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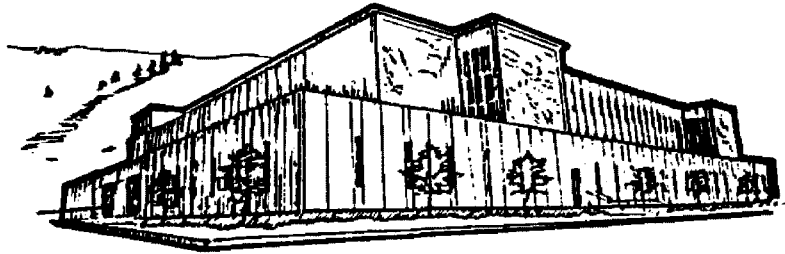
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**IMPLEMENTATION OF THE PRECAUTIONARY PRINCIPLE AND CLEAN  
PRODUCTION IN HUNGARY:  
NEEDS, CONSTRAINTS, AND POTENTIALS**

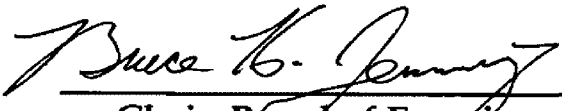
**By**

**Joel A. Tickner**

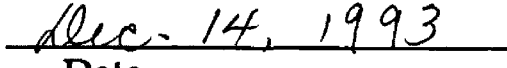
**B.A., Colby College, 1989**

**Presented in partial fulfillment of the requirements  
for the degree of  
Master of Science  
University of Montana  
December, 1993**

**Approved by:**

  
Chair, Board of Examiners

  
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**Implementation of the precautionary principle and clean production in Hungary: Needs, constraints and potentials**Director: Bruce Jennings 

Forty years of heavy industrialization and neglect have had a devastating impact on the health of the Hungarian people and environment. The costs of degradation of human health and the environment have been tremendous. As Hungary is currently undergoing a process of economic and political restructure, the opportunity exists to rebuild the Hungarian economy and protect the environment based on a new, sustainable paradigm: that of the precautionary principle and clean production. The precautionary principle aims to prevent harm to the environment, even before scientific knowledge establishes a cause-effect relationship between a pollutant or process and environmental degradation. Clean production is the continuous application of an integrated preventative environmental strategy to change processes and products to reduce risks to humans and the environment. The economic and environmental benefits of clean production have been extensively demonstrated internationally.

The political, economic, and technical feasibility for implementing the precautionary principle and clean production in Hungary was examined. Because an adequate legal structure, capital investment and education and training are prerequisites for the implementation of the precautionary principle and clean production, the role and constraints of environmental law development, the Hungarian economic situation, privatization and joint ventures, and multi-lateral and bi-lateral lending and aid were thoroughly analyzed. A case study involving the Hungarian aluminum industry was chosen to elaborate on the reality of economic restructure in Hungary. Areas of potential and recommendations for implementing these concepts in Hungary were discussed.

The implementation of the precautionary principle and clean production is both feasible and a necessity in Hungary, as the full extent of environmental degradation is still unknown. Hungary's current economic crisis, lack of comprehensive environmental legislation, and ad hoc privatization process pose serious constraints to these concepts. Projects undertaken by multi-lateral and bi-lateral lending institutions are influencing Hungary's economic development towards the unsustainable Western free-market model, without considering the needs of the Hungarian people.

Potentials for the precautionary principle and clean production exist in the form of new and existing environmental legislation, requiring prevention as an underlying principle and allowing for citizen participation and enforcement of environmental laws and the self-determination of local communities. National and international funding are available for clean production demonstration, information, and training projects. Universities and non-governmental organizations have initiated clean production projects. However, clean production requires a total societal commitment and participation. Due to current constraints, a large scale national commitment to clean production is unlikely in the near future.

## **Acknowledgments**

The author would like to acknowledge the kind and dedicated assistance of the many individuals who offered their time and expertise throughout this research. The Environmental Studies Program at the University of Montana generously provided a grant that supported much of this research, when all other sources of funding failed. The University also provided a small grant for attending the National Roundtable of State Pollution Prevention Programs semi-annual meeting in Nashville in November, 1993.

Particular acknowledgment goes to Margaret Bowman and David Hunter, Beverley Thorpe, Iza Kruszewska (for the basic idea behind this thesis), members of Environmental Management and Law Association, Gyula Bandi, Vilmos Kiszal, Laszlo Kertesz, Zsuzsa Lehoczki, Ernst Csalad, Nicholas Ashford, Donald Huisingh, and, of course, the author's critical and insightful thesis committee (Richard Barrett, Bruce Jennings, and Mary O'Brien).

# **Implementation of the precautionary principle and clean production in Hungary: Needs, constraints and potentials**

<b><u>Table of contents</u></b>	<b><u>Page</u></b>
<b>Chaper I - Introduction</b>	<b>1</b>
A) Communist theory and the environment	4
B) Environmental conditions in Hungary	6
<b>Chapter II - Background on the precautionary principle and clean production</b>	<b>10</b>
A) The Assimilative Capacity Approach	11
B) Evolution of the precautionary principle	13
C) The development of clean production	18
D) Constraints to the implementation of the precautionary principle and clean technologies	24
E) Why the precautionary principle and clean technologies in Central and Eastern Europe?	27
F) Conclusion	30
<b>Chapter III: Factors influencing the implementation of the precautionary principle and clean production in Hungary</b>	<b>32</b>
A) Development of environmental law and other legislation	32
A1) Early legislation	32
A2) Drafting environmental legislation	33
A3) Most recent draft environmental act	35
A4) Other legislation	39
A5) Constraints in the legal and political process	43
B) Economic situation	52
C) Privatization	56
D) Foreign investment in Hungary	62
E) Multi-lateral lending	67
E1) European Bank for Reconstruction and Development	68
E2) World Bank	75
E3) International Finance Corporation	82
E4) European Investment Bank	83
E5) Multi-lateral lending: Constraints on the development of clean production	84
F) Bi-lateral development assistance	85
F1) United States Agency for International Development	86
F2) Poland Hungary Assistance for the Reconstruction of the Economy (PHARE)	88
F3) Bilateral assistance: Constraints of the development of clean production	90



<b>Chapter IV: Case Study - Hungarian aluminum industry</b>	93
A) Background	93
B) Environmental management	95
C) HUNGALU-ALCOA joint venture	98
D) Conclusion	101
<b>Chapter V: Potential for invoking the precautionary principle and clean production</b>	103
A) Precautionary principle in Hungary	103
B) Enforcement options	105
C) New environmental laws	107
D) Local self-governments	110
E) Universities and non-governmental organizations	112
F) Internal funding	115
G) Foreign investment and privatization	117
H) Multi-lateral and bi-lateral lending and aid	120
<b>Chapter VI: General conclusions and recommendations on implementing the precautionary principle and clean production in Hungary</b>	123
A) Conclusions	124
B) Recommendations	134
<b>Appendix: Recommendations on the steps non-governmental organizations can take in advocating clean production and the precautionary principle in Hungary</b>	142
<b>References cited</b>	146

### List of Tables

<b>Table 1: Economic Indicators in Hungary 1990-1992</b>	53
<b>Table 2: Actual and projected MDB lending in Central and Eastern Europe</b>	67
<b>Table 3: EBRD Investments in Hungary as of March 17, 1993</b>	72
<b>Table 4: World Bank Loans to Hungary 1986-Present</b>	77

## Chapter I: Introduction

Whole sectors of industry are producing things in which no one is interested, while things we need are in short supply...Our outdated economy is squandering energy...We have laid waste to our soil and the rivers and forests our forefathers bequeathed us, and we have the worst environment in all of Europe today (Vaclav Havel).\*

When the transition to democracy swept across Central and Eastern Europe in 1989, the world laid eyes on what had been masked during 40 years of communist rule: the massive environmental degradation of the region. The environmental problems and issues in the region have been widely documented in the media and in international fora.\*\* The potentials of the region to restructure in an environmentally sustainable manner have also been widely discussed in numerous conferences and publications.\*\*\* However, enunciations of sustainable development made by governments, lending institutions, businesses, and environmental groups in the region have proven to be simply broad policy statements, with no real implementation potential. The steps to achieving sustainable development in the region have not been established. In fact, three years after the transition to democracy in the region, it appears that Central and Eastern European countries will mimic Western "free-market" economic development patterns, which have not been considered sustainable.

The purpose of this paper is to examine the possible steps that could be taken towards achieving sustainable development in Central and Eastern Europe, focusing on one particular country, Hungary. As the term "sustainable development" is nebulous and has been variously defined by industry, governments, and the environmental movement

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\* Havel, Vaclav. 1990. Our Freedom. Washington Post, January 3 at A15.

\*\* See generally Thompson, Jon. 1991. East Europe's Dark Dawn. National Geographic, vol. 179:6 and French, Hillary. 1990. Green Revolutions: Environmental reconstruction in Eastern Europe and the Soviet Union. Worldwatch Paper 99. Washington DC: Worldwatch Institute for overview articles.

\*\*\* See Bochniarz, Z. 1992. Capacities and deficiencies for implementing sustainable development in Central and Eastern Europe. UN Conference on Environment and Development. Research paper 46. Also Kruszewska, I. 1991. Avoiding Western mistakes: A guide to clean investment in Eastern and Central Europe. Greenpeace International. Conference on the Environment, Industry and Investment Decisions in Central and Eastern Europe, Nov. 20-22.

over the past several years, a more focused definition of what constitutes sustainable development is needed. The definition used throughout this paper is that of the precautionary principle and clean production [technologies]. The precautionary principle aims to prevent harm to the environment, even before scientific knowledge establishes a concrete cause-effect relationship between a pollutant or process and environmental degradation. Clean production (the technical implementation of the precautionary principle) has been defined as the "conceptual and procedural approach to production that demands that all phases of the life-cycle of a product should be addressed with the objective of prevention or minimization of short and long-term risks to humans and the environment" (Bass, *et. al.*, 1990, p. 2).

Following an historical background on the development of the precautionary principle and clean production and their applicability to Hungary, the technical, economic, and political feasibility for implementing these concepts in Hungary are examined. As an adequate legal structure, capital investment, and expertise are prerequisites for implementing these concepts, the role of environmental law development, the Hungarian economic situation, privatization and joint ventures, and multilateral and bilateral development projects are analyzed. The constraints that these factors pose to the implementation of clean production are also examined. A case study involving the Hungarian aluminum industry has been chosen to examine the reality of economic restructuring in Hungary. Finally, potential for the implementation of the precautionary principle and clean production in Hungary is discussed. The result of this analysis is a set of conclusions and recommendations regarding the steps that could be taken if these concepts are to become a reality in Hungary.

This paper is the result of over two years of research on environmental issues in Central and Eastern Europe. Through extensive research, travel throughout the region, and a recent three-week trip to Hungary, which included interviews with key individuals involved in environmental and development issues, the author has gained a rudimentary understanding of the development needs, potentials, and concerns in Hungary. The conclusions and recommendations set out in this paper (directed mainly towards Hungarian environmental organizations, as well as the Hungarian academic community, government officials, and the international environmental community), though, are based on the author's research and a Western perspective. They should be taken as discussion points for refutation, modification, and improvements by Hungarians and international observers on how to achieve sustainable development in Hungary. Too often Western countries dictate the paths to be taken in less-developed countries, when they themselves have caused and are causing vast and irreversible damage to their own environments. Solutions must be adapted for each country, region, and locality and should, most importantly, be democratic, involving all levels of society, including government, business, and citizens.

## **A) Communist theory and the environment**

Before examining the current state of the environment in Hungary, it is important to discuss the reasons behind the environmental degradation from which the region currently suffers. It should be noted that although negative environmental externalities were a common feature of communist production, they have also been a common feature of industrial development in the West during the past forty years. One difference between the two systems was that the democratic processes in Western countries allowed citizens to discover environmental problems and demand environmental reform.

The Soviets built environmental destruction into their system. Communist theory was based in part on Marx's labor theory of value. The key principle in this theory is that labor is the only source of value. The socially necessary amount of labor expended in the production of a good determined its value. According to communist thought, socialism could eliminate environmental problems. Socialist production would eliminate the incentive to pollute, and central planning would eliminate the waste of natural resources and environmental disruption. Society owned all firms, so all costs would be made internal to the firm. The production process and the environment would be in harmony (Kupilik, 1982, p.162). Although nature is a source of value and wealth, according to Marx, it is only considered as a provider and not a cost in the production process (Moll, 1989, p.1212). As a result, natural resources were considered a free element (no scarcity pricing), available to any authorized user. Rates of resource recovery and efficiencies of use were extremely low in most cases. The social costs of pollution and natural resource depletion were not considered, so pollution was costless and, thus, ignored (Singleton, p. 26).

Marx thought that through the development of science and technology, the frontiers of nature and what it could provide were limitless. He felt that there were no limits to growth, that the boundaries of nature were free and inexhaustible. Historically, the communist governments acknowledged some environmental problems but considered them to be short-term dislocations best solved by continued socialist development (growth) and the increased use of technology (Moll, 1989).

Environmental standards under the communist regimes were generally stricter than in the West but were usually very poorly enforced, inefficient, and unimplementable. When enforced, they did not cut the incentive to pollute. Since the enterprise and the state were the same, fines were rarely paid. The main focus of the communist governments was on production and the expansion of heavy industry. Bonuses for managers were based on units produced, not product quality or minimization of environmental externalities. The main indicator of success for a manager was fulfillment of the production quota, and environmental fines were often factored into the firms' accounting books as a cost of conducting business. Imperatives of industrialization overrode all other considerations. The governments' expansionist frame of mind focused solely on short term production gains within the five year programs (Kupilik, 1982).

When foreign credit was readily available for countries of the region during the 1970s, the governments of Central and Eastern Europe chose (to further industrial expansion) to invest in energy intensive, polluting heavy industry, while Western countries focused on economic restructuring towards more benign sectors (Kerekes, 1993a, p. 141). The result is that Hungary and other countries of the region have a surplus of uneconomic, outdated industries that under few circumstances could be economically efficient or protective of the environment. In the 1980s, the Hungarian economy per unit of Gross

Domestic Product (GDP) used 40% more materials and energy and 50% more capital than Organization for Economic Cooperation and Development (OECD) countries (Bulla, 1991, p. 10).

An overemphasis on industrial growth, reliance on prices that did not reflect the costs of pollution or the scarcity of resources, minimal enforcement of laws, and a system of rewards for managers based solely on production greatly contributed to the current environmental situation in the region. As late as 1982 a Polish minister stated "pollution is the price that has to be paid for industrial development and development of civilization." It appears in the case of Central and Eastern European countries that Engel's statement "we will not flatter ourselves too much with our victories over nature. For every victory, it takes its vengeance upon us," was completely ignored (Singleton, 1987).

#### **B) Environmental conditions in Hungary**

Since the transition to democracy and a market economy took place in Hungary in 1989, actual improvements in environmental quality and pollution reduction have taken place. These improvements were not the result of greater pollution control efforts, but rather were caused by economic difficulties, resulting in decreased economic activity and the closures of nearly one-third of the large polluting industries in the country. Energy consumption dropped by nearly 20% in 1991. Water quality improvement has been observed, especially in Lake Balaton, the largest lake in Central Europe. Air pollution levels and water quality in some parts of the country are actually better than in many Western countries (Bochniarz *et. al*, 1992).

Nearly half of the Hungarian population, which is concentrated in 11% of the country, lives in areas with heavily polluted air (Bulla, 1991, p. 43). In Hungary's most industrialized cities ("the dirty dozen"), air pollution caused by heavy metals, fluorine, SO<sub>2</sub>, NO<sub>2</sub>, polycyclic aromatic hydrocarbons, and particulates is the norm. About 600 of Hungary's 3,000 towns and cities (0.8% of total population) must rely on bottled water or water piped in from neighboring towns because their wells are contaminated with pesticides and nitrates (and, in some cases, arsenic) from runoff (French, 1990, p. 18). About 65% of the nation's groundwater requires treatment before utilization. Surface waters contain substantial nitrates, ammonium, phosphates, and bacteria (caused by untreated sewage introduction) (Bulla, 1991, p.40). Approximately 50% of Hungarian soils, the country's greatest natural asset (arable land covers 88% of Hungarian territory, with 75% cultivated), are affected by acidification, sodification, and erosion (Bulla, 1991, p. 33). Almost 36% of Hungarian forests are damaged to some degree by acid rain (OECD, 1991, p. 2). Roughly 3.2 million tons of the total 5 million tons of hazardous wastes produced annually in Hungary are stored or buried on-site (Kerekes and Bulla, 1993).\*

Public health problems are the most visible result of environmental degradation. The National Institute of Public Health in Hungary estimates that illness traceable to environmental pollution consume more than 13% of the country's health budget (OECD, 1991, p. 2). At least one out of seventeen Hungarians dies from environmentally induced illnesses (Painton, 1990, p. 24). Since 1975, the incidence of bronchitis has increased by 250% and asthmatic illnesses by 500%. Lung cancer has increased three-fold since the 1950s. Children are four times more likely to contract

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\* For a general overview of the state of the environment in Hungary see Bulla, M. 1991. National Report to the United Nations Conference on Environment and Development. Budapest: Ministry of Environment. Also Regional Planning, Government of the Republic of Hungary. and Enyedi and Hinrichsen, ed. 1990. State of the Hungarian environment. Budapest: Hungarian Academy of Sciences.



respiratory ailments in polluted parts of the country than in less polluted settlements. Blood lead levels of children in certain districts of Budapest and other cities are extremely high (23 ug/dl in Budapest, comparable to the industrial area of Katowice, Poland). Perhaps the most prominent effect of environmental degradation is the low life expectancy of Hungarians: 74 years for women and 65 years for men (Lehoczki, 1993a, p. 7-8).\*

A large scale quantitative estimate of environmental degradation in Hungary has not yet been completed. Sufficient data on environmental quality has not been produced since economic changes started in the region (Lehoczki, 1993a, p. 6.). The actual amount of hazardous and potentially dangerous wastes buried throughout the country and their subsequent environmental damage is unknown. One of the priorities of the Environmental Committee of the Hungarian Parliament is to identify and quantify the past pollution inheritance, the so-called "dead bodies" left behind (Rott, 1993).

A 1991 report estimates the economic costs attributable to environmental pollution in Hungary to be in the range of \$1.2 billion per year, approximately 3.7% of GDP (Lehoczki, 1993a, p. 8). Other studies estimate environmental damages at 6% of GDP or higher (Kerekes, 1993a, p. 145). Damage due to air pollution is estimated at \$155 million per year (Kerekes and Bulla, 1993).\*\* Environmental expenditures as a percentage of GDP have fluctuated between 0.6% and 1.9% since the mid-1980s (Lehoczki, 1993a, p. 9). It has been estimated that just to restore the environmental

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\* While these low life expectancies are indicative of the effects of environmental degradation on human health in Hungary, other factors, most notably Hungary's high suicide rate, have contributed to lowering life expectancies.

\*\* Throughout this paper United States dollars (US\$) are used as a standard rate of currency. Many of the monetary figures utilized in this paper have been converted from European Economic Units (ECU) or Hungarian forints (HUF). As of November 4, 1993 one US\$ was equal to ECU 0.884 and HUF 97.9 (Wall Street Journal, November 4, 1993). It must be noted, however, that the HUF has been seriously devalued over the past year (one year ago US\$1.00 was equal to approximately HUF80). As some of the figures used in this paper are over one year old, their dollar value may be underestimated.

damage caused by Russian troops and their bases will cost at least \$1 billion (Rott, 1993). Another estimate found that \$6 to \$8 billion per year would be needed in environmental investments (infrastructure, etc.) from 1991 until the year 2000 (Kolozsar, 1991).

## **Chapter II: Background on the precautionary principle and clean production**

Man [sic] is endowed with reason and creative powers to increase and multiply his inheritance, yet up to now he has created nothing, only destroyed. The forests grow ever fewer; the rivers parch; the wildlife is gone; the climate is ruined; and with every passing day the earth becomes uglier and poorer (Anton Chekov).\*

We shall require a substantially new manner of thinking, if mankind [sic] is to survive (Albert Einstein).\*\*

A new approach to environmental protection has been evolving since the first Stockholm Convention of 1972 and, more recently, has been embodied in numerous international conventions and national environmental laws. This approach, termed the "precautionary principle", takes a turn away from the traditional "assimilative capacity" approach to the environment, which inherently states that the environment has a specific, quantifiable, buffering capacity for pollution. The precautionary principle recognizes the limitations to scientific knowledge on ecosystems and approaches environmental protection from a preventive, or precautionary stance. Any additional contaminant inputs to the environment may be too much, so it is prudent to avoid these inputs, even when scientific knowledge cannot prove a causal link between these inputs and environmental degradation (Johnston, et. al, 1992). The precautionary principle is implemented through the development of "clean technologies" or clean production. Clean production reduces raw material, energy use and waste, and eliminates the use and emission of toxic substances. Until recently, opposition to the implementation of clean production has been great. However, industry has begun to realize the necessity and financial gains to be made from switching to clean technologies (Schmidheiny, 1992).

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\* Anton Chekhov from Uncle Vayna, Act I, 1896

\*\* Albert Einstein, quoted in Sherman, J. 1988. Chemical Exposure and Disease. New York: Van Norstrand Reinhold.

The first part of this chapter examines the current legal use of the assimilative capacity approach, its limitations and inherent contradictions. Afterwards, the evolution of the precautionary principle is discussed, as well as its components and use in international conventions. In the third section, the development of clean technologies is examined, with an outline of the economics, problems, and needs for the development of these technologies. Changes in business culture and attitude toward the precautionary principle and clean production are then discussed. Finally, the applicability and necessity for these concepts in the countries of Central Europe are described.

### **A) The Assimilative Capacity Approach**

Environmental law around the world is currently established based on the assumption that the environment can receive and in part render harmless, the vast quantity, variety, and complexity of anthropogenic inputs (Johnston, *et. al.*, 1991a, p. 473-474). This approach to environmental law making, called the assimilative capacity or risk assessment approach, assumes that ecosystems can assimilate a certain (known or estimated) loading of hazardous materials without losing structural or functional integrity (Johnston, *et. al.*, 1991b, p. 19). The assimilative capacity approach is based on allowable/acceptable emissions or discharges into the environment. End-of-the-pipe technologies, those which dilute and disperse pollutants or transfer them from one medium to another, are utilized to reach these emissions goals. Emissions targets are based on complex computer ecosystem models, and the null hypothesis with regards to environmental damage is assumed until proven otherwise (Johnston, *et. al.*, 1992, p. 5). Environmental officials and governments decide what risks are acceptable for the general population. These models inherently contain economic feasibility (cost/benefit) considerations. Emissions levels are increased or decreased as greater information on the effects of pollutants on the environment is obtained. Over 99% of U.S. Federal

and State environmental spending is devoted to controlling pollution after it is generated, with only 1% dedicated to pollution prevention (Schmidheiny, 1992, p. 106).

The assimilative capacity approach necessarily relies on nonscientific assumptions, leaving the process open to political manipulation. Lack of scientific knowledge regarding cause and effect justifies the continuation of a potentially damaging activity. However, it is often difficult to demonstrate direct causal effect in the wider environment. Scientific proof often comes too late to prevent ecological damage. Ecosystems are inherently complex, and predicting ecosystem function and buffering capacity is almost impossible. Assimilative capacity models subjectively try to predict this buffering capacity using unrealistic assumptions and frequently fail, allowing environmental damage to occur. Emissions once considered safe are often later found to be dangerous to ecosystems (Johnston, *et. al*, 1991a, p. 474).

Under the assimilative capacity approach, emissions levels and chemical safety are determined based toxicological studies of single chemicals. Chemicals are almost never encountered alone in the environment, however, so these models do not take into consideration the effects of chemical mixing and multiple chemical exposures on ecosystems. If it is not possible to characterize a mixture reliably, then it is not possible to estimate the environmental significance of a series of discharges (Johnston, *et. al*, 1992). Over 70,000 chemicals are currently used in industry, with only several hundred regulated worldwide and about 10% of these having been adequately tested for effects on humans and the environment (Dorfman, 1991, p. 2). Almost no research has been conducted on the cumulative effects of long term exposure to multiple chemicals in the environment.

Environmental laws are updated as knowledge on the effects of pollutants in the environment becomes available. At the same time, though, our knowledge of the complexity of ecosystems and their reaction to inputs grows. We realize that ecosystems are more complex than we thought and that models may not be able to adequately predict assimilative capacity to pollution inputs. As a result, scientific uncertainty grows. In the preface to his book, Marine Pollution, R.B. Clark describes the growing uncertainties in opinions regarding the effects of marine pollution on ecosystems (Johnston, et. al, 1991a, p. 474).

It is now five years since the first edition of this book was written. Since then, there has been a great amount of investigation into the behaviour and impact of wastes discharged into the sea and a steady strengthening of controls over waste discharges. In spite of all this activity, there is now more uncertainty among scientists and certainly more public concern about marine pollution.

Scientific uncertainty increases, yet environmental laws are still based on single medium emissions standards and guesses regarding ecosystems and human functioning.

## **B) Evolution of the precautionary principle**

The late 1960s and early 1970s brought on a wave of environmental legislation and environmental protection discussions throughout the world. In the United States, President Nixon signed into law the National Environmental Policy Act, the Clean Water Act, and the Clean Air Act. In 1968 the Swedish government proposed to convene a global conference to discuss the "problems of the human environment". This proposal led to the 1972 Stockholm Convention, which represented the first attempt on an international level to prove the global interrelatedness of activities and to set down basic principles with regards to environmental protection and forms of international cooperation (Tickner, 1992, p. 3). The Convention's Principle 21 has

proven to be the single most important enunciation of state responsibility for transboundary pollution, and it has been the starting point for a number of international treaties and agreements. The Principle states:

States, have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their own jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction (Stockholm Declaration on the Human Environment, 1972).

Although the agreement was non-binding and did not set out principles of state liability, Principle 21 set the stage for the evolution of global international law and policy.

In 1973, Taylor and Humpstone published a book which laid the foundations for a precautionary approach to environmental protection. Their book, The Restoration of the Earth (Taylor and Humpstone, 1973), outlines humanity's failure to predict nature and the need to prevent harm to nature rather than control it. The principle they espouse, "containment", suggests that unnatural inputs to environment have the potential to be harmful.

The concept of such a wisely managed environment rests upon a certainty that either we already know what substances are harmful and what are not, or we will be warned of possible future dangers of unsuspected substances before harm occurs. The assumption underlying the concept is that we know what we are doing....The strategy rests on an assumption that any man-made change in the chemistry of the oceans or the atmosphere is potentially dangerous. It seeks, to the highest degree possible, to prevent any of the by-products of human activity from entering the biosphere, whether or not their introduction is known to be a hazard (Taylor and Humpstone, 1973, p. 30).

The authors state the importance of containment in terms of avoiding damage to the environment and partial solutions to environmental protection. Study, planning and trial and error costs would be saved by adopting a containment strategy; it would be

easier politically and economically than an incremental approach. Experience has proven that humanity has not realized the dangers of pollutants in the environment until it is too late. Containment is the only method which uses the knowledge which we have now. Its only risk is protecting more than is necessary. Using the common law principle of *sic utere ut alienum non laedas* (use your own property in such a manner as to not injure that of another), the authors justify the adoption of the containment principle in law (Taylor and Humpstone, 1973, p. 36). Taylor and Humpstone set the stage for the development of a new ideology in environmental protection. Since technology and current knowledge cannot tell us what damage will occur, it is better and easier to prevent (eliminate emissions) than to rebuild after environmental degradation has occurred.

The precautionary principle consists of four major components: (1) action before firm scientific proof of damage exists; (2) a shift in the burden of proof to the potential polluter to prove that an activity will not have any adverse environmental consequences; (3) prevention of contaminants from entering the environment; and (4) implementation through the use of clean technologies (Kruszewska, 1991). Specific elements of law and policy must necessarily accompany the precautionary principle. These include public participation, freedom of information and right-to-know; environmental audits and impact assessment; liability; training in environmental law; advocacy; and binding, enforceable environmental laws. The precautionary principle represents a democratic process. Where the public has had a right to know environmental data and has had full participation in decision-making processes, the most environmental improvement has been witnessed (Kruszewska, 1991, p. 5). No environmental policy can be forced upon the people of a country against their will or can function without adequate "checks and balances" to assure that public concerns are taken into account. The precautionary principle, coupled with implementation of clean



technologies represents the future of environmental protection. It compensates for the failures and subjectivity of traditional "assimilative capacity"-based environmental laws by placing human and environmental health above other concerns (Johnston, *et. al.*, 1992, p. 6).

The most important component of the precautionary principle is that scientific uncertainty is used to prevent a potentially harmful activity from occurring, rather than to justify continued discharges or emissions pending further research (Johnston, *et. al.*, 1991a, p. 475). Policy makers and proponents of environmentally damaging activities cannot use the position of "waiting until all of the evidence is in" as under the assimilative capacity approach. "When there is sufficient evidence that an activity is harmful to the environment, lack of conclusive scientific proof should not stall regulatory action (Baender, 1991, p. 588)." This approach recognizes the current knowledge and limits to science as a basis for preventing environmental degradation. The environment receives the benefit of the doubt. Precautionary action requires reduction and prevention of environmental impacts irrespective of the existence of risks (Gundling, 1990, p. 26). It is morally more desirable and less costly to err on the side of prevention, than to allow a potentially damaging activity to occur (using the environment as a laboratory) and later pay the incalculable costs of environmental restoration. The precautionary approach is directed toward the future, offering a high degree of certainty of outcome in environmental protection efforts (Hirschhorn, 1991, p. 7).

The first legal application of the precautionary principle appears to be the German "Vorsorgeprinzip", which seeks to avoid the establishment and existence of detrimental effects on the environment. Established in Germany in the early 1970s, Vorsorgeprinzip is now a fundamental element of German environmental law. Vorsorgeprinzip was

introduced internationally in 1984 at the First International Conference on Protection of the North Sea (Johnston, *et. al*, 1992, p. 6), The first international use of the principle was in the declaration of the Second North Sea Convention (1987), established to protect the North Sea from continued pollutant loading and degradation. With such a quantity of hazardous inputs to the North Sea, the only way to assure future protection for this body of water was through a precautionary approach.

Accepting that, in order to protect the North Sea from possibly damaging effects of the most dangerous substances, a precautionary approach is necessary which may require action to control inputs of such substances even before a causal link has been established by absolutely clear scientific evidence (Department of Environment of the UK. 1988. Ministerial Declaration. Second International Conference on Protection of the North Sea. London).

Since its first implementation in the Second North Sea Declaration, the precautionary principle has been embodied in numerous international conventions and agreements and has been recognized by several international bodies. These include the United Nations Environment Programme (UNEP) Governing Council, the Paris and Oslo Commissions, the Barcelona Convention, the Nordic Council's International Parliamentarian Conference on Pollution of the Seas, the European Parliament, the Bergen Conference Ministerial Declaration, the Vienna Convention on Protection of the Ozone Layer, and the United Nations Resolution on High Seas Driftnets (Kruszewksa, 1991, p. 11). The foremost example of the global application of the precautionary principle is in the Bergen Ministerial Declaration on Sustainable Development (Bergen Declaration); in this declaration the ministers of thirty-four European nations stated that environmental policies must be based on the precautionary principle in order to achieve sustainable development (Baender, 1991, p. 589). Increased global consciousness of the political importance of protecting the environment has given rise to a growing international consensus in favor of the principle (Cameron and Abouchar, 1991, p. 4).

The most recent, and perhaps most effective, application of the precautionary principle is in the Bamako Convention on the Ban on Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa. As a result of the ineffective language of the Basel Convention on transboundary movements of hazardous wastes, twelve countries of the Organization of African Unity adopted this convention in January 1991. The convention places an outright ban on the import of hazardous wastes into Africa. Intra-African trade of hazardous wastes is permissible subject to a prior informed consent policy (Baender, 1991, p. 595). The Convention's wording explicitly adopts the precautionary principle with regard to waste transfer within Africa (Kruszewska, 1991, p. 11):

Each party shall strive to adopt and implement the preventive, precautionary approach to pollution problems which entails preventing the release into the environment of substances which may cause harm to humans or the environment without waiting for scientific proof regarding such harm. The parties shall cooperate with each other in taking the appropriate measures to implement the precautionary principle to pollution prevention through the application of Clean Production methods, rather than the pursuit of a permissible emissions approach based on assimilative capacity assumptions (Bamako Convention, 1991).

The conference adopts a wide-ranging definition of hazardous wastes, which includes banned, canceled, or withdrawn hazardous substances (pesticides, industrial chemicals, etc.) for environmental or human health reasons (Baender, 1991, p. 596). The Bamako convention represents a regional use of the precautionary principle and serves as a model for future agreements of this type.

### **C) The development of clean production**

To date, the vast majority of pollution problems have been treated within a paradigm (assimilative capacity) that was established when the environmental effects of pollutants were not recognized. Growing scientific knowledge of the effects of pollution on the

environment and the increasing uncertainty as to the cumulative effects of mixtures of pollutants necessitate the development of a new paradigm to approach environmental protection. The theories of Thomas Kuhn suggest that new paradigms in the natural sciences emerge after a period of contradictions and eventually a period of crisis.

Clean technologies represents this new paradigm of environmental protection (Johnston, *et. al*, 1992, p. 1). It is also important to note that technologies do not develop in a vacuum. They develop as the function of a complex set of social, economic, technical, and political factors, and thus can be steered to a certain extent (Schot, 1992, p. 37).

These social, economic, technical, and political factors dictate the need for a move from pollution control (through end-of-the-pipe technologies) to pollution prevention, through the use of clean technologies.

The use of clean production techniques has been growing throughout parts of the world since the mid-1980s. The main function of clean technologies in environmental protection is the fact that they avoid the generation of pollution and wastes in the first place. Clean production represents a shift from reactive to proactive policy towards the environment, addressing the root causes of pollution rather than attempting to control or remedy effects (Jackson, 1991). It is the continuous application of an integrated preventive environmental strategy to processes and products to reduce risks to humans and the environment (Johnston, *et. al*, 1992, p. 8). Clean production examines consumption patters, economic and social infrastructures, and societal needs and aspirations.

The definition of clean production is much more extensive than simply the elimination of pollutants at their source. It includes: (1) use of less raw materials and minimization of inputs; (2) product and hazardous input substitution; (3) energy conservation; (4) reduction of impacts through the entire product life cycle (from raw material extraction

to product disposal); (5) elimination of hazardous chemicals which cannot be contained or with large or indeterminable environmental impacts; (6) phase-outs of hazardous chemicals for which viable alternatives are available; (7) recyclability; and (8) zero discharge as the only way in which to ensure environmental protection, given the inadequacies of current regulatory strategies and ecotoxicological methods (Johnston, *et. al*, 1992 and Kruszewksa, 1991). Waste reduction, for example, does not constitute clean production, as toxic substances are still used in the production process. The issue of whether the product should be produced in the first place must also be addressed.

Clean production represents a holistic, multi-media approach to environmental protection. As governments lack detailed knowledge about production processes, environmental laws traditionally address one medium at a time (air, water, wastes) without addressing the transfer of pollutants from one medium to another (Tickner, 1992, p. 16). Fragmentation in environmental laws encourages the use of control methods that transfer pollutants to other parts of the environment (e.g., using a smokestack scrubber to filter air emissions and then landfilling collected particulates). By not being concerned with the ultimate fate of a pollutant, fragmentation decreases the likelihood that new and more complex problems will be identified and prevented. There is a need for integrated pollution control, which is addressed by clean production. Prevention is addressed rather than combating pollution at one stage of the pollutant life-cycle and allowing it to cause environmental damage at a later point in time (Irwin, 1992). The solution to the single medium approach is through the use of integrated permits (single facility permits covering all environmental media), which allow a better assessment of the entire production process. Integrated permitting would make it easier for governments to effect a more coordinated enforcement of permits (Bass, *et. al*, 1990, p.23).

Traditional regulatory systems based on pollution control and end-of the-pipe technologies add to production costs, contribute to legislative standstill (as companies fight increasingly strict environmental standards), and lead to non-compliance. End-of-the-pipe technologies are capital intensive and represent sunk capital for the company, as no economic gains are attached to their investment and modifications, and changes are regularly needed. Clean production is based on a win-win, co-optimization of goals for business and environmental protection. Industry can improve competitiveness and environmental responsibility at the same time. There is no "final solution" in a clean production system, as industry is always encouraged to make improvements at the design and materials policy stage of production to improve efficiency and reduce toxics use and the generation of pollution (Jackson, 1991; Hirschhorn, 1991; and Bass, et. al, 1990).

As with all new environmental regulations and "best available technologies", the clean technologies approach has been criticized by governments and industry as being too costly, with net costs exceeding environmental gains (Baender, 1991 and Schmidheiny, 1992). This is due in part to the fact that industry does not have to internalize the social and environmental costs of its pollution or does not understand the benefits of clean production. Under clean technologies policies, industry would be required to undertake environmental and toxics use audits to pinpoint and eliminate sources of pollution (Johnston, et. al, 1991a, p. 478).

Advocates of clean technologies have found that implementation of these production methods makes sound economic sense. The most obvious economic savings for the company are in waste treatment and disposal, which in OECD (Organization for Economic Cooperation and Development) countries can range anywhere from \$380/ton for normal wastes to \$3,000-\$10,000/ton for hazardous wastes (Schmidheiny, 1992, p.

100). Other economic benefits accrued from the use of clean production methods include reduction in raw material use, input and energy costs; reduction in environmental liabilities, user fees, and potential fines; and increased worker production and reduced health costs (e.g., medical insurance and worker's compensation bills). Waste, exiting the industrial facility through emissions or discharges, represents unused raw material and a loss of profits (Schmidheiny, 1992, p.99).

Numerous university and industry studies have proven the cost effectiveness of clean production methods. In one demonstration project (described by Huisingsh, 1990), the University of Lund studied volatile organic compound (VOC) emissions from a lighting fixture plant in Sweden. The company used solvent based paints on these fixtures and was planning on purchasing a thermal combustion facility to reduce VOC emissions. With university assistance, the company switched to powder based paints, with an annual savings of approximately one half solvent based paint costs (\$ 269,000). First year gains were only approximately \$24,460 due to a one-time equipment purchase. Projects undertaken in Norway and the Netherlands have yielded similar results, with positive economic gains appearing in the first year of clean technology implementation. All of the projects showed that it is imperative to actively involve workers in the development of clean production methods and provide them with adequate information and opportunity for input on efficiency improvements (Huisingsh, 1990, p. 14). As workers are those directly involved in the production process, their participation will improve worker health and safety, productivity, and product quality.

Industry groups have begun to actively espoused the concepts of the precautionary principle and clean technologies. The Business Council for Sustainable Development recently published a book entitled Changing Course: A Global Business Perspective on

Development and the Environment (Schmidheiny, 1992) in which industry leaders discuss the importance of breaking the "business-as-usual" attitude which has existed in industry for the last 40 years. Industry has come a long way on the road to sustainable development, by realizing that profound changes must be made in the goals and assumptions that drive corporate activities (Schmidheiny, 1992, p. 10). The book represents a statement that industry realizes that pollution is a sign of inefficiency and that as corporate citizens, industry has a responsibility toward the global community. This contrasts greatly with statements made twenty years ago by the National Industrial Pollution Council in a letter to the President Nixon. They argued: "Where...harm can be shown to be a real and probable result, authority to impose...regulation is a necessary restraint on freedom to innovate" (Taylor and Humpstone, 1973, p. 31).

Industry and industrialized countries agreed to a precautionary principle at the World Industry Conference on Environmental Management in 1984 and at the Paris summit of the seven richest industrial nations (G7) in 1989 (Schmidheiny, 1992, p.3). The authors of Changing Courses argue that since corporate leaders are used to examining uncertain, negative trends, making decisions, and then taking action, adjusting, and incurring costs to prevent damage, they are more than prepared to adopt a precautionary approach to pollution control. They state that environmental considerations must be fully integrated into the heart of the production process, and that corporate environmental responsibility no longer ends at the factory gate; it extends from cradle to grave. Whether or not this book is just another hollow, unfulfilled, industry promise of sustainable development ("greenwash") is yet to be seen. The book does offer examples of innovative projects undertaken by industry using clean production methods (and cost savings) and suggests the importance of technology shifts to developing countries, giving these countries the opportunity to "leapfrog" industrialized countries in terms of environmental protection.



#### **D) Constraints to the implementation of the precautionary principle and clean technologies**

To date, major constraints have hindered the global implementation of the precautionary principle and clean production. Most importantly, there has been a lack of industrial and political (especially in the U.S. and U.K.) will to put these concepts into practice and an unwillingness of states to be bound by such a far-reaching policy (Baender, 1991, p. 593.). International conventions and agreements are not legally binding and often times offer only broad philosophical statements, without any clearly defined steps towards implementation. Few of the North Sea signatories, for example, have enacted domestic legislation implementing the precautionary principle; signatories continue with "assimilative capacity"-based national laws to control discharges affecting the North Sea (Baender, 1991, p. 593). In Europe, due to its geography, a switch to clean production requires the cooperation of the entire continent.

International agreements also fail to have any kind of enforcement or monitoring capacities. The Bamako Convention Secretariat serves only as an informational clearinghouse and administrative base, without any inspection or investigation powers (Baender, 1991, p.599). There is a lack information on available technologies and cost savings and inadequate national regulatory incentives for corporations to switch to clean technologies. Corporations often do not realize the quantity of hazardous wastes and discharges that they produce (and the subsequent cost of those wastes), a fact demonstrated by the U.S. Toxic Release Inventory. As many companies are under the impression that they cause no environmental problems, they are not looking for possible improvements. In 1986, the US Office of Technology Assessment estimated that half of all industrial wastes could be prevented using existing technologies (Bass, *et. al*, 1990, p.22). However, until governments clearly state priorities of preventing

discharges and the creation of wastes, industry will not fundamentally rethink the way it operates (Johnston, *et. al.*, 1991b, p. 26). A final problem is the lack of educational outreach and training on the benefits of clean production and precautionary approaches.

There is need for the previously mentioned problems to be alleviated if clean production and the precautionary principle are to become a reality. Political indifference towards the precautionary principle and clean technologies will have to change, and national and international agreements will need strong provisions for the implementation and enforcement of these concepts. Philosophical statements do not implement these concepts (Baender, 1991, p. 601). Corporations need to undertake environmental audits to understand the wastes they produce and develop a comprehensive plan aimed at eliminating the use of toxic substances, and generation and discharge of wastes (Huisingh, 1990, p. 14). They will also need to establish infrastructure, internal capacity, and policy to address pollution prevention. Adequate national and international financing must be available for the switch to clean technologies. As international lending institutions have traditionally directed their resources towards end-of-the-pipe pollution control, they will have to redirect their priorities to pollution prevention through clean technologies (Kruszewksa, 1991, p.4) . The trend is changing, with World Bank sponsored clean production projects in India and China and the U.S. Agency for International Development's EP3 program, which targets bilateral aid on cleaner production projects (Oldenburg, 1993).

Sufficient financial and policy incentives are needed to bring about the change to clean technologies. Toxic use and emissions reporting (and reduction) requirements with full public disclosure are a necessity and can exert a strong influence over industry. Economic incentives can help shape investment in clean technologies through increased emissions or users fee (polluter pays principle), product charges passed on to

consumers, import or export tariffs for hazardous products, and increased liability for environmental damage, requiring the purchase high premium insurance policies. Proactive economic policies (the carrot rather than the stick) include tax reductions and subsidies (to national corporations) that invest in clean technologies. A proactive policy would also include technical assistance programs, with on-site visitation to companies (Ashford, 1993b)

Internationally, there is a dire need for training and information on clean technology methodologies. A regional and international network of centers to promote clean production should be established to this effectm which provides free or low-cost assistance to citizens, industry, and government (Johnston, 1991a, p. 478).

Universities and governmental and non-governmental organizations in Europe and the United States have established toxics use reduction and clean technology clearinghouses to assist and educate corporations and the public in the switch toward these methods (Kruszewksa, 1991, p.27). The United Nations established a Cleaner Production Programme, which includes the International Cleaner Production Information Clearinghouse, a modem-accessible data base which contains message centers, bulletins, calendars of clean technology events, a case study data base (with about 600 case examples), a program summary data base, bibliography and contact data bases (UNEP Cleaner Production Programme and Oldenburg, 1993). The OECD and UNEP sponsored a conference in June, 1993 on introduction of clean technologies in developing countries. Conferences addressing clean production and pollution prevention are becoming more common throughout the world. To fund clearinghouse and training efforts, governments could utilize import and export tariffs on hazardous products and require that a percentage of corporate profits be directed toward clean technologies development and diffusion (Ashford, 1993b).

Education and training can only go so far. Concrete demonstration projects must be implemented on a local and regional scale to show the environmental, societal and economic benefits of clean production. The benefits of clean production can only be adequately explained through actual, hands-on projects. Once one successful project takes place, a domino effect can lead to others.

A challenge to the implementation of clean production is that it requires the participation all parties in society: government, citizens, workers, and business. It requires a motivation to bring about fundamental and widespread change. Clean production is a conceptual and integrative process which is not only based on technologies, but also requires an attitudinal change in society (Bass, *et. al*, 1990). Pollution control, on the other hand, is convenient (as is disposability); it represents an appendage and not an integrated part of the production system. The limits to the implementation of clean production may not be so much technical nor economic, nor regulatory as institutional factors (Dorfman, 1991, p.4). However, a clear benefit of clean production comes from its democratic nature. All walks of society are involved in technical innovation and finding alternatives for hazardous processes.

**E) Why the precautionary principle and clean technologies in Central and Eastern Europe?**

The most compelling reason for implementing the precautionary principle and clean production in Central and Eastern Europe is the fact that years will pass before the majority of environmental impacts, caused by decades of disregard for the environment, are identified or quantified. In Hungary, for example, the extent of buried hazardous wastes and their impacts is unknown (Lehoczki, 1993b). As a result, prevention is the only means of protecting the environment from additional harm. The

importance of a precautionary approach in Hungary is clear as two of its most important natural resources, groundwater and soil, are already in jeopardy from previous environmental damage. Human health throughout the region is already threatened by environmental degradation. Costs due to environmental and health degradation are tremendous, consuming a large percentage of the Hungary's GDP.

As industry throughout the region is currently is in a process of restructuring, clean production can be built into industrial process while it is cheaper and more effective (Strasser, 1993, p. 433). Rather than applying expensive pollution control equipment to an inefficient, inherently polluting process, clean technologies can be implemented, saving companies money and avoiding environmental liabilities and fines. Since in this stage of economic restructuring, companies have limited financial resources, money spent on pollution prevention, rather than pollution control, will be much more wisely invested and yield greater returns. If companies begin to invest in pollution abatement technologies, they will be caught in the same endless cycle of resistance to compliance and strict environmental norms that is found in Western countries, due to their need to amortize the technology investment. Pollution prevention built into the plant and incorporated into its operations can become part of and support an ongoing process of continual industrial revitalization, creating better and less expensive products and making industries more competitive in international markets (Strasser, 1993, p. 433).

Since countries of the region have focused their attention on joining the European Economic Community, it is to their advantage to anticipate the future of EEC environmental policy (which is tending toward pollution prevention) and implement clean technologies now, instead of adding them on in the future, when costs will be much greater (Bandi , 1993a).

As democracies in the region are young and emerging, and environmental laws are currently in draft stage, the political and industrial pressures which have constrained the implementation of clean technologies (in the West) are not present in Central and Eastern Europe (Ashford, 1993a). While short term economic needs must be addressed, the region should be looking at the prospects of long term sustainable development.

One political constraint to implementing clean technologies, however, is unemployment in the region, which has soared from near 0% levels up to and above 20% in some countries (Survey Eastern Europe, 1993). This has forced governments to focus primarily on economic concerns. Clean production could actually increase employment opportunities as recycling and reconditioning (as a result of extended service lives of products) reduce the need for capital expenditure and raw materials extraction and require significant inputs of labor (Jackson, 1991, p. 15).<sup>\*</sup> This would reverse the traditional trend of industrialization, which substitutes capital and resources for labor and would avoid subsequent social and welfare problems.

International financial and technical assistance to the region are abundant and could be directed towards the transition to clean production (Kruszewksa, 1991, p. 1). Scientific expertise in Central Europe is among the most advanced in the world, although practical training in environmental protection methods is lacking.

Central Europe has an opportunity to "leapfrog" the West in terms of innovative strategies to environmental protection. While Western European countries and the United States are adopting clean technologies and the precautionary principle as a

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<sup>\*</sup> It has been shown that the ratio of energy consumption in the production of basic materials to energy consumption in the transformation of materials to products is three to one. Allocation of labor is in the inverse ratio (Jackson, 1991, p. 15).

response to the failure of traditional environmental policy to protect the environment, Central European countries can begin with an innovative strategy based on prevention, avoiding the prolonged political struggles that the West has faced. The region has the distinct opportunity to learn from the experiences of other industrialized countries in their efforts to protect the environment. With an already devastated environment, the region cannot economically or environmentally afford more entrance of contaminants in the environment. Some period of phase-out and transition must be allowed to avoid excessive economic hardships and deal with existing polluting industries. (Kruszewksa, 1991). Clean technologies and the precautionary principle, though, do not address environmental clean-up. Clean-up strategies must be designed so as to avoid creating new environmental problems\*.

## **F) Conclusion**

The precautionary principle and clean production offer a new, innovative approach to environmental protection. Examples of the failures of environmental laws based on a permissive, assimilative capacity approach have been unequivocally demonstrated throughout the years. Governments and corporations do not understand what pollutants are produced in industrial processes, let alone their environmental impacts, when mixed with pollutants from numerous other sources. As a result, it is more prudent, ethical and scientifically sound to prevent pollutants from entering the environment, even before they have been shown to cause harm. Clean production methods are available, and industry can switch over for minimal costs or even economic gains. The switch to

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\* A clear example of creating new problems through "clean-up" is the move to build hazardous waste incinerators in Central and Eastern Europe. These incinerators have been proven to be environmentally degrading in the West. The construction of incinerators will only create a demand mechanism and an addiction to hazardous waste production, which will delay or stop clean production efforts, while polluting the environment with dioxins and heavy metals, and other dangerous products. An alternative to incineration could be biological, chemical, electrochemical, neutralization, or thermal processes (see generally Picardi, A. et al. 1991. Alternative technologies for the detoxification of chemical weapons. Greenpeace International.)

a precautionary philosophy, though, will not occur without the active support of governments, industry, and citizens. On an international level, states will have to change the ubiquitous attitude of sovereignty for one of mutual cooperation, to assist in the transition to a more sustainable future. Funding, as well as information, will also need to be available and easily accessible for this transition to occur. A wholesale transfer of wealth to developing countries is also necessary if clean technologies are to be implemented throughout the world. Finally, and perhaps most difficult, a major change in the way people think, live, and consume will have to occur if irreparable damage to the environment and depletion of natural resources are to end. For the most part, the problems have been realized and the stage has been set for a precautionary philosophy. The most difficult part of the process begins now.



### **Chapter III: Factors influencing the implementation of the precautionary principle and clean production in Hungary**

The new industrialized states cannot, for example, be asked to apply restrictive environmental standards to their emerging industries unless the industrialized states first apply them within their own boundaries. At the same time, countries in the process of industrialization are not morally free to repeat the errors made in the past by others, and recklessly damage the environment through industrial pollutants, radical deforestation or unlimited exploitation of non-renewable resources (Pope John Paul II).\*

A comprehensive governmental and industrial policy, capital investment, and education and training represent prerequisites for implementation of the precautionary principle and clean technologies. This chapter examines the current status regarding four factors which potentially have the greatest influence over the implementation of these concepts in Hungary: environmental law development, current economic situation, privatization and foreign investment, and multilateral and bilateral lending and aid. Other factors which could influence the implementation of the precautionary principle and clean technologies are discussed in a later chapter on potentials for implementation.

#### **A) Development of environmental law and other legislation**

##### **A1) Early legislation**

The main piece of comprehensive environmental legislation in Hungary, still in effect today, is Act No. II of 1976 on the Protection of the Human Environment. Before this act, Hungary had passed other legislation on specific issues, dating back to the Forestry Act of 1879. The 1976 act regulated all disciplines of environmental protection, including water, air flora and fauna, landscape and the urban environment and included sections on fines and liabilities for damage to the environment (Bowman and Hunter, 1992, p. 948). After the adoption of the act, no executive rules were formulated, and

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\* Pope John Paul II, quoted in Kaderjak and Lehoczki, 1991.

the law was never fully implemented, leading to a minimum level of enforceability and effectiveness (Bandi, 1993b, p.447). This act is still in force today, although specific laws and governmental decrees governing areas such as hazardous waste, agriculture, air pollution, noise abatement and water treatment have been enacted.

A government decree was passed in 1990 establishing the responsibilities and authority of the Ministry of Environmental Protection and Regional Policy. The decree established an environmental protection system consisting of a Chief Environmental Inspectorate and 12 regional environmental inspectorates. Water quality protection presents a unique conflict, as authority is divided between the regional environmental inspectorates and water management authorities operating under the Ministry of Transport, Telecommunication, and Water Management (Bandi, 1993a).

## **A2) Drafting environmental legislation**

The Environmental Committee of the Hungarian Parliament, along with the Ministry of Environmental Protection and Regional Policy, finally agreed to the necessity of drafting a new comprehensive environmental act in 1991 (Bowman and Hunter, 1992, p. 949). A group of experts led by Professor Andras Sajo, an expert in constitutional law with extensive experience in the United States, was commissioned to draft the act. Sajo's draft, considered by the author as "conditions of sustainable development for the environment", was released in January, 1992 and would lay the foundation for further media-specific laws (Hinrichsen, 1993a, p. 71). Borrowing heavily from the American regulatory system and an academic base, the draft contained detailed provisions for public participation and freedom of information; environmental permitting and emissions standards; phase-in provisions and exemptions; environmental impact statements and audits; an environmental protection reserve fund; and a detailed section

on enforcement, fines, and liability. The draft also established a complex system for monitoring environmental quality, information gathering, and protection activities and gave authority for using market based incentives such as tradable permits (Bowman and Hunter, 1992, p.950).

Sajo's draft was both criticized and applauded by government and non-governmental organizations. The draft received positive responses from many non-governmental organizations for its comprehensiveness, leaving no room for administrative interpretation and ensuring that the main legislative failures of the past (i.e., the lack of enforceability) were corrected. The draft was met with criticism from government officials, saying that it was "too modern" for Hungary's present economic climate and would be counter productive to the country's fast paced privatization efforts (Bowman and Hunter, 1992 and Hinrichsen, 1992a). Environmentalists criticized the draft for being too academic and the work of one man, written behind closed doors without considering the comments and suggestions of other members of the drafting group or other affected parties (Bandi, 1993c and Kizsel, 1993). Sajo's incorporation of market-based mechanisms (including tradable permitting) was considered by some as ludicrous, since these mechanisms as of yet have never been successfully implemented elsewhere in the world, and the market economy in Hungary is still years off (Bandi, 1993c and Hardi, 1991, p. 39).

In April, 1992 the legal department of the Ministry of Environmental Protection and Regional Policy released its own, weaker version of comprehensive environmental legislation (Ministry of Environmental Protection and Regional Policy, 1992).

Although the Ministry draft addresses many of the same issues as Sajo's draft, it is much less detailed and grants less participation rights to the public (Bowman and Hunter, 1992, p.951). The draft was criticized for placing a heavy emphasis on

economic concerns, stating "in decision making the economic, economy, and business aspects and the environmental aspect should equally be taken into consideration" (Ministry of Environmental Protection and Regional Policy, 1992, p. 5). It also contained inadequate procedural guidelines and lacked the strong structure of checks and balances present in Sajo's draft (Libertiny, 1993).

### **A3) Most recent draft environmental act**

In October 1992 a reconciling committee was established by the Ministry of Environmental Protection and Regional Policy to draft a new version of the environmental act. The committee dates back to 1990 when the mayors of the 12 most polluted Hungarian cities (the Dirty Dozen) were called together to develop principles of a new environmental law. The committee's task was to take previous draft law versions and develop the structural framework for a new draft. The reconciling committee draft was based on the Latin precept of *Accion Popular* and contained a structural framework outlining permitting, institutions, liability, finance, and public participation. It was of fundamental importance to the committee to draft a law that represented both the interests of government and the public. As a result, the committee held several meetings involving non-governmental organizations and members of different government ministries. The committee solicited comments from the Hungarian Academy of Sciences, non-governmental organizations, and the governments of European countries and the United States. It was clear that any draft would be heavily based on environmental regulations of European Economic Community (Hungary signed an Association Agreement with the EC in December, 1991) (Kiszel, 1993).

Approximately 20 versions and hundreds of modifications later (including those of the original law drafting committee), the reconciling committee released its most recent draft (Number 7) in September, 1993. The committee's enthusiastic leader Vilmos Kiszél feels that this will be the draft that goes before Parliament in late 1993 or early 1994 (Kiszél, 1993). The September 16 draft represents a framework law, laying the foundation for future specific regulations. Harmonization with European Community environmental laws is a fundamental principle of this draft (Reconciliation Committee, 1993).

The draft begins with the principle that protection of the environment should have precedence over any other objectives. The act is to provide for sustainable development and promote: (1) the protection and improvement of the quality of the environment; (2) the rational, prudent, and environment-friendly utilization of natural resources; (3) public participation in environmental protection measures; (4) the establishment of the institutional framework for environmental protection; and (5) the integration of the requirements of environmental protection in the major policies of the State. Basic principles of environmental protection, as set out in Section 6 of the act include pollution prevention, waste minimization and liability for environmental damage throughout the life-cycle of a product. The law calls for cooperation at all levels of society in environmental protection efforts, including the State, local governments, citizens, and entrepreneurs (Reconciliation Committee, 1993).

Specific sections of the draft address issues from multi-media environmental protection (Section 13; 1) to the establishment of a National Environmental Protection Programme which is to be revised every four years and evaluated biannually (Sections 39 and 40). A unique concept addressed in the draft is the establishment of an environmental ombudsperson, whose duties involve the enforcement and protection of citizen rights to

public participation in environmental issues and an evaluation of whether environmental performance and other laws or measures of the state are in compliance with the environmental objectives outlined under this act (Section 46). The draft calls for environmental impact assessments for new activities and environmental audits (environmental status assessment) for on-going activities that could have significant impacts on the environment. Emissions limits are established (using various criteria) and require best available technologies, with possibilities for gradual implementation.

The draft places a strong emphasis on the role of local governments in environmental protection and cooperation between regional environmental permitting authorities and municipalities. Local governments are called upon to regularly inform the public on the state of the environment and promote increased public awareness and environmental education (Section 48). The role of the State, the Ministry of Environmental Protection and Regional Policy, and regional permitting authorities are clearly defined.

Environmental research organized by the state is to focus on evaluating the state of the environment, identification of environmental risks, analysis of environmental degradation, and ways to prevent of environmental damage (Section 55).

Public participation in decisions relating to permitting and environmental impact assessment are clearly addressed throughout the draft. The rights and duties of citizens are outlined in an entire chapter of the act, which allows for public representation by non-governmental organizations and citizen suits against polluters. Another section of the act (Section 56) gives the public the right to obtain environmental information. The types and extent of information that this section provides are not defined in the draft legislation. The draft also requires the state to develop a National Environmental Education Program, in order to prepare citizens to exercise their rights and obligations with respect to environmental protection.

Public information is also regulated under Act No. LXIII of 1992 on the Protection of Personal Data, which states that "all data under the management of the central or local governments is to be regarded as data of public interest, except such data which falls under the scope of personal data." Personal data is not clearly defined. The government is obliged to provide accurate and timely information on all issues within its scope of responsibility. The government can refuse to disclose information to the public if it determines: an absence of a recognizable right to that information; or a need to protect the information in the interest of State secrecy or other justifiable (i.e., business) interests. There appears to be no current regulations which would limit the right of authorities to declare a piece of information as a "state secret" (Investors' Environmental Guidelines, 1993, p. 18-19).

Act No. XI of 1991 on Establishing the National Public Health Service, requires that the Ministry of Public Welfare and Health provide the public with information regarding levels of pollution and the effects of pollution on public health. However, the Act does not establish procedures for the public to enforce this obligation and has not been interpreted to apply to data on individual facilities (Investors' Environmental Guidelines, 1993, p. 19 and Stec, p. 11).

The draft environmental protection act contains full sections on (strict) environmental liabilities, which require that companies purchase liability insurance and consider environmental degradation costs in their balance sheets. Environmental fines, use charges and product charges are also addressed. The draft law also requires that companies conduct self-inspections on the impact of their pollution on the environment and contains a section requiring that each firm have an environmental manager with specific, defined duties. Emergency measures are established, allowing permitting authorities or the Ministry to revoke a permit or stop activities that have either damaged

or could damage the environment. Enforcement is covered in a few sections of the draft, one of which states that the government shall facilitate the enforcement of environmental protection (Section 11). Privatization is covered in the draft (Section 58), with a statement that the State deficit is to be financed from the revenues of privatization, only after all environmental damage has been remedied. The draft establishes a budget of 2% of Gross Domestic Product for environmental protection, prohibits subsidies for activities damaging the environment (and the import of wastes) and establishes a framework for the marketing of "environmentally-friendly products". The 1991 Law on Bankruptcy, regulated in the draft act, requires companies going into bankruptcy to disclose the costs of any environmental damage caused by its operations.

#### **A4) Other legislation**

As comprehensive environmental legislation has yet to be passed by Parliament, piecemeal governmental decrees have been enacted to facilitate environmental protection. One of these is Decree No. 86/1993 on environmental impact assessment (EIA) (Government of Hungary, 1993). This decree will be repealed as soon as the draft environmental legislation is enacted. EIA is required for all new industrial activities and modifications to existing facilities. The activities covered under EIA are listed (based on EC requirements) and reviewed at least biannually. The decree covers rules for preliminary environmental impact studies and for detailed studies.

Preliminary studies must include a description of the activity; possible emissions and use of the environment; preliminary assessment of environmental impacts; and questions that can only be answered based on a detailed EIA. The environmental inspectorate makes the decision whether or not to require a detailed EIA, and public participation is not required at the preliminary EIA stage. The detailed EIA requires a full analysis of impacts; mitigation and pollution prevention measures; and a



description of "the limits to validity of the forecasts, and the gaps and uncertainties in scientific knowledge that have become apparent in the evaluation of the impacts and test results" (Section 6). No alternatives assessment is required in the procedures. Public hearings are required at the detailed EIA stage (with 15 days advance notice), and the inspectorate is required to examine and incorporate public comments into its decisions on whether or not to grant a permit. Non-technical summaries of the environmental assessments for the public are required. Permits resulting from the EIA process can contain conditions for environmental protection and require the possibility for revising the permit if future assessments determine environmental impacts.

Another decree has been proposed requiring mandatory environmental audits for on-going activities (Bandi, 1993c). These audits (as described in the draft environment act) would be conducted by the businesses themselves. Companies would be required to quantify their environmental impacts and describe pollutants leaving the facility. They would also be required to describe ways in which environmental impacts could be reduced by modification of technologies or equipment maintenance. Based on the environmental audit, the inspectorate could revoke or modify an existing permit. The draft environmental legislation does not clearly indicate how often required audits must be performed or whether the audits will be available to the public (Reconciliation Committee, 1993).

The September, 1993 draft law also contains provisions for the Central Environmental Fund. The rules governing the use and management of the fund were established by Decree No. 20 of 1993 (Connolly and Major, 1993, p. 6). The purpose of the fund is to prevent environmental degradation and promote investment in environmental protection. The Minister of Environment is required to inform the public about the fund's budget and management. The fund can be utilized for air protection, waste

treatment and recycling, water protection and to finance immediate government intervention to avert or mitigate an imminent environmental crisis; the Ministry will seek retribution from the polluter in these cases. . The act requires that 75 % of the fund's capital go towards investments in environmental protection, while 2-5 % must be reserved to finance emergency projects. The remaining percentage of the fund may be used to finance environmental projects for the public, including monitoring, information systems, education, and development of organizations.

The fund is to be financed by a percentage of all environmental fines, environmental protection product fines, fees, taxes, international grants and assistance, a percentage of the State budget, voluntary payments, repayment and interest on fund loans, and compensation for environmental damages. Grants or loans from the fund are obtained by competitive bidding and proposals are reviewed by an interagency group along with non-governmental environmental groups (Connolly and Major, 1993, p. 7). The fund can reimburse up to 50% of the amount paid in penalties by a polluting company if the company invests the money in pollution control technology to reduce emissions to permitted levels (Investors' Guidelines, 1993, p. 10). Local self-government environmental funds are also established to finance projects in municipalities or groups of municipalities. These funds are financed by a percentage of environmental fines and use fees levied in the territory of the local government, as well as municipal revenues and other grants (Reconciliation Committee, 1993).

The Hungarian constitution was amended in 1989 to include two articles relating to environmental protection. Article 18 states that "The Hungarian Republic recognizes and enforces the right to a healthy environment for everyone." Article 70/D treats this right as a tool for ensuring the highest possible level of physical and mental health, by ensuring the creation of an occupational safety system, public health institutions and

medical care. These constitutional articles can be interpreted to mean that (1) the State must enforce environmental protection; and (2) citizens of other countries could utilize this constitutional right, as it is not limited only to Hungarians. Suits to enforce these articles must be pursued through the Constitutional Court (Bandi, 1992a, p.13-14).

Article 36, Chapter VII of the constitution requires the government to cooperate with interested social organizations in the fulfillment of its duties. Chapter IX, Article 42 of the Constitution states that local self-governments should exercise local public authority in the interests of the population (Stec, 1992, 8-10).

Act LXV of 1990 (on local governments) reorganized the previous system of centralized administration and granted local self-governments autonomy over a wide range of matters affecting the local populace, including "local development, resettlement, the protection of the built and natural environment, housing management, water management, and facilitation of the establishment of the communal conditions of a health way of life" (Stec, 1992, p. 10). Local self-governments can voluntarily enact environmental regulation more strict than national norms and can influence environmental protection through the issuance of building and land-use permits. Construction and land-use permits can contain conditions for environmental protection. Local governments must adopt a development program, local land-use regulations and control local sewage treatment (Bandi, 1993a). Under article 13 of the law "the representative body shall hold public hearings announced in advance at least once a year where the citizens and the representatives of local organizations can ask questions and make proposals on matters of public interest" (Stec, 1992, p. 11). In the case of local pollution, self-governments are only allowed to take steps against service facilities. Only environmental inspectorates can take steps against industrial facilities. Act XX of 1991, on "deconcentrating" spheres of authority, urges the cooperation

between individual local governments and provides for a greater representation of public interests.

#### **A5) Constraints in the legal and political process**

Four years after its transition to a social market economy, the Hungarian government has not yet passed a comprehensive environmental act or defined a clear environmental policy. This lack of clear environmental and energy policies is considered by some experts as criminal neglect (Hinrichsen, 1993a, p. 72). As draft environment laws are being written, discussed, and revised on an almost monthly basis, environmental protection in Hungary continues to be based on the largely ineffective 1976 Act on the Human Environment and other piecemeal laws and decrees. The 1976 act contains no provisions for public participation in environmental decisions and enforcement (Stec, 1992, p. 9). The Government Decree on Environmental Impact Statement, was not passed until June, 1993, as officials believed that a comprehensive act would be passed by then (Bandi, 1993c). The leader of the environmental legislation reconciling committee, Vilmos Kizsel, has been forced to go from ministry to ministry in order to gain consensus and make modifications on the latest drafts (Kizsel, 1993). This has led to a draft environmental act that is clearly a product of compromise.

As the draft environmental legislation is only a framework law, which specifies the laws to be enacted, a fundamental question arises: If it is taking the government three years to enact a framework act, how many years will it take until comprehensive rules are adapted? Kizsel is optimistic that once framework legislation is enacted (which he hopes could happen in 1993), comprehensive rules will follow within a year's time (Kizsel, 1993). This optimism has been confirmed by environmental law observers in the region, who state that countries in the region have a unique capacity for passing

rules in a short period of time (The Hungarian Parliament is in the Guinness Book of Records for passing the largest amount of laws in the shortest time) (Bowman, 1993 and Kerekes and Bulla, 1993).

While well-intentioned, the Environmental Committee of the Hungarian Parliament has little power to press for environmental reforms. The Committee, which has at most 22 votes in the Parliament, has no power to lobby other interests into passing environmental legislation (Vasarhelyi, 1993). They have been pushed into the political background, as the Economic Committee contends that the Environmental Committee holds it back. The only area in which there is agreement between these two committees is on the need to improve public transportation. The economic interests feel that the West has attained high levels of environmental protection because of strong economies. As a result, Hungary must first improve its economy and then environmental protection will follow. The Environmental Committee has attempted to convince the other committees of Parliament that strong environmental protection efforts must accompany economic development. Committee members have made trips to observe environmental legislative efforts in Western Europe and the United States to learn from Western experiences and mistakes (Rott, 1993).

The head of the Environmental Committee, Nandor Rott, feels that although the newest draft legislation might be discussed in Parliament in 1993, it will not be passed until 1994 at the earliest. This belief echoes the statements of many critics who feel that nothing will happen until after the June, 1994 parliamentary elections (Hinrichsen, 1993b). In preparation for the elections, environmental concerns will be placed aside as politicians vie for support using arguments of unemployment, the economic crisis, and high debt.

According to Rott, the one motivating factor for passing environmental legislation in Parliament (and a main argument for the committee) is European Community (EC) membership, which Hungary hopes to achieve by the year 2000. If Hungary is to join the EC, it will have not only have to harmonize its economic policies but also its environmental laws to meet EC standards (Rott, 1993). Harmonization with the EC is also a constraint on environmental protection, in that the EC system of environmental regulations, issued mainly through directives in each member country, has not been exceptionally effective to date. While integration into the Western market system has been a government priority, no alternative development plans have been considered (Hardi, 1992, p. 14).

The September 16, 1993 environmental law draft, while ambitious, is flawed in several areas from the point of view of achieving the precautionary principle and clean technologies. First, although pollution prevention and waste minimization are defined as primary goals in the draft legislation, there is absolutely no description of how to achieve these goals. In the definition section of the draft, neither pollution prevention, precautionary principle, nor clean technologies are even mentioned. Toxics use reduction, public information on toxic emissions from industrial sources, and emergency community planning are not addressed. Enforcement, one of the main failures of previous environmental laws in Hungary, is not adequately outlined in the draft. The draft is very vague in some areas (especially in the areas of privatization, permitting, and public access to information), leaving too much room for interpretation and additional regulations, which could be environmentally weak (Bandi, 1993a, p. 90). Although the draft law has yet to be implemented it exhibits pollution prevention failures similar to those in U.S. and European Community laws: too much rhetoric and too little action.

Although the Governmental Decree on Environmental Impact Statements is a major accomplishment, it contains no provisions for alternatives analysis or a no-action alternative (which is required under the European Economic Community Espoo convention procedures) (Bandi, 1993a, p. 91). The Ministry of Environmental Protection and Regional Policy felt that in other countries alternatives analysis only describes alternatives that are beneficial for the company and represent a waste of time and efforts, when the only alternative for the company is its project (Radanai, 1993). They feel that if an activity is dangerous for the environment, permitting authorities will either refuse or place conditions on the permit. For this reason, companies will look at implementing the best technologies in their projects. However, the regulatory framework for basing permitting decisions (i.e., what is unacceptable environmentally) has not been established. While authorities now have more information from the EIA process, they are still basing their decisions on ineffective past regulations.

The EIA procedures are only applicable at the project level (construction, renovation, etc.) and are not applied to plans or programs. The EIA procedure is open to the public only at the detailed EIA stage. Public comment on projects can be avoided if the permitting authorities approve the preliminary assessment. The public has no power to demand a detailed assessment or the incorporation of comments at the detailed EIA stage (Radanai, 1993). Comment periods of fifteen days in the EIA decree (although extensions can be requested) and in the draft environmental legislation do not provide sufficient time for citizens gather information to research an issue and develop constructive comments. This could be worse than no comment period at all, as laws with poor notice and comment periods could be used as evidence that citizens do not provide effective comments (Bowman, 1991, p.6). Another concern with the EIA procedures is that they only apply to new projects (after June, 1993), not on-going ones. Cases have surfaced where companies state that they have already begun a

project to avoid the EIA process, although these cases have not been quantified (Fulop, 1993). This problem could be addressed through the passage of an environmental audit decree which requires companies to examine ways to reduce or prevent pollution at specified intervals (e.g., every two years).

The inexperience of Hungarian civil servants in administrative and judicial positions will prove to be a formidable obstacle to the implementation of the precautionary principle and clean technologies in Hungary. Administrators in high ministry positions have been chosen in many cases for political and ideological reasons and often do not have any experience in the area of specialization of their ministries (Szlavik, 1993).<sup>\*</sup> Judges, prosecutors and attorneys often do not know or understand regulations pertaining to environmental protection and the channels through which an environmental claim can be pursued. This has led to a lack of precedent for environmental protection and damage claims in the courts (Fulop, 1993 and Bandi, 1993c).

Environmental inspectors (and local government officials) themselves do not understand the laws they are regulating and have inadequate training and lack power for environmental monitoring and inspection. Under current environmental legislation, Regional Environmental Inspectorates do not have inspection rights that would allow them to enter privatized facilities (Stec, 1992). There is a general lack of technologies for environmental monitoring, making enforcement almost impossible. Officials have no experience in environmental enforcement and are often not as strict as they should be in order to avoid judicial overturn. Environmental inspectorates have no practice in

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<sup>\*</sup> The change in the government or political system in Hungary does not ensure a better environment or improved environmental administration. High government and ministry officials have been chosen so as to break completely with the communist past. Highly knowledgeable and competent individuals connected to the previous regime are rarely considered for these positions. This is consistent with the State philosophy aimed at eliminating all aspects (good and bad) of the communist regime.



using discretion to enforce environmental laws (making decisions even when the reasoning is not explicitly written in the law) (Bandi, 1993c). Inspectorates often cannot enforce fines because payment of these fines could bankrupt the company (Kerekes and Bulla, 1992). Many of the concepts included in the most recent passed and draft legislation (including EIA, audits, public participation and access to information) are new to environmental administrators and the courts. Some period of adjustment (and perhaps outside training assistance) will be required before these concepts can be utilized to their fullest extent in Hungary.

The Hungarian public is ill-prepared to participate in the enforcement of environmental laws and in environmental decision-making. Public awareness and interest in environmental issues is still low and will take a long time to develop (Hardi, 1992, p. 19). There is no history of public participation in decision making processes in Hungary. This is due in part to forty years of political suppression under the communist regimes. A lack of sufficient and readily available information on environmental conditions, legislation and decisions keeps the public from actively participating in environmental discussions and enforcement (see Bandi, 1992b). Economic conditions and a general lack of understanding of the importance of pollution prevention (and the economic costs of environmental degradation) have moved environmental protection and clean-up far down the list of priorities for the Hungarian people (Koloszar, 1993). People have too many other problems to contend with during the period of transition. They are more concerned with placing food on the table each night than protecting the environment around them. The public sees environmental protection as a threat to their jobs, which are disappearing at an large rate, creating tensions between workers and the environmental movement (Vasarhelyi, 1993).

Although public participation is perhaps the biggest opportunity for clean production in Hungary, it is often under-valued. When the public does make an environmentally-sensitive decision, its decisions are often disregarded by authorities as "uninformed". Environmental administrators are both skeptical of and hesitant about public participation, as it might signify a constraint to their authority. Public participation is not a high priority of the current government (Stec, 1992, p. 8). As a result, the public and administration are failing to work together to attain environmental goals. A specific case is that of a small village whose citizens opposed the siting of a "technically absolutely safe" toxic waste dump. The response of authorities was that the untrained villagers did not know about the real dangers involved or about balancing environmental and economic interests (Libertiny, 1993, p. 547).

The national media focuses its attention on political issues, while the environmental issues which fueled the transition in Hungary are ignored. A recent case is that of the only public school in one village which was returned to the Catholic Church. This story was an international issue, while an illegal shipment of unknown hazardous wastes to Hungary from Germany received only a small article in the newspapers (Bandi, 1993c). Many individuals involved in the protests against the Nagymaros Dam (and the fight for democratic reforms) have since left the movement.\* They had originally joined the Nagymaros campaign not so much for environmental reasons, as for political ones (Hardi, 1992, p. 18). The green parties in Hungary have been largely ineffective in increasing political and media attention to environmental problems (Vasarhely, 1993).

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\* Several environmental groups emerged in the 1980s (most notably the Danube Circle) in order to protest the continued construction of the Nagymaros Dam on the Danube river. Ecological movements were the only relatively safe form of public criticism of government policy and the political structure. A giant demonstration (the first peaceful and tolerated demonstration) against the project took place in 1988, leading to the cancellation of the project by the government in 1989.

The lack of coordination of government, industry, environmental groups, and the public make the implementation of the precautionary principle and clean production extremely difficult. The implementation of clean production requires the support and commitment of society as a whole. This is far from the reality of Hungary. There is virtually no coordination between different levels of the Hungarian government.\* An interministerial working group on environmental protection and development (coordinating the environmental protection efforts of various ministries and the directions of economic development) does not exist, and relations between central authorities and local ones are ill-defined. A decision-making level between local governments and the central government (i.e., regional) is absent. Regional planning, though it appears under the auspices of the Ministry of Environmental Protection and Regional Policy, is completely absent. Region-wide local government cooperation is absent, as well. Direct involvement of local governments in environmental administration and activities to date has been minimal, and the capacities of some municipalities for these activities are limited due to financial, technical, and educational constraints (Bandi, 1993a).

Environmental groups have been unable to present a unified front advocating the precautionary principle and clean production. Antagonisms between environmentalists (especially in the area of environmental law drafting), fragmentation, and a lack of coordination have kept the movement from being effective in post-communist Hungary (Bochniarz, *et. al*, 1992, p15). Since environmental groups developed in Hungary as protest groups, they still harbor a strong distrust of government (Hardi, p. 18). They also have little experience in involvement or right-to-know and, like the public, do not

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\* The unclear nature of coordination between different spheres and levels of government has led to uncertainties in the division of tasks between different authorities involved in environmental protection activities. Duplication of activities is a definite possibility, as is the lack of authorities taking responsibility for certain obligations. Also, the tradition in Hungary is that "as long as the given task does not belong definitely to a certain person or office, it will not be executed (Bandi, 1993a, p. 123)."

have adequate access to environmental information. Non-governmental organizations have been unsuccessful in refocusing public interest on environmental protection (Bochniarz *et. al*, 1992, p.8). This combination of adverse circumstances (coupled with legal and economic constraints) has led environmentalists to adopt a pessimistic attitude toward the idea of clean production in Hungary. Many environmentalists will be satisfied with adopting the Western European status-quo (Kerekes, 1993b).

Citizens' groups also face two other constraints with regard to public participation: a lack of standing to represent the public in administrative and civil law cases and litigation costs. Under the Hungarian General Rules of Administrative Procedure (Act IV of 1957, amended in 1981), the term "interested party" is defined as "a private person, legal entity or any organization...whose rights or lawful interests are being affected" (Bandi, 1992b, p. 17). Interested parties have traditionally been interpreted to be central or local government authorities and certain state-organized interest groups (Stec, 1992). This has led to more of an internal governmental consultative process in administrative law rather than a public forum. There have been documented cases of government authorities using absolute administrative discretionary power to exclude the public from participating. An example is the case of residents in one locality who protested against the conversion of a local property into a trucking transfer station. Local authorities told these residents that they were not interested parties because they were never invited to be a party (Bandi, 1992b, p. 17).

Interested parties are also required to show a "direct and material" interest in administrative law cases. This requirement could be interpreted to mean only those citizens' representatives who can show a clearly visible interest in the case and a financial value associated with that interest can participate. Further, "direct" interest is frequently interpreted in Hungary to mean those citizens or organizations which are

directly invited by the administrative organ to be a party (Bandi, 1992, p. 17). These deficiencies in the Hungarian Administrative Procedures will have to be remedied if the public participation provisions in the draft environmental act are to have a context in which meaningful public participation can take place (Stec, 1992, p. 9).

Environmental groups are also currently limited by civil law rules which determine who can bring action. Public interest civil suits (undertaken by citizens' groups) are almost impossible to pursue in Hungary. Only state prosecutors have the right to litigate in the name of the public. Citizens' groups may sue as individuals or authorize a party with standing to represent their interests. However, standing for these groups is still very constrained (for reasons similar to those in administrative law cases).

Another major limitation to public participation and enforcement is the fact that judicial costs in civil law cases must be paid in advance by the party with the burden of proof (usually the plaintiff). Also, the court assesses all litigation costs against the party that loses the case (Bandi, 1992b, p. 21). These costs create a strong disincentive for environmental groups, which lack financial resources, to seek remedies for environmental degradation in court and further limits citizens' ability to utilize the public participation provisions of the draft environmental legislation.

## **B) Economic Situation**

One of the main constraints to the implementation of the precautionary principle and clean production in Hungary has been the country's economic situation. The new regime inherited an industrial structure which favored raw material and energy

intensive industries\*. While economies in Western countries were being restructured during the 1970s, Hungary used readily available foreign credits to further invest in heavy industry, increasing foreign debt. Heavy industry (e.g., metallurgy, chemical production) currently owns 46% of the country's gross fixed assets. Between 1981 and 1986 41% of industrial investments went into the energy sector (to service heavy industry), rather than more profitable sectors (Kaderjak, 1993, p. 3). The result is that at the end of the 1980s Hungary had an inefficient, technologically-poor industrial base. Structural changes in the economy began only in the mid-1980s, due to the rise in energy prices (Kerekes, 1993a).

Annual economic growth from 1965 to 1980 was approximately 5.6%, while from 1980 to 1989 this figure dropped to 1.6% (Libertiny, 1993, p. 529). Inflation in 1991 reached 35%, though this figure is slowly dropping (HUNGALU, 1992). Other economic indicators for Hungary during the transition are listed in table 1:

**Table 1: Economic Indicators in Hungary 1990-1992**

<u>Economic indicator*</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>
Gross Domestic Product	-5.0	-10.2	N/A
Industrial production	-10.5	-19.1	-18.9 (April)
Agricultural production	-4.0	-3.0	N/A
Unemployment rate	1.7	8.5	10.1 (June)
Gross foreign debt (\$ billions)	21.3	22.7	21.6 (April)

\*Rates are calculated as percentage change over the (same period of the) previous year.

Source: Commission of the European Communities, 1992. European Economy. Cited in Environmental Action Programme for Central and Eastern Europe. 1993. Ministerial Conference, Lucerne, Switzerland, April 28-30.

Per capita foreign debt in Hungary in 1989 was among the highest in the world, \$1,939 (Kaderjak, 1991, p.3). Much of this debt originated from commercial sources.

Servicing this debt consumed 57% of Hungary's export earnings in 1990 (Hardi, 1992,

\* The expansion of heavy industry occurred despite poor resource endowments which are better suited for an agricultural and service based economy (Lehoczki, 1993b).

p. 11). The Hungarian government is intent on paying back debt on schedule (maintaining good-debtor status), in order to readily secure additional foreign credit. Preserving this first-class debtor status has meant that every available financial resource be devoted to earning hard currency. This insistence on not rescheduling debt services, coupled with Western-imposed austerity measures, makes major investments in environmental protection or prevention almost impossible. Hungary has refused to even consider environmental swaps (as have been initiated in Poland) because of the Hungarian National Bank's strict policy to service debt on time (Hardi, 1992, p. 11-12).<sup>\*</sup> The Hungarian government is unwilling to take any risks in environmental protection (especially in the area of clean production) investments or experiment with new sources of revenue for two reasons: First, it is not assured of returns on the investment (or does not understand the potential economic benefits); second, the government is unwilling to increase its foreign debt, especially for environmental protection (environmental investments usually require government guaranties for payback) (Koloszar, 1993 and Lehoczki, 1993b).

The enormous extent of the economic and political changes in the region never could have been predicted when the transition began in 1989. When the Soviet Union collapsed in 1991, along with the Council for Mutual Economic Assistance (COMECON), the Socialist trade organization, Hungary lost 30% of the market for its products from one day to the next (Rott, 1993).<sup>\*\*</sup> This has also added to competition for Western export markets by other countries of the region. The influx of refugees from the former Yugoslavia has also had a substantial effect on Hungary.

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<sup>\*</sup> Swaps can be arranged either if the debt bonds have a secondary market - this is not the case in Hungary, which sees losing its first-class debtor status as unacceptable - or if official debt, owed to governments and international financial institutions, is swapped, forgiven, for environmental projects. Out of Hungary's \$21 billion debt, less than 19% comes from official loans (Hardi, 1992, p. 12).

<sup>\*\*</sup> Although 70% of total exports are now directed to OECD countries, the effects felt by the loss of the Soviet market have not dramatically subsided (Szabo, 1993).

Reunification has forced Germany to address internal problems, instead of providing international assistance to other countries. In Hungary, as in other countries of the region, the economic situation is worse and transition is much slower than had been expected in 1989 (Rott, 1993).

With economic sectors and industrial production dropping substantially, the future economic structure of Hungary is uncertain. When the majority of Hungarian industrial companies are bankrupt, how can investments be made in clean production, especially when the sector might not exist in a few years (a Bankruptcy Act went into effect in Jan. 1992)(Lehoczki, 1993b)? Under these uncertain circumstances, companies are unwilling to make environmental investments. Studies have been undertaken to predict which industries will survive during the transition and into the future (Kaderjak, 1993). From 1989 to 1991, eight Hungarian sectors faced more than a 50% drop in demand, with four others losing 70% of their export markets. Liberalization of imports has crowded out some domestic industries.

Based on the Ministry of Industry and Trade's "Middle-run Industrial Policy" some of the industrial sectors predicted to have the greatest success in Hungary in the future include the food processing industry, pharmaceuticals, printing, environmental protection industry, and certain machinery sectors (Kaderjak, 1993). Expected declining industries include manufacturing, metallurgy, mining, and microelectronics. The policy emphasizes the growing importance of financial and services industries, which have received a large percentage of the foreign investment in Hungary and have been the most economically successful during the transition period (Kaderjak, 1993).

The compelling issues of immediate economic survival have prevented Hungarian political leaders and government from focusing on the long term (Hardi, 1993, p. 37).



They feel that if short-term economic restructuring measures succeed, then environmental problems will be solved with a strong economy. Though understandable, the lack of long term modernization and environmental programs could have a potentially devastating effect on the Hungarian economy and environment. Although some issues will need to wait until the economic crisis in Hungary subsides (which could take as long as five to six years, according to some experts), if the government fails to address environmental problems and economic restructuring based on environmentally-benign industries and technologies in the short term, long term costs could prove to be much greater (Rott, 1993). As changes have been sweeping the region at an astounding rate, the problem in making any long-term decisions (economic or environmental) is the fact that no one can predict what the future will bring. However, one question must be addressed: Can the Hungarian government afford not to address long-term economic development and environmental protection issues?

### **C) Privatization**

Ownership reorganization, through privatization, is considered necessary to create profit seeking behavior within firms for market efficiency (Bell, 1992). It is the path to untangle the web of State-owned inefficient, polluting enterprises. According to many experts, without privatization, a fundamental break from the past cannot be achieved (Flaherty et. al, 1993). In order to have a social market economy in Hungary (as dictated by the new constitution) state property rights must be transferred to the private sector. As of 1989, state-owned enterprises accounted for 90% of all capital goods ownership and 93% of production means and employed 74% of the workforce (Flaherty et. al, 1993, p. 9). The Hungarian government has made privatization a central priority for the years to come (State Property Agency, 1991). The goal in this respect is to reduce the share of state-owned businesses in Hungary to 50% by the end

of 1994, with foreign participation reaching 30-35%. The number of state-owned enterprises to be privatized is close to 2,200, with a book value of HUF2000 billion (\$20.43 billion) (Ministry of Foreign Affairs, 1991). Since 1989, the number of legally registered private companies has grown from 5,000 to 57,000 (Flaherty *et. al*, 1993, p. 25).

The major legislative impetus behind privatization is Act No. XIII of 1989 on the Conversion of Economic Organizations and Business Associations. In March, 1990 the State Property Agency (SPA) was established, having primary responsibility for managing the privatization process. As there is no Hungarian Ministry of Privatization, the process is overseen by a minister without portfolio. Other ministries have only a limited right for decision-making in the privatization process. With a growing staff of approximately 300 people (while staffs of other state agencies have been reduced), the SPA carries out the specific activities described in Conversion Act (Flaherty *et. al*, 1993, p. 26). The SPA takes over state assets and their utilization, initiates direct supervision over state-owned enterprises, and prepares these enterprises and assets for privatization. The SPA is required to facilitate the most efficient and rapid transformation of state assets. For this purpose, the agency has initiated privatization packages targeted at selling strategic state-owned enterprises. A First Privatization Program was initiated in late 1990, for the sale of twenty state-owned enterprises meeting specific criteria. A Second Privatization Program was announced in March, 1991 targeting other key economic sectors (Ministry of Foreign Affairs, 1990).

In the interest of more rapid privatization, the government introduced different privatization techniques (other than state privatization programs) in order to decentralize this process. Under the new procedures, foreign and domestic investors

can make offers on specific state-owned enterprises (or parts thereof), rather than await SPA-initiated privatization of enterprises. The SPA can accept offers for any state-owned enterprise, except in the cases of public utilities, financial institutions, and enterprises with a market share over 40%. Other forms of privatization exist. Self-privatization allows the management of a given state-owned enterprise to initiate privatization, whereby the enterprise is converted into a company and management is obliged to search for viable partners. A pre-privatization program, initiated by act LXXIV of 1990 allowed for the rapid privatization of retail outlets employing up to ten people and restaurants and service firms employing up to 15 people. The privatization of these small enterprises is open exclusively to Hungarian citizens on a competitive basis (Ministry of Foreign Affairs, 1991).

There are three models of privatization which have occurred in Hungary. Privatization can either be (1) from state-owned to state-owned companies, where the SPA remains majority equity owner and a new holding company is formed with new shareholders (state-owned banking enterprises, etc.); (2) state-owned to joint ownership, where the state-owned enterprises reorganize an existing business to form a joint venture with a private sector partner, with the SPA maintaining management and operations input; and (3) state-owned or new business to private enterprise, where state-owned enterprises are sold outright and newly formed corporations or partnerships are created. The third model represents the greatest amount of privatization. Operations and management are under the complete control of the new company (Flaherty *et. al*, 1993, p. 26-27).

Legislation passed in 1992 further addresses the process of privatization in Hungary. Act No. LIV of 1992 requires that the transformation (privatization) plan of a state-owned enterprise include a provision on how environmental damages caused by the operation of the former state enterprise will be apportioned (Investors' Environmental

Guidelines, 1993, p. 23). Although Act LIV requires an estimate of environmental damages and clean-up costs prior to the sale of state-owned enterprises, environmental audits are not required (and frequently not conducted), as they might unduly delay privatization process. To date, environmental issues, including liabilities, have been addressed and negotiated by the SPA on a case by case basis (as the SPA has no formal regulations regarding these issues). In late 1992, the SPA issued a statement to a meeting of environmental experts, stating that in the case of known environmental pollution, the SPA can either deduct the cost of clean-up from the company's purchase price or provide an indemnification (reimbursement) to the purchasing company for past pollution damages. The indemnification policy appears only to apply to site clean-up costs and only for a specific time period (from one to five years).\* The SPA is cautious about making indemnification contracts with companies, as it wishes to limit its liabilities. When these contracts are made, their language is vague and they are always subject to caps (5-20% of a enterprise's purchase price) on indemnity (Booz, Allen & Hamilton, 1993, p.11-12).

The Ministry of Environmental Protection and Regional Policy has limited decision making capabilities in the privatization process, except in the case of historical monuments and nature areas. When a transformation plan for the privatization of a company is submitted to the SPA, the Ministry of Environmental Protection and Regional Policy has 30 days to comment on and approve or reject the plan. The opinion, however, is non-binding and the SPA can opt to not follow the Ministry's recommendation. The Ministry of Environmental Protection and Regional Policy finds many transformation plans unsatisfactory and in these cases recommends full environmental audits. The SPA decides whether to require these audits, which rarely

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\* Investors have expressed concern with these short time limits for liabilities, as hidden environmental problems are often found after five to ten years.

occurs. The environmental protection investment plans of newly privatized companies are not examined by the SPA (Berger, 1993).

The process of privatization has been conducted to date with very limited consideration for protection of the environment or sustainable development. This is due in part to the fact that proceeds from property/enterprise sales are an important and necessary source of revenue for the government budget and debt service (Booz, Allen & Hamilton, 1993, p.11). The SPA is under strong political pressure to generate as much revenue as possible. Pressure to privatize state-owned assets quickly is also based on political ideology: the government wants to rid itself of all vestiges of the previous regime. Environmental concerns are considered an unnecessary constraint on the process.

The SPA does not have information about the environmental condition of the properties it is negotiating to sell, and often states that there are no environmental problems or sells on an as-is basis to avoid environmental liability issues. In this regard, the SPA generally knows less about its companies than the potential buyers (Booz, Allen & Hamilton, 1993). As environmental issues are addressed on an ad hoc basis, with no formal regulations, it is easy for the environment to be left aside. Post-privatization issues, such as implementation of clean production at the facility, are not addressed in the privatization process. The ideological zeal to privatize could go too far (e.g., privatizing functions that should be retained by the state) and create, rather than solve economic and environmental problems. The research arm of the government water management authorities (VITUKI) has already been privatized (McIlwaine, 1993).

The SPA is extremely secretive about its procedures (or lack thereof), negotiations, and programs (Hinrichsen 1993b). Access to information and public participation in the privatization process are non-existent. As a result, the State is privatizing assets, which

were part of the public trust, without any consideration of the needs and concerns of the Hungarian people. The awareness that contracts negotiated with foreign and domestic investors were public knowledge would put pressure on State Property Agency officials to reach agreements which would benefit the Hungarian people, economy, and environment (Kruszewska, 1993, p. 17).

There is great room for improvement in the way the SPA privatizes state-owned properties in Hungary, with regard to its lack of full consideration of environmental issues. Two U.S. Agency for International Development sponsored environmental experts have been placed at the SPA, which represents at least a willingness on the part of the Agency to address environmental issues in greater detail (Berger, 1993). In its negotiations to sell the Hungarian refrigerator manufacturer, Lehel, the SPA reached an innovative agreement with the Swedish firm Electrolux whereby the costs of clean-up would be deducted from the purchase price of the company (up to the estimated cost of remediation). Electrolux conducted the site clean up, providing environmental information to local citizens (Svastics, 1993 and Forester, 1993). This type of agreement is beneficial for both parties: the SPA does not have to spend its limited resources to pay out liabilities (eliminating any future financial burden); and the purchasing company has the opportunity to cost-effectively remediate the site to their own (often Western) standards, reducing or eliminating potential future liabilities. The definition of "how clean is clean" in environmental clean-ups is unclear and will need to be determined in the future.

Another viable and cost-effective option is the shared financing of environmental clean-up between the SPA and the prospective buyer. Profitable parts of large state-owned industrial companies (i.e., those with few environmental liabilities and attractive to investors) could be privatized with a percentage of the purchase price being used to

finance the decommissioning and remediation of the other parts (Berger, 1993). If the privatization process is to become more effective, full environmental audits to determine the environmental condition of state-owned enterprises must be performed before state assets are sold. The most critical problems will appear in the near future, as the privatization of some of Hungary's most polluting industries has yet to occur (Berger, 1993)

#### **D) Foreign investment in Hungary**

Understanding that foreign capital may promote the modernization of factories and means of production and stimulate technological development and the reform of management practices, the Hungarian government has been actively attracting foreign investment in the country since the passage of Act XXIV of 1988 on Investments of Foreigners in Hungary (State Property Agency, 1991, p. 5). It has been possible for foreigners to establish joint ventures in Hungary since 1972, but due to administrative barriers and a lack of incentives, as late as 1985 there were only 50 joint ventures in operation (Central Statistics Office, 1992, p. 6). The Agency for Investment and Trade Promotion was established to assist foreign investors in finding Hungarian partners.

Act XXIV, as well as additional legislation, has provided several forms of preferential treatment to attract foreign investment in Hungary and promote Hungary's integration in the world market. A foreign partner is entitled to an exemption of customs duties for the importation of production means (e.g., capital equipment). Foreign joint ventures are entitled to tax allowances (tax breaks) ranging from 20%-60%, depending on the type of activity and amount of investment. Activities of special importance are allotted a 100% tax exemption for the first five years of operations. These allowances are generally given for ten years. Tax allowances for foreign investments have

increased (as of January 1, 1992) for environmental protection investments. It is envisioned that only those enterprises with foreign participation founded before December 31, 1993 may receive tax allowances (Central Statistical Office, 1992, p.15-16). Foreign partners are allowed to freely transfer dividends abroad in convertible currency. A 1.5 billion HUF (\$15.5 million) fund was established to provide subsidies for infrastructure development to joint ventures with at least 50 million HUF (\$510,725) equity (net worth), of which 30% must be foreign (Berger, 1993).

Hungary has received over 50% of the some \$5 billion in foreign investment in Central and Eastern Europe (Hinrichsen, 1993a, p. 72). The number of joint ventures has grown since 1989, to approximately 9,117 at the end of 1991. In the first half of 1992, 2,079 new joint ventures were recorded. In 1991 there were 1,190 enterprises with 100% foreign capital. The share of foreign capital in joint ventures averaged 24% in 1989 and 45% in 1991. At the end of 1991, 543 foreign joint ventures (6%) had a paid capital of over \$1.2 million. There are 32 enterprises with foreign participation over \$10.21 million and at least 100 with over \$4.09 million. The amount of foreign invested capital increased from \$306 million in 1989 to \$2.2 billion at the end of 1991. In 1991, 20% of all paid capital of all enterprises in Hungary was of foreign origin. About 20% of all enterprises in Hungary have foreign participation (Central Statistical Office, 1992).

Joint ventures in Hungary have been heavily concentrated in the area of trade and services. Joint ventures in the area of trade (financial services, real estate, banking, and insurance) account for over 50% of the total number, while 15% are in the service sector and only 24% are in manufacturing sectors (machinery, food processing, light industry, chemical industry). However, 57% of foreign capital is invested in



manufacture, while only 16% is invested in trade (Central Statistical Office, 1992). The trend in foreign investment is headed towards joint ventures with small and medium sized service and trade firms (Ernst, 1993a). Only about half of the joint ventures in Hungary realized profit in 1991 (totaling approximately \$112.4 million before taxes). More than half of the losses generated by joint ventures were in the manufacturing sector (Central Statistical Office, 1992. p. 2). The largest foreign investors in Hungary include General Motors, Suzuki, General Electric, Sanofi, Guardian Glass, Unilever, Electrolux, and Ford (Flaherty *et. al.*, 1993, p. 29).

In many cases, foreign companies investing in Hungary want to provide products at competitive prices for EC markets. These companies take advantage of the relatively inexpensive, but well trained, Hungarian labor force, but must meet European Community product standards if their products are to be exported to EC markets (Forester, 1993). Investors are usually focused on a very specific investment rather than finding a good deal (Booz, Allen & Hamilton, 1993, p. 6). They are first and foremost interested in gaining profits [in the short term] (Lang, 1993). As a result, comprehensive social programs (commonplace under the old regime) are frequently cut and technology investment is at times minimal. Investors are more often bringing new management skills to their Hungarian partners, in an effort to increase efficiency (Cohen, 1993). According to Burson-Marsteller, a public relations company, numerous companies have introduced state-of-the-art technologies into their Hungarian production facilities which surpass Western environmental standards (Forester, 1993)\*. The import of capital and technologies is mostly in the finance and services sectors (Szlavik, 1993). As few studies have been compiled documenting the operations and

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\* Greenpeace has labeled Burson-Marsteller the "Greenwash Professionals", because they undertake public relations campaigns to rectify the environmental images suffered by some of the world's leading corporate polluters (Bruno, K. 1992. Greenpeace Book of Greenwash. Washington, DC: Greenpeace International).

programs of foreign enterprises (and joint ventures) operating in Hungary, the reality of technologies in joint ventures is not clear.

One survey examined the impact of environmental issues on foreign investors in Hungary (Booz, Allen & Hamilton, 1993). One of the greatest concerns of foreign investors in Hungary is the lack of certainty in environmental liabilities. Uncertain future legislation and consistent and fair enforcement is also of concern. However, environmental issues are not critical to an investor's decision to invest in Hungary, and liability issues are rarely a reason for transaction failure. This is true because most investment in Hungary is going into industries of the "new Hungarian economy" (light industry, service and financial sectors), and not old, polluting, heavy industry companies. The survey found that strict environmental laws would not be a deterrent to investment in Hungary.

Typically, investors comply with internal or industry-wide environmental guidelines, and are experienced in EC and U.S. regulations. Strict environmental laws would deter only those investors who wish to exploit the Hungarian economy for short term profits (Bandi). Other observers have claimed that strict environmental laws actually would reduce the attractiveness of Hungary for foreign investment (Koloszar, 1993). They feel that it would be beneficial to maintain environmental laws no more strict than in the EC.

In the period of transition, the question has arisen as to whether foreign investors are exploiting the cheap labor, lax environmental regulations and current economic crisis in Hungary to obtain quick profits, to the detriment of the welfare of the Hungarian people and environment. Several surveys have been conducted to examine this question and have generated mixed results with little empirical evidence (see

Kruszewska, 1993, outlining experiences in Poland). One observer noted that foreign investors "do not protect the Hungarian land like in their own country" as they do not live in Hungary (Nagy, 1993). Other observers have mentioned the fear of importing second-hand technologies and products from the West.\* An example of second-hand products are the phosphorous-containing detergents produced by foreign companies in Hungary (Kaderjak and Lehoczki, 1991, p. 4). One survey described two foreign companies, an Austrian chemical manufacturer and a British meat processor, that came to Hungary to exploit weak environmental laws (Booz, Allen & Hamilton, p. 10). The French have investigated nuclear investments in Hungary, and several companies have initiated investments in hazardous waste incinerators (also in cement kiln incineration) (Szlavik, 1993 and Lang, 1993). These types of investments are being pursued while they are being considered dangerous and socially unacceptable by citizens' organizations in many Western countries. Foreign seed companies are courting Hungarian farmers with seeds for rapidly growing, highly productive crops, but which require large chemical inputs (Koros, 1993). The Hungarian marketplace is being flooded with disposable packaging and containers (Tetra-pak, Coke, etc.), when recycling and reusable packaging and containers were commonplace in the past (Friends of the Earth, 1992).

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\* Second-hand technologies are those that are either out-dated or cannot be used in the West because they do not comply with environmental regulations. Some experts note that second-hand technologies from the West are still an improvement over out-dated Hungarian technologies (Kerekes, 1993b).

## E) Multilateral lending

Multilateral lending to Central and Eastern Europe since 1989 has been substantial. Multilateral development banks (MDBs) exert some of the strongest influences upon national economic development through their project lending and policy implementation requirements. These influences fall in line with the desire of Western governments to influence the economic transition in the region towards market economies and democracy (Friends of the Earth, 1992, p.2). These institutions also offer perhaps the best potential for implementing clean technologies, as they provide abundant financial resources which can be directed toward investments in this area. To date, multilateral lending assistance in the area of environmental reconstruction (clean-up) has been minimal (Bell, 1993). Actual and projected MDB lending in the region is as follows:

<b>Institution</b>	<b>1989-1991</b>	<b>Projected*</b>
World Bank	5,319	10,000
European Bank for Reconstruction and Development	468	5,000
European Investment Bank (EIB)	669**	3,000
International Finance Corporation	235	500
Nordic Investment Bank	152***	N/A

\*The time-period which this projection covers is not stated  
 \*\*EIB subscribed over \$400 capital for EBRD  
 \*\*\*This amount represents spending from 1989-1991 and does not include \$50 million for the Nordic Environmental Finance Corporation

Source: Business International (1991), Tapping aid to Eastern Europe. Cited in Friends of the Earth. 1992. Who pays the piper? London: Friends of the Earth International.

The following section describes the activities of four multilateral lending institutions in Hungary and the region. Specific emphasis is placed on the activities of the European Bank for Reconstruction and Development (EBRD), as the institution was founded in 1990 in part to specifically address the environmental degradation of the region and help the countries of the region to achieve sustainable economic development.

## **E1) European Bank for Reconstruction and Development**

The European Bank for Reconstruction and Development (EBRD) was established in May, 1990 by forty countries and two European Community institutions (EC and European Investment Bank). The objective was to solve three of the major problems which had relegated Central and Eastern Europe to "second world" status: environmental degradation, undemocratic political systems, and centrally planned economies (Wold and Zaelke, 1992, p. 559). The Bank commenced operations in April, 1991, and was hailed internationally as the multilateral development bank of the future, with an environmental mandate. The Bank is directed by its charter to "promote in the full range of its activities environmentally sound and sustainable development" (EBRD, 1992a, p.1). It must "place environmental issues at the forefront of its efforts to promote sustainable economic growth at the regional and national level" (EBRD, 1992a, p. 1). It is also directed in its charter to promote democracy and the transition to market economies in the region.

The European Bank lends on a project basis, leaving sectoral and structural loans to the World Bank.\* It also finances private sector projects through equity investment. The Bank's mandate states that only 40% of its investments may be in the public sector. The other 60% must be allotted to private sector enterprises or to state-owned enterprises undergoing privatization (Reed, 1990, p. 1). EBRD's activities are divided into two divisions: (1) The Merchant Banking division which provides loans and investment in private sector projects and privatization programs; and (2) the Development Banking division which makes state sector loans, develops country strategies, and coordinates technical assistance. The Infrastructure, Energy, and

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\* Structural and sectoral loans, described in detail in Section E2, provide large (over \$100 million) sums of money to assist the country in restructuring its economic system and specific sectors towards free-market capitalism.

Environment department falls within the Development Banking division (Friends of the Earth, 1992, p. 21). An Environmental Advisory Council, consisting of environmental experts from Central and Western Europe and the United States, was established to advise the Bank's president on environmental policy and strategy and to relay concerns of non-governmental organizations (within the region) to the Executive Board (Prasek, 1993).

The Bank's investments are guided by a strict environmental policy and complex environmental procedures (in part based on those of the World Bank) (see EBRD, 1992b). The basis of the policy is to address inherited environmental problems of the region and long term environmental quality through a move in the focus of environmental management from pollution control to pollution prevention. The Bank sought review and responded to comments made by environmental organizations on their environmental policy (Wold and Zaelke, 1992, p.560). EBRD's environmental policy contains the following elements (See EBRD, 1992a and EBRD, 1992b):

- Assistance to the countries of the region in environmental policy formation, including regulatory instruments, standards, enforcement, and support for environmental education programs. Public sector projects are aimed at improving environmental infrastructure and services.
- Regional programs to develop actions to address regional scale issues, build environmental institutional capabilities, and strengthen cooperation among countries (EBRD, 1993).
- Other programs such as environmental guidelines for investors, harmonization of environmental regulations, environmental training, environmental liability and financing. It also conducts sectoral (e.g., energy) and technical cooperation studies in areas such as energy policy, infrastructure development, environmental legislation, and public services (EBRD, 1993). Sectoral studies are made with the aim of financing future projects.

- Encouragement of the development of an environmental goods and services industry in the region and investments in pollution control and prevention.
- Integration of environmental concerns into all stages of the project cycle.
- Environmental assessment of all potential investments and technical cooperation projects. This includes an environmental impact assessment of all activities, to be completed by the project sponsor or hired consultant. Projects are categorized (full EIA, partial EIA, or none) depending on the type of project and potential environmental impacts. The EIA must contain information on alternative approaches to the production design and technologies and the location of the project. A no-action alternative is not required (EBRD, 1992b). Environmental audits, conducted by the project sponsor, may also be required at sites that have past or present environmental damages. The results of environmental audits are not made public. The environmental appraisal department reviews the project for potential environmental impacts and compliance with internal and country of investment regulations and then develops mitigation and monitoring procedures. "The Bank clearly establishes the principle that a project can be rejected on environmental grounds" (EBRD, 1992a, p. 7).
- Environmental requirements (control equipment, monitoring and reporting) and management plans which can be included as covenants in the loan agreement. The Bank requires project sponsors to follow the environmental regulations of the country of investment or the sponsor's home country, whichever is more strict. EBRD conducts regular assessments of projects and can restrict disbursement of funds if the project sponsor has not complied with national regulations or the terms of its loan agreement. The Bank conducts an environmental evaluation at project completion.
- The requirement that when the Bank channels assistance through financial intermediaries, these intermediaries must follow the Bank's environmental procedures (EBRD, 1992a, p.8).
- Public participation as a main element of Bank-sponsored projects, as "local participation in the economic transformation process will be essential for the success of the decentralization and democratization process" (EBRD, 1993, p. 9). EBRD

and project sponsors are required to provide adequate information (at the feasibility stage of a project) on the environmental impacts of projects to national and local governments and the general public (through local governments and direct consultation with non-governmental organizations). Both the Bank and the project sponsor must ensure that citizens know about and have access to information regarding potential investments. Bank staff must ensure that public comments and concerns are taken into account and addressed in Bank decisions, though the procedures for public comments and time periods for comment are unclear. Public participation requirements can be included as covenants into loan agreements.

- Environmental procedures which clearly outline the specific roles and requirements of the project sponsor, EBRD team leader, and environmental appraisal staff during the entire project cycle. The environmental appraisal staff are required to produce three reports during the project cycle: an initial environmental screening memorandum (at project feasibility stage), an environmental review memorandum (at EIA and project development stage), and an environmental evaluation memorandum (at project completion).

The Bank has been making loans and financing projects in Hungary for just over one year . The loans and equity investments made by the Bank in Hungary are outlined in Table 3. In order to reach small and medium entrepreneurs, the Bank is in the process of financing a "municipality bank" in Hungary to provide loans for smaller projects. One of the largest loans made by EBRD is the Budapest transport loan, to improve the quality, quantity, and environmental aspects of public transportation in the city. There is an EBRD office in Hungary, whose role is purely bureaucratic. Office staff identify potential projects and send loan applications to the London office where the loans are either approved or rejected (Nagy, 1993). The office has no control over a project once it is initiated. All activities are coordinated through the main office in London, though some decentralization might occur in the future (Persanyi, 1993). The end result is that projects are directed with little knowledge of local conditions and concerns.



**Table 3: European Bank for Reconstruction and Development Investments in Hungary as March 17, 1993 (in million ECU)\***

<u>Approved Project Name</u>	<u>Project Description</u>	<u>EBRD funding</u>
Petofi Packaging	Packaging material manufacturing modernization and expansion	5.17
Microsystems private placement	Assembly and sale network of computer hardware and software	2.20
Hungarian Telecom	Modernization and expansion of the network	95.61
Raba/General Motors	Joint venture to manufacture cars and car engines	64.60
Fusion Investment Co.	Develop fast food chains (Burger King) across Hungary	2.98
Westel Radiotelefon Kft.	Expansion of existing cellular telephone network	8.50
Grand Hotel Royal Budapest	Reconstruction of a four star hotel	29.46
Eurocorp	Equity finance into a Hungarian investment company	4.25
Budapest orbital motorway	Construction and improvement of roadway around Budapest	21.00
TVK/Columbia Chemicals	Joint venture to produce carbon black	7.65
PCA-Budafok Kft.	Acquisition, refurbishment of board mill and box plant	5.95
Kner Packaging/Printing	Packaging material and printing modernization	9.40
<b>Total Approved Projects</b>		<b>256.77</b>
Total disbursements as of 2/26/93		67.45
Urban Transport (recent project)	Updating of Budapest urban transport including new metro lines	61.00
Agriculture loan (recent project)	Agricultural restructuring and loans to private farmers	US\$103 million

Source: European Bank for Reconstruction and Development. 1993. Hungary - List of projects as of 17 March, 1993. Budapest.

\* These figures do not include funding of regional environmental projects and feasibility studies. Total project investment, with some exceptions, is approximately two to four times total EBRD investment. A new small and medium enterprise grant system will provide loans through Hungarian banks for investments under ECU 10 million. ECU 1.00 equals \$1.1313

In its short period of operations in Hungary, the European Bank for Reconstruction and Development has not lived up to its mandate of promoting sustainable development and being a model for multilateral development institutions\*. Through its operations the Bank has acted like a financial institution basing loans primarily on financial, not environmental considerations. The Bank will not reject a project if it is economically viable ("bankable") (Prasek, 1993, and Friends of the Earth, 1992). Although the Environmental Appraisal department has an individual whose duties include clean technologies, he feels that the Bank can only encourage Central European countries to invest in clean production, not require its investments to implement these technologies (Prasek, 1993). EBRD environmental officials feel that the Bank should comply with the legislation of the countries of the region, not the requirements of the green movement (Persanyi, 1993). The final decision to fund a project is independent of the non-binding decision reached by the Environmental Appraisal department. In more than one case projects have been passed without the department's full approval (Persanyi, 1993).

Project sponsors are indirectly required to hire consultants recommended by EBRD to conduct environmental analyses. Using EBRD's "recommended" consultants poses a conflict-of-interests problem, and as one member of the Environmental Appraisal department stated, "it is hard to challenge an external EIA when our recommended consultant finds no environmental effects" (Persanyi, 1993). In 1991, the Bank's commitment to technical assistance projects (e.g., economic and environmental institution capacity building) was only 3% of the amount committed to merchant

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\* See generally, Woid, Chris and Durwood Zaelke. 1992. Promoting sustainable development and democracy in Central and Eastern Europe: The Role of the European Bank for Reconstruction and Development. Am. Univ. Journal of Int'l Law and Policy. Vol 5: 559-604. Also Friends of the Earth. 1992. Who Pays the Piper. London UK.

banking projects. Of this amount only 15% was committed to environmental projects (Friends of the Earth, 1992, p. 27).

Projects undertaken by EBRD have been criticized by governments and environmentalists for not following internal procedures, though EBRD environmental officials state that "no project to date has been criticized on environmental grounds" (Prasek, 1993). Only three projects undertaken by the Bank to date (two of them in Hungary) have required a full EIA (EBRD, 1993). Few of the EBRD loans made in Hungary could be considered as promoting "sustainable development", including a US\$73.5 million loan to General motors (not requiring a full EIA), two packaging company loans, and a loan to Columbia Chemicals. The Bank has fully analyzed neither the necessity and benefits of these investments for Hungary nor the environmental impacts of their processes or products.

The Bank has not undertaken energy efficiency projects (for their lack of profitability) but has invested in energy production and retrofitting existing facilities (Friends of the Earth, 1992 and EBRD, 1993). The Bank also has a nuclear fund to upgrade and extend the life spans of existing nuclear power facilities (in some cases by only installing Western software), failing to consider the inherent dangers of Soviet model reactors and the problems associated with radioactive waste disposal. Other potentially polluting projects that EBRD is promoting in the region include steel production, gas and oil development, waste incinerators, and aluminum smelting (Prasek, 1993 and EBRD, 1993).

EBRD has not allowed sufficient public participation to occur in the projects it has undertaken, despite strong rules requiring public consultation (Wold and Zaelke, 1992 and Friends of the Earth, 1992) This has happened in part due to the fact that EBRD

has only commissioned three full environmental impact assessments to date. Projects categorized as "B" or "C" (e.g., General Motors) do not require any public access to information or notification, thus effectively excluding the public from participation. As the Bank is financing private sector projects, information on the project sponsors and their activities and plans is held as confidential. The EBRD's use of this doctrine of confidentiality means that preliminary studies for a project can be undertaken without the involvement of locally affected residents. Knowledge regarding the impacts and specifics of a project is received only after the project is underway (see Ecologia, 1993, p. 2). EBRD released its sector strategy documents without referring them to non-governmental organizations. The United States Executive Director of EBRD, bound by the Pelosi Amendment\*, has refused to approve EBRD's environmental procedures and has either abstained or voted against most EBRD projects (Friends of the Earth, 1992, p. 22-23).

The European Bank for Reconstruction and Development has fallen into the niche of other multilateral development institutions and has failed to implement policies aimed at promoting sustainable development in Central and Eastern Europe.

## **E2) World Bank**

The World Bank and its affiliate organization for private sector development loans, the International Finance Company, have been active players in multilateral development funding in Hungary. World Bank operations in Central and Eastern Europe are governed by the following general rules: Lending must be based on economic

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\* The Pelosi Amendment (22 USC s. 262m, 1988) prohibits US executive directors of multi-lateral development banks from voting for projects "which would have a significant effect on the human environment" if they and the public do not have access to at least a comprehensive summary of an environmental assessment a minimum of 120 days before hand. (Wold and Zaelke, 1992, p.594)

considerations; loans must stimulate economic growth and be for productive purposes only; consideration must be given to repayment; and loans must be made to governments or guaranteed by them. World Bank loans in the region cover four types of assistance: capital investment; technical advice; industrial sector programs; and structural adjustment (Friends of the Earth, 1992, p. 5). The World Bank has a set of procedures to "ensure that project options under consideration are environmentally sound and sustainable" (Friends of the Earth, 1992, p.7). Bank projects are categorized for full, partial, or no environmental assessment. Procedures state that the Bank should "provide for adequate interagency coordination and consultation with affected groups and local non-governmental organizations" (Friends of the Earth, 1992, p.8). The Bank can require environmental monitoring for projects and evaluations at project completion.

The World Bank is the largest multilateral lender to Hungary with over \$2 billion in loans (see Table 4). World Bank loans to Hungary have stressed the following concepts: free trade; macroeconomic stability; promotion of free markets; and investment in people (medical care and education) (Hittle, 1992, p. 7)\*. Average loan size to Hungary has been very large (over US\$100 million). This is typical of World Bank operations, which stress large lending projects, that can be implemented quickly, with relatively little need for Bank oversight (Hittle, 1992, p. 22). The structural adjustment (requiring no environmental assessment) and sectoral adjustment loans, comprising a large percentage of total loans (and projects), require Hungary to undertake a Bank-designated set of reforms. These reforms include price liberalization; priority on exports; taxes; reduction of state involvement and subsidies; and reduction in state financed programs and spending (welfare, environment, etc.). The World Bank

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\* These concepts form part of what the Bank calls its "consensus approach to development" The 1991 World Development Report argues that these measures should be implemented rapidly as "swift and comprehensive reform, with direct measures to protect the poor and to protect the environment, is usually the right way forward."

**Table 4: World Bank Loans to Hungary 1987-Present (in millions of U.S. dollars)**

<b>Loan</b>	<b>Description</b>	<b>Date initiated</b>	<b>Amount</b>
2nd Industrial restructuring project	Encourage growth of small business; employ. creation; export creation	1987	150.00
Telecommunications project	Rehabilitate and expand national phone network; tariff structure review	1987	70.00
Agroprocessing modernization project	Exports expansion; increase quality/profitability; credits; subsidy reduc	1988	70.00
Technology development project	Strengthen technology development, R&D; inc. int'l competitiveness	1988	50.00
3rd Industrial restructuring project	Enhance int'l competitiveness; imp. enterprise mgmt, instit. capabilities	1989	140.00
2nd transport project	Improve railways, highways; reduce trans. costs; increase efficiency	1989	95.00
Energy development project	Devel. of oil & gas sector; imp. inst. capabilities; conservation prog.	1989	110.00
Finanacial systems mdodernization	Modernize financial system; legislation supervision; training & assist.	1990	66.00
Integrated agricultural exports	Increase ag. exports; provide tech assist.; credit to private farmers	1990	100.00
2nd Telecommunications project	Introduce competition in sub-mkts; institutional and efficiency imp.	1990	150.00
Human resources development	Assist unemployed; reorient scientific training; continuing ed. program	1991	150.00
2nd Structural adjustment loan	Reduce role of state; imp. competition; sector reform; social assist.	1991	250.00
Enterprise reform/privatization project	Restructure public enterprise sector; rapid privatization program	1992	200.00
Product martket development	Strengthen operational and pricing efficiency; QC; tech assist.	1992	100.00
Road and bridge rehabilitatin project	Road and bridge rehabilitation and maint; envtl & safety standards	1993	90.00
Tax administration project	Development of tax administration department; automation; training	1993	29.00
Health services and management project	Restructure health sector and inst. capacity of Ministry of Welfare	1993	91.00
Pensions administration and health insurance	Enhance financial capacity/viability to provide benefits and pensions	1993	132.00
<b>Total</b>			<b>2,287.00</b>

Source: World Bank. 1993. Hungarian loans under supervision. Budapest.

has also financed road and bridge construction projects, energy development projects, and training programs for the young and unemployed. Successful loans have been made to Hungary for on-lending from Hungarian banks to industry for energy efficiency measures (Friends of the Earth, 1992, p. 11).

In 1991, the World Bank lent over US\$3 billion to the countries of Central and Eastern Europe. Some 60% of this amount was lent without any environmental assessment, and no project in the region received a full environmental impact assessment (Friends of the Earth, 1992, p. 5). Public participation in loan decisions was virtually nonexistent. Projects undertaken by the Bank in Hungary, especially in the areas of energy development, road construction, and technical assistance to agriculture (which could involve pesticide use to increase production for exports) have the potential for serious environmental impacts. Despite this fact, an economist with the World Bank in Budapest emphatically stated that the Bank "is pursuing no projects with [direct] environmental impacts in Hungary" (Kiss, 1993).\*

Bank staff are rewarded for the number and size of loans made, not the quality of loans (Hittle, 1992, p. 22). This has led to the financing of large loans, which require little, if any, environmental oversight or evaluation. Bank-directed "structural adjustments" have little regard for the delicate social and economic conditions currently being felt in Hungary and have the potential for substantial adverse indirect environmental impacts (i.e., unrestricted free market development). The policies requiring reductions in public spending could negatively affect already underfunded environmental protection activities and welfare programs. A 25% value added tax, for example, was recently

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\* This attitude is typical of the MDBs and aid institutions. When asked about projects in the environmental area, the MDBs and aid institutions contacted stated that they have few if any environmental projects. They fail to realize that projects do not have to be directly related to environmental reconstruction to have significant environmental impacts. Projects can influence the environment (positively or negatively) through the investment in clean technologies or reduction in public spending programs.

instituted, which will have a strong effect on Hungarian citizens, especially the poor (Ernst, 1993a). The adjustment loans also add to Hungary's debt situation, requiring the government to focus on the economy, ignoring environmental and social problems. The loans could lead to a "debt treadmill"; as Hungary finds itself unable to pay its debt, it will need to submit to further structural adjustment programs, additional debt, and exploitation of resources for export earnings (Hittle, 1992, p.23-24). The programs create a system of Western "colonization" where the World Bank dictates the pattern of development for Hungary, and future generations of Hungarians receive the burden of debt (Ernst, 1993a).

### The International Monetary Fund

The World Bank's cousin, the International Monetary Fund (IMF), provides short-term loans to nations with balance-of-payment problems (that cannot pay their foreign debt), conditioning loans on structural adjustment measures similar to those of the World Bank (e.g., replacement of central-planning with free market capitalism, reduction of state spending) (Starrels, 1992). From 1990-1992, the IMF approved over \$5 billion in financing to Hungary, mainly in the form of stand-by arrangements and extended fund facility arrangements (Starrels, 1992).<sup>\*</sup> IMF ordered structural adjustment programs could potentially have adverse environmental effects in Hungary, as state spending on environmental protection is reduced.

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<sup>\*</sup> Stand-by arrangements provide a line of credit to allow the country with balance of payments difficulty to reorganize its finances. Extended fund facility arrangements support medium-term programs to overcome balance of payments attributable to structural and macroeconomic problems (Starrels, 1992, p. 11).



### World Bank environmental programs

The World Bank has been active in environmental issues in Central and Eastern Europe. It has produced environmental studies on each of the countries of the region, which have been conducted with non-governmental organization assistance. The Global Environmental Facility (GEF), a pilot program initiated with the United Nations Development Program and the United Nations Environment Programme, provides grants and loans for protecting biodiversity, the ozone layer, and international waters, and limiting greenhouse emissions. Five projects have been initiated in the region (none in Hungary to date) under the GEF program, some in conjunction with World Wildlife Fund's "Ecological Bricks" program. In addition, the Bank has made loans for environmental projects in Poland and the Czech Republic (Hittle, 1992, p. 20-21).

The Bank participated with the European Community and other partners in developing the Environmental Action Programme for Central and Eastern Europe (submitted to the Ministerial Conference in Lucerne, Switzerland in April, 1993). The Programme proposes a three-tiered approach of policy reform, institutional strengthening and investment, taking into account the limited resources in the region. It concentrates on short-term immediate action, but looks at long-term environmental protection. The basis of the Programme is to set environmental priorities for environmental clean-up based on a careful cost-benefit analysis, addressing the most urgent problems first (based on risk assessment). Other aspects of the Programme include: (1) an emphasis on low-cost solutions which provide both economic and environmental benefits (housekeeping, facility improvements); (2) use of market mechanisms for pollution control; (3) reduction of transboundary pollution; (4) setting of realistic, enforceable standards and phased-in implementation over 10-20 years; (5) research, training, and

information exchange to set sensible priorities; (6) concentration on solving local problems first. A major component of the Programme is to involve local citizens and non-governmental organizations in helping decision-makers set priorities and implement solutions (EAP, 1993).

Although the Environmental Action Programme for Central and Eastern Europe represents an ambitious effort in analyzing and prioritizing environmental concerns in the region, it is flawed for failing to address the importance (cost savings and environmental protection) of clean production and relying on short term improvements in "end-of-the-pipe" technologies. The document justifies small housekeeping and pollution control measures as "the large scale introduction of cleaner technologies in different industrial sectors may not occur until new markets for the different products have been identified, and the economic viability of specific enterprises is assured" (EAP, 1993, p. 4). The document's reliance on emissions reductions from industrial facilities does not address whether some products and industrial processes are even necessary (economically or environmentally efficient) or whether the products are themselves toxic. The Programme will be counter-productive for clean production efforts as investments will be made in pollution control, initiating the cycle of regulatory deadlock, lack of compliance, and lack of innovation in industry. Non-governmental organizations have expressed concern about the Programme's lack of information dissemination components and a failure to address the importance of changes in lifestyles and human behavior (REC, 1993, p. 7).

The priority basis for the Programme is predicated on the assumption that all of the environmental problems in the region cannot be addressed (see O'Brien, 1992). Large amounts of money, time and efforts have been spent on developing this action plan (since the idea was conceived in 1991), which could have been effectively utilized in

developing clean production demonstration projects and educational and public participation programs. It fails to mention the existence (and importance) of alternatives, how best to involve the entire society in addressing all environmental issues, and the fact that through human ingenuity, environmental problems can be avoided or remedied. A project or problem that may not be identified in the offices of the World Bank or government authorities as a high risk to large groups of people can be of grave importance to certain individuals suffering from the project or problem (O'Brien, 1992, p.4). For example, protection of Hungarian agricultural lands, one of Hungary's most important natural resources, is not even addressed in the Action Programme. Rather than argue over which environmental problems should receive priority, approaches to clean production should be prioritized for their ability to involve the greatest proportion of society. For example, priority could be given to simple, widely distributed, widely-publicized small-scale projects and programs (especially in clean production). These successes could catalytically lead to other projects and a can-do attitude among the Hungarian people (O'Brien, p.3).

### **E3) International Finance Corporation**

The International Finance Corporation (IFC) approved loans and equity investments totaling US\$134.7 million to the countries of Central and Eastern Europe in 1991. The role of the IFC in the region is to "facilitate the flow of foreign investments and provide assistance with privatization of specific enterprises" (Friends of the Earth, 1992, p. 13). IFC bases its environmental procedures on those of the World Bank. However, because of its special nature (private sector loans), it has been excluded from several World Bank directives on the environment. Public consultation requirements are not binding. Several loans and equity investments made by the IFC in Hungary up to 1991 have been in environmentally-sensitive sectors. A \$9.83 million loan to Tetra-

pack (a Danish manufacturer of disposable box containers) could negatively change the ethic of re-usable packaging in Hungary to one of disposable packaging. Other loans include \$18.6 million to a polystyrene plant and \$34.72 million for a Suzuki automobile factory (Friends of the Earth, 1992, p. 15-16).

#### **E4) European Investment Bank**

The European Investment Bank (EIB), established under the Treaty of Rome, is a European Community institution which operates mainly within the Community. EIB can finance projects outside the EC with unanimous authorization of its Board of Governors (Friends of the Earth, 1992, p. 20). The Bank is bound by EC laws, including environmental regulations and directives. However, the EIB's Board of Governors has not reviewed the Bank's environmental procedures since 1984, and there is no published system of review and appraisal (see Wenning, 1992). EIB has no environmental staff, so the technical aspects of loan proposals are emphasized rather than ecological considerations (Wenning, 1992, p. 18). Decisions made during the project cycle are thus internal, without public involvement. For projects outside of the EC, the EIB "adapts the [environmental] directives to the special country and project conditions" (Friends of the Earth, 1992, p. 17).

In November, 1989 the EIB authorized up to \$1.34 billion over three years for loans to Poland and Hungary. As of the end of 1991, loans to Hungary included several for infrastructure improvement and two global loans for on-lending (from Hungarian banks) to small and medium-sized enterprises. The intermediary institution is required to follow EIB directives, including environmental requirements for loans. The loans to Hungary are typical of EIB loans to the region, which have focused on upgrading electricity supply and production, telecommunications, and loans to small and medium-

sized enterprises. Few EIB loans are based on energy efficiency. Public participation and access to information in these projects has been minimal (Friends of the Earth, 1992, p.17-18).

#### **E5) Multilateral lending: Constraints on the development of clean production**

To date, no multilateral lending institution project has directly contributed to the implementation of clean production (or sustainable development) in Hungary. Loans and projects initiated by these institutions in Hungary have demonstrated questionable benefits for the Hungarian people and the potential for significant environmental impacts. These institutions have not followed their own environmental procedures for avoiding giving assistance to environmentally degrading projects. Experience "suggests that the mere presence of guidelines or procedures provides no guarantee that implemented projects will have benign environmental consequences" (Guyett, 1992, p. 890). Multilateral lending Institutions have not involved the Hungarian people in their investment decisions and as a result have failed to address local needs and concerns. The majority of the energy policies developed by these institutions focus on energy supply, rather than conservation. The Banks' advocate energy development when studies have shown that through energy conservation alone, countries of the region could avoid having to build new energy production or save enough money to invest in alternative energy sources (Hinrichsen, 1993b). If the Banks are unwilling or unable to adequately evaluate the impacts of their projects, then the best hope for protecting the Hungarian environment and people might be strict national laws requiring full information disclosure and public participation.

The black and white adjustment policies forced on Hungary by institutions, based on Western development models (market-based ideology) fail to take into consideration the

needs of the Hungarian people and the country's economic past. Policies such as across-the-board energy price increases to promote efficiency have their greatest effects on those that can least afford to pay (Bandi, 1993c). Social programs formed one of the pillars for equality under the previous regime in Hungary. The reduction and elimination of these programs has led to a "Latin-Americanization" in Hungary, where the separation between classes is growing and Hungary is becoming a marginalized neighbor to the European Community. The failure of structural adjustment policies advocated by multilateral development banks is perhaps best observed in the growing communist (and fascist) resurgence and social and ethnic tensions felt throughout the region (Hunter, 1993).

#### **F) Bilateral development assistance**

Bilateral assistance to Hungary has taken the form of grants, technical assistance projects, and other initiatives. These grants amount to just about 4% of total foreign credits to Hungary (OECD Aid, 1992, p. 4). Bilateral aid is directed toward specific projects and programs, including environmental protection. To date, 11 of the 24 OECD countries have signed bilateral aid agreements with Hungary (Bandi, 1993a, p. 138). Two of the largest bilateral assistance programs to Hungary are those of the European Community (Poland Hungary Assistance for the Reconstruction of the Economy) and the United States (Agency for International Development). Other countries that have developed bilateral programs with Hungary include the Netherlands, Denmark, Switzerland, Austria, Canada, and Japan. Bilateral assistance programs are numerous, decentralized, and coordinated through a number of ministries, though an OECD Aid Coordination Secretariat exists in the Hungarian Ministry of International Economic Relations. For this reason it is difficult to quantify the number and types of projects undertaken by all of these countries. The Hungarian Inter-ministerial

Committee is responsible for the coordination and management of the assistance programs.

Grants are usually attached to non-profit projects (education, assistance, environmental monitoring), but are also used to provide preferential loans for environmental investments or measures. According to the Ministry of Environmental Protection and Regional Policy (which has a department to coordinate bilateral assistance), approximately 125 environmentally related projects have been initiated in Hungary with a total expenditure of \$46.8 million. These projects have taken place in the fields of air pollution control, environmental policy elaboration, environmental research and education, and waste and water management (Bandi, 1993a).

#### **F1) United States Agency for International Development (U.S. AID)**

U.S. AID has initiated 30 projects in Hungary with a financial commitment of approximately \$133 million (U.S. AID, 1993). Programs are divided into three categories: democratic initiatives, economic restructuring, and quality of life.

Democratic initiatives projects are based on assisting the development of political infrastructure; local government and public administration training; technical assistance to the Parliament; educational reform; independent media development; and support for non-governmental organizations. Economic restructuring programs include energy sector reform grants; technical assistance for enterprise restructuring and privatization; technical assistance to enterprises; an agriculture assistance program; business training; policy reform; the American business initiative; human resources development; management and market economies training; and energy efficiency, including nuclear safety. Quality of life initiatives include health care partnerships and financing; humanitarian assistance; and labor market transition. The biggest grant to Hungary is

the \$54.47 million Hungarian-American Enterprise Fund, to promote development of the Hungarian private sector. The Fund conducts a broad investment program (mainly through favorable term loans) to finance small, medium and large scale businesses, while introducing Western business and legal practices, technical expertise, management tools, and free market economic concepts to influence business activity on a wide scale (U.S. AID, 1993).

Environmental protection projects funded by U.S. AID (in cooperation with the U.S. Environmental Protection Agency and Department of Energy) have addressed pollution reduction, energy efficiency, hazardous waste training, water quality, and environmental legislation. The United States was an initial sponsor of the Regional Environmental Center, along with the EC and Hungary\*. The World Environment Center received funds from U.S. AID to conduct studies and conferences/training for government officials and industrial managers.\*\* It is currently launching industrial waste minimization and pollution prevention demonstrations and training and technical assistance projects at three facilities. Other projects undertaken by U.S. AID include environmental training for environmental officials, non-governmental organizations and environmental managers of firms; revenue raising for environmental protection; and public participation and outreach. The goal of these programs is to improve local

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\* The Regional Environmental Center (REC) was established in June, 1990 "to address the host of pressing environmental problems, common throughout the region, through the development of a civic society" (Regional Environmental Center. 1992. Annual Report. Budapest). The Center: promotes interaction between environmental groups; acts as a catalyst for the support of non-governmental organizations; builds public participation and environmental education; and has working groups on privatization, public participation, and law drafting.

\*\* The World Environment Center (WEC) is a non-profit, non-advocacy environmental organization founded by the United Nations Environment Program in 1974 and currently funded by industry, government, international organizations, private donations. WEC serves as an information clearinghouse for non-governmental organizations and industry; works with industry internationally to develop environmental protection and pollution prevention programs; develops partnerships among industry, government, and non-governmental organizations; and conducts training and technical cooperation programs in waste minimization, pollution prevention, and environmental auditing (Mission Statement. 1993. New York: World Environment Center).



capabilities to address environmental problems, taking into account pollution reduction and prevention.

**F2) Poland Hungary Assistance for the Reconstruction of the Economy  
(PHARE)**

The European Community PHARE program was established in 1989 and provides assistance to the countries of Central and Eastern Europe for the restructure and reform of their economies. The PHARE program does not provide support or funding to individual business or investment projects and its activities are demand driven, responding to beneficiary states' requests (rather than being dictated by the EC), allowing countries to decide their own restructuring priorities. The Community has recognized the difficulty of carrying out structural reforms on the region's economies and has chosen to provide assistance only in the form of non-reimbursable grants. Policy objectives of stimulating private sector development and government reform focus on the core sectors of agriculture, industry, energy, training, environmental protection, and trade and services. PHARE undertakes region-wide projects for economic cooperation, environmental protection, transport, telecommunications, information, quality assurance and education (Trans-European Mobility Scheme for University Studies, TEMPUS). Up to 10% of the PHARE budget can be allocated to humanitarian aid (PHARE, 1992a and PHARE, 1992c).

The PHARE program allocation to Hungary for 1992 was ECU 100 million (\$113 million) to be divided between projects for restructuring of the economy (\$35 million), reform of the public administration (\$5.65 million), local and regional development (\$11.3 million), development of Human resources (\$47.5 million), and environment, energy and infrastructure (\$11.3 million to the Central Environment Fund) (OECD

Aid, 1992, p. 17). The PHARE agricultural credit channels project aims to strengthen agricultural and rural credit channels and promote the development of rural financial services through technical and capital assistance. Other agricultural projects to date provide technical assistance and training to promote the development of private farming (PHARE, 1992d, p. 44-45). Economic restructuring projects include strengthening of the private sector through loan and guarantee schemes (administered through Local Enterprise Agencies) to small and medium enterprises, upgrading of statistical systems in customs and finance, modernization of the financial and foreign trade systems, and technical assistance for the State Property Agency. Regional development programs address the development of instruments and structures for social and economic reform at the local level through strengthening the Regional Development Fund and intercommunal cooperation. PHARE sponsors several educational and welfare programs focusing on upgrading higher education, vocational education, development of structures for social dialogue, and support for the Foundation for the Development of Local Social Networks (PHARE, 1992d, p. 50-51 and OECD Aid, 1992).

PHARE support for the environment is based on a grant to the Central Environmental Protection Fund to be administered by the Ministry for Environmental Protection and Regional Policy and an inter-ministerial committee with oversight from EC observers (PHARE, 1992d, p.47-49). Projects are to be divided into three areas: (1) Environmental protection (education, monitoring and enforcement, management methods, and policy formation); (2) environmental investments to finance up to 30% of the costs of projects (as a loan or grant) in energy savings, emissions reductions from transport, protection of water resources, solid and hazardous waste management, and reduction in volatile organic compounds and chlorofluorocarbons; and (3) commercial loan support for firms to invest in pollution abatement measures. The PHARE energy

program focuses on improving use of existing energy generation resources and diversification of energy supply (OECD Aid, 1992, p.15).

### **F3) Bilateral assistance: Constraints on the development of clean production**

Bilateral lending programs in general have been more effective in assisting Hungary in institutional (and small business) capacity building and environmental protection efforts than multilateral programs as they focus on smaller-scale grants for specific projects which do not necessarily need to be economically beneficial. However, bilateral aid agreements always include tied procurement schemes, which means that when Hungary receives a grant from a donor country all commodities and technologies (and consultants) must be purchased strictly from those countries (PHARE, 1992b, p. 7 and Kruszewska, 1993, p.7). The PHARE program operational guide, however, states that its aim is not a Community export guarantee scheme (PHARE, 1992b, p. 4). An underlying requirement of almost all U.S. AID grants is the development of investment and product and technology transfer potentials for American businesses.

Bilateral donor countries promote their conceptions of what is necessary for Hungary. Economic restructuring toward the free market and reductions in state spending are typical programs. Local concerns are often not addressed. Many projects involve foreign consultants, who travel to Hungary, instruct Hungarian counterparts on how to conduct their jobs or carry out a project, and then leave. This leads to project unsustainability, and leaves the Hungarian counterpart in the same or worse situation. Projects are based on the assumption that the Western model of development is the best alternative which the Hungarian people need to learn. It does not accept the fact that often times donor agencies can learn from local people. Coordination of bilateral assistance in Hungary (and availability of information on projects), has been less than

adequate among donor countries, local and central governments, and ministries, making the effective implementation of these grants extremely difficult (Bandi, 1993a, p. 139, 141).

Bilateral aid has been reasonably successful in environmental protection efforts, especially in environmental training and assistance for non-governmental organizations. One area of concern, though, exists in the agricultural programs undertaken by these institutions. A large AID grant was provided to Pioneer Seed for working to improve the trading capabilities of Hungarian agricultural enterprises (US AID, 1993, p. 25). According to Biokultura, Pioneer Seed has taken over a substantial percentage of the Hungarian seed market, producing and importing chemical dependent seeds into Hungary, creating a loss in resistance and diversity of local seed varieties (Koros, 1993). Agribusiness and agricultural programs funded by both AID and PHARE are based on increasing export production and efficiency, not on local self-sufficiency. Technical assistance programs of these agencies have been known to include grants to purchase pesticides, deterring the introduction of organic agriculture (i.e., clean technology)\*. Energy programs, while focusing in part on energy conservation, have included nuclear safety programs aimed at extending the lives of some reactors (at least one has been shut down since the program) and setting "acceptable" safety levels (PHARE, 1992a and US AID, 1993, p.67).

More projects such as those initiated by the World Environment Center in pollution prevention need to be undertaken, instead of continuing the focus on waste management and pollution abatement. Probably the most effective aid directed toward environmental protection has come from the Netherlands, which has promised help for

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\* In 1990, Poland received some \$60 million worth of pesticides to "ensure the immediate survival of the agricultural sector." (Kruszewska, 1993, p. 13 and PHARE, 1992a)

technology development, established a non-governmental environmental group (Milieu-Kontakt Oost-Europa) to coordinate the efforts of Hungarian environmentalists, offered assistance in environmental law drafting, and has developed extensive environmental education programs (Vasarhely, 1993).

## **Chapter IV: Case Study - Hungarian aluminum industry**

A case study on the Hungarian aluminum industry illustrates some of the issues influencing the implementation of clean production in Hungary. The aluminum industry has been chosen because of its size, importance to the Hungarian economy, and the fact that it typifies the experience of many industries in Hungary.

### **A) Background**

The Hungarian Aluminum Corporation (HAC) was a large state owned corporation consisting of 16 different units which include bauxite mining, alumina production, aluminum smelting, semi-finished and finished products, research, and trade. At one time HAC employed over 24,000 people and was the third largest company in Hungary (Ernst, 1993b). Profits of HAC reached their highest mark in 1989 (HUF5.65 billion, \$57.7 million) (HUNGALU, 1992). In 1988, HAC maintained a 5% share in the total of all materials consumed by Hungarian industry (HUNGALU, 1989).

State ownership of the Hungarian Aluminum Corporation meant that the Ministry of Industry (on an operative level) and the State Planning Office (on a strategic level) directly prescribed the activities of the company and its units. This control dictated quantity of production, exports and imports. The state also nominated the general director and determined salaries and bonuses. On July 1, 1991 the Hungarian Aluminum Corporation was transformed into a limited liability company, called HUNGALU (Hungarian Aluminum Industrial Co.). The net worth of HUNGALU was determined by audit, and shares were issued. These shares of the corporation were owned mostly by the State Property Agency, with additional shares owned by municipalities and a Hungarian development bank (10%). The State Property Agency

appointed a board of directors (from industry, ministries and universities) responsible for day-to-day decisions of HUNGALU. Decisions of over 300 million HUF (\$3.1 million) were to be made by the State Property Agency (Ernst, 1993b).

In 1992, the government established a limited corporation (State Holding Company), independent of the State Property Agency, to manage corporations of strategic importance. HUNGALU was taken over by this Holding. HUNGALU, currently a holding company for its 14 fully-owned units, has full rights and obligations over its activities. HUNGALU has the right to sell or privatize the companies under its control. To date, the corporation has sold two of its units to foreign partners. The American conglomerate, ALCOA, purchased 50.1% of Kofem, a large semi-finished products company, forming a joint venture on January 1, 1993. A German firm purchased in full (100%) ALUCON, a medium-sized finished products company, in 1993. Several other transactions with both foreign and domestic partners are currently under discussion, including the possibility of buy-out actions (full purchase of companies by foreign investors). HUNGALU wishes to keep parts of its most profitable units (or entire units) and continue to function as a holding company (Ernst, 1993b). Its goal is to renew the Hungarian aluminum industry, facilitate its integration into the European market economy, and maintain its importance to the Hungarian economy (HUNGALU, 1992).

Economic transition and other external factors have had a tremendous impact on HUNGALU's operations. The world aluminum industry is currently facing a global recession, with a market saturation of alumina and aluminum products. The unexpected collapse of the COMECON market signified a major drop in HUNGALU sales and increased competition for sales to Western Countries. Due to the economic conditions in Hungary (35% inflation, etc.) domestic demand for aluminum products

has decreased sharply. A shift was made from rubles to U.S. dollars for transactions, resulting in financial losses and losses in buying power. Increasing operational expenses, especially in the form of increased energy prices, have had a negative effect on profits (HUNGALU, 1992).

As a result of these economic constraints, HUNGALU posted losses of HUF554.2 million (\$5.7 million) in 1991, with a profit to asset ratio of -1.05%. HUNGALU was forced to drastically cut back output (semi-finished products from 197.8 thousand tons in 1988 to 88.7 thousand tons in 1991), introduce austerity measures to reduce production costs, and improve the efficiency of labor through layoffs (during the last two years 13,000 people were laid off and headquarters was reduced from 800 to 100 people) (Ernst, 1993a and HUNGALU, 1992).

## **B) Environmental management**

HUNGALU has a corporate health and safety and environment department consisting of one individual. Four years ago, environmental issues were considered more of a priority (than at present) and the department consisted of 15 engineers. Every few months the Environment Director meets with the environment managers of each of HUNGALU's companies to discuss new regulations and procedures, and for training (e.g., in environmental impact analysis). The Environment Director compiles reports and information on environmental problems and remediation methods in the aluminum industry (with the help of trade groups, such as the International Primary Aluminum Institute) and is in regular contact with the Ministry of Environmental Protection and Regional Policy to receive updated regulations.\* HUNGALU has no centralized

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\* In 1993, the United Nations Industrial Development Organization published "Pollution prevention and abatement guidelines for the aluminum industry", which outlines potential environmental impacts and ways to reduce those impacts. Although the document focuses on waste minimization, it also offers pollution control and treatment



corporate environmental policy or regulations, as the directors feel that this function should be carried out by the individual companies themselves. The corporation's directors have failed to provide financial resources or power for the environment department. With the current economic difficulties that HUNGALU is facing, environmental issues have received less attention. When the environment department wanted to implement environmental audit procedures two years ago, the managing director responded that there was not enough money (Kertesz, 1993a and Kertesz, 1993b).

The aluminum industry has caused environmental damage in Hungary throughout its product cycle. A number of open air bauxite mines were abandoned decades ago and never rehabilitated. Bauxite is currently mined in deep mines, upsetting water tables and causing damage to groundwater and important thermal water supplies (PHARE, 1990, p.2). The main environmental impacts involved with alumina (aluminum oxide) production involve the disposal of caustic red mud.\* Approximately 1.2-1.3 tons of red-mud are produced for every ton of alumina (PHARE, 1990, p.2). The red mud (transported as a liquid) is disposed of in mostly unlined sites covering about 4 million square meters. Ground water contamination from leaching is a major concern, and as red mud dries, caustic dust is spread around local communities (Kertesz, 1993a). Due to aluminum's tight chemical bonds, its extraction from alumina (smelting) requires extremely high inputs of energy.\*\* Fluorine from smelter emissions has seriously

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suggestions, one of which is incineration. ICF Kaiser. 1993. Pollution prevention and abatement guidelines for the aluminum industry. Vienna: UNIDO.

\* Alumina is extracted from the bauxite by digestion (with NaOH and other chemicals) at high temperature and pressure. Insoluble components of bauxite (iron, silica, and titanium) are removed by thickening and filtration, forming "a soup of metallic oxides and other contaminants" called red mud (UNEP. 1977. Environmental impacts of the aluminum industry. Nairobi: UNEP). Approximately 670,000 tons of alumina were produced in 1991, requiring close to 3 million tons of bauxite. About 2.2 to 2.5 tonnes of alumina are needed to produce one ton unfinished aluminum (Ernst, 1993b).

\*\* Alumina is dissolved in a bath of molten cryolite (aluminum fluoride), to which an extremely powerful electric current is applied. The current breaks the bonds between the aluminum and oxygen, allowing the pure metal to be drained off. Energy cost is the single most important factor in determining where the metal is produced. Electricity demand from aluminum smelter has often been used to justify the construction of energy generation facilities. In

damaged plant life around these facilities, due to its high phytotoxicity and bioaccumulation. Polycyclic aromatic hydrocarbon emissions from the smelting process may have caused health problems (cancers) in workers and local communities (Kertesz, 1993b). Solvent and oil emissions (e.g., fluxing with hexachlorethane salts) have proven to be the biggest concerns in the processing of semi-finished and finished products (PHARE, 1990, p.3).

To date, market reforms and economic conditions have had the largest influence on the environmental performance of the aluminum industry in Hungary. High energy prices (\$.05/kWh as compared to \$.03/kWh in the West) forced HUNGALU to close two of its aluminum smelters in 1991 (Kertesz, 1993a). Only one smelter is currently operating in Inota at lower capacity, importing energy from the Ukraine (Ernst, 1993a). Although it utilizes modern technologies which reduce fluorine emissions, this smelter will most likely be decommissioned within a matter of years (due to high energy costs). Beginning in 1962, Hungary had an agreement with the Soviet Union to export desperately needed alumina to the USSR and receive aluminum in return (paying electricity costs with alumina) (Ernst, 1993b). Despite high energy costs, the use of recycled aluminum in HUNGALU's facilities is only 4-5% of the total (recycling scrap material uses approximately 6% the amount of energy used in smelting of raw materials)(Kertesz, 1993a, and Young, 1992, p. 33). Recycling programs in Hungary have been largely ineffective to date, in part due to the lack of good coordination and collection systems (Horvat, 1993). As Hungary's supply of bauxite is of low quality and mainly at great depths, it is more economical to import the material from tropical countries such as New Guinea (Ernst, 1993a). Alumina production will most likely be

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1990, the world aluminum industry used an estimated 280 billion kilowatt-hours of electricity, nearly as much as was used by the entire African continent (Young, 1992).

reduced or even phased-out in years to come, due to the lack of raw material and costs of red mud disposal.

### C) HUNGALU-ALCOA joint venture

In January, 1993 HUNGALU sold 50.1% of its shares in its Kofem semi-finished products plant, the most profitable and modern facility of the holding and one of the largest in the region, to ALCOA for \$50 million, with an obligation to invest \$140 million in facility development (Ernst, 1993b).<sup>\*</sup> ALCOA assumed management responsibility for Kofem and quickly laid off over one-third of its workforce. Although ALCOA has invested in training and has increased wages, social services, including child care, recreational facilities, hotels, a museum, and vacation homes have been suspended. By canceling bus service to the facility, almost 300 people were immediately forced out of their jobs for lack of transportation (Ernst, 1993a). ALCOA has either sold or dismantled older and less profitable units of the giant (100ha) facility (Horvat, 1993).

Since taking over management control of Kofem, ALCOA has been extremely secretive about its activities, especially in the environmental area (Kertesz, 1993a).<sup>\*\*</sup> Prior to purchasing majority share in the facility, ALCOA conducted an environmental audit with its consultants to determine environmental liabilities. This audit found that there are few environmental problems (liabilities) to consider at the facility. However, the audit recognized groundwater contamination from petroleum hydrocarbons and nitrites,

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<sup>\*</sup> The fact that ALCOA purchased Kofem, one of the most profitable of HUNGALU's holdings is typical of foreign investment in the region: mostly in highly profitable industries with strong export potential and low environmental liabilities (and environmental sensitivity). It is unlikely that HUNGALU will be able to sell its mining or alumina facilities.

<sup>\*\*</sup> Kofem's general manager refused a visit by the environmental committee of the International Primary Aluminum Organization on the grounds that the plant is currently in "transition". The author was the first Western visitor to research environmental issues at the facility.

resulting from leakage of underground tanks, and worker safety infractions. The report envisioned an approximately \$40 million investment in worker health and safety, metal treatment and the construction of a scrap recycling plant. ALCOA's concern about the presence of asbestos at the facility has led to the initiation of a complete removal project (Kertesz, 1993a, citing Blayden, L. ALCOA, Kofem report, July 16, 1991).

ALCOA has initiated an environmental plan for the Kofem facility based on complying with U.S. or Hungarian regulations, whichever are more stringent. According to ALCOA policies, Kofem must not receive any environmental fines, no matter what the costs are to bring the facility into compliance. ALCOA provides the necessary funding for any environmental programs. Toxic substances entering the facility are subject to disposal plans. Wastes leaving the facility must be completely detoxified; the environmental manager is responsible for supervising any outside transport or treatment to ensure that it is legal. Policies must also be implemented to reduce emissions, waste, and the use of toxic chemicals and improve recycling (Horvat, 1993). It is not clear whether ALCOA's environmental plan will include investments in pollution prevention, as the conglomerate is, in general, satisfied with pollution control efforts in the facility. As the joint venture is new, it has yet to be seen whether ALCOA's environmental policies are simply rhetoric or will be implemented .

Prior to its merger with ALCOA, the Kofem facility had implemented complex environmental procedures and had spent about 5% of its budget (in the early 1980's) for environmental protection investments, which could be bought without hard currency. The environmental management department is in charge of giving environmental protection instructions to individual units and overseeing their implementation. The facility contains a waste water treatment system, which includes pretreatment at each unit of the facility. Pretreated waters are then sent to the town of

Szekesfehervar's municipal treatment works. Rainwater and waters used for cooling are treated on-site by filtration and recirculated, to the extent possible, or discharged into the Danube river. Waste water is tested on-site one or two times per week, or daily in the case of sensitive areas. Water treatment and discharge are subject to permits which must be obtained from regional environmental and water authorities. The facility has never paid fines for waste water discharges (Horvat, 1993).

Air pollution problems are minimal at the facility, except for emissions from boilers and etching and fluxing operations. No monitoring capabilities exist for air pollution testing at the facility. Outside consultants have conducted testing one or two times per year. The facility has not implemented an energy efficiency program, but some heat recycling from boilers takes place. In 1993 the facility received a fine of approximately US\$17 for air pollution violations, due to the reclassification of ambient standards (Horvat, 1993).

An on-site waste incinerator was built in 1981, which burns facility wastes (paper, wood, lubricant filter cloth) and wastes from employee households adjoining the plant. The incinerator burns approximately 700-800kg of wastes per hour, and emissions testing is only conducted once per year. ALCOA plans to continue the operations of the incinerator with continuous testing. Hazardous wastes, including fly-ash are stored on site, sent to an intermediate storage facility, and finally go to one of two hazardous waste treatment centers in Hungary (one incinerator and one landfill) for final disposal. The environmental manager expressed frustration at the lack of treatment options, their cost (up to \$510/m<sup>3</sup> for wastes considered "most hazardous"), and the fact that Hungary's hazardous waste regulations label almost all wastes as hazardous. Kofem must submit a report to environmental authorities stating the quantity and types of

hazardous materials produced at the facility on a yearly basis (Horvat, 1993). It is not clear whether local citizens have access to these reports.

#### **D) Conclusion**

This chapter has outlined the experience, in terms of economic restructuring and environmental protection, of one major Hungarian industry. The experience of the aluminum industry is typical of other heavy industries in Hungary in the following respects: (1) foreign investors are looking to purchase only the most profitable and least environmentally-sensitive Hungarian enterprises (or parts thereof), for the purposes of reaching European markets; (2) these investors often purchase majority shares in corporations and implement Western austerity measures, eliminating social programs and jobs; (3) economic constraints (a reduction of industrial activity) is one of the main factors influencing the reduction in industry-caused pollution problems; (4) central environmental policy in industries is in general lacking, due to a greater emphasis on economic concerns; (5) to date, fines for environmental infractions have not proven sufficiently high to influence changes in corporate operations. However, in order to influence corporate behavior, high fines for environmental infractions must be coupled with adequate enforcement.

It appears that funding for environmental protection measures implemented through HUNGALU will not be forthcoming in the near future. In the past, the environmental director has been forced to find money for environmental projects, such as a red mud reclamation project funded through the Central Environment Fund (Kertesz, 1993b). However, research will begin in 1993 as part of an approximately \$412,000 PHARE grant to study "the environmental and socio-economic aspects of the aluminum sector of Hungary" (Kertesz, 1993a and PHARE, 1990, p.1). The aim of the study is to

"give the basis on which environmentally and economically sound policy and management can be developed and appropriate technologies can be implemented for the aluminum sector in Hungary" (PHARE, 1990, p.3). The project will study the environmental impacts to date of all units of the Hungarian aluminum industry and will offer recommendations (alternatives) as to emissions reductions, plant restructuring or closure, and training programs. It will also identify investment priorities (based on cost-benefit analysis) and an indicative financing scheme (PHARE, 1990).

While the project may quantify the actual impacts of the industry on the Hungarian environment, the alternatives and recommendations are to be based on end-of-the-pipe and potentially hazardous solutions. Clean technologies and waste minimization are not addressed in the proposal, nor is constant public participation, except at the workshop to be held at project completion.

## **Chapter V: Potential for invoking the precautionary principle and clean production**

My findings suggest that the principle [sic] impediments are structural-institutional and policy-related rather than primarily technical, and that policy changes are more important than resource- and capital-intensive investments to improve the state of the environment (Peter Hardi).\*

Minden kezdet nehéz (Every beginning is hard).\*\*

The previous chapters outlined some of the barriers which must be overcome if clean production is to become a reality in Hungary. While it is important to outline these constraints to the implementation of clean production in Hungary, it is equally important to identify the potentials which exist. Legal and financial potentials are abundant in Hungary but must be guided in the direction of clean production. Perhaps the greatest potential exists in the ingenuity and perseverance of the Hungarian people.

### **A) Precautionary principle in Hungary**

According to Istvan Lang, former Secretary-General of the Hungarian Academy of Sciences and Brundtland Commission member, the precautionary principle has been invoked in Hungary and will probably be utilized more frequently in the future (Lang, 1993). The Hungarian government has argued the precautionary principle to the International Court of Justice in its dispute with Slovakia over the opening of the Gabčicovo Dam, which has permanently diverted a 16km section of the Danube river, destroying a large wetland area and an important groundwater source for Hungary. Groundwater is one of the most important natural resources in Hungary. The only way to adequately protect the groundwater supplies from damaging inputs is through a

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\* Hardi, 1992, p. 37.

\*\* Traditional Hungarian saying.



precautionary approach. The precautionary principle could see greater use in Hungary in the future in the areas of groundwater protection and other long term effects processes, including reduction of greenhouse gases (Lang, 1993).

Through strict requirements, several laws currently in effect in Hungary invoke the precautionary principle. Article 341 of the Civil Code gives authorization to the courts to stop or limit a potentially damaging activity (Bandi, 1992a, p.21). This article has rarely been invoked, because, as is the case with many environmental enforcement possibilities, people do not even know of its existence (Bandi, 1993c).

Government Decree No.56/1981 on Hazardous Wastes states that any waste which has been previously unknown or which is the result of a new industrial process is considered hazardous until there is evidence to the contrary. The broad definition of hazardous wastes in the decree includes "any materials or residue from manufacturing or other activities which may have a direct or indirect, latent or immediate harmful effect on human health or the environment" (Investors' Guidelines, 1993, p. 64). The decree also requires hazardous waste generators to submit reports on the types of waste generated, daily and annual quantity of waste generated, and changes in reported data regarding hazardous waste generated to the Regional Environmental Inspectorate (Investors Guidelines, 1993, p. 65 and Horvat, 1993). These regulations, coupled with expensive and limited treatment options, could prove to be a powerful incentive for waste and toxics use reduction, if adequate enforcement is applied.

## **B) Enforcement options**

Existing civil and criminal enforcement options, in addition to the fine, liability, and environmental use fees structure established in the draft environmental legislation, could provide clear incentives for the transition to clean production. Even the threat of enforcement from citizens and government officials can lead companies to operate in an environmentally-sensitive manner. Bases for possible civil law enforcement include:

- (1) Personal integrity rights which protect the rights of personal life, health, and physical integrity.
- (2) Intellectual property rights which could require that a new invention or technology be based on clean production as a precondition for a patent. Also, special ("environmentally friendly") labeling could be used for products produced using clean production techniques.
- (3) Article 100 of the Civil Code which states that an owner must avoid those activities which needlessly disturb others or endanger the exercise of the rights of others.
- (4) Trespass, defined under article 188 of the Civil Code, which creates a right to undisturbed possession of property.
- (5) Contractual relationships between an industrial facility and a locality which could contain provisions for the implementation of clean production.
- (6) Civil Code article 345 which provides for strict liability for environmental damages caused by dangerous activities.

These civil law potentials have not been widely used due to a past preference for administrative law remedies; lack of knowledge, experience, and participation on the part of the public and its representatives; and a lack of willingness to litigate among prosecutors and authorities (Bandi, 1992a, p. 20-21). If the constraints to citizen civil

law enforcement (i.e., court costs and difficulties of standing) are not remedied, the effective use of these legal options by the public and non-governmental organizations will be severely limited.

The 1978 Hungarian Criminal Code defines two environmentally related crimes: (1) damage to the environment, punishable with imprisonment for up to three years (or five years if an act endangers life); and (2) damage to nature, which provides for fines and imprisonment up to three years (Bandi, 1992a, p. 22).

Article 18 of the Hungarian Constitution, which provides the right to a healthy environment for everyone (including foreigners) could be used to invoke the precautionary principle. Though not defined in the Constitution, this right could be interpreted to include the following rights: (1) Right to a healthy environment, free from the adverse effects of environmental degradation; (2) right to a safe environment, through the avoidance of dangerous environmental situations; (3) right to an undisturbed environment, conserving the psychological conditions of the environment; (4) right to an aesthetic environment, valuing environmental quality on both economic and non-economic bases (Bandi, 1993b, p. 448-449).

It can be argued that the only way in which to ensure the right to a healthy environment is through precaution. Environmental laws employing pollution control and end-of-the-pipe solutions could be challenged based on this right. Also, government approval of projects and laws which could damage the environment (including projects funded externally, privatization agreements, and joint ventures) could be challenged for violating constitutional rights. Any citizen or citizens' group can ask the Constitutional Court to review any regulation for consistency with the Constitution. Only the Constitutional Court is authorized to revise legal provisions based on constitutionality.

Although general courts rarely use a constitutional right as a reference in cases, the possibility of invoking the right to an environment in these courts exists (Bandi, 1992a, p. 14 and Bandi, 1993b, p. 449)

### **C) New environmental laws**

Provisions in the latest draft environmental law could be mobilized to promote clean production. An important first step is the option of judicial review of administrative decisions, which was passed with Act XXVI of 1991 (Bandi, 1992b). However, standing for citizens and citizens' groups in challenging administrative actions and decisions must be improved. The basic principles of the draft environmental law (Reconciliation Committee, 1993) which state that "all activities using the environment shall be organized and carried on in such a way that they (a) prevent environmental pollution and (b) preclude damage to the environment" and that the user of the environment shall be liable for the consequences of its activities throughout the life-cycle of a product provide an extremely powerful tool for citizens to demand clean production and initiate citizen suits when projects potentially damaging to the environment are approved or initiated. The structure of environmental use fees and product charges, fines, taxes and liability for damages provide incentives for the switch to clean production, as companies will find pollution control to be more expensive than pollution prevention. The Ministry of Environmental Protection and Regional Policy plans to introduce additional legislation that would impose a tax on manufacturers and importers of packaging materials, similar to that instituted in Germany (Connolly and Major, 1993, p. 8).

The June, 1993 environmental impact assessment decree and proposed audit provisions could provide a basis for clean production investments. As any new project that could

have environmental impacts requires an environmental impact statement, inspectorates could require companies to investigate clean production alternatives to mitigate these potential adverse consequences. The Hungarian EIA procedure examines the cross-media impacts of a proposed activity, avoiding the transfer of pollutants from one environmental medium to another (Radanai, 1993). Since pollution prevention is one of the principles of the draft environmental legislation, inspectorates should not permit activities that could have adverse environmental impacts and should require implementation of clean technologies programs in devising permit conditions. Public participation at both the preliminary and detailed EIA stage could provide valuable insight into local concerns and whether a project should occur in the first place (a no-action alternative). Public concerns must be included in any permit decision.

Environmental audit regulations require companies to conduct a "systematic examination of the interactions between any business operation and its surroundings (Kruszewska, 1991, p. 18)." They constitute one of the most effective tools available in forcing companies to think about the environmental impacts of their operations. Through the auditing process, companies often discover inefficiencies in processes and opportunities to improve production, save costs, and better environmental compliance. According to the Hungarian draft environmental act, companies are required to conduct environmental audits and "determine in which manner the effects of the activity may be reduced, especially by modification of the technology, operation, and maintenance of the establishment" (Section 76). Companies could be required to investigate clean production options and develop a plan for toxics-use reduction in the workplace. Coupled with public accessibility to the audit results, a periodic (every two years) audit requirement represents a strategic approach to the implementation of clean production, forcing companies to continuously find ways to improve their processes (alternatives) and reduce environmental impacts.

Perhaps the strongest mechanisms in the draft environmental legislation for invoking the precautionary principle and clean production are the provisions for public participation and access to information. Under the draft law the public has a full right (and obligation) to participate in environmental protection and a right to obtain environmental information. These precepts (including public accountability of government officials) have been the basis for the successes of environmental protection efforts in Western European and the United States. The absence of these precepts in the communist regimes was one of the greatest causes for the continuous environmental degradation in Central Europe. Without access to information, citizens and citizen groups can be neither effective nor constructive, and useful dialog between citizens and policy makers becomes impossible (Bowman, 1992, p.6-7).

In the September 1993 draft environmental legislation, the government is required to provide environmental education to citizens (Section 56). These education programs could be utilized to demonstrate the benefits and necessity for clean production and the failures of pollution abatement strategies world-wide. They could also teach citizens about their environmental rights, legal options for participation, and their role in environmental enforcement and protection. The environmental ombudsperson provides an essential, free-of-charge service in protecting citizens' environmental, public participation, and information rights. The ombudsperson's office has the power to represent citizens in enforcing environmental laws and inspect any documents held by the state.

Other fora exist to help citizens and citizens' groups express their environmental rights. The Regional Environmental Center for Central and Eastern Europe has an information clearinghouse, library and databases for referral services. It also sponsors conferences, educational programs, law drafting efforts, and provides grants for environmental

projects. The Ecoservice offers a phone-in service where citizens can report environmental damages or potentially damaging activities. Ecoservice then refers these problems to government authorities (Fulop, 1993). The administrative law department of the Capital City Prosecutors Office offers representation in environmental suits for those citizens who cannot afford an attorney. The potentials for the prosecutors' offices in environmental enforcement and protection of citizens' rights are great and should be mobilized in the future for these efforts.

The Environmental Management and Law Association, a non-governmental group of environmental experts, is planning to establish a data base of successful environmental claims and actions initiated by citizens' groups, which will be publicly disseminated (Fulop, 1993). The data base will combat the traditional lack of information on environmental remedies and will help citizens' groups establish successful campaigns to prevent environmentally damaging activities. The EC Energy Efficiency Centre promotes energy efficiency programs through information and technology transfer (Brown, 1992).

#### **D) Local self-governments**

The passage of laws on local self-government (Act LXV of 1990) allows municipalities to control the development which takes place within their borders. Under the draft environmental act, "self-governments shall carry out all environmental tasks necessary for the protection of their territory or the population living in their territory which tasks have not been referred to the competence of other authorities." Permitting authorities are required to consult local authorities prior to the authorization of establishments which might endanger the environment. Through clauses incorporated into the construction and land-use permits issued by them, local governments can require the

implementation of clean technologies and toxic-use reduction programs, or determine whether a potentially polluting investment should exist in the first place. As they are also responsible for creating development plans, local governments can effectively incorporate the precepts of clean production into these. Self-governments have the responsibility to provide information to local citizens on the state of the environment (including plans for development and land-use) and establish environmental education and awareness programs.

Local governments also provide the most effective forum for public participation and proactive decision making. Article 18 of the Act on Local Governments requires that "the representative body shall determine the fora the purpose of which is to inform the citizens and social organizations directly and to involve them in the preparation of important decisions" (Stec, 1992, p. 11). If local self-governments fulfill their duties, a meaningful forum exists for the public to participate in issues of local importance, including development and environment. Local government officials are directly elected by the local populace. Local government committees can more effectively incorporate and utilize the expertise of representatives of government, business, and citizens (Bandi, 1993b, p.457).

Citizens' concerns are more effectively addressed at a local level. Vandana Shiva, Director of the Research Foundation for Science in India, in addressing the importance of local level decision making has stated "the reversal of ecological decline involves strengthening local rights. The two central planks of environmental rights are the right to information and the right to prior consent. Any activity with potential impact on the local environment should have the consent of local people" (Thorpe, 1992). The importance of public participation in achieving sustainable development (or clean production) was emphasized by the Brundtland Commission stating "this [public



participation] is best secured by decentralizing the management of resources upon which local communities depend, and giving these communities an effective say over the use of these resources" (Thorpe, 1992).

From the experience in other European countries, clean production projects are most successful when conducted on a local level and include the local population (Huisingh, 1993). General policy statements issued from the central government will not lead to the implementation of clean production on a local level. The involvement of the local population in planning, carrying out, and monitoring a clean production project creates a sense of ownership and leads to a project's sustainability. During this period of economic hardship and high unemployment, the risk exists that the right to self-determination may lead communities to approve projects with questionable environmental impacts in hopes of gaining employment and economic development (Bandi, 1993b). This possibility could be overcome with the success of one clean production demonstration project on a local level, which could eventually lead to additional projects. The environmental and economic benefits, including job creation, would need to be widely disseminated (through public hearings or the media) to local citizens.

#### **E) Universities and non-governmental organizations**

One of the best opportunities for the development of clean production demonstration projects exists within the Hungarian university system. Universities, while employing some of the most knowledgeable technology and policy experts in Hungary, are also free of the bureaucratic and regulatory constraints common in government institutions. When a foreign university initiates a program with a Hungarian institution, the foreign one oftentimes brings the capital and some expertise to the project. The foreign

institution is also free from the obligations which often accompany bilateral and multilateral aid funded projects (i.e., being in the economic interest of and using only experts and materials from the Western country). Universities offer the most competent framework for conducting training in clean technology methods and policy. The Technical University of Graz, Austria initiated clean production and information transfer projects, mainly in the food processing industry in cooperation with the University of Veszprem (Department of chemical engineering) and the University of Horticulture and Food Sciences in Budapest (Schnitzer, 1993). Erasmus University, which houses one of the foremost clean production programs in the world, has established a relationship with the University of Veszprem, as well (Baas, 1993).

Joint programs initiated between non-governmental (environmental, legal or technical) organizations in Hungary and ones abroad offer similar potential for developing clean production projects.\* European and U.S.-based non-governmental organizations are frequently able to obtain grants from foundations in their countries to undertake projects abroad. International environmental groups such as Greenpeace, have been advocating "leapfrogging" in Central and Eastern Europe through the implementation of the precautionary principle and clean production. They have also carefully monitored and called public attention to the violations and unethical practices of transnational corporations and Western financial and governmental institutions in the region.

In November, 1992 a group of non-governmental organizations from Central and Western Europe and the United States developed an action plan for "the ecological

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\* The Foundation for the Promotion of Cleaner Technology (TECHEKO) is a Polish non-governmental organization which was formed in cooperation with Erasmus University, the Netherlands Organization for Technology Assessment, and the Netherlands Universities' Joint Social Research Centre. Its activities focus on university education in clean production and clean production promotion (Markowski, T. 1993. International activity report: Poland. Journal of Cleaner Production 1:57-58. Oxford: Butterworth-Heinemann).

reconstruction of Central and Eastern Europe". This plan advocates a new path to development based on the precautionary principle, requesting Western aid institutions to focus their efforts on clean production and Western investors to implement the same environmental standards as in their other countries of operations (Global 2000, 1992).

Non-governmental organization support exists for clean production and precautionary approaches, though some of these organizations still believe that actual implementation is impossible given Hungary's current economic and social situation. The difficulty lies in turning this support into action. Non-governmental organizations can advocate the importance of clean production through their information campaigns, educational programs, and direct action (e.g., suits against polluting companies). If the Hungarian people do not understand the benefits of precautionary approaches and clean production, they will continue to think of these as costly environmental programs which they cannot afford. Programs undertaken by citizens' groups do not have to directly advocate clean production. They can initiate programs in raw materials and energy conservation, recycling, waste reduction, and toxic use reduction. These types of programs will indirectly contribute to the introduction of the precautionary principle and clean production in Hungary.

Labor organizations could provide an impetus for companies to implement clean production programs. Workers know industrial processes better than any other group, and are equipped to identify sources of inefficiency, waste and pollution, and areas for improvement. Workers are also the group of individuals most affected by industrial pollution, as they are constantly exposed to pollutants both in the workplace and in their homes (which are usually close to the industrial facility). It has been noted that protection of worker health and safety in Hungary to date has been less than adequate (Kertesz, 1993a, citing Blayden). However, in this period of high unemployment,

labor organizations are focusing on finding jobs for their members, not on health and safety. Workers are hesitant to speak out about industrial pollution for fear of losing their jobs (if the factory is to close). A sense of worker empowerment and participation in corporate decisions has not been developed. One Hungarian labor organization that has initiated health and safety programs is the Chemical Workers Union (Vasarhely, 1993).

The opportunity exists for labor to become involved in finding cost-effective alternatives for industrial processes that pose hazards to worker and environmental health and safety. Labor groups must begin to obtain information on the economic and employment benefits that can be derived from the use of clean technologies and promote these to industries. As the role of organized labor is to protect its members, one of its main goals must be to prevent exposures to hazardous substances in the workplace. This type of proactive stance for labor will prove to be difficult to pursue, due to current conditions. Union involvement in most Western countries, such as the United States, in advocating worker health and safety reforms and pollution prevention has been minimal.

#### **F) Internal funding**

Multiple internal and external funding sources and technical assistance are available for the switch to clean production in Hungary. In 1993, The Central Environmental Fund (CEF) in Hungary amounts to approximately \$35.8 million (Lehoczki, 1993b). The 0.5 HUF (\$0.005) per liter charge on gasoline instituted in early 1992 has raised about \$15.3 million for the CEF. Monies from the CEF could easily be directed towards grants and low- and no-interest loans for clean production projects. The current evaluation procedures require that projects approved for funding fulfill national

environmental protection goals and prevent or remediate environmental degradation (Investors' Guidelines, p. 11). Funds from the CEF could be utilized to establish clean production training, technical assistance, and information clearinghouses. The CEF (as stated in its guidelines) could be used to refund a percentage of environmental compliance fines to those companies investing in clean technologies (Investors' guidelines, p. 10). It could also be used to fund clean production institute advice and assistance to companies. The regional environmental funds could be harnessed for local level clean production projects and technical assistance.

Further internal funding is available from the Central Technological Fund (CTF), which was established "in order to raise the technical level of the economy and accelerate technical progress" (Government of Hungary, 1992, p. 9). Clean technology demonstration, benchmarking, and research projects would clearly come under the applications authorized for funding.\* Funding is also available from the central Hungarian budget through subsidies and earmarked funds.

Sources of direct government assistance for environmental investments include (1) direct targeted support from the Ministry of the Interior to municipalities for water quality, sewage treatment and infrastructure projects (amounting to \$3.5 million in 1991); (2) direct transfer from the central budget (\$4.1 million in 1991, eliminated in 1992); and (3) Water Management Fund grants and low- or interest-free loans for water management and water treatment for investments (\$10.3 million in 1992). The Regional Environmental Center has announced the availability of earmarked grants for projects in clean technologies/pollution prevention. (REC, 1993, p.9).

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\* The Central Technological Fund can be used for the following applications: research and development; economic analyses necessary for technological investments; development of models to propagate new technologies, international technical-scientific cooperation; acquisition and application of foreign know-how, organizing scientific conferences, preparing publications and dissemination of the results of experiments (Government of Hungary, 1992).

### **G) Foreign investment and privatization**

Hungary has received the majority of the foreign investment in Central and Eastern Europe, in part due to its relatively stable economic and political situation and incentives for investment. This money, funneled through foreign joint ventures and direct investment offers a perfect opportunity to bring clean production techniques to Hungary. While some clean technologies may not be currently available in Hungary, they are available abroad. Foreign investors in certain cases have already instituted clean production programs or are aware of their benefits. They also have access to financial and technical resources for the implementation of such programs. Foreign companies investing in Hungary can be encouraged to implement clean production programs through existing tax relief programs and customs duties exemptions for companies importing production capital.

Many of the foreign firms operating in Hungary are bound to corporate or trade codes of conduct which require environmental protection programs as strict as in their home country (e.g., Chemical Industry Responsible Care Program). While these codes are often hollow public relations statements and do not address the inherent dangers of some products, Hungarian authorities could legally require companies to abide by these codes via contractual clauses in joint venture agreements and local zoning and construction permits. Non-governmental organizations could hold firms publicly accountable to these codes of conduct, especially those companies that are members of the Business Council for Sustainable Development, which advocates clean production (Schmidheiny, 1992). Currently, some companies are bringing their "state-of-the-art" technologies to Hungary, though it is not clear whether these are based on pollution prevention or control.

As it is clear that comprehensive environmental regulations will not be passed in Hungary until at least 1994, privatization agreements offer one of the best hopes for promoting the development of clean technologies. It is important to note that "voluntary adoption of progressive environmental safeguards can put a company in better competitive position in the long term because environmental standards will undoubtedly continue to tighten over time", especially as Hungary has set a goal of joining the European Community (Kruszewska, 1993, p. 53). Privatization contract clauses offer the benefits of being easier to develop and implement, more creative, and more protective of the environment than regulatory standards. Western companies are already familiar with including environmental clauses in purchase agreements (Kruszewska, 1993). However, these clauses never effectively confront the acceptability of a certain investment decision. This question remains in the hands of local government and its citizens (Kruszewska, 1993).

Model contract clauses have been developed to address environmental issues in the privatization process.\* These clauses assume: (1) that an industrial facility is being privatized; and (2) that substantial foreign investment is involved. They require that government assume a proactive role in promoting clean production. Provisions that could be provided through contract clauses include the following:

- Public-right-to-know. The buying company provides the public information (in Hungarian) on its investment and environmental protection and liability programs. This information could be repositied in municipal building permitting offices. It would avoid situations of corporate secrecy and compromising the environment for economic gain by giving the public access to information and time to comment on the privatization of a facility.

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\* See generally, Hunter, David and David Downes. 1993. Freedom under the law. In Kruszewska, I. Open Borders, Broken Promises. Amsterdam: Greenpeace International.

- Public participation in investment decisions. The buying company should hold public meetings once a year to discuss the environmental impacts of its activities, pollution and waste generated (including use of toxics) and programs initiated to prevent or reduce these. The public would be able to develop comments and questions prior to this meeting, with the company responsible for responding within a limited timeframe. Due to the public nature of privatization (the State is selling assets previously held in the public good) public participation would be an effective means for increasing corporate responsibility toward communities and workers. Also, as the company is freely using public resources (e.g., air, water, people's bodies), it should be held publicly accountable for its use and damage to these resources.
- Initial and annual environmental audits and environmental impact assessment. An environmental audit to assess environmental conditions around the facility should be required prior to the purchase of a facility (a concept already familiar to Western investors). Annual (or every two years) environmental audits and environmental impact assessments for the modification of activities or new activities would be required. Environmental audits appear to be extremely justified as it will take years before regulatory authorities are equipped to regularly examine a facility's operations. Audits could also require investing companies to compare their environmental performance in Hungary with the environmental performance of similar facilities in their ownership in other countries.
- Joint, several and strict life-cycle liability. This clause would hold the company liable for any past, present or future environmental degradation (including health and safety) caused by its activities (on or off-site). This liability would apply to damages caused by the transport and use of raw materials, the generation and disposal of production wastes, the normal household or industrial use of the product, and the ultimate disposal of the product.
- Requirement to support local conservation, training or other efforts. This type of requirement has been voluntarily followed throughout the world and could provide funding for local clean production and environmental protection programs. All companies would be required to give 1% of their annual profits to a community trust fund which could receive donations and grants from other sources. The fund would be used to support community development and welfare activities.



- **Enforcement.** A contractual clause allowing the public or government authorities to sue for environmental damages or wrongdoing (in Hungary or in the company's home country) will force the company to behave in a socially-and environmentally responsible manner. This clause would outline those aspects of operations for which a company could be held responsible. Environmental claims could be submitted to independent arbitration, lowering costs and facilitating restitution for damages.
- **Compliance with environmental laws.** The corporation would be required to comply with the most environmentally-protective of the following laws: (1) Hungarian environmental laws; (2) environmental laws of the European Community; (3) the laws of any country in which the company operates. Companies would be required to disclose environmental infractions (e.g., through monitoring data) and develop compliance schedules to come into full compliance with the law.
- **Implementation of the precautionary principle through clean production methods.** The company would be required to implement clean production programs and take actions to anticipate and prevent or avoid environmental damages, even in the absence full scientific proof. The burden of proof for proving that an industrial activity is not harmful to health or the environment would be placed on the company.

#### **H) Multilateral and bilateral lending and aid**

Funding that could be directed toward investments in clean production is available to Hungary from multilateral and bilateral lending and aid institutions. From 1989 to 1991, multilateral banks lent about US\$6.84 billion for projects in Central and Eastern Europe. Projected future lending for the region is approximately \$18.5 billion (Friends of the Earth, 1992). In Hungary alone, from 1989 to the present these institutions have lent approximately \$3.2 billion. Between the EC PHARE program and the U.S.

Agency for International Development alone \$246.7 million has been committed to Hungary in the form of bilateral aid.

Although many of the investments made by these institutions to date have been questionable from an environmental and social point of view, improvements in multilateral and bilateral funding, redirecting loans and grants toward clean production, could be made in the following ways (many of these are similar to those presented in the previous section):

- (1) Require multilateral and bilateral institutions to submit their loans/grants in Hungary to public scrutiny and full public participation. Before any project/loan is approved by the Hungarian government, affected parties and their representatives would be allowed to submit comments on potential environmental and social impacts.
- (2) Require projects undertaken by these institutions to be subject to all Hungarian and European Community environmental legislation, including permits, environmental impact assessment, and audits, and all public participation requirements.
- (3) Require institutions to conduct yearly independent analyses on whether their internal guidelines for environmental protection and development are followed. The results of these analyses would be publicly available.
- (4) Require, through loan and grant agreements, the condition that Hungarians can sue these institutions, in Hungary or in the institution's home country, for violations of environmental laws or damages.
- (5) Require industrial and infrastructure development projects undertaken to include clean production methods (these requirements could easily be included in loan covenants).
- (6) Require institutions to prove that their projects will produce no adverse environmental or social consequences.

(7) Analyze whether a project (e.g., structural adjustment) is truly in the best interests of the Hungarian people and sustainable development or only beneficial for the lending/granting country or countries. This analysis could be conducted by non-governmental organizations or through surveys or referenda. More loans and grants should be given to those projects that have implemented pollution prevention programs, such as the AID sponsored, World Environment Center demonstration projects.

Lending and aid institutions have been involved in clean production projects in other regions of the world.\* The experiences and lessons learned from these projects could be transferred to Hungary. These institutions must first understand that it is in their economic interests to invest in clean production projects. Loans and grants based on the implementation of clean technologies will provide greater returns than investments based on pollution control for these institutions in a shorter period of time through lower operational costs, increased efficiency, competitiveness, and project success, and the use of Western products and expertise. As pollution prevention is becoming a fundamental principle in national and international environmental legislation and development programs, it would be extremely beneficial for these institutions to invest in clean production processes and techniques, which could be produced in Hungary and exported throughout the world. Multilateral and bilateral institutions must begin to realize that it is in their economic self-interest and only ethically correct from the standpoint of protecting the interests of the Hungarian people and environment to stipulate the use of clean production methods in their loans and grants.

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\* The World Bank/UNEP has sponsored clean production projects in China and India. UNEP has also undertaken clean production training and projects in other countries. The new U.S. Agency for International Development Environmental Pollution Prevention Project (EP3), assists developing countries in adapting pollution prevention know-how and environmentally sound technologies to local conditions. Local U.S. AID missions are required to request EP3 support. This has not occurred in Hungary.

## **Chapter VI: General conclusions and recommendations on implementing the precautionary principle and clean production in Hungary**

My inspiration is to cause constructive damage to the status quo (Head of UNEP).\*

If we believe a thing to be bad, and if we have a right to prevent it, it is our duty to try to prevent it and to damn the consequences (Lord Milner).\*\*

This project has examined the central question of whether the implementation of the precautionary principle and clean production in Hungary is feasible given the current legal and economic situation and other constraints in the country. Through extensive research and interviews with individuals in the Hungary, Europe, and the United States, the barriers, prospects and needs for clean production to become a reality in Hungary have been outlined. The results from this research in Hungary could also be applied, with certain modifications, to other countries in Central and Eastern Europe. All of the countries of the region are currently suffering from the economic hardships caused by the total transformation of their economies, and political and social systems. However, all of them offer unique prospects for rebuilding their economies under a new environmental paradigm, that of clean production, leading to qualitative economic growth, based on sustainable development, public participation, and environmental protection.

This chapter is divided into two sections: In the first section, general conclusions reached from the previous chapters are outlined. The conclusions are divided by the issues addressed throughout the paper. In the second section, recommendations for implementing clean production in Hungary are presented.

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\* Ms. Dowdeswell, Head of UNEP. Cited by Huisingsh, 1993.

\*\* Lord Milner, 1909. Cited in, The Oxford Dictionary of Quotations. 1979. New York: Oxford University Press.

## A) Conclusions

As unannounced changes are regularly occurring in Hungary and throughout the region, it becomes difficult to analyze the feasibility of implementing clean production and the precautionary principle in Hungary. Additionally, reliable information (e.g., on environmental conditions, the activities of multinational companies, and future economic development) is difficult to obtain. Individuals in government and non-governmental institutions still rely on casual information, even at the ministerial level. For these reasons it is possible only to describe (and conduct a rudimentary analysis of) the constraints and potentials of the current situation in Hungary with regard to the implementation of clean production.

Several questions about the precautionary principle and clean production arise as a result of this research. First, what is the exact definition of clean production? Clean production has been defined differently by various constituencies (e.g., Greenpeace and the Business Council for Sustainable Development). The term "clean production" has been interchanged with other terms such as "clean technologies" and "pollution prevention". Clean production, though, appears to include wide-spread social change while the other two terms are more technology-based.

Is clean production always profitable? If it is profitable in all cases, then according to capitalist theory, every company would be implementing clean production measures in order to increase its competitive edge. Why is clean production not espoused by all companies? Two possible answers to this question are: (1) Companies do not know about the inefficiencies in their production processes or about clean production methods and potentials; and (2) companies are not forced to internalize the social and environmental costs of their operations (i.e., degradation to natural resources and

human health throughout the lifecycle of a product). The profitability of clean production will differ in Hungary and Central Europe from that in Western countries. As the majority of industries in Central and Eastern Europe are outdated and inefficient, clean production (which increases efficiency) will most likely be profitable. Also, as new industries are being built, clean production is more likely to be profitable if introduced at the design and construction phase of a facility.

It is clear that in some sectors the implementation of clean production will not be immediately (or perhaps ever) profitable. In some cases clean production will lead to a company not producing at all (e.g., a pesticide manufacturer that goes out of existence because of pesticide bans). In other cases, clean production could be more expensive than end-of-the-pipe technologies. Clean production (through lifecycle analysis) would also lead to the substitution of more environmentally benign chemicals and processes for numerous toxic chemicals and inherently dangerous processes. Technologies, however, will not be able to fix all environmentally degrading industrial processes. Those companies for which clean production is not possible could search for viable, environmentally-sensitive alternative products.

Another question is whether the precautionary principle and clean production represent absolutes or whether they imply a balancing of interests. If the precautionary principle is an absolute (no contamination entering the environment) then it could be considered a fundamental right that cannot be negotiated. If the concepts include a balancing of interests, then how is this balancing to be achieved? In difficult economic times, balancing and local public participation could lead to the continuance or development of non-clean production based industries, as jobs become more important than the environment. For example, a local government might choose to issue construction and land-use permits (with the consent of the public) for a hazardous industry (e.g.,

pesticide manufacture or hazardous waste incinerator) as this industry would provide jobs for local citizens.

The precautionary principle and clean production could be considered ultimate environmental protection goals, to be achieved through small realistic, and implementable steps. A first step is open access to information and public participation in decision-making. Open access to information allows citizens, industry, and the government the ability to discover potentially degrading processes and products and begin to search and propose alternatives to these. The next step is to require industry to analyze and publicly disclose their options for clean production and alternatives to environmentally damaging production processes and products. While industries would not necessarily be required to choose the "best option", information on alternatives would be discussed and available. Finally, laws would require companies to devise plans and timetables for toxics-use reduction and the reduction of entire lifecycle environmental impacts. Companies would be given freedom on how to achieve these goals (with public input), which would allow them to be innovative when thinking of alternatives.

A final question must address whether clean production and the precautionary principle apply to individual and family behavior. Should individuals be treated the same as companies, being required (or encouraged) to reduce their use of environmentally degrading products and their impacts on the environment? How can the clean production be enforced at the level of individual economic behavior? Some ways to promote clean production on a household level include taxation on hazardous products and rebates for the purchase of energy efficient products.

## Clean Production

- It is clear that the Hungarian environment has been seriously degraded by decades of heavy industrialization and neglect for environmental protection, although this damage has not been reliably quantified. Environmental degradation has a high cost for Hungary both in the poor health of its citizens and in the massive costs of remediation. The only way to avoid future environmental damage (and avoid adding to the cumulative effects of past pollution) is to implement the concepts of the precautionary principle and clean technologies in Hungary. This will lead from reactive environmental legislation (which is difficult to enforce) to proactive, creative legislation, necessitating the participation of all levels of society.
- Clean production is in almost all cases economically beneficial for industry. Although, some capital investment is inevitably required, payback periods on these investments are usually short (often under one year). Projects undertaken in Poland have proven the viability of clean technologies in Central Europe (Huisingh, 1993)\*. The most inexpensive time to implement clean production is during this period of economic transformation, as companies are currently rebuilding or constructing facilities.
- International financial and technical assistance (as well as domestic funding, through the Central Environment Fund and the Technology Development Fund) is available for clean production demonstration projects in Hungary. Successful demonstration projects have been undertaken by the World Bank in China and India and the new U.S. AID EP3 program in several developing countries. Universities in the United States and Europe have established linkages with other institutions around the world (including Central Europe) to develop clean technology demonstration projects. Outside experts must be able to understand local conditions (economic, cultural, social) in order for projects to work.

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\* The UNEP Cleaner Production Programme has carried out two successful projects in waste minimization in steelwork painting and electroplating facilities. Both projects demonstrated short payback periods and cost savings in the thousands of dollars in the first year (Flain, C. et al. 1993. Cleaner Production Worldwide. Paris: UNEP Industry and Environment Programme Activity Centre). A cleaner production program has been instituted at the Technical University of Głowice, Poland (Nowak, Z. 1993. Technical University of Głowice. Personal Correspondence, September, 15, 1993).



- For the implementation of clean production to be successful, adequate information dissemination and local technical assistance must be readily available to industry, government, and the public. The United Nations Environment Programme is currently undertaking a project to establish cleaner production information clearinghouses in a limited number of developing countries. Hungary did not request one of these clearinghouses (Kryger, 1993).
- The most significant indicator of success for a clean technologies demonstration project is when outside consultants and trainers can leave and the project continues to function. Outside experts should allow local Hungarian experts to conduct the project and limit their own activities to "training-the-trainers" and offering advice and assistance when requested (Huisingh, 1993). By limiting the involvement of outside experts, a greater sense of project ownership will be achieved, leading to greater dedication from industry, authorities, and the public, and further projects undertaken solely by Hungarians.
- Pollution prevention represents a long term strategy requiring a societal commitment. It is not a typical environmental program, and as such requires cooperation from all levels of industry, government, and the public. Too often, the need for short term quantifiable returns (successful demonstration projects) subverts the real necessity for continuous long term improvements and a change in perspective, examining the societal necessity for certain products and consumption. Clean production, if carried out to its full extent, is seen as a threat (an ultimate goal of zero discharge and a requirement a change in consumption patterns) to government, industry, and some sectors of the public, as society must reevaluate the necessity of products, processes, and industrial sectors.
- The main barriers to implementing the precautionary principle and clean production in Hungary (and throughout the world) are institutional and policy related, not economic or technical. Knowing this fact, clean production efforts must be focused on addressing these institutional/structural barriers.

### Environmental law and policy

- Hungary has not passed a comprehensive environmental act since 1976. The 1976 Act, still in force today, is largely ineffective and unenforceable. Numerous draft

acts have been written and debated since 1992 without one being passed. As a result, environmental legislation in Hungary today is based on piecemeal legislation on various environmental media.

- The latest draft environmental act is a framework law, which outlines future specific legislation to enact. The draft act covers principles of environmental law, environmental administration, public participation and access to information, environmental impact statements and audit, permitting, and economic incentives and disincentives. A decree on environmental impact assessments was passed in June, 1993 and one on environmental audits will possibly be passed in late 1993.
- Two main principles of the draft environmental act are pollution prevention and waste minimization. These principles are only mentioned and not defined or developed in the draft.
- Economic restructuring is the first priority of the Hungarian government. Draft environmental legislation will most likely not be passed by Parliament until after the general elections in 1994. The Parliament does not understand the relationship between economy and environment, and that environmental protection can be achieved with relatively little expenditure. The Parliament will eventually have to address environmental issues if it wishes to achieve its goal of joining the European Community by the year 2000. The EC could take advantage of Hungary's determination to become a Community member, dictating and, perhaps, negatively influencing Hungary's path of economic development.
- There is a lack of coordination between different levels of government in Hungary with regard to environmental issues. An interministerial committee to address environmental issues is definitely needed. Duties of different government bodies are ill-defined and often overlap or are missing. A regional level government authority is entirely missing.
- Experience in environmental administration and enforcement is still lacking. Permitting authorities often do not understand the laws they are enforcing and lack a basis for decision making. Judges, lawyers and prosecutors do not know about environmental laws and legal remedies for environmental protection. Legal precedent for environmental protection has not been established in the courts.

- Public participation in environmental protection will take some time to develop due to economic constraints (people often work three jobs to feed their families); a distrust for government; government distrust for public judgment and self-determination; lack of a public participation ethic and experience (an inheritance of 40 years of communist rule); and a general lack of readily available information and support. Media attention has focused on controversial political issues, not the environment. Environmental groups, many of which developed as political protest groups, are fragmented and not presenting a unified front on environmental issues. Labor organizations are focusing solely on finding jobs for their members.
- Pessimism about implementing clean production and precautionary approaches in Hungary is great. As economic problems are taking precedence, the goal now is only for harmonization with the European Community (using harmonization as a lever for the development of more strict environmental laws).
- It appears that the drive for free market economies in the region cannot be stopped and that hopes of achieving a new path of sustainable economic development have been disintegrated. As a result environmentalists will need to redirect free market development to minimize its impacts (Bowman and Hunter, 1992).

### Economy

- Until the mid 1980s the Hungarian government took foreign credits to invest in heavy industry, though Hungary lacks a sufficient natural resource and raw material base. The result is a severe economic crisis. Inflation has reached 35% and Hungary lost 30% of its export market due to the collapse of COMECON. Economic transition has been slower and more painful than could have been imagined in 1989.
- Per capita foreign debt in Hungary is among the highest in the world. However, the Hungarian government refuses to lose its first-class debtor status, meaning that almost all government revenue is diverted to servicing foreign debt. Little money is spent on environmental protection, and the government is reluctant to take more foreign credit for environmental protection efforts. The opportunities for debt-for-environment swaps with foreign creditors are limited. Economic considerations

have kept the Hungarian government and people from thinking in the long term, including the long term benefits of environmental protection (and clean production).

- Economic problems have indirectly provided the greatest assistance to the environment. As economic output is down, so are emissions from polluting factories. Some heavy industry will most likely disappear in the future because it is inefficient and uneconomical (high energy costs and few natural resources). Some old factories are trying to continue with old technologies as they will not invest in new technologies if they might close in few years. The uncertainty of which sectors will survive will constrain investment in clean technologies in the near future.
- There is a growing distance between classes in Hungary (as in Latin America). While few people are becoming rich, many more are living in the streets, leading to tensions between classes. There is growing Western-style consumerism, as some people realize the "dream" of the market economy.

#### Multilateral and bilateral development programs

- In general, multilateral development institutions have failed to undertake projects which would lead to the implementation of clean production in Hungary. Many of the projects funded by MDBs have had questionable benefits for the Hungarian people and environment. Desperately needed projects, such as energy conservation, have rarely been pursued. The fact that these institutions have strict environmental policies does not mean that they will be implemented.
- There is a lack of environmental oversight at the European Bank for Reconstruction and Development, although the Bank professes to "promote in the full range of its activities environmentally sound and sustainable development." Bank projects are based purely on economic profitability, not their environmental and social value.
- Through their structural and sectoral adjustment policies, lending and aid institutions have failed to address the needs of the Hungarian people and economy. Reductions in State spending (in environment, education and welfare) and global price increases in energy and taxes have had their greatest impacts on the Hungarian people and environment.

- Lending and aid institutions have dictated the path of development that Hungary must take. The Hungarian government, in trying to rid itself of its communist legacy, has strictly followed the suggestions and requirements of Western countries (i.e., developing a free-market capitalist economy), while failing to consider other, more sustainable paths of development.
- Bilateral aid has been more successful than multilateral aid in directing Hungary towards clean production. U.S. AID has sponsored clean production demonstration projects in cooperation with the World Environment Center. Both AID and the EC PHARE program have invested in environmental protection, training, and education programs. The Regional Environmental Center was initially funded by bilateral aid. Foreign aid, though, is based in many cases on the interests of the lending country (development of investment and export markets), not on Hungarian interests. Technologies, materials and consultants used on these projects must come from the donor country or countries. Aid programs stipulate that the Western way is the most effective, and fail to acknowledge the need to learn from Hungarian expertise.

#### Privatization and joint ventures

- Hungary has received over 50% of all foreign investment in the region to date. Foreign investment in Hungary has been mostly in the service and financial sectors. Foreign industrial investors are buying only the most profitable and least polluting industries or parts of industries, leaving the rest to the state. Many firms go to Hungary to exploit the cheap and skilled labor supply in order to produce competitive export products for the EC. These companies pay higher salaries but are laying off high percentages of workers and eliminating social programs (e.g., child care, vacation homes, sports and medical facilities) which were one of the positive aspects of the communist system.
- Investors are plagued by uncertainties in environmental laws, liabilities, enforcement and lack of information on past environmental damage. This is affecting investment in industrial sectors in Hungary. Many experts feel that strict environmental laws would reduce joint venture possibilities, while others feel that companies do not mind strict laws, as long as they are consistent. Empirical evidence on these issues is lacking.

- The privatization process in Hungary is taking place with essentially no environmental consideration. There are no environmental clauses in the privatization regulations, except for a transformation plan, requiring a costing of environmental damages at the facility. The State Property Agency is under pressure to quickly sell state enterprises for revenue and ideological reasons. It is very secretive about its procedures and is not paying attention to the activities of newly privatized companies. The SPA has little information about the properties it is selling and tries to avoid having to pay environmental liabilities. The biggest concerns lie ahead with privatization of large polluting companies.

#### Potentials for clean production and the precautionary principle

- The precautionary principle is the basis for several environmental protection laws in Hungary. Examples include a hazardous waste law which defines all wastes as hazardous, unless proven otherwise, and a civil code rule which allows a judge to take precautionary action to stop an activity if it might cause environmental damage. The precautionary principle was invoked in Hungary (to protect ground water resources) in its dispute with Slovakia over the Gabčicovo dam.
- Numerous legal and enforcement options exist for the promotion of clean production in Hungary. Civil options exist for public enforcement of environmental laws. The Hungarian constitution provides the right to a healthy environment. The latest draft environmental law contains several provisions for public participation in permitting and decision-making, access to information, and education.
- There are good possibilities for implementing environmental reforms at a local (municipal) level. Municipalities have the power to refuse zoning and construction permits. There are greater possibilities for public participation at the local level. Public pressure is perhaps the best chance for environmental protection and clean production in Hungary. The kernels of prudent and progressive decision making are often found on the municipal level.

## **B) Recommendations**

In light of this investigation, it appears that the precautionary principle, implemented through clean production is feasible (and clearly a necessity) in Hungary. If clean production is to become a reality, numerous fundamental changes in environmental policy, privatization legislation, and the way business and international lending and aid institutions operate will have to occur. Some of these changes are outlined in the following, though incomplete, recommendations. These recommendations are intended to serve as a guide for non-governmental organizations (as citizens' representatives), the Hungarian government, and foreign entities operating in Hungary. Although these recommendations may not be followed, it is important to keep in mind that one never knows whether something will be successful or not until they try.

- Extensive environmental damage has occurred. This is a fact that cannot be changed. It will cost billions of dollars over decades to remediate the past environmental inheritance in Hungary. With this in mind, **substantial efforts and funds should be shifted in the short and medium term to the development of clean production in Hungary.** The money saved through efficiency improvements, better environmental and occupational health, reduced environmental liabilities, lack of necessity for pollution control investments, and environmental quality can then be funneled towards remediation.
- **Clean technology demonstration projects must be initiated in Hungary.** Once a successful clean technology project on a local level takes place, a catalytic effect will lead to the establishment of more projects. These projects will be the only feasible way of proving the benefits of clean production and often are low-cost, low-technology options. Benchmark studies involving several companies and countries could also be beneficial in explaining the benefits of clean production. Demonstration projects must involve local communities. Project leaders need to be sympathetic to local needs and concerns.

- **A clean production information clearinghouse needs to be established.** This readily accessible clearinghouse would offer information on clean production projects undertaken nationally and internationally, including training manuals, case studies, legislative initiatives, successes and failures. The clearinghouse would also offer technical assistance, training, and referral services at low or no cost. It could also have a structure to fund or provide low-interest loans for clean production projects. The model of the EC Energy Efficiency Centers, established in several Central European countries could be utilized in this regard.
- Environmental (and other) laws must provide a clear framework for clean production. The concept of clean production or pollution prevention should be clearly defined in Hungarian environmental law and other applicable legislation. The law should lay down the framework for achieving clean production, including the rewards and punishment and technical and financial resources available. Non-technological solutions, such as phase-outs for toxic, bioaccumulative substances (PVC, chlorine) will also have to be instituted. A national clean production plan should be developed, as in the Netherlands, requiring action on both the national and local level. The experience of countries of Europe and the United States could be utilized to develop clean production research, regulatory bodies, technical and information assistance, and funding.
- **The Hungarian government needs to switch its funding for environmental projects from pollution control and remediation to prevention and clean production.** A framework of taxes, emissions charges, and fines has been developed in the draft environmental legislation. These negative reinforcements should adequately reflect the social and environmental costs of the pollution caused. Positive reinforcement for clean production projects, though subsidies, tax relief and grants, needs to be readily available and could be funded by the taxes, charges, and fines.
- **The development of a national toxic release inventory, using the U.S. Emergency Planning and Community Right to Know act as a model would provide necessary information to citizens, government, and industry on releases of toxic chemicals into the environment.** This type of disclosure provision could help to create a climate that deters violation of environmental laws and encourages compliance (Irwin and Repko, 1992, p. 590). The inventory,



which could be widely disseminated by computer, would include facility specific toxic releases to all environmental media and a compilation of toxic releases by region and chemical. Results of the inventory could be used for the following purposes: (1) For targeting of inspections and enforcement measures by environmental inspectorates; (2) for the public to initiate actions (e.g., media and anti-corporate campaigns, civil court cases) against polluters; (3) to pressure companies to adopt clean production programs; and (4) to more thoroughly involve the public and government in researching alternatives to the use of toxic chemicals.

- **The development of a national toxic use reporting and reduction law is necessary** as companies often times do not even understand the pollution they create or the inefficiencies within their facilities. The law would need to include public accessibility to toxics use reports and reduction plans. This law could be based on the programs (and experiences) of U.S. national and state programs. One of the most successful of these programs, in Massachusetts, U.S.A., requires companies to develop a toxic use reduction plan (with clear reduction goals), analyzing toxic use and byproduct generation, identifying reduction options, and establishing a timeline for the implementation of a chosen toxic use reduction strategy (OTA, 1992). The Massachusetts Office of Technical Assistance, along with the Massachusetts Toxic Use Reduction Institute offer assistance, training, and information to companies in achieving these goals
- The September, 1993 draft environmental law for Hungary contains a section requiring a national environmental education plan. The development of this educational policy should demonstrate the benefits and encourage the use of clean production and pollution prevention.
- **Citizens are unable to fully participate without adequate information.** The goal of public participation in environmental decision-making will not occur without an improvement in the framework for readily and easily providing any information on activities that have a potential impact on the environment.
- Further efforts should be directed towards the development of a data base of enforcement possibilities and experiences for citizens. Already underway, this database could prove to be an invaluable tool to citizens groups pursuing claims for environmental damages or to stop potentially damaging activities.

- Legal precedent for environmental claims must be established in the courts. Citizens' groups could pursue pilot claims in the courts in specific regions of Hungary to establish the precedent. To accomplish this and achieve success in these claims, groups will have to understand the legal options available to them for pursuing these claims.
- Whenever possible, existing laws and infrastructure should be mobilized to promote the precautionary principle and clean production, instead of developing totally new laws. Precaution-based laws, such as the Hungarian hazardous waste law, should not be phased-out or weakened so as to be on the same level as the European Community.
- In numerous cases it will be necessary to decommission old, polluting facilities. Many existing facilities will never be efficient or able to compete on national or world markets, owing to Hungary's lack of natural resources and inexpensive sources of energy. In these cases phase-out schedules should be established for facilities, planning for the retraining or relocation of workers. However, in the case of economically-viable, strategic state enterprises, the Hungarian government may be able to provide one time subsidies for technology improvement and investment in clean production.
- Low cost solutions for environmental remediation and pollution prevention, both technical and managerial, should be pursued. One low-cost example is the use of peat bogs and aquatic plants for BOD sewage treatment. However, these solutions must avoid the transfer of pollutants from one medium to another or the generation of new, possibly more toxic sources of pollution.\*
- In the process of privatization, the Hungarian government is both the seller (trying to sell at the highest price) and the protector of health and welfare of its people. The government is selling assets which were held in the interest of the people. It is thus necessary that environmental concerns, which are inherently public concerns, receive priority in the privatization of State-owned assets. The only way in which

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\* There have been numerous proposals to utilize cement kilns for the burning of hazardous wastes. Though beneficial from an economic point of view, byproducts of cement kiln incineration may be more hazardous than the wastes themselves (Kleppinger, E. and R. Carnes. 1990 Cement kiln incineration of hazardous waste: A critique. Washington, DC: EWK Consultants).

to achieve this is to give the Ministry of Environmental Protection and Regional Policy authority to negotiate environmental clauses in privatization agreements. Privatization agreements should include clauses requiring investments in clean technologies, and public availability of emissions and toxics use data

- Multilateral and bilateral lending and aid institutions must begin to switch from rhetoric to action in promoting sustainable development in Hungary. They must be required to follow internal procedures for project selection and environmental protection. In the long term, clean production projects are more likely to be profitable and could reduce the effects of transboundary pollution. These institutions might consider debt reduction plans in return for pollution prevention projects, in order to stimulate investments in this direction.
- **Environmental impact statements and audits should become part of the foundation for stimulating clean production and constant research in process improvements.** Environmental impact assessment will only fulfill its mission if alternatives to a particular project, including a no-action alternative, are considered. Environmental audits must require companies to examine the ways in which they can reduce their use of toxic substances and wastes and eliminate emissions.
- For clean production in Hungary to be successful, both the central government and local governments need to harness the knowledge of citizens, non-governmental organizations (environmental, trade, and labor), and industry as resources, searching for alternatives and improvements. Hungary has a highly educated citizenry and well-trained workforce which has the capacity to develop clean production alternatives to polluting industrial processes. A structure must be built to allow all of these levels of society to participate.
- **The power and role of local governments in Hungary should be utilized to advance the goal of clean production.** Local governments have the greatest contact with citizens and businesses and offer the most effective forum for addressing the needs and concerns of the public. Local governments can also influence and direct the development within their borders by issuing land-use and construction permits only to those facilities which promote environmental quality in the locality or undertake clean production programs.

- Efforts should be made within the labor movement to push for clean production. As it is the group most involved in production processes, labor has the most insight into waste, efficiency, and alternatives. While traditionally labor and environmental movements have been alienated, these two groups could become strong allies in promoting environmental protection. Labor organizations must begin to realize that environmental protection does not cost jobs. Clean production may actually create jobs by extending the life-cycle of products, using more labor intensive production approaches, and increasing research and development opportunities.
- In its last two Environmental Programmes, the European Community has espoused the concepts of pollution prevention and the precautionary principle. The Maastricht treaty on European unity states that Community Policy "shall be based on the precautionary principle and on the principle that preventive action should be taken, that environment damage as a priority be rectified at sources, and that the polluter should pay" (Kruszewska, 1992, p.73). If Hungary wishes to join the EC, its environmental laws will have to be on par with those of the Community. For this reason, it is less expensive to build new facilities and redesign older facilities using clean production processes, rather than investing in pollution control technologies, which provide no economic benefit and will need to be retrofitted in the future.
- The Hungarian government may wish to consider voluntary agreements with specific industry groups to phase-out the use of certain chemicals and implement clean production programs. Voluntary agreements of this type, containing compliance schedules, have been very successful in the Netherlands and create a sense of cooperation between government and industry (Huisingh, 1993).
- The environmental movement, along with government, must move from broad policy statements to action in achieving the goals of clean production. Multiple conferences, declarations and agreements will not make clean production (and sustainable development) a reality. Instead of arguing over priorities for environmental protection (which are based on relative risk and usually focus on remediation and pollution control), emphasis should be placed on completing demonstration projects. Success in solving relatively simple problems can convince

people of the potential for tackling far more difficult problems, and provide practice at doing so.

For the precautionary principle and clean production to take root in Hungary, significant changes will be required in the process of economic restructuring that is happening in the country. While a large percentage of individuals feel that environmental protection cannot be addressed without economic resources, it is clear the country cannot afford more environmental degradation than it is already suffering. Multilateral and bilateral lending and aid institutions influence (and therefore are in part morally responsible for) the direction that economic development in Hungary will take. It is the responsibility of these institutions to ensure that development in Hungary is sustainable and is not based on the needs and development strategies of the West (which has yet to achieve sustainable development on its own). The failure of the end-of-the-pipe model throughout the world in adequately protecting the environment, the animosities it has caused between regulators and the regulated community, and the legislative standstill that has come as a result must be examined as a basis for implementing clean production. Society must seek to avoid these mistakes in the future. Strategies must appeal Industry self-interest, by demonstrating economic and corporate image gains to be made from investing in clean production.

A national governmental, industrial, and societal commitment to clean production is a primary requirement. While this commitment is required, we must remember that "nothing threatens a concept more than when everyone espouses it" (Thomas, 1993). An opening of the definition of clean production to include end-of-the-pipe and other unsustainable options or rhetoric without actions must be avoided at all costs. Even though international institutions, foreign governments and experts, and publications advocate clean production in Hungary, the Hungarian people will have to discover the

value of these concepts for themselves (instead of being dictated to) if they are be sustainably implemented. Probably the most important lessons about pollution prevention, conservation and consumption come from our ancestors. The phrases, "An ounce of prevention is worth a pound of cure," and "Waste not, want not" need to be more widely applied to modern society. A popular Hungarian phrase describes when the fundamental changes in society necessary to move toward the final goal of clean production might occur (and what might occur in the meantime). It states, "Addig meg sok viz folyik le a Dunán (Much water will flow down the Danube until then)."

**Appendix: Recommendations on the steps non-governmental organizations can take in advocating clean production and the precautionary principle**

Environmental organizations must present a coordinated effort if they are to successfully advocate the precautionary principle and clean production in Hungary. It is equally important that Hungarian non-governmental organizations know that they can contribute to the implementation of clean production. This appendix outlines some of the steps that Hungarian environmental groups could take to promote these concepts. It also outlines some programs that international environmental groups could undertake to assist their Hungarian counterparts. While clean-production oriented programs need to be implemented on a national and, more importantly, local level, it may be difficult for small, local environmental groups to obtain relevant information. As a result, larger and better known Hungarian environmental groups, such as the Independent Ecology Center, the Goncol Foundation, Pecsí Zöld Kör, the Hungarian Environmental Protection Society, and the Environmental Law and Management Association, will need to assist local level groups in an educational, informational, and technical capacity. The Regional Environmental Center in Budapest plays an especially important role as a potential clearinghouse for clean production information, education, and referrals.

Potential steps for non-governmental organizations to take are listed below according to the type of campaign:

**Education/public awareness**

Initiate public awareness programs on: (1) Residential toxics use and reduction; (2) residential waste minimization; (3) recycling; (4) composting; (5) green consumerism; and (6) energy conservation.

Develop environmental education programs highlighting the precautionary principle and clean production and the importance of public involvement in searching for alternatives. Education programs can also focus on progressive environmental laws and experience in other countries.

Collect and disseminate information on: (1) the state of the environment; (2) costs of degradation due to pollution on human health and the environment; (3) current state of environmental legislation; (4) major polluters and questionable industrial investments in the area; (5) public rights to a healthy environment, information, and participation; (6) what the public can do to become involved in environmental protection (e.g., legal remedies, direct action). This information could be disseminated through mailings or more effectively, through public hearings on a local level. Yearly public hearings required of local governments could provide a useful forum accountability of the government to local citizens and for information dissemination.

Develop media campaigns against polluters. These would target corporate polluters, outlining environmental and human health impacts. Groups could also compile a list of Hungary's biggest polluting companies. They could also develop strategic national and international media campaigns when industrial accidents or scandals (e.g., hazardous waste import, exploitation of foreign multinationals) occur.

### **Legal and environmental policy**

Initiate civil law demonstration cases against major polluters. These cases would establish the legal precedent for standing and civil enforcement of environmental laws. Demonstration cases should be chosen in regions where courts are sympathetic to environmental issues. The problem of court costs could be overcome by joining several environmental groups in the suit (pooling financial and technical resources).

Initiate demonstration cases before the constitutional court. These cases would highlight the right to a healthy environment. Public health data could be used as evidence of poor environmental conditions. Constitutional court cases could also highlight administrative decisions and actions which jeopardize the right to a healthy environment.



Initiate administrative law demonstration cases. These cases would highlight administrative decisions or actions (permitting, regulations, etc.) which are not in compliance with existing environmental laws. For instance, constructing environmental impact assessments requires public access to information and public participation in decision-making. Also, cases could be initiated when administrative decisions and actions are not in line with the principles of pollution prevention and life-cycle analysis (fundamental principles of the draft environmental act).

Undertake campaigns for environmental policy reform. These campaigns would target officials at the Ministry of Environmental Protection and Regional Policy and other ministries, key members of Parliament, and local government officials. They would provide information on and demand: (1) Greater access to information on a national and local level; (2) improved public participation on a national and local level; (3) national toxic release inventory legislation with full public disclosure; (4) toxics use reporting and reduction legislation; and (5) greater environmental regulations in the privatization process. Legislative campaigns could be coordinated with international environmental groups, foreign government environmental representatives, and the Regional Environmental Center.

**Technical** (technical programs could include assistance from academic sources)

Assist industry in conducting environmental and toxics use audits.

Assist with clean production and toxics use reduction program development in individual companies and localities. This assistance could include referrals to other companies or cities, information collection, and availability of funding opportunities.

Assist local governments in analyzing environmental quality, local development plans, enforcement, and alternatives analysis.

Assist farmers in instituting organic agriculture methods. It is clear that with adequate information (on the potentials for organic agriculture) and assistance, Hungarian farmers could easily break into new, growing international markets for organic products

## **Funding**

Create a database of national and international funding possibilities for non-governmental organizations. As environmental groups in Hungary face serious financial constraints, knowledge about how to access funding is essential to undertake these types of campaigns. Due to the difficulty of finding funding opportunities, this project may have to be coordinated by larger environmental groups in Hungary with national and international experience. They could prepare a hand-book of funding possibilities and disseminate it throughout Hungary. Again, the Regional Environmental Center has already played an important role in providing grants for projects undertaken by NGOs. It could also play a vital role in assisting non-governmental organizations to find additional funding for projects.

### **International non-governmental organizations**

Initiate documentation and international media and informational campaigns targeted at corporations and governments exploiting the Hungarian environment and people.

Undertake international campaigns and lobbying of multinational lending institutions to make environmentally sensitive investment decisions and comply with their environmental procedures.

Initiate civil law cases (where possible) in the base country of operations of a company exploiting the Hungarian environment.

Develop direct informational assistance on clean production programs (and constraints and potentials) in other countries. Assistance in development of a clean production strategy for Hungarian NGOs.

Organize training and capacity building for Hungarian NGOs on: (1) campaigning; (2) direct action strategies; (3) fundraising; (4) effective use of information accessibility and participation provisions in law; (5) effective use of media and public fora for information dissemination; and (4) financial and personnel matters.

Assist in discovering funding possibilities for Hungarian NGOs.

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