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Bridging the Gap in Eastern Europe: Forty Years of Communist Indifference and the New Environmental Realities in Poland

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> We cannot wait for favors from nature, our task is to take them from her.
>
> Soviet Communist Party slogan

> Environmental pollution is the price that has to be paid for industrial development and the development of civilization.
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> *Zycie Warszawy*, November, 1982[1]

I. Introduction

In 1989 United States President George Bush spoke of a new openness in Eastern Europe.[2] At the opening of the United Nations General Assembly, President Bush stated that the advance of freedom is evident everywhere in Eastern Europe and "state and society are now in the midst of a movement towards political pluralism and a free market economy."[3] He said that one of the "global challenges" to growth in the twenty-first century is the threat of industrial pollution.[4] One of the ways President Bush proposed to approach urgent environmental issues was by exploring avenues to work with other nations "to make common cause for the sake of our environment."[5] The fall of the communist governments of Eastern Europe has exposed an environmental regulatory system that is ill-equipped to confront the serious problems created by the pollution of the air, water, and soil.

These problems are enormous. Almost all the water in Poland's rivers is unfit for human consumption, and roughly 50% is so toxic that it is even unfit for industrial use.[6] Half of the Polish communi-

1. Singleton, *Introduction*, in ENVIRONMENTAL PROBLEMS IN THE SOVIET UNION AND EASTERN EUROPE 6 (F. Singleton ed. 1987).
2. N.Y. Times, Sep. 26, 1989, at A16, col. 1.
3. *Id.*
4. *Id.*
5. *Id.* In concluding his remarks on the environment President Bush stated: "The environment belongs to all of us. In this new world of freedom the world citizens must enjoy this common trust for generations to come." *Id.*
6. N.Y. Times, Feb. 7, 1990, at A24, col. 1.

ties on the Vistula River, including the capital city of Warsaw, have no sewage treatment plants.[7] Western ecology groups have reported that Poland, Hungary, (East) Germany, and Czechoslovakia are considered environmental disaster areas.[8] Their rivers, lands, and forests are so contaminated that without aid, they cannot repair the damage.[9] The communist regimes knew of the serious degradation, yet they chose to ignore the problem.[10] At present, the new democracies of the region are responsible for cleaning up the legacy of the past, as well as establishing effective guidelines for the control of future emissions.

Section II of this comment traces the historical background underlying the current state of the East European environmental framework. This section includes a discussion of the socialist conception of man, his environment, and the role of environmental policy in the realm of a centrally planned economy, as well as a study of the regulations of the former communist governments of the Soviet Union and Poland. In Section III, the physical results of ineffective environmental enforcement are examined. Section IV focuses on the state of environmental regulation in post-communist Poland which includes: a discussion of recent legislative enactments by the Parliament, investment opportunities, and restraints on investment, as well as suggestions for revising the environmental regulatory structure in a liberalized Poland.

II. The Historical Background Underlying the Current East European Environmental Dilemma

A. The Socialist Conception of Control Over the Environment

At the conclusion of World War II, The Soviet Union gradually expanded its control over the war torn countries of Eastern Europe.[11] This control extended into the political, economic, and legal aspects of society and furthered Soviet hegemony in the region.[12] The Soviet model was imposed on the countries of Eastern Europe. This model espoused heavy industrialization and a centrally planned system in order to achieve a high rate of growth for newly formed socialist

7. Rosenbladt, *Is Poland Lost?*, GREENPEACE, Nov.-Dec. 1988, at 14.

8. Battiata, *Eastern Europe Faces Vast Environmental Blight*, Wash. Post, March 20, 1990, at A1, col. 1.

9. *Id.* Many of the lands and waters continuously exposed to extreme levels of pollution are considered biologically dead and cannot sustain animal or plant life.

10. Crockett and Schultz, *Environmental Protection Issues In Eastern Europe*, Int'l Environmental Rep. (BNA), Vol. 13, No. 6, at 258 (June 13, 1990) [hereinafter Crockett].

11. A. BOUSCARIN, IS THE COLD WAR OVER? 133 (1973). Currently, the Soviet Union has undergone rapid changes in power and a dissolution of its states as they claimed their independence.

12. *Id.*

societies.[13] The origin of many environmental problems facing Eastern Europe today are the result of the adoption of this Soviet system and its accompanying legal framework.

In theory, socialist legality claimed to be a "unique [form] of law that had little in common with bourgeois [Western] legal systems."[14] Charles Ziegler, a Soviet environmental policy specialist, stated that socialist legalism is "avowedly goal-oriented, . . . overtly reflects the distinctly socialist goals and values of the Soviet legal system, . . . [and is] rooted in the socio-economic base of the system."[15] Marxist-Leninist philosophy, upon which the Soviet system was developed, never seriously addressed the possibility of resource depletion or environmental pollution.[16] Marx and Engels referred to the centrality of the natural environment but did not view the environment as a limitation on the progress of man.[17] "Marx argued there were no 'natural limits' on human potential, merely the economic and political limits imposed by the way capitalism exploited resources."[18] The central theme pervading Marxist-Leninist thought in this area was that communism allowed man to rise above nature and enabled him to utilize its powers through the development of increasingly sophisticated technology.[19]

To conform with socialist theory, the increasingly apparent abuse of the environment caused by heavy industrialization and the unlimited exploitation of nature had to be confronted. Soviet socialists assumed that the natural depletion of the world's resources could be overcome because socialist society "cooperates with nature and finds a balance in which reasonable human needs are satisfied without destroying the environment."[20] The socialist system maintained

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13. J. DEBARDELEBEN, THE ENVIRONMENT AND MARXISM-LENINISM: THE SOVIET AND EAST GERMAN EXPERIENCE 175 (1987). The author states that rapid industrial growth was emphasized in the Soviet Union and Eastern Europe because of the backwardness of these societies (relative to the West), the perceived need for a high level of military preparedness, and the belief that a developed industrial society is necessary for the creation of a communist society. *Id*, The author explains that Soviet development patterns were instituted even though they were inappropriate for Eastern Europe. *Id.*

14. C. ZIEGLER, ENVIRONMENTAL POLICY IN THE SOVIET UNION 78 (1987) [hereinafter ZIEGLER].

15. *Id.*

16. J. DEBARDELEBEN, *supra* note 13, at 3.

17. Redclift, *Turning Nightmares Into Dreams: The Green Movement In Eastern Europe*, THE ECOLOGIST, Sept.-Oct. 1989, at 177 [hereinafter Redclift]. Redclift states that:

> [a]lthough Engels, in two essays published in 1875 and 1876, drew attention to the possibility of man neglecting the laws of nature, he still insisted . . . our understanding of nature through science enabled us to act to minimize any 'imbalances' or crises.

Id.

18. *Id.*

19. C. ZIEGLER, *supra* note 14, at 11, 12.

20. Singleton, *supra* note 1, at 2. Singleton cites a poignant quote by Frederick Engels, " 'We will not flatter ourselves too much with our victories over nature,. . .for every victory, it takes its vengeance upon us.' " *Id.* Also, the author states, "The communist world held the

that this balance could be achieved since there was a perceived lack of "antagonistic class relations, [and the] central authorities could set goals in the long-range interests of the whole population and implement them in a rational, efficient, coordinated planning system."[21] This centralized economic structure ostensibly protected nature throughout society.[22]

Administrative agencies within the structure of government have been in charge of carrying out specific economic plans of the state.[23] Article 16 of the Constitution of the Soviet Union stated that "the economy is managed on the basis of state plans for economic and social development . . . and by combining centralized direction with the managerial independence and initiative of individual and amalgamated enterprises and other organizations."[24] These agencies often placed the economic plans above environmental protection.[25] The economic ministries attempted to effectuate the basic goal of the socialist centrally planned economy, maximizing quantitative output.[26] Socialist ideology holds that increased production of goods is synonymous with material wealth, regardless of the effect on the natural environment.[27]

Information concerning an industry's operation was needed by the central planning organs to create an effective economic plan for that industry. Each agency gathered information regarding production processes and passed this information along to the central organs of the communist government.[28] The central organs, comprised of the top communist policy makers, used this information to formulate plans for the allocation of resources and production quotas for each of the economic ministries.[29] In theory, this practice encourages efficiency and maximizes the use of available resources. In practice, however, this was not the result.

The channeling of information relevant to the efficient operation of the agency was manipulated before it reached those in charge of central planning.[30] Information was altered or deleted in the process of transmission by authorities in the bureaucratic structure.[31] If agency members collecting data thought that certain information

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view that it could handle these problems in a more intelligent way than could its capitalist rivals." *Id.*

21. J. DEBARDELEBEN, *supra* note 13, at 151.
22. *Id.*
23. C. ZIEGLER, *supra* note 14, at 125.
24. KONST. USSR (Constitution), art. 16 (USSR).
25. C. ZIEGLER, *supra* note 14, at 126.
26. *Id.*
27. *Id.* at 10-11.
28. *Id.*
29. *Id.* at 125-27.
30. *Id.* at 103.
31. *Id.*

was non-essential, it might never reach the top policy makers.[32] The economic ministries also may have attached inaccurate meanings to the data in order to conceal the agency's own poor performance.[33] Furthermore, agencies may neglect to collect the data altogether. Thus, attempts to regulate environmental pollution frequently were sabotaged by the same ministries who had been charged with the responsibility for protecting the environment.

The different departments of socialist government were fragmented, and environmental issues were dispersed throughout these departments according to various areas of concern.[34] Due to this fragmentation of responsibility, the ultimate goal of protecting the environment from harmful emissions of pollutants became less visible.[35] When the policy of rapid industrialization was initially implemented in the socialist nations, little thought was given to creating a comprehensive environmental policy.[36]

The socialist economic system distorted the value of natural resources. The economic ministries operated under a basic communist precept that all land was owned by the state.[37] Objects transformed from nature are, therefore, worth no more than the labor involved in producing them.[38] This resulted in a system that did not accurately value the "inherent property of natural substances," the natural resources of the land.[39] The difference between the socialist economic system and the Western supply and demand system was that the socialist centrally managed economy offered no price incentives which would have encouraged the reduced use of energy, water, fertilizer, and other industrial or agricultural resources.[40]

Communist theorists believed that the planning equation would take into account the cost of repairing any environmental damage caused by inefficient use of state resources.[41] However, communist government policies of rapid industrialization promoted the creation of heavy industries such as steel and chemical manufacturing.[42] These types of industries consume vast quantities of natural resources while producing large amounts of environmental pollution.[43]

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32. *Id.* For example, Ministries (such as those involved in steel production), responsible for monitoring their own performance, might report inaccurate amounts of discharged substances to avoid incurring pollution fines from higher authorities.
33. Redclift, *supra* note 17, at 179.
34. *Id.*
35. *Id.*
36. French, *Industrial Wasteland*, WORLDWATCH, Nov.-Dec. 1988, at 28.
37. Redclift, *supra* note 17, at 178-79.
38. *Id.*
39. *Id.*
40. French, *supra* note 36, at 28.
41. *Id.*
42. *Id.*
43. *Id.*

Economic development was a costly venture for the socialist governments, both in terms of use of land and the exploitation of natural resources.

A glaring example of the inherent inefficiencies and general disregard for protection of the environment in communist systems is the Soviet Five Year Plan.[44] Josef Stalin's 1928 Five Year Plan, an early communist economic plan, was designed to industrialize the nation rapidly without regard to the environmental costs.[45] In the Soviet Union, these economic directives from the central government contributed to the rapid reduction of coal deposits in the Kuznets and Donets Basins, depletion of the massive oil fields in the Eastern USSR, and pollution of the air and major bodies of water, including the Volga River and Lake Baikal.[46]

Under the Five Year Plan, the necessity of fulfilling quotas was critically important to managers and workers if they were to derive any additional benefit from the successful completion of the plans.[47] Usually, these benefits were paid by returning a portion of the industry's small profit to the workers.[48] If the industry either was not productive and incurred a loss or did not fulfill its quota, the central organs' future allocation of resources to that industry was reduced.[49] A decrease in resources allocated to a specific industry was indicative of a reduction in that industry's priority, and ultimately diminished that industry's workers' already low standard of living.[50] Additionally, any money the economic Ministry spent to protect the environment depleted the amount of funds available for the production process.[51] These circumstances facilitated the industrys' neglect of the environmental infrastructure in a socialist society.[52] Despite the fact that major environmental problems exist on a massive scale, the socialist governments only recently began to recognize the serious consequences of their indifference towards the environment.

B. The Former Soviet Socialist Influence on East European Environmental Regulation

1. The Structure Behind Soviet Development. — Article 18 of

44. B. JANCAR, ENVIRONMENTAL MANAGEMENT IN THE SOVIET UNION AND YUGOSLAVIA 127 (1987).

45. *Id.* The author states that the USSR prior to Stalin was "a pioneer in the concept of protected areas as unique ecological communities [to] be preserved as reference points indicating 'normal' conditions before man intervened." This approach disappeared with the introduction of heavy industrialization. *Id.*

46. C. ZIEGLER, *supra* note 14, at 18-19.

47. B. JANCAR, *supra* note 44, at 135.

48. *Id.*

49. *Id.*

50. *Id.*

51. *Id.*

52. *Id.*

the Soviet Constitution of 1977 stated:

> In the interests of present and future generations, the necessary steps are taken [to be] in the USSR to protect and make scientific, rational use of the land and its mineral and water resources, and the plant and animal kingdoms, to preserve the purity of the air and water, ensure reproduction of natural wealth, and improve the human environment.[53]

Many of the elements of the socialist system, as developed in the Union of Soviet Socialist Republics (USSR), were transferred to the communist governments of Eastern Europe following World War II.[54] This included the imposition of the Soviet economic model and policy principles concerning regulation and control of the environment.[55] Therefore, it is helpful to examine certain components of Soviet environmental doctrine and law to better understand East European attempts to protect the environment.

The Soviet Union's approach to environmental law was unique. The Fifteen Union Republics of the USSR had encompassed 8,649,489 square miles of territory, making this the largest country in the world.[56] This once immense size had given the Soviet Union advantages over the geographically smaller countries of Eastern Europe. The USSR had been endowed with an abundant store of natural resources, including abundant reserves of oil.[57] By contrast, Poland has little oil but holds huge reserves of brown and dark coal. These types of coal are heavily polluting materials which further compound air pollution problems when burned.[58]

Despite its large territory, the Soviet Union still experienced severe pollution problems.[59] For example, in the Crimea, the use of groundwater for intensive agricultural irrigation has seriously depleted the watertable and resulted in pollution of a significant portion of the remaining groundwater.[60] The Soviet Union also produced immense amounts of hazardous waste.[61] Up to 98.5% of the

53. KONST. USSR (Constitution), art. 18 (USSR).

54. A. BOUSCARIN, *supra* note 11, at 132.

55. Singleton, *supra* note 1, at 6.

56. C. ZIEGLER, *supra* note 14, at 13. However, the territory of the "Soviet Union" is undergoing a profound transformation as individual Union Republics declare their independence from the Soviet Central Government.

57. *See id.* at 18-19. In 1983, the Soviet Union produced 616 million metric tons of oil. *Id.*

58. French, *supra* note 36, at 29. Lignite, also called brown coal, emits large amounts of sulfur dioxide and dust when burned.

59. *See* C. ZIEGLER, *supra* note 14, at 13-18. The author states that three-fourths of the country's water supplies are east of the Ural Mountains, while three-fourths of the population and much of the heavy industry is west of the Urals. Also, the Siberian ecosystem is more susceptible to pollution problems due to its lack of vegetation and colder climate.

60. Nekrasova, *Legal Protection of Groundwaters in the USSR*, 4 CONN. J. INT'L L. 361, 361-62 (1989).

61. Brinchuk, *Legal Problems of Hazardous Industrial Wastes in the USSR*, 4 CONN.

natural resources used in industrial production processes were classified as wastes.[62] In the chemical and non-ferrous metals industries, 10-20% of these wastes were classified as toxic wastes, requiring large tracts of land for disposal.[63]

Since the Soviet Union had an abundance of land and a desire to use that land for material benefit, the Soviet Communist Party proposed to reroute Siberian rivers southward to the arid regions of Soviet Central Asia.[64] In 1983, the state planning committee (GOSPLAN) approved this river diversion project.[65] However, in 1985, non-party critics of this policy forced the party to recognize the dangers of river diversion and effectively stopped the completion of this project.[66] Critics claimed that the project could adversely affect climate, increase soil salinity, and negatively affect the polar icecaps because of the great diversion of water.[67] Yet, proponents of this project still believed that river diversion was both feasible and "necessary for the continued development of society."[68] The possibility of environmental disruption occurring did not alter the belief that societal progress must continue.[69]

The Siberian River diversion project represents a key development in Soviet responsiveness to environmental pollution. Formulating effective laws for environmental protection requires new ideas created by information flowing through the party-state structure.[70] But in the Soviet Union, the former one-party structure had suppressed a free flow of information.[71] Data on environmental conditions was collected but not made available to the general public because it was treated as an official state secret.[72] For example, in 1979 the State Committee of Hydrometeorology and the Environment conducted studies of chemical conditions in more than one thousand bodies of water, but did not make this data available in a published statistical handbook.[73] Rather, the data was "published in a piecemeal fashion to hinder systematic comparison."[74] Air pollution

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J. INT'L L. 353 (1989).

62. *Id.*

63. *Id.*

64. C. ZIEGLER, *supra* note 14, at 28.

65. *Id.* at 30.

66. *Id.* at 30. Non-party critics of GOSPLAN's river diversion project include economists, writers, and certain economic ministries. The Siberian River Diversion project is on hold due to the political uncertainties facing the Soviet Union today.

67. *Id.* at 28-30.

68. *Id.* Proponents of GOSPLAN's river diversion project include scientists, planners, and institutes, such as the Academy of Sciences.

69. *Id.*

70. *Id.* at 31.

71. *Id.* at 32.

72. *Id.*

73. *Id.*

74. *Id.*

figures also were distorted to obscure the true extent of environmental decay. In fact, the Soviet government reported that because of the relative lack of automobiles in the USSR, carbon monoxide pollution was lower in the Soviet Union than it was in the United States.[75] However, some areas of the Soviet Union have had carbon monoxide levels comparable to levels in the United States because improperly maintained Soviet vehicles have been emitting large amounts of gases into the environment.[76]

In addition, forest lands in the Soviet Union had not escaped mismanagement by the Central authorities. Forests had covered over 36% of the total territory of the Soviet Union.[77] In contrast, the area of forest cover in Poland is approximately 20% of total Polish land area.[78] The Soviet state had managed the utilization of lumber. In the past, production quotas took priority over the preservation of legally unprotected forest lands.[79] Based on an extrapolation of an official 1983 inventory of timber resources and harvesting practices, commercial forests in the western and central regions of the USSR were predicted to be exhausted in eight to ten years, without a comprehensive plan for regeneration.[80] The continuing depletion of forests in the European region has led to an increased exploitation of forests in the eastern and central regions of what was once a unified nation, the USSR.[81] The authorities have become aware of the growing threat of acid rain to the health of all forests, regardless of the extent of use as protected or commercial forests.[82] Presently, the individual nations have broken away from the Soviet Union, and unless these individual Union Republics and the central government give more attention to enforcing the regeneration of utilized forests, they will begin to experience a measurable decrease in the health of its enormous forestry resource.

2. Former Environmental Law in the Soviet Union. — "Law is the means by which human behavior is modified."[83] O.S Kolbasov, once a deputy director in the Law Institute of the USSR Academy

75. *Id.*

76. *Id.* at 32-33. BORIS KOMAROV, author of THE DESTRUCTION OF NATURE IN THE SOVIET UNION, notes that there is a general lack of repair and maintenance facilities in the Soviet Union, resulting in poorly tuned automobiles.

77. Koutaissoff, *Survey of Soviet Materials on Environmental Problems*, in ENVIRONMENTAL PROBLEMS IN THE SOVIET UNION AND EASTERN EUROPE 26 (F. Singleton ed. 1987) [hereinafter Koutaissoff].

78. SMOKTUNOWICZ, ENCYKLOPEDIA OBYWATELA PLR 438 (Warszawa (1987).

79. Barr, *Regional Alternatives in Soviet Timber Management*, in ENVIRONMENTAL PROBLEMS IN THE SOVIET UNION AND EASTERN EUROPE 100 (F. Singleton ed. 1987).

80. *Id.* at 111.

81. *Id.* at 113.

82. Koutaissoff, *supra* note 77, at 28. The Arctic forests on the Kola Peninsula have been rapidly deteriorating due to industrial emissions. *Id.*

83. Kolbasov, *The Concept of Ecological Law*, 4 CONN J. INT'L LAW 267 (1989) 267.

of Sciences, states that the ability of law "to adapt ecological requirements and express them in the form of generally binding rules of conduct allows for the resolution of environmental problems together with an assurance of the rational utilization of natural resources at both national and international levels."[84] Soviet environmental law had a fragmented history because there was no prior comprehensive resource law.[85] Soviet legal science treated "land, water, forestry, and mining as distinct branches of law," for which individual economic ministries gathered most environmental data.[86] These economic ministries assisted the Soviet and Union Republic legislatures in developing laws for the protection of each specific branch.[87]

The Soviet legislature approached the problem of environmental law either by regulating all facets of the environment in a single, overbroad enactment or by indirect regulation of a specific environmental problem through broader legislation not directly concerned with environmental protection.[88] Soviet environmental law "represents the aggregate of the branches of law which have been formed historically."[89] "These branches included: state law, civil law, economic law, labor law, criminal law, public health law, mining law, land law, water law, forest law, air law, and the law of flora and fauna."[90] Effective environmental protection would require the rational interaction among these various legal branches.

The most powerful Soviet legal act concentrated on specific areas of the environment and was called a Fundamental Principle of Legislation (FPL). The FPL had the character and format of a code.[91] Broader enactments regulating the entire natural environment, such as the 1972 Decree 'On Measures To Further Improve Nature Conservation and Rational Utilization of Natural Resources', were passed regularly by the Supreme Soviet of the USSR.[92] These enactments served to identify basic socialist principles concerning the environment and only attempted to educate the socialist public to possible environmental degradation if environmental consciousness was disregarded.[93] These two areas of law were "basic framework[s] of socialist conservation policies and princi-

84. *Id.*
85. W.E. BUTLER, SOVIET LAW 250 (1983) [hereinafter BUTLER].
86. *Id.*
87. *Id.*
88. Butler, *Soviet Environmental Law as a Model For Other Countries*, 4 CONN. J. INT'L L. 285 (1989) [hereinafter *Soviet Model*].
89. Kolbasov, *supra* note 83, at 271.
90. *Id.*
91. *Id.* at 270.
92. BUTLER, *supra* note 85, at 251.
93. *Id.*

ples," and because of their generality were not effective.[94]

The first laws involving the protection of nature in the Soviet Union were developed after the communist revolution of 1917.[95] These laws represented Soviet efforts to establish state nature preserves and parks. These preserves, called "*zapovedniki*," prohibit commercial economic exploitation and set aside enormous tracts of land for preservation and research.[96] By the mid-1980s, approximately one hundred forty legally established nature preserves were established covering 10.8 million hectares in the Soviet Union.[97]

The "*zapovedniki* serve multiple functions: (1) preservation of endangered species and landforms; (2) propagation and sometimes reintroduction of rare and vanishing species of flora and fauna; and (3) scientific study of habitat, species, and ecological relationships."[98] The job of scientifically studying these "outdoor laboratories" is spread among different ministries. There is, therefore, a lack of coordination of data.[99] Collection of data also has been found to be lax. For example, it was discovered that "forty percent [of the *zapovedniki*] did no detail[ed] work on the general plant characteristics of their territory."[100] Although the function of the *zapovedniki* may be deficient in certain areas, the law creating these nature preserves effectively has put most of these areas out of the reach of the Central Government's economic plans. Yet, due to externalities such as air pollution, these nature preserves cannot escape the negative effects of heavy Soviet industrialization.[101]

On September 15, 1983, a reservoir containing 4.5 million cubic meters of highly saline fertilizer waste collapsed and biologically sterilized a large portion of the Dnestr River.[102] The Soviet Union had attempted to prevent such accidental water pollution as well as pollution by industrial, agricultural, and municipal sources. Water pollution was regulated through maximum permissible concentrations of dangerous substances in a body of water, instead of measuring the pollution discharged by individual polluters.[103] Four types of

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94. *Id.*

95. C. ZIEGLER, *supra* note 14, at 49.

96. *Id.* Tourism is allowed in nature parks as opposed to the *zapovedniki* and biosphere reserves. *Id.*

97. Braden, *The Function of Nature Reserves in the Soviet Union*, in ENVIRONMENTAL PROBLEMS IN THE SOVIET UNION AND EASTERN EUROPE 60 (F. Singleton ed. 1987).

98. *Id.*

99. *See id.* at 62-67.

100. *Id.* at 63.

101. *Id.* at 67.

102. C. ZIEGLER, *supra* note 14, at 108.

103. *Id.* at 105. The United States Clean Water Act (CWA) uses the point source approach in dealing with pollution of America's rivers, lakes, and adjoining oceans. A point source is defined as "Any building, structure, facility, or installation from which there is or may be the discharge of pollutants." Federal Water Pollution Control Act, 33 U.S.C.A. § 1316(a)(3). Measuring discharges from each point source makes enforcement of water quality

permissible concentration standards had been developed by the state, ministries, union republics, and industrial plants.[104] However, jurisdictional questions and a lack of adequate data often prevented effective enforcement of any of these standards.[105]

In 1970 the Soviet Union adopted the Fundamental Principles of Water Legislation (FPWL).[106] Since water was a resource owned by the socialist state, the state, through its "united state water fund," had to grant a permit for water use.[107] Resource users were responsible for the protection of water.[108] After taking into account the FPWL, the central planning agency (GOSPLAN) confirmed or denied water use within the integrated planning system, the Union Republic codes, and the regulations of all economic ministries and municipalities involved.[109] This created conflicting and often contradictory systems of law, planning, and use.

A major act adopted by the Soviet Union in 1979 was "the statute 'On State Control Over Water Use and Protection.' "[110] This statute gave various ministries which had an interest in water use the right to discipline those responsible for polluting.[111] Production at the source of the pollution can be discontinued, along with the criminal prosecution or reprimand of those responsible.[112] Also, under Public Health Legislation of the USSR and with the assistance of local agencies, agricultural collectives and other enterprises were directed to take appropriate measures to prevent contamination of water around "sanitary protection zones."[113]

C. Polish Environmental Regulation Under the Soviet Socialist Model

1. Factors Underlying the Development of Polish Environmental Law. — Article 12 of the Constitution of the Republic of Poland of 1976 states: "The Polish People's Republic shall ensure the protection and proper shaping of the natural environment, which is an all-national asset."[114] Article 71 states that "citizens of the Po-

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laws more feasible, as the exact amount of discharge can be calculated at the source.

104. *Id.*

105. *See generally id.* at 103-105.

106. BUTLER, *supra* note 85, at 251.

107. *Id.* at 253.

108. *Id.* at 253-54. Since the state owns most of the users of water resources, the state is, in effect, the sole guardian of those resources. *Id.*

109. *Id.* at 252.

110. Nekrasova, *supra* note 60, at 362.

111. *Id.* at 362-63.

112. *Id.* at 363. The author points out that agencies, including the USSR Ministry of Land Reclamation and Water Conservation and the Ministry of Public Health, have limited jurisdictional competence. *Id.* at 362 n.7.

113. *Id.* at 364.

114. CONSTITUTION, REPUBLIC OF POLAND, art. 12.

lish People's Republic shall have the right to benefit from the natural environment and it shall be their duty to protect it."[115]

Poland contains approximately 120,000 square miles of territory.[116] Following World War II, the Soviet Socialist System was thrust upon the people of Poland.[117] The imposition of this system included the adoption of a one-party state, a centrally planned economy, and great emphasis on rapid industrialization.[118] Poland was ill-suited to adopt this type of system because of its relatively inadequate land area and natural resource base.[119] Unlike the former USSR, there is a pronounced lack of diverse energy resources in Poland.[120] Among Poland's natural resources are massive deposits of coal, used in large amounts to power the chemical and industrial complexes.[121]

Poland's adoption of the Soviet style system included a near duplication of the bureaucratic structure of the Soviet Union. Each economic ministry had its own environmental concerns that often conflicted or became lost within the centrally planned economy.[122] For example, responsibility for water law was divided among the ministries of Agricultural Administration, Local Economy, Protection of the Environment, National Defense, Foreign Trade, Maritime Economy, and any other ministries involved in industrial production.[123] The local government departments of "Agriculture, Forestry, Purchases, and Local Protection of the Environment" also had some responsibility for the creation and enforcement of water law.[124] Such an enormous bureaucracy usually creates confusion. For example, when a pollution problem arises, such as excessive discharges into the Vistula River, it is often unclear what law the prosecution should follow or what amount of punishment is appropriate.[125]

The state concentrated investment in heavy industry such as steel and chemicals that emit large amounts of pollutants into the environment.[126] Typical of communist regimes, much of the informa-

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115. *Id.* art. 71.

116. *Resource Guide to Doing Business in Eastern and Central Europe,* 1991 United States Dept. of State Resource Guide (April 30, 1991) (LEXIS, Intlaw Library, DSTATE file). Poland is roughly the size of New Mexico. *Id.*

117. A. BOUSCARIN, *supra* note 11, at 132.

118. Crockett, *supra* note 10, at 259.

119. *Id.* A socialist project to radically alter nature, such as the Siberian River Diversion Plan, is probably not economically feasible in a country the size of Poland.

120. *Id.* at 258.

121. French, *supra* note 36, at 28. Poland has small resources of "cleaner" burning liquid fuels and relies heavily on imports of oil from the Soviet Union.

122. Redclift, *supra* note 17, at 179.

123. LETOWSKI, ADMINISTRATION IN PEOPLE'S POLAND 261 (Warszawa, 1980).

124. *Id.*

125. *Id.* The Vistual River is a state regulated body of water that every citizen could use.

126. Kabala, *Poland Facing the Hidden Costs of Development,* ENVIRONMENT, Nov.

tion dealing with environmental conditions in Poland was collected by the economic ministries within the government.[127] This, coupled with a lack of an effective market pricing system, caused the value of natural resources to be kept artificially low. Industry was, therefore, provided with a cheap flow of raw materials, which in turn encouraged inefficiency in the production process.[128]

When destruction of the environment becomes increasingly apparent, a conflict of interests results as to whether economic development or protection of the environment takes priority.[129] In Poland one interest or the other must be chosen as the government and economic ministries are endowed with a limited amount of resources.[130] Massive investment would be needed in order to achieve both economic efficiency and a reduction in ecological disruption.[131] The communist government found it more beneficial to invest its money in industrial production under the mistaken presumption that developing technology would solve any problems posed to the environment.[132]

2. *Polish Environmental Law Under the Socialist System*

a. Water Pollution. — The communist government in Poland was not completely oblivious to the problems of pollution. In the 1960s there was a growing awareness that the policy of heavy industrialization, coordinated through the central planning structure, had begun to take a heavy toll on the natural environment.[133] A number of laws as well as Council of Ministers regulations concerning protection of the air, water and forests were passed, which set quality standards and penalties for violations.[134]

The Law of 1972 on Water Management entrusted the Minister of Agriculture with the task of defining the norms of water consumption for all branches of the national economy and coordinating water use within the central economic plans.[135] The Minister of Regional Economy and Environmental Protection was charged with protecting state waters from pollution.[136] Water use and protection involved a number of other ministries such as Defense and Trade, along with

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1985, at 8.

127. Crockett, *supra* note 10, at 258.
128. Redclift, *supra* note 17, at 179.
129. Kabala, *supra* note 126, at 39.
130. *Id.*
131. *Id.* at 38.
132. *Id.*
133. Redclift, *supra* note 17, at 178.
134. *Id.*
135. W. BRZEZINSKI, LEGAL PROTECTION OF NATURAL ENVIRONMENT IN POLAND 85 (1974).
136. *Id.*

local government agencies, such as Agriculture, Local Economy, and Forestry.[137] The 1972 Law set forth circumstances such that "the entire water economy was placed within departments whose interests in utilizing waters are contrary to those of other departments."[138] This administrative situation contributed to the lack of enforcement of the Water Law of 1974.[139]

The Water Law of 24 October 1974 "regulated the entire scope of water economy, [including] water quality standards, utilization of waters, and protection of waters."[140] That law required a permit for special use and discharge of state owned waters. Inspection and control functions concerning water purity were vested in the Minister of Regional Economy and Environmental Protection, the Ministry of Health and Social Welfare, and numerous other agencies.[141] In addition, penalties for violations were provided; the nature of the penalty depended upon the amount and type of material discharged, as well as the intent of the polluter.[142]

Unfortunately, as evidenced by the continuing pollution of state waters in Poland, this legal structure has been ineffective.[143] Penalties were inadequate; in fact, in 1982 polluters paid only 0.2% to 0.3% of the total economically measurable cost of pollution.[144] For the polluter, it was cheaper to pay the fines (if they had to pay at all), than to install the costly pollution control equipment necessary to effectuate a viable solution to the problem.[145] Additionally, the government allocated a certain amount of funds to each ministry for payment of pollution fines. In effect, this was a subsidy to government owned industry to pay for fines imposed by the government itself.[146]

b. Air Pollution. — Poland's air has been classified as intensively polluted.[147] Poland estimated that its sulfur compounds emissions in 1985 were six million tons, which, if accurate, would be the

137. LETOWSKI, *supra* note 123, at 261.

138. W. BRZEZINSKI, *supra* note 135, at 85.

139. Redclift, *supra* note 17, at 179.

140. LETOWSKI, *supra* note 123, at 261.

141. W. BRZEZINSKI, *supra* note 135, at 103-104.

142. *Id.* at 108. For "harmful pollution of waters", the polluter could be fined up to 100,000 zloty and face two years imprisonment, but this penalty has never been actively enforced.

143. Kabala, *supra* note 126, at 13.

144. *Id.*

145. *Id.* Dumping wastes without treatment costs under three zloty per cubic meter, while treatment of these wastes, depending on the substance, would cost twelve zloty per cubic meter.

146. Rosenbladt, *supra* note 7, at 16.

147. Kramer, *The Environmental Crisis in Poland*, in ENVIRONMENTAL PROBLEMS IN THE SOVIET UNION AND EASTERN EUROPE 151 (F. Singleton ed. 1987) [hereinafter Kramer].

third highest among all European countries.[148] This figure highlights the ineffectiveness of Polish air pollution laws, and brings into question Poland's ability to honor international air pollution agreements.[149]

The Law of 21 April 1965 on the Protection of Atmospheric Air from Pollution in Poland was the first attempt at regulation in this area and treated air as an element freely available to all and not subject to any control.[150] A subsequent law, promulgated in April, 1966 (the 1966 Law) went further and stated that air should be protected from harmful pollutants affecting the environment.[151] The 1966 Law defined air pollution as the introduction of substances into the air which overstep admissible concentrations.[152] This law provided that permissible concentrations were to be determined by evaluating a pollutant's effect on human health.[153] The concentration of pollutants in the air over protected regions was to be measured daily both by the plants emitting the pollution and by numerous ministerial as well as regional agencies with an interest in air protection.[154] If the concentration of air pollutants exceeded established norms over time, and technical or economic solutions were unworkable, the local government was charged with the responsibility of developing a plan aimed at protecting the air in that region.[155] The Minister of Regional Economy and Environmental Protection was required to develop a plan which was to be approved by the central Council of Ministers.[156] Failure to install pollution control equipment or to carry out and submit measurements of air pollutants, were violations of the 1966 Law.[157] Those who failed to carry out these statutory duties were liable and had to pay a fine of up to 5000 zloty.[158]

The Act on Protection and Formation of the Environment of 31 January 1980 (the 1980 Law) created a duty on the part of eco-

148. Machinska, *Legal Protection of the Air-Effective?*, in ENVIRONMENTAL POLICY AND LAW, 32 (1989) [hereinafter Machinska]. The author notes that there is a question as to the accuracy of the government's figures on sulfur dioxide emissions. Due to chronic underreporting, these figures are probably lower than actual discharge amounts. *Id.*

149. *Id.* at 31.

150. W. BRZEZINSKI, *supra* note 135, at 122.

151. *Id.*

152. *Id.*

153. *Id.* at 123.

154. *See generally id.* at 123-27.

155. *Id.* at 128.

156. *Id.*

157. *Id.* at 131.

158. *Id.* The value of the Polish zloty in relation to that of the American dollar fluctuates on currency markets. In 1985, the average exchange rate valued one United States dollar as equal to 147.2 Polish zloty. *Poland- Country Marketing Plan, Fiscal Year 1989*, 1991 National Trade Data Bank Market Reports (June 12, 1991) (LEXIS, Intlaw Library, EE file). In 1990, the official exchange rate was 9,500 zloty per U.S. dollar. *Poland- Country Marketing Plan, Fiscal Year 1991*, 1991 National Trade Data Bank Market Reports (March, 1991) (LEXIS, Intlaw Library, EE file).

nomic ministries and individuals to apply technical measures necessary to protect the air.[159] Through this act, local authorities must specify any substances polluting the air and the amounts that a polluter was allowed to emit.[160] The Council of Ministers also has specified the maximum permissible concentrations in all areas, including specially protected parks.[161] For example, the maximum permissible concentration of sulfur dioxide is 0.35 milligrams per cubic meter, a large amount compared to the limit of 0.08 milligrams per cubic meter in the United States.[162] As in the 1966 Law, it would require a decision by the local authorities to force polluting industries to curb emissions.[163] Therefore, the polluting industry may violate the Council of Ministers' regulations or the local emission standards but may not be required to reduce these emissions; the standards of these two entities may be different, and the local agencies may overlook emissions violations to protect local industry.[164] Another problem associated with reducing emissions of air pollutants under the 1980 Law is industrial plant negligence in making the required measurements of pollutants.[165] For instance, in 1986, 476 of 1073 heavy industrial air polluters did not measure gaseous emissions.[166]

c. Forest and Soil Pollution. — One of the areas of such intense air pollution is the soil and forests. In the Upper Silesian Region of southwestern Poland, air pollution has "so contaminated the land that only 50% of the soil is suitable for growing foodstuffs fit for human or animal consumption."[167] Polish industries emit tons of sulfur dioxide that settles into the soils and plants. Also, excessive lead contamination from automobile exhaust is a problem.[168] Near Kracow, a large industrial city in the Upper Silesian region, there is visible damage to 3,000 hectares of an 11,000 hectare forest located only 15 kilometers from a large steel mill. This steel mill, Nowa Huta, emits excessive amounts of pollutants such as sulfur dioxide

159. Machinska, *supra* note 148, at 32.

160. *Id.*

161. *Id.*

162. Lasota, *Darkness At Noon*, THE SCIENCES (NY Academy of Sciences) May-June, 1987, at 28. In 1981, sulfur dioxide emissions in Kracow regularly exceeded this limit by seven hundred to eight hundred percent, and at times, by 10,000%. *Id.*

163. Machinska, *supra* note 148, at 33.

164. *Id.*

165. *Id.*

166. *Id.* Some standards limit industrial emissions to 100 kilograms of sulfur dioxide per hour while others set the limit at 1200 kilograms of sulfur dioxide per hour. *Id.*

167. Kramer, *supra* note 147, at 153.

168. Lasota, *supra* note 162, at 26. The author states that in 1983, Polish industries emitted four and one half million tons of sulfur dioxide, an average of thirty-four tons per square mile. *Id.* In contrast, the United States average was seven tons per square mile in 1980. *Id.*

and continues to damage the natural environment.[169]

Protection of the soil and forests was promulgated in the Law of 26 October 1971.[170] This law used broad, general phrases to secure environmental protection such as establishing a goal to prevent "reduction of productivity and restoring full value to land which lost its agriculture and forest character as a result of non-agricultural (non-forestry) activities."[171] The law further stated that "a ban may be introduced on the location of industrial plants which exert a negative influence on forests . . . ."[172] Nevertheless, production took precedence over protection of the environment in the socialist society.

The Polish air pollution law also contained regulations limiting soil or forestry damaging pollutants. The Council of Ministers Regulation Number 18 of 1 January 1970 focuses on repairing damage done to forests as a direct result of air pollution.[173] Under this law, the forest administration organ is required to work in conjunction with a polluting plant to determine the effects of pollution and to set up "danger zones" around polluting plants.[174] The industry pays all costs in restoring the forest. Waclaw Brzezinski, a member of The Institute of Legal Studies at the Polish Academy of Sciences, stated that this law "would play an important role in creating means of economic inducement against the treatment of the atmosphere" as a dumping ground.[175] However, the title of this law does not deal with the present protection of forests, but only with the repair of damage done to the forest after despoliation.[176] Hanna Machinska, a member of the faculty of Law and Administration at the University of Warsaw, outlines the basic deficiencies in Polish environmental protection law as follows:

> 1) a lack of technical means to adequately control pollution, 2) a lack of linkage between the lawfully defined level of a particular pollutant emission and the duty to reduce pollution at a particular source, 3) a system of fines and charges that is not linked with ecological losses, and 4) liberal treatment of the enforcement of fines and charges."[177]

General phrases encouraging environmental protection without effective enforcement measures were typical of Polish environmental law

169. Kabala, *supra* note 126, at 12. Kracow has a rich intellectual tradition and is the home of Jagellodian University. Stalin chose to make this area the center of Poland's heavy industry.
170. W. BRZEZINSKI, *supra* note 135, at 138.
171. *Id.*
172. *Id.* at 140.
173. *Id.* at 125.
174. *Id.*
175. *Id.* at 126.
176. *Id.*
177. Machinska, *supra* note 148, at 8.

under the communist regime prior to 1989.

III. The Results of Ineffective Environmental Regulation in Poland: Dimensions of the Pollution Problem

A. Pollution of the Air, Water, and Land

"All societies are responsible for some degree of disruption to the natural environment that they occupy."[178] Pollution is defined as "uncleanness or impurity caused by contamination . . . [and] specifically the presence in the environment . . . of products of human activity which have harmful or objectionable effects."[179] Pollution of the natural environment includes pollution to the air, water, and lands of the world.[180] Within its territorial limits, Poland has experienced a precipitous decline in the purity of its natural environment and has been classified as one of the most polluted industrialized countries in the world.[181]

Air pollution in Poland is responsible for a wide range of problems. In Kracow, "[p]ieces of masonry regularly fall off church steeples, balconies crumble, and graceful, sculpted saints lack faces. What centuries of war and pestilence had spared, chemical pollutants have destroyed."[182] In Katowice, a large industrial center in southwestern Poland, trains must slow down to forty kilometers an hour in some areas because highly acidic rain has corroded the rail tracks.[183] In 1981, the Skawina Aluminum Works was forced to close down because its excessive fluorine emissions into the air of neighboring fields, left cows unable to walk.[184]

Air pollution also adversely affects human health. In one heavily industrialized district in Katowice, residents had a 47% rate of respiratory ailments than in the rest of Poland.[185] The Polish Academy of Sciences found an increase in the number of retarded school aged children in Upper Silesia and placed part of the blame on elevated levels of heavy metals in the environment.[186] Furthermore, in 1988, 20% of food products tested by authorities were classified as hazardous to public health.[187]

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178. Singleton, *supra* note 1, at 1.
179. THE OXFORD ENGLISH DICTIONARY Vol. XII 43 (2d ed. 1989).
180. Singleton, *supra* note 1, at 1-2.
181. Battiata, *Eastern Europe Faces Vast Environmental Blight*, Wash. Post, March 20, 1990, at 1, col. 1.
182. Hinrichsen, *Poland's Chemical Cauldron*, Vol. 10, No. 2 THE AMICUS JOURNAL 4 (1988) [hereinafter Hinrichsen].
183. *Id.*
184. Rosenbladt, *supra* note 7, at 16.
185. Hinrichsen, *supra* note 182, at 6.
186. *Id.* Lead content in the Silesian soil exceeds safety standards by 150 to 1900 percent.
187. Rosenbladt, *supra* note 7, at 19.

However, water quality is Poland's foremost problem.[188] Up to three quarters of the 3.3 billion cubic meters of untreated sewage produced each year in Poland is released into rivers and streams.[189] Nearly every river in the Katowice district is completely devoid of fish life due to the uncontrolled discharge of industrial wastes which include: toxic chemicals, petroleum by-products, highly saline mine drainage, and agricultural runoff.[190] Well over half of the 1,068 kilometer Vistula River is unfit for any use, and the remaining length is suitable only for industrial use.[191] The Polish Academy of Sciences reported that by the year 2000 all of Poland's water may be contaminated and unfit for consumption.[192]

Forest and soil damage also is widespread. In Poland, more than 125,000 acres of woodlands are now dead, and 60% of pine forests are affected, mainly as a result of acidic air pollution from the heavily industrialized areas of (formerly) East Germany, Czechoslovakia, and southern Poland.[193] Soils in the region are "extremely acidic, between ph4 and ph3, a point at which aluminum trapped in the clay is released, . . . poisoning groundwater, killing tree . . . roots."[194] Seven hundred hectares of forest in northwest Poland near a fertilizer plant have been utterly destroyed due to excessive discharges of sulfur dioxide.[195] It is estimated that thirty years from now, 25% of Poland's forests will be damaged from air pollution.[196] Presently, about 25% of Poland's soil is believed to be too contaminated for safe farming. "The government is considering a ban on . . . vegetables in [Upper] Silesia where garden samples register [high] concentrations of industrial pollutants in the soil, including lead and cadmium."[197] Obviously, the pollution problems of Poland are extremely serious and will take years to correct.

B. Sources of the Polish Pollution Problem

Pollution in Poland has the following three related sources: industrial modernization, agricultural modernization, and the growth of social consumption.[198] Rapid industrialization, including the building of massive steel, cement, metallurgical, and chemical indus-

188. Kabala, *supra* note 126, at 9.
189. *Id.*
190. Hinrichsen, *supra* note 182, at 7.
191. Kabala, *supra* note 126, at 9. Poland discharges 91,400 metric tons of fertilizer runoff into the Baltic Sea each year. *Id.*
192. French, *supra* note 36, at 23. In 1984, 71% of drinking water samples were disqualified for reasons of hygiene.
193. Simons, *Upheaval in the East*, N.Y. Times, Mar. 19, 1990, at A11, col. 1.
194. *Id.*
195. Kabala, *supra* note 126, at 12.
196. *Id.*
197. French, *supra* note 36, at 25.
198. Kabala, *supra* note 126, at 8.

tries has dramatically increased both the amount of energy consumed and pollution discharged into the environment.[199] This has facilitated the construction of inefficient coal burning power plants which are utilized to supply the energy requirements of heavy industry.[200] Polish industry uses 20-50% energy to achieve a certain amount of output than do similar industries in the West.[201] This energy inefficiency requires the use of high amounts of coal, which had been provided by the state at approximately 38% of its true cost.[202]

Polish industry generates about two-thirds of all the gaseous and particulate matter air pollutants in Poland.[203] Sulfur dioxide, nitrogen oxide, carbon monoxide, lead, cadmium, and mercury are among the air pollutants discharged.[204] Sulfur dioxide and nitrogen oxide are two of the main components of acid rain, which has been found to weaken forests and reduce biological life in rivers and lakes.[205] In Poland, toxic pollutants, such as arsenic released from the process of extracting copper from ore, often are freely released into the atmosphere and contaminate soils without any effort to control discharges.[206]

Polish industry also uses vast quantities of water. 80% of industrial water is returned to the environment in the form of waste.[207] At the mouth of the Vistula River in Gdansk, industrial installations including petroleum refineries, phosphate processors, and a sulfur plant, release pollutants into the river with little or no treatment.[208] Treatment of waste water costs six to twelve zloty per cubic meter, while industry in 1988 paid only 1.2 zloty per cubic meter in fines.[209] This economic imbalance has contributed to the industrial and mu-

199. *Id.*

200. *Poland's Biggest Fossil Fuel Power Station*, ACID MAGAZINE, Sept. 1989, at 9 [hereinafter *Power Station*]. Transboundary air pollution from East Germany and Czechoslovakia contribute greatly to the pollution problems of Poland but the extent is unknown.

201. Bjorklund, *Inefficient Energy Use At the Root of Poland's Environmental Problems*, ACID MAGAZINE, Sept. 1989, at 10.

202. *Id.* at 11. In January, 1990, coal prices rose 600 percent for retail users and 400 percent for industrial consumers. However, the new prices paid by Poland's coal users were still below world prices. *Poland — Foreign Economic Trends*, National Trade Data Bank Market Reports (June 11, 1991) (LEXIS, Intlaw Library, EE file). Through Poland's drive to Westernize its economy, prices for materials used in the production process will ultimately be comparable to prices paid for similar resources in the West.

203. Kramer, *supra* note 147, at 152. In 1978, an estimated eight million tons of wastes were discharged into the air. *Id.*

204. French, *Clearing the Air: A Global Agenda*, WORLDWATCH PAPER 94, Jan. 1990, at 16 [hereinafter *Global*].

205. *Id.* Sulfur dioxide has been found to transform in the atmosphere into a fine, particulate matter, carrying with it any toxic metals and gases, making it dangerously inhalable.

206. Rosenbladt, *supra* note 7, at 19.

207. W. BRZEZINSKI, *supra* note 135, at 80. One ton of rayon requires 1400 cubic meters of water and one ton of synthetic rubber uses 2700 cubic meters of water, most of which is returned to the environment as waste. *Id.* at 79.

208. Rosenbladt, *supra* note 7, at 16. Gdansk is a large industrial city in northern Poland near the Baltic Sea.

209. *Id.*

nicipal pollution of almost all the rivers in Poland.[210]

Demands on agricultural production have increased the use of fertilizers and pesticides and have increased the size of livestock farms.[211] This accelerated production pollutes inland waterways by allowing nitrogen, phosphorous, pesticide runoff, and manure seepage into the water supply.[212] Poland's untreated organic matter, such as human sewage, contributes roughly 30% of the total Baltic Sea organic pollution.[213]

Severe urban pollution largely is the result of an intensive use of automobiles.[214] This is, in part, the result of Polish citizens' strong demand for more consumer goods, which increasingly has strained the industrial and environmental capacity to provide these goods.[215] This societal component was enhanced further by the desire of the Polish communist government to increase production yearly, even in the face of severe budgetary constraints.[216] These factors caused industry to divert over 60% of the funds allocated for waste treatment facilities between 1976 and 1980 to bolster economic production.[217]

IV. The Future of Environmental Regulation in Poland

In March 1989 during discussions with the communist party for the establishment of a freely elected government, Solidarity, the Polish labor movement and political party placed environmental issues at the forefront of negotiations.[218] On June 4, 1989, Solidarity won a majority of Parliament seats in a free nationwide election.[219] On August 24, 1989, Tadeusz Mazowieki of Solidarity was elected Prime Minister, and his new cabinet was composed of only four communists.[220] This movement towards an elected democracy and free market economy has exposed serious weaknesses in the Polish infrastructure. Since new economic austerity measures took effect on January 1, 1990, unemployment has risen, and production has dropped by approximately 30%.[221] Poland has a sizable foreign debt, and environmental pollution costs consume a minimum of 10% of the annual

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210. French, *supra* note 36, at 28-29.
211. Kabala, *supra* note 126, at 8.
212. *Id.*
213. *Id.* at 10.
214. Kramer, *supra* note 147, at 152.
215. Kabala, *supra* note 126, at 8.
216. Kramer, *supra* note 147, at 157-58.
217. *Id.* at 157.
218. *Global*, *supra* note 204, at 36.
219. Schmemann, *For Eastern Europe Now, A New Disillusion*, N.Y. Times, Nov. 9, 1990, at 10, col. 2.
220. *Id.*
221. Battiata, *Eastern Europe Faces Vast Environmental Blight*, Wash. Post, Mar. 20, 1990, at 1, col.1.

Polish gross national product.[222] Poland faces tremendous challenges in implementing an effective, sustainable environmental policy.

A. Environmental Policy and the Economy

1. Economic Costs of Pollution and Pollution Control. — The Polish Minister of Environmental Protection, Natural Resources and Forestry has estimated that the full implementation of "ecological-development" principles will cost $260 billion U.S. dollars and take at least thirty years to complete.[223] In 1987 it was cautiously estimated that Poland needed over 100 billion zloty to reduce water pollution levels to standards considered safe for the environment.[224] This money would be spent on the construction of over 6000 wastewater treatment plants and the refurbishing of industrial equipment.[225]

Furthermore, air pollution costs are enormous. Emissions of sulfur dioxide alone are said to cost the Polish economy over $1 billion U.S. dollars annually.[226] The price of reducing emissions of damaging pollutants is equally great. For example, the expense of refitting one power plant with pollution control devices is more than $100 million U.S. dollars.[227] Also, "clean coal" technologies are expensive, and new problems arise as to the disposal of wastes generated by the clean coal method, such as scrubber ash from flue-gas desulfurization devices.[228]

2. Overcoming the Costs of Environmental Protection. — Balancing environmental protection and economic development is one of the most serious crisis confronting Poland today.[229] Economic development in a free market economy under the new government of Poland may come at the expense of further harm to the environment. But, if too much emphasis is placed upon controlling pollutant emissions, production would substantially decrease, thereby, inflicting even greater personal and financial hardship on the Polish people.

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222. French, *supra* note 36, at 30.

223. *Ecological Policy*, MINISTRY OF ENVIRONMENTAL PROTECTION, NATURAL RESOURCES AND FORESTRY, [p. 2] MINISTRY OF ENVIRONMENTAL PROTECTION: NATURAL RESOURCES AND FORESTRY, ECOLOGICAL POLICY (Republic of Poland, 1990) [hereinafter *Ecological Policy*]. Ecology policy is a program designed to achieve sustainable growth and ecological health, encompassing industry restructurization and the implementation of environmentally sound policies. *Id.*

224. Kramer, *supra* note 147, at 155.

225. Rosenbladt, *supra* note 7, at 19.

226. Kramer, *supra* note 147, at 153-54.

227. Battiata, *Eastern Europe Faces Vast Environmental Blight*, Wash. Post, Mar. 20, 1990, at 1, col. 1.

228. *Global*, *supra* note 204, at 25-26. Clean coal technologies are used to reduce sulfur dioxide and nitrogen oxides during combustion. The process involves transforming coal into gas to run a turbine, resulting in increased burning efficiency. *Id.*

229. Crockett, *supra* note 10, at 260.

The Ecology Policy put forth by the Ministry of Environmental Protection, Natural Resources, and Forestry stated that medium term activities (until the year 2000) aimed at solving pollution problems, are contingent on the restructurization of the energy and industry sectors of the economy.[230] Poland's consumption of 20-50% more energy for a given amount of output versus that in Western Europe is a major impediment to achieving this goal.[231]

Poland must utilize the market to allocate more efficient use of natural resources.[232] Putting a true value on the price of energy prompts industry to either increase efficiency or risk unprofitability.[233] The sooner industrial and agricultural sectors convert to more efficient technologies in the production process, energy consumption will decline and result in decreased pollutant emissions in Poland.[234] Conversion to efficient production practices such as those utilized in the West is necessary for the growth of the Polish economy. This modernization requires massive expenditures of capital for items such as Western pollution control devices and updated factory equipment to increase efficiency. Yet, Poland lacks the financial resources to singlehandedly implement these changes.

One way to promote environmental protection is to charge Polish industry for the use of natural resources. The state and local governments can redirect funds from permit rights for the use of natural resources, such as water and timber, to industry requirements for less-polluting technology.[235] If industry is required to pay a charge for the resources it uses, it would have an economic incentive to make all efforts to conserve resources while striving to maintain productivity.[236] Foreign assistance is crucial to overcoming the costs of the environmental cleanup. ". . . Poland does not possess the hard currency needed to purchase sophisticated pollution control equipment available only from Western manufacturers . . . ."[237]

Because the West has practiced stringent environmental protection over the last twenty years, more money is required to achieve

230. *Ecological Policy*, *supra* note 223, at 5.

231. *See* text at Note 201.

232. French, *supra* note 36, at 30. Increased prices for raw materials and natural resources will force Polish businesses and consumers to use these materials more efficiently.

233. Redclift, *supra* note 17, at 178. The planned cutback in delivery of Soviet oil and an increase of its price on Jan. 1, 1991 may force Poland to increase efficiency. Poland may also be forced to rely more heavily on the use of its coal to compensate for energy shortfalls.

234. *Ecological Policy*, *supra* note 223.

235. *National Environmental Policy: Outline of Economic Interests*, MINISTRY OF ENVIRONMENTAL PROTECTION: NATURAL RESOURCES AND FORESTRY, NATIONAL ENVIRONMENTAL POLICY: OUTLINE OF ECONOMIC INSTRUMENTS [p.5] (Republic of Poland, 1990) [hereinafter ECONOMIC INSTRUMENTS].

236. *Id.* at 5-6. Polish industry is ill-equipped to use less resources while maintaining constant rates of production, but all efforts must be made in this area.

237. Kramer, *supra* note 147, at 163. Poland exports much of its "cleaner" hard coal for currency, forcing it to use more heavily polluting coal domestically.

stricter pollution control results.[238] As the effects of transboundary pollution become apparent, western nations may recognize that they can achieve more positive results if money is spent in Eastern Europe, where even the most basic pollution controls are absent.[239]

Foreign aid to date has been minimal. Sweden has given Poland nearly $45 million U.S. dollars over three years, and the U.S. has given Kracow $15 million of which $10 million will be used to restructure power plants to utilize clean technology.[240] The International Monetary Fund and World Bank have agreed to extend billions of U.S. dollars in credit to Poland.[241] Also, the Bank for European Reconstruction and Development (BERD) has been established to generate money for the countries of Eastern Europe. Created on May 30, 1990, BERD has forty-two charter members and over twelve billion dollars in working capital.[242] 60% of BERD's funds will be used to encourage private investment, while the remaining 40% will be directed toward infrastructure and environmental projects.[243] These funds may provide the incentive needed to encourage wide-scale western investment in Poland.

The Polish government actively seeks foreign investment and has attempted to liberalize its laws in this area. Through the Polish Foreign Investment Law of 1990, Poland hopes to encourage an inflow of Western capital by granting 100% ownership of a business enterprise and guaranteed compensation if Poland were to nationalize the business.[244] Also, when foreign businesses contemplate joint ventures with a Polish counterpart, an environmental audit is conducted to determine the extent of any environmental damage resulting from prior operation.[245] Ensuing joint venture negotiations take into account this environmental damage. The negotiations purportedly contemplate the costs of any civil and criminal liabilities and include them in the price of the transaction.[246] Any American invest-

238. *Global, supra* note 204, at 36.

239. *Id.* 96% of sulfur deposited in Norway originates in other countries; in Sweden, the total is eighty-nine percent.

240. Battiata, *Eastern Europe Faces Vast Environmental Blight*, Wash. Post, March 20, 1990, at 1, col. 1. A total of $852 million in aid was allocated to Poland by the United States Congress.

241. Farnsworth, *Upheaval in the East: Poland*, N.Y. Times, Feb. 7, 1990, at A14, col. 1.

242. Crockett, *supra* note 10, at 261.

243. *Id.*

244. Gordon, *The Polish Foreign Investment Law of 1990*, 24 THE INTERNATIONAL LAWYER 335, 337 (1990).

245. *Prime Minister of Poland Talks To Business Audience*, Eastern Europe Report, (Sept. 23, 1991) Vol. 1, No. 34, Pg. 6. (LEXIS, Intlaw Library, EE file). Damage to the environment includes harm to the surrounding natural environment and any damage done to the health of the workforce. *Id.* This also may include damage done to the human population surrounding the polluting enterprise.

246. *Id.* The Polish government does not assume liability for environmental pollution problems associated with formerly state-owned businesses. Future liability regarding civil and

ment is subject to this evaluation of its environmental impact, and the standards used are those applied by Poland to its own domestic enterprises.[247] It is premature to determine the effectiveness of the foreign investment law, and the benefits of any foreign aid received by Poland.

3. Environmental Regulation in the Post-Communist System. — On December 20, 1989, the office of the Minister of Environmental Protection, Natural Resources, and Forestry (The Ministry) was established.[248] This agency implements the state's policy on protection of the natural environment and the utilization of Poland's natural resources.[249] The Ministry also participates in socio-economic and financial planning, as well as encouraging foreign technical cooperation.[250]

As one of its first actions, the Ministry generated a list of eighty of the largest polluters in Poland.[251] In making these determinations, Bronislaw Kaminiski, the Environmental Minister, took into account the following: population densities, agriculture and forest land surrounding the areas, and the industry's economic ability to carry out environmental protection responsibilities.[252] The comprehensiveness, speed, and openness with which the study was presented represents an invigorating break from traditionally close-minded socialist environmental policy.

Most laws passed by the new government are technical and administrative in nature, attempting to provide the legal basis for a system of sustainable ecological development. Maximum permissible concentrations of harmful pollutants have been defined, penalties have been increased (due to the decreased value of the zloty) for violations of these standards, and guidelines have been established for the detailed preparation of reports on the current state of the environment. The Polish Parliament is currently in the process of formulating comprehensive environmental resources regulations

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criminal liabilities is a fertile area in Polish law, since the previous system lacked adequate means of enforcing environmental regulations. It is not certain that all past and future liabilities will be accounted for in transaction prices.

247. Treaty Concerning Business and Economic Relations, March 21, 1990, United States-Poland, art. 2, par. 1, 29 I.L.M. 1197-1211. This treaty was ratified by the United States Senate in October, 1990, but has yet to be ratified by the Polish Parliament. *See* (LEXIS, Intlaw Library, Intrad file).

248. Dziennik Ustaw, Nr. 73, poz. 433 (20 Dec. 89) [Pol.], Translated in *Joint Publications Research Service* no. 90-064-S, May 10, 1990, at 4.

249. *Id.* This act abolished all previous laws establishing various state protection agencies.

250. *Id.*

251. New Policy on Industrial Pollution, *Joint Publications Research Service* no.-TEN-90-001 (April 10, 1990) at 4.

252. *Id.*

which will strictly be applied to all users of Poland's resources.[253]

On March 14, 1990, the Ministry of Environmental Protection drafted guidelines regarding air pollution.[254] Section 3.1 of those regulations requires district governments and the local state agencies to report all emitters, to describe the types of emissions and their effects on surrounding areas, and to outline the effectiveness of any pollution control equipment.[255] Permissible concentrations of forty-four air pollutants were established, as well as precise limits on the fallout of cadmium, lead, and dust from industrial processes.[256]

The "Polluter Pays Principle" is embodied in a law regarding water pollution in Poland. Article One, section two of legislative law number 39, item 222, states that the government will not help clean up polluted waters unless the polluter agrees to reimburse the government for the costs of cleanup.[257] If violations are flagrant and continuous, the polluting industry will be closed.[258] This law, however, will be difficult to enforce. Polish industry has little money to fund the production process, let alone extra zloty to pay for environmental pollution costs. Foreign investors may be discouraged from entering into joint ventures because the costs associated with correcting existing pollution problems could make joint ventures unprofitable. Further, the Polish government's enforcement power in this area is underutilized as a result of lack of funds. Closing down polluting industries may create further economic distress. Unfortunately, the prospects for effective implementation of this law are negligible.

Specific provision was made for a sweeping report on the state of the water, ground, and air of Poland.[259] The Ministry of Environmental Protection ordered all agencies and industries involved in the use of the environment to report, by the end of 1990, so that a comprehensive protection plan for all resources could be formulated.[260]

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253. *Ecological Policy*, *supra* note 223. This policy states that initially there must be a "rationalization and adjustment of the legal system in the field of environmental protection to the changing economic conditions and administrative division of the country." *Id.*

254. Dziennik Ustaw, Nr.15, poz.92, translated in *Joint Publications Research Service* no. 90-115-8 (August 13, 1990) at 79.

255. *Id.* at 80.

256. *Id.* at 81-82. Cadmium compounds are limited to ten milligrams per square meter per year, while lead fallout is limited to one hundred milligrams per square meter per year. Emissions from power plants are treated separately. *Id.*

257. Dziennik Ustaw, Nr.39, poz.222 (10 Maja 1990) [Pol.] at 537. Dziennik Ustaw number 42, item 243 increases the costs per cubic meter of pollutant discharged.

258. *Id.*

259. *Id.* art. 1, section 6 at 538.

260. *Id.* Two documents have recently been published concerning environmental assessments and the legal environment affecting business transactions in Eastern Europe. A report called "Environmental Conditions in Poland and Hungary" has been published by the United States Environmental Protection Agency. The 158 page report was compiled by Prof. Stanley J. Kabala of the University of Pittsburgh, and can be obtained through the EPA's Office of International Activities. *EPA Report Sets Strategy*, Eastern European Report Vol. 1, No. 33

This law was enacted because the government must know the exact extent of the problem before it can attempt to coordinate environmental policy within a restructured economy. What differentiates these and future laws from predecessor laws is a genuine understanding by the new government that development must be controlled to protect an already fragile environment and to promote long-term growth. Yet without foreign financial support to modernize existing polluters, these laws may again be ignored as did prior attempts at environmental regulation.

V. Conclusion

Poland has experienced forty years of environmental degradation due to the structure of the socialist state and its emphasis on production. The dissolution of the communist government has exposed environmental problems with no short-term solutions. These problems only will worsen due to the corroded economic infrastructure, another legacy of uncontrolled heavy industrialization. Measures should be employed to allow Poland the necessary time to create its own unique system of regulation within the framework of an expanding market economy.

Pollution crosses national boundaries, affects the pollution control efforts of other countries, and poses a threat to the health of the global environment.[261] Poland has rudimentary control systems for sulfur emissions, waste water and industrial emissions. Pollutants released by Polish industry affect surrounding countries in Scandinavia and Europe. Western nations, far ahead of Poland in pollution abatement, must spend more money to help Poland develop cleaner industrial production processes. It makes economic and ecological sense for western nations to divert a portion of their resources and advanced technology to assist Poland in achieving its environmental goals. Western environmental agencies should assist the Polish environmental agency by establishing an environmental "peace corps" to collect data and offer technical assistance regarding energy efficient practices employed in the west. This assistance would free up the limited funds available to the Polish government, by allowing these funds to be used for projects that directly reduce pollutant emissions into the environment.

United States President George Bush has acknowledged the

(Sept. 16, 1991) (LEXIS, Intlaw Library, EE File). "Business Ventures in Eastern Europe and the Soviet Union: The Emerging Legal Framework for Investment" is a two volume guide written by attorneys from the Washington, D.C. law firm of Fried, Frank, Harris, Shriver & Jacobsen in conjunction with Arthur Andersen. The guide is published by Prentice Hall Law & Business, and is available by contacting the publisher. *New Guidebook Published*, Eastern European Report, Vol. 1, No. 24 (July 1, 1991) (LEXIS, Intlaw Library, EE file).

261. *Global*, *supra* note 204, at 36.

need to confront global industrial pollution before it impedes global economic growth. The Polish government urgently needs assistance in cleaning up existing large scale polluters such as outdated steel mills and chemical plants. Foreign investors will not be attracted to these large polluters because the modernization costs would be exorbitant and largely unprofitable. Large polluters cannot, however, simply be shut down by the Polish government due to adverse economic and personal effects on workers and the local economies. President Bush must set an example for others to follow by pressuring the U.S. Congress and Western nations to allocate money for the development of alternative and efficient industry, instead of offering token sums in the misguided belief that this will encourage massive foreign investment.

Poland must attempt to make foreign investment more attractive through the restructuring of its economy and law. Through the use of the Foreign Investment Law and expected future liberalization of business laws, Poland will have become more adapted to the western way of doing business. Poland has a relatively well-educated, highly literate work force, and inexpensive labor compared to that in the west. Lighter industries such as textiles, food processing, communications and transportation should be emphasized in order to diversify the Polish economy. New industries could easily take advantage of Poland's strategic location in the center of Europe. Poland's natural environment cannot be further exploited. Western investment, however, must follow the strict guidelines of Polish law. BERD can be useful toward this end by coordinating western investment within a Polish and pan-European legal structure.

Environmental law in Poland today is setting the basis by which future investment will be controlled. To allow uncontrolled growth in a new market economy only would repeat the mistakes made by western societies in the past. Poland today faces a unique opportunity to create a new system of regulation, free from past encumbrances. There is no correct path to be chosen, but by studying the exact nature of the problem and providing for controlled economic growth, a solid foundation can be laid for future effective environmental enforcement.

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