction plan. The new plan was not emission-oriented but effect-oriented. In other words, the aim was no longer to achieve equal reductions in emissions in all member states, but to reduce local depositions as far as is necessary not to surpass critical loads. The concept of a critical load has been defined as "a quantitative estimate of an exposure to one or more pollutants below which significant harmful effects on specified elements of the environment do not occur according to present knowledge" (Amann et al. 1992, 1186). This new policy is based on maps of critical

loads for different parts of Europe (Hettelingh, Downing, and de Smet 1991). There are great differences in the critical loads applying to different areas, based, for example, on the different types of soils in these areas.

It is clear that this new policy makes international cooperation much more complicated. Local depositions are often highly dependent on emissions in other countries, and the necessary level of reduction may therefore differ among member states because of the different effects in other member states. A logical consequence of the effect-oriented approach would be the creation of a common European fund from which investments in pollution reduction would be paid in order to reduce the most extreme deviations from the critical loads, wherever these are in Europe.

As early as 1985, the Austrian Minister of Environmental Protection, Kurt Steyer, suggested creating a common fund for SO₂ emission abatement in the framework of the LRTAP treaty. At the time, opponents of this idea argued that Eastern European countries should not be granted subsidies for taking environmental measures as long as a large part of their state budget was still devoted to military spending. Nevertheless, even though the Cold War has now come to an end, such a common fund has not yet been created. Western financial institutions do offer financial aid to individual countries to reduce local and transboundary air pollution, but cooperation within the LRTAP convention remains limited to joint studies of the scale and effects of air pollution and the definition and evaluation of policy targets. Even so, the modest scope of LRTAP cooperation should not be interpreted as a complete lack of effectiveness. In the context of the LRTAP, "weak rules permitted strong consensus building powers, whereas strong rules would have generated hostility on the part of governments" (Levy 1993, 76). The same author characterized LRTAP cooperation as "tote-board diplomacy": "The protocols were tote-boards showing who was responsible and who was not" (Levy 1993, 77). LRTAP protocols put external and internal pressure on countries who remain off the tote-board or who fail to comply with accepted reduction targets.

Transboundary water pollution: The Baltic Sea

Between Eastern and Western Europe, the Baltic Sea is the most "transboundary" sea. Abatement of transboundary pollution of the Baltic Sea has been recognized as a common interest of Western and Eastern European countries for a long time.

The Baltic Sea is surrounded by Germany, Denmark, Sweden, Finland, Russia, the three Baltic republics, and Poland. Main pollutants of the Baltic Sea are discharges of municipal and industrial waste water.

In 1974 the countries surrounding the Baltic Sea signed the Helsinki Convention on the Protection of the Baltic Sea. This agreement is usually abbreviated as HELCOM (referring to the executive commission of the convention). In 1992, a revised Helsinki agreement was signed by 12 states.

Before the fall of communist regimes, common efforts to protect the Baltic Sea were limited mainly to the prevention of pollution by ships. The protection of national sovereignty and secrecy hindered inclusion of land-based activities and inland waters as sources of pollution, and was in particular resisted by the Soviet Union. In the revised 1992 version of HELCOM these sources are included. "This new approach was revolutionary in the sense that the national, separate approach, which left a lot of room for national negligence, was given up. The national sovereignty was no longer seen as an argument against joint action" (Van der Weij 1993, 101). Another new development starting around 1990 was the participation of NGOs in HELCOM. Greenpeace received observer status at the end of the 1980s, followed by the WWF and the Coalition Green Baltic, consisting of 15 Baltic NGOs, in 1991. A third new element was the involvement of international banks: the EBRD, the European Investment Bank, the Nordic Investment Bank, and the World Bank. The former principle that every country should pay for the reduction of its own contribution to pollution of the Baltic Sea was given up (Van der Weij 1993, 101–102). In 1992, together with the new convention, a common action programme was formulated (EAP 1993). Since the start of the programme in 1992 15 hot spots have been deleted following proactive measures (Helsinki Commission 1997).

Compared to East-West cooperation in the frame of the LRTAP to reduce air pollution, the scope of cooperation in the frame of HELCOM is much larger. NGOs are involved, priorities of emission reductions are indicated, and banks are engaged to provide the necessary financial means to transform priorities into practical measures.

The "Environment for Europe" process

The fall of the Berlin Wall and the end of the Soviet Union in 1991 gave a strong impetus to East-West European environmental cooperation. Environmental issues played a crucial role in the revolt against communist regimes in Central Europe and in the struggle for independence in the European republics of the Soviet Union. In Western Europe environmental concern was growing and environmental issues reached a prominent place on political agendas in the early 1990s. Under these favourable circumstances, a new form of pan-European environmental cooperation, the so-called "Environment for Europe" process, was initiated by East-

ern and Western European states. A guiding role in this process was played by pan-European conferences of ministers of the environment, which were held in Dobris (former Czechoslovakia) in 1991, in Lucerne (Switzerland) in 1993, and in Sofia (Bulgaria) in 1995 (Klarer and Francis 1997, 28–36). The most recent conference took place in Aarhus (Denmark) in June 1998. Among the outcomes of the first conference in Dobris was a pan-European Environmental Action Plan, which was adopted at the Lucerne Conference in 1993 (EAP 1993) and the so-called Dobris Assessment, an all-European investigation of environmental conditions, pressures, and problems, which was published in 1995 (Stanners and Bourdeau 1995). During the Sofia Conference six areas of further cooperation were chosen. Unlike the earlier Environmental Action Plan, which was primarily a Western initiative, the Sofia initiatives were proposed by Eastern European countries and they play a leading role in their further development. An example of concrete measures to improve environmental quality is offered by the Sofia initiative on local air pollution. It is chaired by the Bulgarian Minister of Environment and has its secretariat at the Regional Environment Centre in Szentendre near Budapest. It promotes cooperation at national and municipal levels. Part of this Sofia initiative is a total phase-out of leaded petrol in all European countries. A special Task Force Group under the auspices of the UN Economic Commission for Europe and chaired by the Danish Ministry of Environment and Energy prepared a declaration for the total phase-out of leaded petrol in Europe, which was adopted at the Aarhus Conference.

Like environmental cooperation around the Baltic Sea, widely different institutions are involved in this pan-European environmental cooperation: states, international and supranational organizations, international financial institutions, and non-governmental environmental and business organizations. “The Environment for Europe process presents a formidable platform for contact and cooperation between East and West with the representation of all mentioned countries and organizations. The Environment for Europe process is unique, no similarly comprehensive effort exists in other policy areas” (Klarer and Francis 1997, 28). There can be no doubt about the fact that this pan-European cooperation has stimulated information-gathering on hot-spots of environmental pollution and other environmental problems, and the development of knowledge of and experience with environmental legislation, strategies, and policy instruments. Nevertheless, it cannot be denied that there is growing criticism in Central and Eastern European countries of the ways in which financial aid from the West, such as the EU programmes PHARE (Poland Hungary Assistance for Reconstruction of Economy) and TACIS (Technical Assistance Commonwealth of Independent States), has been spent. Too much has been spent on investigations by Western consultancy firms

and too little on investments in local public facilities and industry. Even in Poland, the country which received by far the largest amount of financial environmental support from the PHARE programme, the share of financial support from the West accounted for less than 5 per cent of total environmental expenditure in the 1990–1994 period (Kolk and Van der Weij 1998).

The accession of new member states to the European Union

The European Union has played a crucial role in environmental cooperation with Central and Eastern European countries. It did and does so for widely different reasons, summarized by Baker (1996, 152). Among them are economic considerations: the fear of competition within the European Union by Eastern European enterprises with low pollution costs; the risk of transfer of Western European enterprises to Eastern European areas with low environmental standards; the opening up of business opportunities for transfer of ecological technology and enterprises in Eastern Europe; and the relatively low costs of emission reduction in Eastern Europe in cases of transboundary air and surface water pollution. Nevertheless, all these considerations are not enough to give environmental protection top priority in cooperation between the European Union and Central and Eastern European states. At the end of the 1990s the environmental euphoria of the early 1990s is over in both Eastern and Western Europe. Central and Eastern European countries no longer need environmental issues to oppose the communist government in their national capital or in Moscow. In Western Europe the environmental issue has lost its prominent place on policy agendas in favour of issues like unemployment, crime, and entrance into European monetary union.

Under these less favourable circumstances the European Union initiated a process of eastward extension. This process started with bilateral European agreements with many individual countries, offering a prospect of full membership. However, not all the countries that have signed a European agreement with the European Union can hope for EU membership in the near future. In 1997 the European Commission published its Agenda 2000, according to which only five countries should be selected for a first round of eastward extension of the European Union: the Czech Republic, Estonia, Hungary, Poland, and Slovenia.

There is a contradiction in the attitude of the European Union towards Eastern European future member states regarding environmental matters. On the one hand, new countries are expected to integrate the whole so-called *acquis communautaire*. On the other hand, it is completely clear

that it will take decades before even the five selected countries can fulfil the requirement of full adoption of European environmental legislation and environmental standards (Eisma 1997). One may even wonder whether it is useful that countries in another part of Europe and in another period simply take over the environmental “infrastructure” which has been developed at other places and under different circumstances (Baker 1996, 158). The European Union was founded as an economic union, and to date economic interests prevail over environmental considerations. There is a real possibility that some countries will obtain full membership although they are far from integrating the environmental *acquis communautaire*. This would be a signal to other countries with the ambition to obtain full membership of the European Union not to put much effort into improvement of environmental legislation and policy (Eisma 1997, 5).

Official EU statements stress the necessity to integrate “ecology” and “economy” by means of preventive environmental policies. In reality, EU support to Central and Eastern Europe is far more economically than ecologically directed, and more oriented to monitoring and legislation than to integrative and preventive environmental policy measures.

The need for preventive environmental policies

Effective environmental policy requires more than just exchange of environmental information and implementation of environmental legislation and policy. This is particularly the case in the former communist states, where scientific knowledge was available and environmental quality standards were high but where technology and management were in a poor state. This backwardness resulted in wasting materials and energy. For good reasons, the authorities of the communist countries defined environmental problems primarily as problems of irrational use of natural resources. Time and again the excessive use of materials and energy in production processes was criticized (Tellegen 1989). “We spent, in fact we are still spending far more on raw materials, energy, and other resources per unit of output than other developed nations. Our country’s wealth in terms of natural and manpower resources has spoiled, one may even say corrupted us” (Gorbachev 1987, 85). This failure became a major driving force behind the process of *perestroika*. This is reason enough to focus on regional cooperation in the fields of energy conservation and waste minimization as a means to stimulate both economic efficiency and environmental improvement in Central and Eastern Europe.

Energy conservation

Energy: A crucial issue

Use of energy plays an important role in widely different forms of environmental stress, nature destruction, and related social tensions. In Central and Eastern Europe the excessive air pollution in the Black Triangle (Germany, Poland, and the Czech Republic), the destruction of nature in northern Siberia, the conflicts between Hungary and Slovakia regarding the canalization of the River Danube, and last but not least the Chernobyl catastrophe are examples of the environmental and social impact of the use of energy.

Final energy consumption per capita in general is not very different from the West, but compared to the low level of consumption in those countries energy consumption can be called excessive.² The disintegration of Central and Eastern European planned economies was followed by a drastic decline of economic activities and energy use, but it is reasonable to expect a growing energy consumption when the period of economic decline is followed by an era of economic growth. In Hungary, the decrease of energy consumption came to an end in 1992 (Lehoczki and Balogh 1997, 138).

For many years solutions for problems of shortages and damages caused by the use of particular sources of energy have been found by switching from one energy source to another. Nowadays it has become clear that all forms of energy use which are based on fossil or fissile fuels lead to environmental degradation and environmental risks. The reduction in use of these sources of energy is achieved in three different ways:

- supply efficiency improvement
- use of renewable energy sources
- reduction of end-user demand.

They are usually brought together under the banner of “energy conservation,” although strictly speaking this term is incorrect in the case of implementation of renewable energy.

Large improvements are possible in these three areas of energy conservation in Central and Eastern Europe. Some examples are mentioned below.

Supply efficiency improvement

A sector in which energy efficiency can be considerably improved is the supply of heat in buildings. The existing highly centralized systems can be changed or replaced by more efficient decentralized supply systems (Martinot 1995; OECD/IEA 1995; Batov 1996; Matrosov 1997). The

Russian cities Rostov-on-Don and Vladimir are among the places where this decentralization of heat supply has already been put into practice (Matrosov and Goldstein 1996, 4).

Use of renewable energy sources

There are great possibilities for use of renewable energy sources in Central and Eastern Europe. Recently it was estimated that renewable energy sources (wind and hydro power, solar energy, and energy from biomass) could have provided 30 per cent of the total energy consumption of Romania in 1995 (Dinica 1997). Russia has a long tradition of using wind power for electricity generating (Gol'man 1991; Larin 1991). Energy supply in remote areas and local autonomy have been recently mentioned as arguments for further introduction of wind energy in both Russia and the Ukraine (Sjpil'rain 1997, 10; Martinot 1995, 68). The Ukrainian government has supported the development of wind energy as part of its conversion policy (Martinot 1995, 79; Golubenko and Tsyganov 1997).

Reduction of end-user demand

In Central and Eastern European countries, with their long tradition of highly centralized energy supply, low energy prices, absence of metering of energy consumption, and limited possibilities to influence individual energy consumption, there are huge possibilities to reduce end-user demand for energy. Measures to reduce end-user demand are often combined with measures to improve energy efficiency. In Russia, the district of Chelyabinsk introduced the notion of an "energy contract" by means of which energy conservation services can be paid for through energy savings (Livinsky 1997, 51).

Forms of East-West energy cooperation

There is a worldwide interest in the development of energy supply in the countries of the former Soviet Union and other Central and Eastern European states. As a consequence of the nuclear catastrophe at Chernobyl in 1986 and the presence of other unsafe nuclear power plants, Western countries have become strongly interested in the development of nuclear energy in Eastern Europe. Governmental and non-governmental organizations from abroad strived for the complete closure of the power plant at Chernobyl (of which two blocks remained in operation after the catastrophe and one block is still in operation today) and other dangerous nuclear power plants. To stimulate the closure or safer operation of 22 unsafe nuclear power plants in Armenia, Bulgaria, Lithuania, the Ukraine, Russia, and Slovakia, the G-7 group of industrial nations created the Nuclear Safety Account in 1993. This fund is financially supported by 15

countries. In 1996 it offered a grant of 118 million ECU to the Chernobyl nuclear power plant to get the plant closed by the year 2000.

On the other hand, Western enterprises that were not able to sell nuclear power plants in the West developed strong interests in the continuity and extension of nuclear power in Central and Eastern Europe. Development of nuclear power in Central and Eastern Europe thus became a topic in which many interest groups with often widely conflicting interests became involved.

The necessity to import fossil fuels on the one hand, and the need to remain independent of foreign powers (in particular, the Middle East) on the other, stimulated East-West inter-state cooperation. In December 1994, 49 countries signed the Energy Charter Treaty in Lisbon. Its main purpose is the guaranteed delivery of fossil fuels (in particular oil and gas) from the East to the West by means of investment protection, liberal trade connections, transit facilities, and dispute settlement. Added to the charter is a special protocol on energy efficiency and related environmental aspects. The latter element is more a statement of intentions than a guiding principle, let alone a legally binding and enforceable rule. The treaty entered into force in 1998, after it received the thirtieth instrument of ratification.

In the meantime, Western European countries were and are involved in several energy conservation projects in Central and Eastern Europe.

Energy conservation projects

In the past 10 years a variety of energy conservation projects have been initiated in Central and Eastern Europe, with support from Western Europe.

Energy efficiency demonstration zones

National states, international financial institutions, the European Union and its programmes for financial support, and different branches of the United Nations work together in the Energy Efficiency 2000 project. One of the activities of this programme has been the development of energy efficiency demonstration zones. The demonstration zones have been created in several Eastern European countries. In Russia, environmental zones were financially supported by Germany, the United Kingdom, the United States, Norway, and the World Bank.

Energy centres

The Thermie Programme of the European Union started in 1992. Its aim is to promote market penetration of EU energy-efficient technologies

throughout Europe. For that purpose it has founded 14 energy centres in Central and Eastern European countries.

The European Commission Baltic Renewable Energy Centre was established in Poland in 1994. Its main tasks consist of gathering and dissemination of information.

Urban energy efficiency projects

In 1994, the Netherlands Agency for Energy and the Environment, called NOVEM, and the Italian company CESEN started the PHARE Regional Energy Programme, "Improvement of urban energy efficiency through multilateral cooperation and development of networks." The report on the first part of the study contains the results of 18 projects. To illustrate how successful projects to reduce final energy consumption can be, the results of two of the projects are given below.

- Energy management for school buildings in Tallinn, Estonia. This was a project in which the cities of Tallinn, Kiel (Germany), and Aarhus (Denmark) participated. The purpose of the project was to reduce energy consumption in a school by 15 to 20 per cent. It included both technical improvements such as the tightening of windows and the renovation of ventilation, heating, and electrical systems, and social activities like energy management training and raising public awareness. In the school in which the pilot project took place, energy consumption was reduced by 39.7 per cent within one year (NOVEM/CESEN 1997, 29–32).
- Improving the energy performance of residential dwellings in Stary Smokovec, Slovakia. In this project the cities of Glasgow and Dublin participated. The purpose of this project was formulated as follows:

To incorporate energy efficient design improvements into the reconstruction of a residential dwelling block in Slovakia, in order to achieve an energy reduction of 40 per cent; to combine training in insulation techniques with the actual refurbishment of residential dwellings; to increase householder energy awareness through developing and delivering of local energy advice activities and services (NOVEM/CESEM 1997, 39).

Within this project energy savings of 47.88 per cent were reached within one year (NOVEM/CESEM 1997, 39–42).

Constraints on energy conservation

Although it is perfectly clear that there are great possibilities for energy conservation in Central and Eastern Europe, investments in energy conservation are meagre compared to investments in energy production. For what reasons?

The dominance of supply-side options

Discrepancies between supply of and demand for energy can be reduced by changing supply or changing demand. Both from an economic and an environmental viewpoint, so-called “demand-side management” often has to be preferred over “supply-side management.” In other words, in cases of shortage of energy, reduction of energy use is often a better option than increasing the supply of energy. Experiences in Western countries have indicated that there are strong vested interests which hinder the shift from supply- to demand-side management. The same can be said of Central and Eastern European countries and the financial aid from the West to these countries.

Foreign direct investment projects in the field of energy are mainly concentrated in oil and gas exploration and extraction in Russia, Kazakhstan, and Azerbaijan, with some in oil drilling in Albania, Hungary, Latvia, and Romania, and hardly any in energy conservation (including renewable energy sources) (Brendow 1996, 543).

The importance of countervailing power

In order to stimulate energy conservation, strong countervailing power counteracting the supply-side options of organizations with vested interests in the growth of energy use should be developed. This can be done in particular by two types of institutions: environmental and energy conservation NGOs and national and international governmental organizations.

Environmental and energy conservation NGOs can inform their Central and Eastern European counterparts about different forms of energy conservation and the ways in which they can be successfully implemented. In fact, they are already doing so. By means of the Internet and other forms of information technology, knowledge about any successful experience with energy conservation can be made available to local environmental groups and individual interested citizens in Central and Eastern Europe.

“Joint implementation” in cooperation with Central and Eastern European countries is a policy instrument by means of which Western European countries and the European Union as a whole can fulfil obligations to contribute to worldwide reduction of CO₂ emissions. It is cheaper to reduce CO₂ emissions in Eastern and Central Europe than in Western Europe.

Waste minimization

Waste problems during and after the Soviet period

The dumping of large amounts of waste was considered to be an urgent environmental problem in the centrally planned economies. In the former

Soviet Union waste problems were vividly described in newspapers like *Izvestija* and *Pravda*, and in the weekly magazine *Literaturnaja Gazeta*. Waste reduction and even wasteless production policies were propagated. One of the most important advocates of a wasteless production process, and a member of the Academy of Sciences, described this ideal "as perhaps one of the most attractive economic – and at the same time ecological – concepts of the closing years of this century." He expected that in the twenty-first century, environmental pollution in whatever form will be "considered an unusual event" (Laskorin 1984, quoted in Tellegen 1986, 232).

In reality, the fall of the Iron Curtain aggravated some waste problems in Central and Eastern Europe. It stimulated the import of hazardous waste from Western countries. In general there are no vested interests in receiving polluted air or water from neighbouring countries. However, the same cannot be said of receiving waste from abroad, because money is paid for it. Waste may be imported legally or illegally, with or without the consent of the public authorities of the receiving countries. In both cases this may be opposed by NGOs and less organized local groups of individual citizens.

As early as 1989, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal was adopted. It entered into force on 5 May 1992.

The main provisions of the convention call for the following action by states:

1. Information exchange with other parties on waste exports and imports, through designated national authorities.
2. The prohibition of waste exports to countries that are not party to the convention or to countries which are party to the convention but which have not expressly authorized waste imports.
3. The licensing and supervision of persons transporting or disposing of waste.
4. The packaging, labelling and transport of waste in accordance with international rules and standards.
5. Cooperation on the environmentally sound management of waste.
6. Mutual information in the event of accidents during the transboundary movement of waste (EAP 1993, V1–21).

Nevertheless, as a consequence of the revolutions which took place in 1989, the same year as that in which the convention was adopted, Central European countries have become a favourite destination for hazardous waste from Western countries. In fact, transport of hazardous waste to this area started earlier. The former German Democratic Republic, Poland (Bernstorff and Puckett 1992), and Romania (Bernstorff and Totten 1992) are among the countries to which hazardous waste was transported. Local groups, often supported by international organizations

like Greenpeace, have been successful in preventing or interrupting imports of waste from the West. Sometimes the waste was sent back to the country from where it came. Nowadays rules regarding export from EU countries to other countries are stricter than in the past and will probably reduce legal and illegal export of waste from the West to the East in the future.

Cleaner industrial production and products

From both a technological and a sociological perspective the development of environmental measures by industrial enterprises in advanced (post-) industrial societies can be characterized as a process of internalization. The "internalization" of environmental technology can be illustrated by the development of technological measures to reduce air pollution. In the past, high chimney stacks were built to dilute and spread industrial air pollution. The next step was the introduction of so-called end-of-pipe technology. Filters were installed in stacks and air pollution was transformed into solid waste. The third phase in this development was the introduction of clean(er) production processes, combined with the use of clean(er) materials within production processes. Corrective technology at the end of the production process was replaced by preventive technology within the production process. Cleaner production has been defined as "the continuous application of an integrated preventative environmental strategy to processes and products to reduce risks to humans and the environment" (Verspeek 1996, 78). As a social process the development of cleaner production in recent years can be defined as the transfer from a defensive or compliance approach to an offensive or innovative approach. As long as a compliance approach prevails, the necessity to reduce emissions in order to obey fixed standards of governmental environmental policy will be the starting point for environmental measures within enterprises. Ways will be looked for to conform, with the least cost and effort, to the standards formulated by others. When an innovative approach is followed the starting point is the design of production processes which best fit both economic and ecological criteria. In the past decades great successes with such an innovative approach have been reached in many countries (Groenewegen 1996; Van Berkel 1996). In many cases it was possible to take preventive measures that created economic-ecological win-win situations. "Pollution prevention pays" was the principle on which many environmental innovations in industry were based. In general, the more complicated process of environmental improvement of products is preceded by the environmental improvement of production processes (Reijnders 1996, 28)

Cleaner production and sustainable product development are sup-

ported by the United Nations. The UNEP cleaner production programme started in 1990 (Aloisi de Larderel 1995), and the UNEP working group on sustainable product development was founded in 1994 (Van Weenen 1997).

Cleaner production programmes in Central and Eastern Europe

In recent years programmes for clean(er) production have been put into practice in Central and Eastern Europe with the support of Western European countries.

- The Norwegian Society of Chartered Engineers initiated cleaner production programmes in Poland, the Czech Republic, and Slovakia (Nedenes 1994; Dobes 1997).
- The World Environmental Centre (WEC) initiated projects in Poland, the Czech Republic, Slovakia, Hungary, Romania, Bulgaria, Estonia, Latvia, and Lithuania (Lindhqvist and Rodhe 1994, 4–5).
- The Danish government supported industrial waste minimization projects in Poland, Hungary, and the Baltic states (Lindhqvist and Rodhe 1994, 5).

Barriers to cleaner production in Central and Eastern Europe

The introduction of cleaner production in Central and Eastern Europe is hindered by different barriers (Csalagovits 1997). It may sound strange, but their simplicity and cheapness sometimes seem to be a handicap for cleaner production measures. In Lithuania so-called “good housekeeping measures” suffer from “a fixation on technical solutions by production managers, low status associated with such measures, difficulties in motivating the staff, an embarrassment that these rather simple measures had not been thought of earlier, and a general failure to recognize their importance” (Staniskis 1996, 46). Another barrier is the lack of a tradition of efficiency improvement measures in former planned economies (Lindhqvist and Rohde 1994, 10). Interestingly enough, not only the remnants of centralized decision-making in the past but also the contemporary absence of state power in the field of environmental protection have a negative influence on the development of cleaner production (CP). “The effectiveness of CP programmes is often constrained by the absence of an appropriate national framework containing long term environmental policies and strategies, by uncoordinated use of economic incentives and penalties, and lack of appropriate regulations and enforcement strategies” (Wangen 1996, 19).

Efficiency improvement is not enough

Much has been written about the disastrous state of the environment in Central and Eastern Europe in recent years. Before and after the fall of communism, lack of efficiency in the use of materials and energy has been considered as the main cause of environmental decay. The presence of large undisturbed natural areas with a great biodiversity in Central and Eastern Europe, and the fact that the use of natural resources per capita in general is not higher than in Western Europe, have been mentioned less often. There is almost no difference of opinion about the necessity of greater efficiency of resource use in order to improve environmental quality in Central and Eastern Europe. But the net effect of these improvements may be more than counteracted by the introduction of elements of a Western lifestyle in fields like household consumption, transport, and recreation. The production of cars, the construction of highways, and, as a consequence, the deterioration of public transport systems offer just one example of the environmentally damaging effects of East-West cooperation in Europe. However, it is beyond the scope of this chapter to discuss how Central and Eastern Europe could be protected against the devastating environmental effects of a Western lifestyle.

Recommendations: Aid and trade

This chapter has presented the development of different types of environmental cooperation in Europe. This cooperation started with exchange of information and formulation of policy targets by states. In a later stage, widely different organizations became involved and money was made available for pilot studies and treatment of hot-spots of environmental pollution in Central and Eastern Europe.

Preventive environmental policy which is propagated so often in official documents does not strongly profit from Western support to Central and Eastern Europe. Initiatives in that direction have been taken and successes have been achieved, but they play a minor role in the actual development of energy consumption and waste production in that part of Europe. What can be done to stimulate preventive environmental measures in these fields? Only a brief answer will be given to this question.

Aid

Financial support to Central and Eastern European countries should be related more directly to preventive environmental measures like energy

conservation and waste minimization. The creation of so-called “revolving funds” could be a useful way in cases in which preventive measures can be paid back by reduction of costs. Energy conservation measures can be paid back by savings on the energy bill. Waste minimization measures may also lead to a reduction of payments for pollution or for materials that are no longer wasted. In cases of extreme environmental stress, subsidies for preventive measures can be justified even if the costs cannot be paid back in a reasonable period of time. In such cases at least part of the subsidy should only be paid after the proposed measures have proven to be effective.

Trade

The most important driving force behind environmental policy measures within the European Union has always been the avoidance of market distortions by differences in the environmental policy measures of the different member states. Energy conservation and waste minimization could also play a role in trade measures. Trade can be influenced not only by national states and supranational organizations such as the European Union, but also by NGOs. They can try to convince consumers not to buy the products of factories which are wasting materials and energy. It is clear that this is an extremely complicated matter in which different quite respectable though contradictory policy goals can come into conflict with each other. Nevertheless, when the so often stated ambitions of preventive environmental policies really are put in practice, these types of measures probably cannot be avoided.

Notes

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2. For data on Russia, see OECD/IEA 1995, 43.

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