Environmental Law in Ukraine: From the Roots to the Bud

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> For me, it is the same if I have many suits and a lot of gold, but I die tomorrow. Why do I need these suits and gold? Ecology is life. That's why ecology is in the first place and economy is in the second.[1]

INTRODUCTION

Environmentalism is vital to Ukraine's survival. Yet the institution of an effective environmental protection system is linked precariously to the democratization and privatization processes. Consequently, Ukraine's environmentalists must emerge victorious over bureaucracy and industry. To date, Ukraine's environmentalists have not been passive, having secured positions of political power, a strong democratic foundation, and popular support. Therefore, environmentalists may succeed in restoring and preserving Ukraine's environment.

In this paper, I examine how Ukraine has come so desperately to need an environmental movement and why its environmentalists may succeed. Part I is a brief introduction to Ukraine. The parts which follow look at the pre-Soviet period (II), the Soviet period (III), and the transition period (IV). Specifically, this paper examines the environmental ethics, players, and regulations for each of these periods.

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1. Interview with Vladymyr Klyushin, Head of the Main Directorate for Economics, Scientific and Technical Progress, Public Environmental Awareness and International Relations for the Ukrainian SSR State Committee for Environmental Protection, in Kiev, Ukraine (July 10, 1991).

I.
UKRAINE AND ITS RESOURCES

Ukraine, which means "on the edge," shares its borders with Belorus and Russia[2] on the north and east; Poland on the west; Czechoslovakia, Hungary, Romania and Moldova on the southwest; and the Black Sea and the Sea of Azov to the south. Its territory is roughly equal in size to France. Of Ukraine's 51.4 million people,[3] seventy-five percent are Ukrainian and twenty-two percent, or 11.3 million, are ethnic Russians.[4] Ukraine has a high proportion of educated people, including a significant number of scientists.[5] At the same time, Ukraine has a ready supply of relatively cheap,[6] although highly unionized,[7] labor. However, a high proportion of the population is unskilled.[8]

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2. Kiev, the current capital of Ukraine, was the center of the Kievan-Rus' empire from the ninth to the thirteenth century. Because of numerous invasions by the Mongols from the east and wars in western Ukraine with the Poles, the capital was transferred to newly built Moscow. Ukraine was called Malo-Rossiya ("Little Russia"). On December 30, 1922, the first All-Union Congress of Soviets adopted a plan whereby Russia, Belorussia, Ukraine and Transcaucasia formed the Soviet federation. One effect of this long union is that

> mainstream Russian political thought and public opinion in general have found it inordinately difficult to come to terms with the notion of Ukraine's existing in any context other than a Russian one. In the pre-Soviet period, this found expression in the concept of an all-Russian (*obshcherussky*) identity that included Great Russians (Russians), Little Russians (Ukrainians), and Belorussians.

Roman Solchanyk, *Ukraine and Russia: Before and After the Coup*, REP. ON U.S.S.R., Sept. 27, 1991, at 13, 13-14.

3. David Marples, *Ukraine's Economic Prospects*, REP. ON U.S.S.R., Oct. 4, 1991, at 14, 14.

4. Solchanyk, *supra* note 2, at 14. Ethnic Russians who have had political posts include Prime Minister Vitol'd Fokin, Deputy Chairman of the Supreme Soviet Vladimir Grinev, Minister of Defense Konstantin Morozov, and Prosecutor General Viktor Shishkin. *Id.*

5. Marples, *supra* note 3, at 14.

6. *Id.*

7. *Id.* at 15.

8. *Id.* One commentator notes, Ukraine "has highly industrious, disciplined, and hard-working people not infected with the beggar's virus so common in other parts of the former Soviet Union." Maxim Kniazkov, *Russia Goes Begging*, CHRISTIAN SCI. MONITOR, Sept. 26, 1991, at 18. "We are not asking for help, we are asking for investment, Ukrainian President Leonid Kravchuk said." *Id.* The commentator continues:

> Such an approach underlines a more propitious business environment in the Ukraine than in other parts of the former Soviet Union, a psychological readiness of its people for a dive into a stormy sea of free enterprise. It underscores the creativity, incentive, and self-confidence of Ukrainians, something of paramount importance for anyone who strives to build a new prosperous society and to talk business with the rest of the world.

Id.

A. *Agriculture and Industry*

At one time, Ukraine was considered the bread basket of Eastern Europe. Fifty-seven percent of its land is cultivated,[9] and agriculture generates about eighteen percent of Ukraine's gross national product.[10] In 1989, Ukraine produced about twenty-one percent of the total Soviet agricultural output[11] and more than half of the Soviet Union's granulated sugar.[12] Its crops include winter wheat, feed crops, sugar beets, sunflower seeds, and potatoes. However, Ukraine's future in agribusiness is threatened by a steady decline in rural population.[13] Between 1975 and 1990, the rural population decreased from 20.3 million to 17 million people, a sixteen percent decline.[14] Part of the decline in rural population is explained by the attraction of youths to more urban-industrial centers.

Ukraine's industrialization began in the late 1800s. Thereafter, Ukraine was a major focus of Soviet industrial development because of its abundant natural resources.[15] Though it constituted only 2.7 percent of the Soviet territory, Ukraine produced more than twenty-five percent of the Soviet industrial output[16] and accounted for approximately twenty-five percent of the Soviet gross national product.[17]

Ukraine produces one-tenth of the world's cast iron (half of the former Soviet Union's), nine percent of its steel (forty percent of the former Soviet Union's), and 8.5 percent of its coal.[18] The Ukrainian chemical industry produced half of the coke, twenty-one percent of

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9. D.J. Peterson, *The State of the Environment: The Land*, REP. ON U.S.S.R., June 1, 1990, at 8, 9 (citation omitted). The rate is twice that of the United States. *Id.*

10. 18 THE NEW ENCYCLOPAEDIA BRITANNICA: MACROPAEDIA 833, 836 (15th ed. 1982).

11. Marples, *supra* note 3, at 14.

12. *Id.*

13. *Id.* at 15.

14. *Id.*

15. "Ukraine's economic analogue in the United States is the Great Lakes region — Ohio, Michigan, Indiana, Illinois and Wisconsin." Matthew S.R. Palmer, *Privatization in Ukraine: Economics, Law and Politics*, 16 YALE J. INT'L L. 453, 465 n.75 (citing Cohn, *Economic Growth, in* THE UKRAINE WITHIN THE USSR: AN ECONOMIC BALANCE SHEET 67, 78 (I. Koropeckyj ed. 1977)).

16. S.B. Lavrov, *Regional and Environmental Problems of the USSR: A Synopsis of Views from the Soviet Parliament*, 31 SOVIET GEOGRAPHY 477, 490 (1990).

17. Marples, *supra* note 3, at 14; *see* Palmer, *supra* note 15, at 465 n.75 (citing Cohn, *Economic Growth, in* THE UKRAINE WITHIN THE USSR: AN ECONOMIC BALANCE SHEET, at 67-69) (twenty percent); Edward Epstein, *World Insider: Ukraine Going Green*, S.F. CHRON., Nov. 21, 1990, at A13 (thirty percent).

18. THE NEW ENCYCLOPAEDIA BRITANNICA: MACROPAEDIA, *supra* note 10, at 835-36.

the mineral fertilizers, and eighteen percent of the sulfuric acid produced in the former Soviet Union.[19] Ukraine also has well-developed metallurgical, machine building, and shipbuilding industries.[20]

Ukraine faces energy shortages despite its relative wealth of natural resources. One expert predicts a recurring energy crisis because of Ukraine's now wavering commitment to close five nuclear power plants and its imposition of a five-year moratorium on the construction of new nuclear power plants.[21] At the time of the Chernobyl accident, twenty-two percent of Ukraine's power came from nuclear energy stations, and that figure was expected to grow to sixty percent by the year 2000.[22] The coal industry and hydroelectric stations are also suffering.[23] A Ukrainian energy minister warned that the increase in the price of Russian oil to world levels may force Ukraine to continue relying on its nuclear reactors. Ukraine has been dependent on Russia for fuel to power its metallurgical[24] and machine-building industries for the last several years.[25]

Many Ukrainian factories lack modern equipment. Approximately eleven percent of currently used equipment is at least twenty years old.[26] Soviet economist Valentin Katasonov, an adviser to the Russian republic, noted that about ninety-five percent of Soviet

19. *Id.* at 835.

20. Marples, *supra* note 3, at 14.

21. The moratorium was declared in 1990. David Marples, *Ukraine Declares Moratorium on New Nuclear Reactors*, REP. ON U.S.S.R., Oct. 12, 1990, at 20, 20 [hereinafter *Ukraine Declares Moratorium*]; *see* Marples, *supra* note 3, at 15-16. This commitment is now in question due to President Kravchuk's decision to continue the use of nuclear power. *See* Aleksey Petrunya, *Kravchuk Meets Heads of Nuclear Power Stations*, Ukrinform, June 10, 1992, *reprinted in* F.B.I.S., DAILY REP., CENT. EURASIA, June 11, 1992, at 58; *Ukraine Restarts Chernobyl Amid Shift Towards Nuclear*, E. EUR. ENERGY REP., Nov. 11, 1992, *available in* LEXIS, Nexis Library, Omni File. Nuclear industry authorities say they will appeal to Parliament to lift the moratorium. *Id.*

The Ukrainian Ecological Association, Zelenyi Svit, issued a declaration protesting the reactivation of a Chernobyl reactor. E. Korbetskyy & V. Tymonin, *Is Ukraine's Fate Nailed to the Atom for Good?*, Khreshchatyk, Nov. 25, 1992, *reprinted in* F.B.I.S., DAILY REP., CENT. EURASIA, Dec. 23, 1992, at 65, 65 (in English as *Ecology Group Protests Reactivation of Chernobyl*). The protest noted the dangerous working conditions at Chernobyl and questioned the alleged economic advantages of running the reactors. *Id.*

22. Marples, *Ukraine Declares Moratorium*, *supra* note 21, at 21.

23. *Id.*

24. The metallurgical industry creates one-third of all industrial pollution. Interview with Viachislav Petrov, Chief of the Department of Independent Trade Unions of the Ukrainian SSR, in Kiev, Ukraine (July 19, 1991).

25. Marples, *supra* note 3, at 14.

26. *Id.* at 15.

plants would be closed down if subjected to U.S. standards.[27] Steel mills still rely primarily on open hearth furnaces, rather than the more efficient electrical converters.[28] Poor technology accounts for ninety percent of pollution,[29] and the accident rate in Ukrainian coal mines is among the highest in the world.[30] All this has led one expert to conclude, "Ukraine's production potential may have reached its peak, and opportunities for future industrial development are limited."[31]

B. *Environmental Catastrophe*

Industry has turned much of Ukraine into an environmental catastrophe.[32] Eleven of the sixty-five most polluted cities in the former Soviet Union are in Ukraine,[33] and are deemed "especially dangerous for living."[34] The industrial regions of Donetsk, Zaporozhe, Dnepropetrovsk, Cherkassy, Poltava, and Ivano-Frankovsk were designated "zones of ecological calamity."[35]

More than 1000 dangerous chemical enterprises in Ukraine produced almost thirty percent of the former Soviet Union's industrial air pollution.[36] In 1988, twenty-two billion pounds of toxic substances were emitted in Ukraine, almost ten times that emitted in the United States.[37] In seventy-eight Ukrainian cities, representing eighty percent of the population, the industrial emissions of harmful

27. Faye Flam, *Soviets Still Seek U.S. Savvy to Cure Industry Woes*, CHEM. WK., Jan. 30, 1991, at 26, 26.

28. Marples, *supra* note 3, at 15.

29. Interview with Viachislav Petrov, *supra* note 24.

30. Marples, *supra* note 3, at 15.

31. *Id.*

32. *See* D.J. Peterson, *The State of the Environment: An Overview*, REP. ON U.S.S.R., Feb. 23, 1990, at 13, 16.

33. Included in the list are Dneprodzerzhinsk, Donetsk, Zaporozhe, Krivoi Rog, Kommunarsk, Kremenchug, Mariupol, and Cherkassy. David Marples, *Ecological Issues Discussed at Founding Congress of "Zelenyi svit"*, REP. ON U.S.S.R., Feb. 2. 1990, at 21, 21.

34. D.J. Peterson, *The State of the Environment: The Air*, REP. ON U.S.S.R., Mar. 2, 1990, at 5, 9.

35. Lavrov, *supra* note 16, at 490; Marples, *supra* note 33, at 21.

36. David Marples, *The Greens and the "Ecological Catastrophe" in Ukraine*, REP. ON U.S.S.R., Nov. 2, 1990, at 23, 24. Ninety-three percent of these enterprises' output was exported. *Id.*

37. U.S. industries emitted about 2.7 billion pounds of toxic chemicals into the air. Alex Kozinski, *The Dark Lessons of Utopia*, 58 U. CHI. L. REV. 575, 579 (1991).

Stationary sources in Ukraine, according to government statistics, emit about 11 million tons of air pollutants yearly, or .22 tons a year per resident. Marples, *supra* note 3, at 15; Marples, *supra* note 18, at 23; Marples, *supra* note 36, at 24.

substances exceeded statutory limits by over sixty times.[38] Transportation emissions are factored separately and account for as much as forty percent of all toxic fumes.[39]

Ukraine's water supply is severely polluted as well. Approximately one billion cubic meters of polluted water, including radionuclide from Chernobyl, is annualy dumped into the 1420-mile long Dnieper River, which bisects Ukraine.[40] Fifty towns dump sewage into the Dnieper, which supplies tap water to the riverside cities.[41] Deadly dioxin has been reported in the tap water of Kiev.[42] After children in one city showed symptoms of mercury poisoning, a test revealed that pollution from a light-bulb factory had created mercury levels in the Dnieper River 140 times greater than permitted.[43] A trash incinerator in Sochi reportedly dumps wastes containing pollutants 3000 times the legal norm into the Black Sea,[44] which is reportedly ninety percent dead.[45] The amount of waste water increases twelve to thirteen percent every year.[46] An alto-

38. Marples, *supra* note 36, at 24 (citing Mykola Kysel'ov, *Na chudo hodi spodivatysya*, ZELENYI SVIT, Sept. 1990, at 2); *see also* Peterson, *supra* note 34, at 5.

39. Peterson, *supra* note 34, at 7. Eighty percent of petroleum in Kiev is leaded. Interview with Vitaly Kononov, Deputy of the Kiev City Soviet, in Kiev, Ukraine (July 18, 1991).

40. MURRAY FESHBACH & ALFRED FRIENDLY, JR., ECOCIDE IN THE USSR 122 (1992). A more conservative figure of 2634 million cubic meters was reported in 1988. Marples, *supra* note 36, at 23.

41. Mark Trevelyan, *Ukraine "Sickest Child of Europe"*, Reuter Libr. Rep., Mar. 6, 1992, *available in* LEXIS, Nexis Library, Omni File. More than thirty million people use water from the Dnieper River. Interview with Sergei Zhigimont, Chief of the Department of Defending Labor and the Department of Information and Environmental Protection, in Kiev, Ukraine (July 19, 1991).

42. Jim Sheppard, *U.S.S.R. Environment in State of Catastrophe*, CALGARY HERALD, Oct. 15, 1991, at B6.

43. Jeff Trimble, *Perestroika vs. a Growing Wasteland*, U.S. NEWS & WORLD REP., Dec. 5, 1988, at 44, 44-45.

44. D.J. Peterson, *The State of the Environment: Solid Wastes*, REP. ON U.S.S.R., May 11, 1990, at 11, 14 (citing TRUD, Oct. 6, 1989, at 4).

45. D.J. Peterson, *The State of the Environment: The Water*, REP. ON U.S.S.R., Mar. 16, 1990, at 14, 17; Marples, *supra* note 33, at 22. Experts claim that ninety percent of the Black Sea is deprived of oxygen. *Marine Pollution: Black Sea Severely Polluted, Says ICSEM*, Europe Information Service, Oct. 20, 1992, *available in* LEXIS, Nexis Library, News File. Of the three major rivers feeding into the Black Sea (the Dnieper, the Don, and the Danube), the Danube dumps 1000 tons of chromium, 60 tons of mercury, and 50,000 tons of oil into the Black Sea annually. *Id.*

In April 1992, a convention on the Black Sea was signed by the countries located on the Black Sea — Bulgaria, Ukraine, Romania, Turkey, Georgia, and Russia. Ukrainians offered eleven specific steps to reduce the levels of pollution, to restore the fish population, to regulate discharges from factories, and to develop regulations on the dumping of waste. Interview with Viacheslav Posadsky, Department Chief, Ministry for Environmental Protection of Ukraine, in Kiev, Ukraine (July 17, 1992).

46. Interview with Viachislav Petrov, *supra* note 24.

gether different problem is the disappearance of rivers. According to one analyst, the number of existing rivers in Ukraine has decreased from 40,000 to 25,000 in recent years.[47]

Ukraine is known for its rich *chernozem*, or "black earth."[48] Yet today, eight million Ukrainians live on contaminated land.[49] Over the last twenty-five years, 1.25 million hectares of arable land have been lost to industrial expansion.[50] Furthermore, significant quantities of topsoil have been lost through erosion,[51] and forest resources have been depleted.

C. *Chernobyl*

"Ecocide" is the term used by some to describe Chernobyl, the most tragic and enduring environmental problem of Ukraine.[52] The Chernobyl nuclear accident occurred at 1:21 a.m. on April 26, 1986. Not until forty-eight hours after the accident did authorities in Moscow admit the accident had occurred.[53] Former Soviet President Mikhail Gorbachev's first public address about Chernobyl did not occur until eighteen days later. The radioactive fallout, "30 to 40 times the radioactivity of the atomic bombs dropped on Hiroshima and Nagasaki,"[54] landed primarily on agricultural land.

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47. Marples, *supra* note 18, at 24. "We lost dozens of thousands of small rivers. They are the veins of our land." Interview with Ivan Zayetz, People's Deputy to the Ukrainian Supreme Soviet and Head of the Economic Commission on Questions of Economic Reform of the National Economy of the Supreme Soviet, in Kiev, Ukraine (Aug. 7, 1991).

48. At one time, the *chernozem* was several feet deep. The soil was so rich that during World War II, Nazis transported carloads of it to Germany. Chrystia Sonevytsky, *Incredible Journey: ReLeaf Comes to Ukraine*, 98 AM. FORESTS, Feb. 1992, at 40, 59.

49. Sheppard, *supra* note 42, at B6.

Alexei Yablokov, head of the Biology Institute at the Academy of Sciences said that 20% of Soviet citizens live in "ecological disaster zones" and 35% to 40% live in "ecologically unfavorable conditions." *The Poisoned Giant Wakes Up*, ECONOMIST, Nov. 4, 1989, at 23, 24.

50. Marples, *supra* note 33, at 22.

51. Of Soviet arable land, 13 percent is saturated with salt or salt compounds, while 4 percent has been turned into swamp. By far the most serious problem, however, is erosion: almost one-half of the country's agricultural land is affected, one-fifth — critically.... [R]ain and melting snow wash away 1.5 billion tons of topsoil from erosion-prone land annually.

Peterson, *supra* note 9, at 9 (footnote omitted).

52. Roman Solchanyk, *Ukraine: From Chernobyl' to Sovereignty*, REP. ON U.S.S.R., Aug. 2, 1991, at 21, 21.

53. Feshbach & Friendly, *supra* note 40, at 13.

54. LIBRARY OF CONGRESS, REVELATIONS FROM THE RUSSIAN ARCHIVES 13 (undated) (catalogue of an exhibit at the Library of Congress, June 17-July 16, 1992).

However, the V.I. Lenin Chernobyl Nuclear Power Station is only seventy-two miles north of Kiev, the capital of Ukraine.

While Soviet officials claimed that only thirty-two people died because of the disaster, the Ukrainian government in 1992 "officially estimated that between 6,000 and 8,000 people died as a direct result of the meltdown of the Chernobyl nuclear reactor."[55] Unofficial estimates of potential deaths run as high as 10,000 — which would make it the worst industrial disaster in the world.[56] While 5800 children and 7000 adults suffered from irradiation of the thyroid gland in 1986,[57] "more than 2.5 million people had been affected by the blast due to increased deaths from cancer and a five to tenfold rise in many diseases."[58] Today, some of the children who marched through the streets of Kiev in the May Day Parade only five days after the disaster are dying of leukemia, and others are suffering from thyroid and cancer-related illnesses.[59]

In 1986, in the thirty-kilometer zone around the reactor, 116,000

55. Chrystia Freeland, *Chernobyl Death Toll Put As High As 8,000*, FIN. TIMES, Apr. 24, 1992, at 2.

56. George Stein, *Controversy over Chernobyl' Mortality Figures*, REP. ON U.S.S.R., May 31, 1991, at 13, 13.

Scientist B. Kurkin compared Chernobyl to Hiroshima and Three Mile Island. The bomb dropped on Hiroshima produced approximately 740 grams of radioactive substances; Chernobyl exceeded that by more than ninety times. DAVID R. MARPLES, UKRAINE UNDER PERESTROIKA 26 (1991). Taking into account only the amount of radioactive iodine released into the atmosphere by Chernobyl, it surpassed Three Mile Island in quantity by more than three million times. *Id.*

Vladimir F. Shovkoshytny, president of the Chernobyl Union and a member of the Ukrainian Parliament said, "We don't know, for sure, but 7,000 to 10,000 deaths is a rational, even conservative estimate." Michael Parks, *The Full Impact of the Nuclear Nightmare in the Soviet Union Is Just Beginning to Emerge*, L.A. TIMES, Apr. 23, 1991, at H1.

Former Ukrainian Minister of Environmental Protection Yuri Shcherbak said, " 'One must understand that Chernobyl' was not our internal matter, but a global ecological catastrophe which affected many countries. If we intend to build a common European home, then we should put an end to our provincial and our pompous self-isolation. The issue of the internationalization of Chernobyl', making it open to all who want to help, is a very important moral and political issue.' " Lavrov, *supra* note 16, at 488 (citing Second Session of the USSR Supreme Soviet, Bulletin No. 38, n.d., at 50.)

57. Lavrov, *supra* note 16, at 488.

58. Stephen Nisbet, *Ukraine Appeals to West Not to Forget Chernobyl*, Reuter Libr. Rep., Feb. 20, 1992, *available in* LEXIS, Nexis Library, Omni File (according to Georgy Gotovchits, "the minster responsible for protecting the population from the consequences of the 1986 disaster").

59. Letter to the Editor from Yuriy Mishchenko, Executive Secretary of Green World (Zelenyi Svit) and Anatoly Panov, Vice President of Green World, *Chernobyl Makes Ukraine Want Independence*, N.Y. TIMES, May 5, 1991, at 16; *Five Million Still Suffer Five Years After Chernobyl*, PR Newswire, Apr. 24, 1991, *available in* LEXIS, Nexis Library, Wires file.

people were evacuated.[60] As of 1991, thousands living in contaminated areas were still awaiting relocation.[61] Several million people live in areas where radiation may exceed official limits.[62] More than four million live in areas which are generally clean but contain "hot spots," where radiation can be up to twenty times the normal background radiation.[63] One such "hot spot" is along the banks of the Pripyat River.[64] Some officials have worried that spring floods may cause contamination of the Dnieper River, from which more than 30 million Ukrainians get their drinking water.[65] Another source of concern is the potential for leaks from makeshift nuclear waste storage areas.[66]

The birth of the "Green" movement in Ukraine was a protest in memory of Chernobyl. In 1988, scientists and writers requested that the Kiev City Soviet Executive Committee allow a rally to be held on April 24 in memory of the Chernobyl accident. The request was denied, but a small demonstration took place on April 26, the actual anniversary date.[67] In April 1989, a reported 12,000 people gathered to remember the accident.[68] These early protests over Chernobyl led to protests against nuclear power plants in other regions. In October 1989, there were protests against proposed nuclear plants in Bashkir, Voronezh, and Crimea.[69] In 1990, the Khmelnitsky station was the site of another protest. On August 2, 1990, the Ukrainian Supreme Soviet declared a five-year moratorium on the commissioning or expansion of nuclear power stations. Furthermore, a resolution was adopted to close down the

60. George Stein, *Where is the Chernobyl' Fallout Now?*, REP. ON U.S.S.R., June 14, 1991, at 6, 9.

61. *Five Million Still Suffer Five Years After Chernobyl*, *supra* note 59. The USSR Supreme Soviet published a plan in late April 1990 to eliminate the consequences of Chernobyl. David Marples, *Chernobyl' — Summer, 1990*, REP. ON U.S.S.R., June 29, 1990, at 14, 17.

62. Stein, *supra* note 60, at 7.

63. *Id.*

64. *Id.* at 8.

65. *Id.* at 8-9.

66. Nisbet, *supra* note 58. Georgy Gotovchits, "the minister responsible for protecting the population from the consequences of the 1986 disaster," said that there are 800 temporary waste sites with contaminated machinery and topsoil which need to be put in safe, long-term storage. *Id.*

67. L. Beletskaya, *They Thought It Was Ill-Advised*, KOMSOMOLSKAYA PRAVDA, June 8, 1988, at 2, *reprinted in* 40 CURRENT DIG. SOVIET PRESS, July 6, 1988, at 21, 21 (in English).

68. MARPLES, *supra* note 56, at 38.

69. *See* David Marples, *The Growing Influence of Antinuclear Movement in Ukraine*, REP. ON U.S.S.R., June 22, 1990, at 17, 17 n.1.

Chernobyl Atomic Electric Power Station by 1995.[70]

Reportedly, "more than 23,000 officials involved in monitoring the radioactive consequences of Chernobyl were fined, 5,500 were fired, and 2,000 administrative cases were initiated for violations in areas 'with complex radiation circumstances.' "[71] The final costs of the accident could reach $358 billion by the year 2000.[72]

Chernobyl shook the confidence of the people in science's ability to conquer the limits of nature.[73] Former Minister of Environmental Protection Yuri Shcherbak explains that

> under the debris of the fourth unit was buried the ruinous doctrine of developing atomic energy in our country based on the monopoly of one group of scholars, one department, on the forced and secret imposition of the construction of atomic electric power stations without taking into account the population's mood and the decisions of local soviets, without thorough environmental analysis and assessment of possible consequences . . . . A crisis of faith in atomic technocrats is at hand.[74]

The fear of nuclear power remains very much alive today;[75] some scientists call it "radiophobia" — a fear that all illness is caused by the effects of radiation.[76] Ukrainians suffer from short life expectancy,[77] a high rate of "mutilated" births,[78] high numbers

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70. *Id.* at 18; *see* Lavrov, *supra* note 16, at 488. The first and third power units at Chernobyl are to be shut down in 1993. *Plans to Shut Down Power Units at Chernobyl*, Interfax, July 10, 1992, *reprinted in* F.B.I.S., DAILY REP., CENT. EURASIA, July 13, 1992, at 55, 56. A state committee will ensure the safety of the shutdown process. *Id.*

71. Gabriel Schoenfeld, *A Dosimeter for Every Dacha*, BULL. ATOM. SCIENTISTS, July/August 1989, at 13, 13.

72. Estimate by Yuri Koryakin, chief economist for the Soviet Research and Development Institute of Power Engineering. Parks, *supra* note 56, at H1.

73. *Contra* Charles E. Ziegler, *The Bear's View: Soviet Environmentalism*, TECH. REV., Apr. 1987, at 45, 51.

74. Lavrov, *supra* note 16, at 488 (citing Second Session of the USSR Supreme Soviet, Bulletin No. 38, n.d., at 50).

75. Former Ukrainian Minister of Environmental Protection Yuri Shcherbak, visiting Chernobyl after a fire in one of the operating reactors, said, "This is a terrible shadow, I would even call this a cursed place. . . . The sarcophagus is the single most dangerous atomic point in the world. Our people are right to tremble when they hear the word Chernobyl." Chrystia Freeland, *Second Chernobyl Accident Show Safety Still Poor*, FIN. TIMES, Oct. 14, 1991, at 1.

76. MARPLES, *supra* note 56, at 29.

77. Ukraine ranks thirty-second in the world in life expectancy. Marples, *supra* note 36, at 24. "Life expectancy for Ukrainian men has declined to 61 years . . . ." Trevelyan, *supra* note 41.

78. The number of mutilated births has risen from six to thirteen per 1000. Marples, *supra* note 33, at 21.

of spontaneous abortions,[79] high mortality rates,[80] and a low birth rate.[81] Ukrainians know what is amiss:

> We thought that the only weapons of mass destruction were nuclear, chemical or any other weapons. It happens that man can die from a polluted environment. This is the most dangerous weapon because when a man raises a gun it is visible or when tanks move they are visible, but if the environment is polluted, man dies slowly. We started to toll the bell that the environment is dangerous.[82]

As part of their effort to toll the bell, environmentalists are advocating a revival of previously held beliefs about the environment.

II.
THE PRE-SOVIET PERIOD

A. *The Roots of an Environmental Ethic*

Pre-Christian philosophy regarding nature can be derived from the extensive folk rites that were tied to agriculture, cattle-breeding, the seasons, and ancestor worship.[83] Tribes worshipped, among others, the gods of thunder, cattle, and the sun.[84] However, their view of life itself was not hierarchical.[85] The human being, the animal, the plant, and the object did not belong to delimited grades.[86] Early Ukrainians believed in such conceptions as the sheaf-grandfather, the fire-mother, and the maiden-spring-lark.[87] This was not anthropomorphism, "but the fruit of the ancient unhierarchical conception of the world as of one clan."[88]

After the introduction of Christianity in 988,[89] the folk rites be-

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79. In recent years, there has been a five- to seven-fold increase in spontaneous abortions. *Id.* On average, 40,000 pregnancies annually do not come to full term. *Id.*

80. *See id.*

81. *Id.* (Ukraine has the lowest birth rate in the Soviet Union). According to former environmental Minister Yuri Shcherbak, "the average life span for men is 7-8 years lower and for women 4-6 years lower than in highly developed countries. Congenital birth defects rose from 6 to 13 per 100 newborns, and the birthrate itself is the lowest in the USSR and exhibits a downward trend." Lavrov, *supra* note 16, at 490 (citing Second Session of the USSR Supreme Soviet, Bulletin No. 38, n.d., at 48).

82. Interview with Boris Zrezartsev, First Deputy Chairman, Ukrainian Peace Council, in Kiev, Ukraine (July 26, 1991).

83. *See* 1 UKRAINE: A CONCISE ENCYCLOPAEDIA 319-32 (Volodymyr Kubijovyc ed. 1963).

84. *Id.* at 341.

85. *Id.* at 343.

86. *Id.*

87. *Id.*

88. *Id.*

89. Three religions of Ukraine are the Ukrainian Catholic Church of the Eastern Right (Uniate), the Ukrainian Autocephalous Orthodox Church, and the Ukrainian

came a blend of Christian and pagan beliefs.[90] Christmas was an agricultural festival related to ancestor worship.[91] On New Year's Eve at midnight, it was believed, all living creatures talk.[92] At Easter time, birds were welcomed home with songs, and icons of two miracle-workers who were considered protectors of the bees were put out among beehives.[93] On St. George's Day, religious processions took place in the fields.[94] Similar celebrations and feasts occurred during the summer and autumn cycles.[95] Spiritualization of nature was the key to many of these rites, because Eastern Orthodoxy, unlike Protestant Christianity, did not encourage an attitude of mastery over nature.[96]

Despite the early Ukrainians' accommodating attitude towards nature, it was not until the early 1900s that a conservation movement took root.[97] There were three branches of the conservation movement in pre-revolutionary Russia.[98] The utilitarian branch sought to protect and maximize those animals which had economic value (beavers and sables), but sought to destroy those which were harmful (wolves and Siberian tigers).[99] The aesthetic branch had a

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Orthodox Church. *See* DAVID LITTLE, UKRAINE: THE LEGACY OF INTOLERANCE ix (1991).

90. 1 UKRAINE: A CONCISE ENCYCLOPAEDIA, *supra* note 83, at 342.

91. *Id.* at 321.

92. *Id.* at 323.

93. *Id.* at 324-25.

94. *Id.* at 328.

95. *Id.* at 328-33.

96. CHARLES E. ZIEGLER, ENVIRONMENTAL POLICY IN THE USSR 6-7 (1987); *see* JOAN DEBARDELEBEN, THE ENVIRONMENT AND MARXISM-LENINISM: THE SOVIET AND EAST GERMAN EXPERIENCE 81-82 (1985) (discussing East-West perspectives on nature); Joan DeBardeleben, *Optimists and Pessimists: The Ecology Debate in the USSR*, 26 REVUE CANADIENNE DES SLAVISTES 127, 129-31 (1984) (discussing how Soviets K.M. Kantor and N.I. Shakhnovich "reject the notion that Western anthropocentrism is rooted in the Judaeo-Christian tradition.")

Christianity's destruction of pagan animism "made it possible to exploit nature in a mood of indifference to the feelings of natural objects." Lynn White, Jr., *The Historical Roots of Our Ecologic Crisis*, 155 SCI. 1203, 1205 (1967).

97. In 1856, at a meeting of the Moscow Agricultural Society, Andrei Petrovich Bodganov pointed out that exhaustion of the soil and rapid population growth would lead to a crisis in food production and supply, and called for conservation and acclimatization of exotic plants and animals to Russia to ensure their survival for the sake of their economic value. "Bogdanov cautioned his listeners that 'there is no rich man who can live without any sort of fiscal controls and not go bankrupt. However rich nature is, she can still become exhausted if we continue to deplete her without "keeping any accounts." ' " Douglas R. Weiner, *The Historical Origins of Soviet Environmentalism*, 6 ENVTL. REV., Fall 1982, at 42, 42-43 (quoting Bogdanov, *Ob akklimatizatsii*, ZHURNAL SEL 'SKOGO KHOZIAISTVA, no. 12, at 193-194, 196 (1856)).

98. These were identified by Douglas R. Weiner. Weiner, *supra* note 97, at 44-46.

99. *Id.* at 44.

fear of the consequences of industrialism, an idealized view of pastoral life, and a love of the Motherland.[100] The scientific branch, believing in man's ability to transform the environment, focused on conducting research in primordial nature in order to use it as a goal for rehabilitating exploited areas.[101]

After the revolution, the conservationists were hopeful that the revolutionaries would support their plans.[102] However, the new government saw science as the great solution.[103] "Idealism was clearly out of style; materialism was the new religion."[104]

B. *The First Environmentalists*

Natural scientists were the first formal environmentalists in Ukraine. The first environmental protection society was established in 1910 on Khortytsia Island in the Dnieper River.[105] A Friends of Nature Society in Kharkiv, headed by Professor Taliev, organized the first conservation exhibition, which toured Ukraine during the winter of 1913-1914.[106] During the same period, university-affiliated associations published the natural scientists' research on soils, economic conditions, and population.[107]

In 1915, mineralogist and geochemist Vernadsky established the Commission for the Study of Natural Protective Forces. Vernadsky, whose philosophy has been revived today, was "one of the first scientists to emphasize the basic unity of earth, humans, and the cosmos through the exchange of matter."[108] He believed humans

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100. *Id.* at 44-45.

101. *Id.* at 45-46; *see* BARBARA JANCAR, ENVIRONMENTAL MANAGEMENT IN THE SOVIET UNION AND YUGOSLAVIA 50 (1987); ZIEGLER, *supra* note 96, at 7-8 (describing the technocentric "Westernizers").

102. Weiner, *supra* note 97, at 46-47.

103. *Id.* at 47.

104. *Id.*

105. Ironically, the Dnieper is the center of attention today because of its tragic state. *See supra* part I.B ("Environmental Catastrophe") and *infra* part IV.B.2.b, regarding Ukraine's Ministry of Environmental Protection.

106. Weiner, *supra* note 97, at 44.

107. 1 UKRAINE: A CONCISE ENCYCLOPAEDIA, *supra* note 83, at 39.

108. KENDALL E. BAILES, SCIENCE AND RUSSIAN CULTURE IN AN AGE OF REVOLUTIONS: V.I. VERNADSKY AND HIS SCIENTIFIC SCHOOL 181 (1990). Vernadsky wrote:

> In the intensity, complexity, and depth of modern life, man forgets in a practical sense that he himself and all humanity, from which he may not be separated, is inescapably linked with the biosphere. . . . In reality no one living organism finds itself in a free circumstance on Earth. All these organisms are constantly and inextricably linked — first of all in their food and breathing — with the material-energy environment around them. Outside of it they cannot exist under natural conditions.

Id. at 197 (quoting V.I. Vernadsky, *Zhivoe veshchestvo, 1916-1923*, (unpublished manu-

had "an obligation to think and act for the good of the planet as well as for their own personal comfort and well being."[109] In 1918, Vernadsky became the first president of the All-Ukrainian Academy of Sciences, an important center for zoological, botanical, and geological studies.

Also in 1918, the Agricultural Scientific Committee of Ukraine was created to organize environmental protection.[110] The Imperial government and provincial administrations were becoming involved in the environmental arena and had begun to implement regulations.[111]

C. *The First Environmental Regulations*

Early attempts to conserve forests and wildlife were largely sporadic and inadequate.[112] In 1883, Askaniia-Nova, Ukraine's first nature reserve, was established through private initiative.[113] During the 1880s and 1890s, the Imperial government and some provincial administrations began regulating hunting, land use, and forestry operations.[114] By the end of the pre-Soviet period, the stage was set for the establishment of numerous nature reserves, including botanical and zoological gardens and museums of natural science, which occurred in the 1920s.[115]

III.
THE SOVIET PERIOD

A. *The Marxist-Leninist Environmental Ethic*

Science was the new religion of the Soviets.[116] Consequently, the

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script in Arkhiv Akademii Nauk, Moskovskaia oblast', Moscow, f. 518, op. 1, ed. khr. 49, 11)).

109. Vernadsky's view poses problems for preservationists within the conservation movement because it reinforces the attitude that economic exploitation of the environment is acceptable. At the same time, however, he gave environmentalists some tools for demonstrating the negative consequences of economic activity. Therefore, his ideas are similar to the "wise use" position. *Id.* at 196-97.

110. 1 ENCYCLOPEDIA OF UKRAINE 830 (Volodymyr Kubijovyc ed. 1984).

111. Blair Ruble, *The Emergence of Soviet Environmental Studies*, 5 ENVTL. REV. 2, 2 (1980).

112. "[T]he second Romanov tsar Aleksei Mikhailovich, issued some sixty-five decrees regulating hunting; Peter I set aside parcels of land to be protected from economic development; and Catherine II promulgated the first set of Russian fishing regulations." *Id.*

113. 1 ENCYCLOPEDIA OF UKRAINE, *supra* note 110, at 829.

114. *See id.* at 829-30.

115. 1 UKRAINE: A CONCISE ENCYCLOPAEDIA, *supra* note 83, at 41-42.

116. Friedrich Engels understood "the importance and complexity of environmental issues, and suggests a reasonable path toward their solution." He wrote:

scientific branch of the conservation movement received an initial boost from the revolution. Lenin, a nature lover,[117] even drafted some environmental laws.[118] However, his statement "Communism is Soviet power plus the electrification of the whole country"[119] exemplifies the early commitment to modernization that eventually wreaked havoc on the environment.

"[T]he animal merely uses external nature, and brings about changes in it simply by his presence; man by his changes makes it serve his ends, *masters* it. This is the final essential distinction between man and other animals, and once again it is labor that brings about this distinction.

Let us not, however, flatter ourselves overmuch on account of our human conquest over nature. For each such conquest takes its revenge on us. Each of them, it is true, has in the first place the consequences on which we counted, but in the second and third places it has quite different, unforeseen effects which only too often cancel out the first. . . . [A]t every step we are reminded that we by no means rule over nature like a conqueror over a foreign people, like someone standing outside nature — but that we, with flesh, blood, and brain, belong to nature, and exist in its midst, and that all our mastery of it consists in the advantage that we have over all other beings of being able to know and correctly apply its laws.

And, in fact, with every day that passes we are learning to understand these laws more correctly, and getting to know both the more immediate and more remote consequences of our interference with the traditional course of nature. In particular, after the mighty advances of natural science in the present century, we are more and more getting to know, and hence to control, even the more remote natural consequences at least of our more ordinary productive activities. But the more this happens, the more will men not only feel, but also know, their unity with nature, and thus the more impossible will become the senseless and anti-natural idea of a contradiction between mind and matter, man and nature, soul and body, such as arose in Europe after the decline of classic antiquity and which obtained its highest elaboration in Christianity.'

Peter B. Maggs, *Marxism and Soviet Environmental Law*, 23 COLUM. J. TRANSNAT'L L. 353, 354-56 (1985) (quoting FREDERICK ENGELS, DIALECTICS OF NATURE 291-92 (Clemens Dutt trans. & ed. 1940)).

However, "Karl Marx's 'scientific' labor theory of value undermines adequate economic analysis of environmental problems and can be blamed for many of the environmental disasters that have occurred under socialism." *Id.* at 354. Soviet economists during the Stalin period interpreted the labor theory to give products the value of the labor used in their production. Therefore, no value would be attached to the destruction of the environment through mining, air pollution, or water pollution because it involved no production. The emphasis of the material production theory was on the goods produced. "This Communist Manifesto for the destruction of the environment surpassed the worst extremes of laissez-faire capitalist ideology." *Id.*

117. When Lenin died, his widow was asked which of his qualities she most admired. Her reply was "[l]ove of nature." Nicholas C. Yost, *The Citizens' Role in Nature Protection in the U.S.S.R.*, [1981] 11 Envtl. L. Rep. (Envtl. L. Inst.) 50,051, 50,051.

118. Maggs, *supra* note 116, at 370 (citing Zigurds L. Zile, *Lenin's Contribution to Law: The Case of Protection and Preservation of the Natural Environment*, *in* LENIN AND LENINISM; STATE, LAW, AND SOCIETY 83 (Bernard W. Eissenstat ed. 1971)).

119. ZIEGLER, *supra* note 96, at 24; Charles E. Ziegler, *Soviet Images of the Environment*, 15 BRIT. J. POL. SCI. 365, 366 (1985) (citing Report to the Eighth All-Russia Congress of Soviets, Dec. 22-29, 1920, *in* 31 VLADIMIR IL'ICH LENIN, COLLECTED WORKS 516 (1965)); *see also* Ziegler, *supra* note 73, at 46.

In 1928, Stalin initiated the first of the environmentally-devastating Five Year Plans.[120] Thereafter, a strictly utilitarian approach was taken to environmental protection. The Communist Party manipulated science as a method of domination of the populace, because "[t]otal unity and support at all stages of the policy process were deemed necessary to maintain the myth of Party infallibility."[121]

The Soviet government demonstrated a firmly anthropocentric belief in man's mastery over nature.[122] Three principles of this belief are 1) nature exists for man; 2) nature is to be acquired, regulated, and controlled by the state; and 3) to derive "the maximum benefits out of nature without sacrificing the ecological equilibrium, the planned approach linked to continuous advances in science and technology is the optimum if not the only solution."[123] Under this theory, "Marxist 'rationality' would supersede the 'rapacious' consumer attitude toward nature that exists under capitalism."[124] However, there were few incentives to use resources rationally, and the attitude which developed was "[w]hen everybody owns it, nobody owns it, so it's free for the taking."[125]

Eventually, an incentive to use resources rationally was created. "Environmental protection as an issue was a by-product of Khrushchev's campaign to promote efficiency and conserve resources in an economy shifting from extensive to intensive growth."[126] However, Brezhnev supported "an interventionist approach" to the natural environment.[127] In 1976, at the Twenty-fifth Party Congress of the Communist Party, Brezhnev said: "[I]t is

120. Weiner describes the years under Stalin as "a twenty year nightmare" after which both conservation and ecology needed resuscitation. Weiner, *supra* note 97, at 54.

121. Ziegler, *Soviet Images of the Environment*, *supra* note 119, at 368.

122. DeBardeleben, *Optimists and Pessimists: The Ecology Debate in the USSR*, *supra* note 96, at 129.

"The preoccupation with transforming nature, a devotion to blind industrial growth, and boundless confidence in the ability of science and technology to resolve any environmental problem are all represented in Soviet environmental images." Ziegler, *supra* note 96, at 154.

Weiner called the former Soviet Union "the land of the Great Transformation of Nature." Weiner, *supra* note 97, at 58; *see* JOHN PASSMORE, MAN'S RESPONSIBILITY FOR NATURE: ECOLOGICAL PROBLEMS AND WESTERN TRADITIONS (1974).

123. JANCAR, *supra* note 101, at 51.

124. Ziegler, *supra* note 73, at 46.

125. Ziegler, *Soviet Images of the Environment*, *supra* note 119, at 374; Ziegler, *supra* note 73, at 46.

126. ZIEGLER, *supra* note 96, at 155.

127. DEBARDELEBEN, THE ENVIRONMENT AND MARXISM-LENINISM: THE SOVIET AND EAST GERMAN EXPERIENCE, *supra* note 96, at 92.

possible and necessary, comrades, to improve nature, to help nature reveal her living forces completely."[128]

The years of devotion to Five Year Plans, the lack of prices for natural resources, and the seemingly endless supply of resources[129] led to a general attitude of exploitation that the government tried to replace with an attitude of rational use.[130] "During the Brezhnev era, however, the growing role of specialists in debating the feasibility of environmental projects implicitly called into question the myth of the Party's ability to make faultless choices. This tendency toward questioning the traditional sanctity of Party decision making appears to have expanded under Brezhnev's successors."[131]

Gorbachev's introduction of *glasnost* and *perestroika* allowed scientists to debate publicly the values and risks of wholehearted reliance on science and technology. The public learned that the *troika* of socialism, science, and technology had failed to protect the environment. The years of irrational use and consequent environmental disasters led the public to question official views.[132]

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128. DeBardeleben, *Optimists and Pessimists: The Ecology Debate in the USSR*, *supra* note 96, at 135 (citing E.M. Sergeev, *Ratsional'noe ispol'zovanie geologicheskoi sredy*, PRIRODA, no. 1, at 89-90 (1977)).

129. Ziegler notes that the massive size, natural wealth, and diversity of the Soviet Union is the linchpin of the government's "attitude of complacency toward resource depletion and pollution." ZIEGLER, *supra* note 96, at 25.

130. "When environmental decisions are taken in the Soviet Union, it is claimed that these decisions are 'rational.' Dozens of books, articles and official decrees refer to the 'rational use of nature' (*ratsional'nye prirodopol'zovanie*), or the economic 'efficacy' (*effektivnost'*) in utilizing natural resources. But as one round table of specialists noted, everyone has a different interpretation of what these concepts mean." Ziegler, *Soviet Images of the Environment*, *supra* note 119, at 375 (citing *The Economy, Ecology and Ethics — An EKO and Novy Mir Round-Table Discussion Among Writers and Scientists*, EKONOMIKA I ORGANIZATSIIA PROMYSHLENNOGO PROIZVODSTVA, no. 3, Mar. 1982, *reprinted in* 34 CURRENT DIG. SOVIET PRESS no. 3 (in English)).

131. ZIEGLER, *supra* note 96, at 154-55.

132. Officials also openly demanded a new attitude towards the environment. Former People's Deputy to the USSR Supreme Soviet Sergei Zalygin wrote:

> All the familiar sciences of the past served in one way or another the sole purpose of satisfying human consumerism at the expense of Nature. The problem for ecology now is to find ways of limiting this consumerist demand. Up until now science has concerned itself with "expansionist" projects, but now the time has come to limit them.
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> . . . .
>
> . . . [S]ociety is no longer going to tolerate the dictation of science. The time of blind faith in things scientific has gone. . . .
>
> So now public opinion is compelling science to give priority attention . . . to elaborating new and long-term principles for determining man's relationship with Nature and his needs.

Sergei Zalygin, *Ecology and Society*, 11 SOVIET LITERATURE 121, 122 (1989); *see* Victor

B. *The Environmental Players*

During the Soviet period, the Party and government controlled all legal participation in the environmental arena.[133] "Corporatism," as Charles Ziegler identified it, "institutionalizes the dominant social paradigm, which favors the military-industrial complex."[134]

1. The Government

The USSR Council of Ministers exercised control over the approximately forty all-union and union republic ministries that organized industrial and agricultural production. These were the primary environmental polluters.[135] The State Planning Committee (Gosplan) was responsible "for completing the monthly, yearly, and long-term plans for each ministry."[136]

Prior to the creation of the State Committee on Environmental Protection in 1988, the following groups were responsible for regulating and monitoring the environment: the USSR State Committee for Hydrometeorology and the Environment and its republican divisions, the USSR Council of Ministers' Presidium Commission for Environmental Protection and Rational Use of Natural Resources, the Sanitary Epidemiological Service of the Ministry of Health, and the Ministry of Reclamation and Water Resource Management.

2. The Military-Industrial Complex

The central government controlled and favored the defense, power generation, and extractive industries. The republics could not force these industries into compliance with environmental legislation because of the centralized economic planning.

> Stringent enforcement of environmental legislation by union republics would [have] jeopardize[d] the fulfillment of production quotas by ministries. Meeting quantitative norms . . . constitute[d] the single most important criterion of success for ministry and department officials, factory managers, and rank and file workers. Laws, national or republican, [were] conveniently . . . ignored when economic interests [were] at stake.[137]

Astafyev, *Forget Your Arrogance, Man!*, *id.* at 117; Yuri Karyakin, *Shall We Suffocate Before Killing Each Other?*, *id.* at 128.

133. ZIEGLER, *supra* note 96, at 64.

134. *Id.* at 155.

135. Ruble, *supra* note 111, at 5-6.

136. ZIEGLER, *supra* note 96, at 125.

137. *Id.* at 94.

Therefore, the power of the military-industrial complex effectively limited the authority of Ukraine's Ministry of Environmental Protection.

3. The Academics

Scientists, economists, and lawyers in research and higher education institutions collected information and provided it to the state for use in creating production plans.[138] A diversity of approaches was permitted, within limits — "[t]he state exercise[d] dominance in setting policy agendas, and in taking all major decisions."[139] Censorship limited the academics' ability to challenge central planning, Party control, socialist ownership, or the dominant social paradigm.[140] Charles Ziegler defined the "Dominant Social Paradigm" as the following:

1. Maximize economic growth
2. Preserve centralized planning, rapid completion of plans
3. Retain hierarchical structure of ministries and departments, but reduce departmentalism
4. Promote science and technology for economic growth
5. Strengthen Party control and guidance over economy and society; maintain existing distribution of political power
6. Greater reliance on specialists and experts, with the Party having the final decision[141]

Ziegler then outlined the "Environmental Social Paradigm" of the period:

1. Continue economic growth

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138. The U.S. International Communication Agency's (now the U.S. Information Agency) *Soviet Research Institutes Project* identified 329 Soviet research institutes dealing with the environment. ZIEGLER, *supra* 96, at 62.

139. *Id.*

140. Under the heading "Science Subservient," authors Murray Feshbach and Alfred Friendly explain:

> From Lenin's demand for total political loyalty grew a two-pronged assault on the independence of science and scientists. On one side was suppression both of individuals, such as geneticist Nikolai Vavilov in the 1930s and physicist Andrei Sakharov in the 1970s, and of data: the embarrassingly low census count that Stalin rewrote in 1937 and the figures that could not be published in the last half of the 1970s because they showed infant mortality on the rise. The other side of the totalitarian coin was the transformation of scientists into technological serfs. As sole employer, the state set the direction for research and decided which findings fit its purposes, which could be pursued, which must be hidden.
>
> Harnessed to political leaders hungering first for economic miracles and later for military power, Soviet science became a kind of sorcerer's apprentice.

FESHBACH & FRIENDLY, *supra* note 40, at 31.

141. ZIEGLER, *supra* note 96, at 42.

2. Improve central planning to eliminate waste, plan for unforeseen effects of economic activity, go-slow approach
3. Create centralized environmental protection agency to reduce negative impacts of departmentalism
4. Promote science and technology, with greater attention to solving environmental problems
5. Accept Party guidance, but urge greater Party attention to environmental problems
6. Final decisions on environmental questions to be made by experts and specialists, eliminate political considerations[142]

Environmentalists could only "propose marginal improvements in the system rather than any major overhaul."[143] They did not advocate major changes in the status quo.[144]

4. Nature Protection Societies[145]

The Ukrainian Society of Nature Protection, which today boasts fourteen million members, was established in 1947. Its initial aims and tasks were to "find and defend nature reserves — to grab the attention of the state and public for the salvation of these reserves."[146] The Society checked factories, commented on draft legislation, completed inspections to assist environmental law enforcement, planned and carried out beautification projects, had a role in facility siting, and educated citizens through television, radio, and public lectures.[147] The Society discovered over fifty percent of violations of environmental laws.[148]

The Nature Protection Society did not challenge the Soviet social paradigm. However, the societies could make a difference when a state agency was split on a decision. Still, citizen participation was "carefully controlled and directed by the Party and government; that [was] a central characteristic of state corporatism."[149] As one writer concluded, "Of all the parties involved in environmental protection, the public must be considered the greatest outsider of all, sharing none of the economic clout of industry, the political importance of the territorial units, or the expert's access to policymaking

142. *Id.*
143. *Id.*
144. *Id.* at 43.
145. *See* Yost, *supra* note 117.
146. Interview with Igor L. Grinchak, Deputy Chairman of the Presidium of the Republican Council, the Ukrainian Society for Nature Conservation, in Kiev, Ukraine (July 10, 1991).
147. *Id.*
148. *Id.*
149. ZIEGLER, *supra* note 96, at 62; *see* Maggs, *supra* note 116, at 368-370.

councils."[150]

C. *Environmental Regulation*

During the New Economic Policy ("NEP") period in the early 1920s, Soviet scientists pioneered the establishment of nature reserves (*zapovedniki*) for use as reference points (*etalony*) to indicate what conditions were like before man intervened.[151] The *etalony* were used as standards to measure degradation and rehabilitation requirements.[152] On June 26, 1926, the People's Commissariat of Education was established,[153] and its Ukrainian Committee for Environmental Protection coordinated conservation programs.[154] By 1928, more than twenty-three *zapovedniki*, with an area of about one million hectares, and hundreds of game and nature preserves were established throughout the Soviet Union.[155]

By the late 1920s, the atmosphere changed when Stalin vetoed a conservationist's plan to establish twenty million acres of nature preserves.[156] Stalin sought to industrialize as quickly as possible, with huge engineering projects such as hydro-power dams and river-linking canals.[157] A campaign against Ukrainian culture put an end to the development of nature reserves, and control of existing reserves was transferred to authorities in Moscow.[158] Specifically, the Commissariat of Agriculture took control of many of the *zapovedniki*,[159] and science became politicized after a wave of arrests of intelligentsia. The First All-Russian Congress for the Conservation of Nature was held in September 1929,[160] and by then, "any conservation position that seemed to contradict the economic requirements of the First Five Year Plan would be subject to charges of sabotage or 'wrecking.' "[161]

During the 1930s, the central government limited the studies of Ukrainian scientists,[162] and many scientists were arrested.[163] Mos-

150. JANCAR, *supra* note 101, at 262.
151. Weiner, *supra* note 97, at 45-46.
152. *Id.* at 46.
153. 1 ENCYCLOPEDIA OF UKRAINE, *supra* note 110, at 830.
154. *Id.*
155. Weiner, *supra* note 97, at 48.
156. Larry Tye, *The Scars of Pollution*, BOSTON GLOBE, Dec. 17, 1989, at 1, 76.
157. ZIEGLER, *supra* note 96, at 24.
158. 1 ENCYCLOPEDIA OF UKRAINE, *supra* note 110, at 830.
159. Weiner, *supra* note 97, at 50.
160. *Id.* at 49.
161. *Id.* at 50.
162. *Id.* at 51-54; *see* 1 ENCYCLOPEDIA OF UKRAINE, *supra* note 110, at 830.
163. 1 UKRAINE: A CONCISE ENCYCLOPAEDIA, *supra* note 83, at 42.

cow strictly controlled research work, often keeping it unpublished. The All-Ukrainian Academy of Sciences was reorganized under the Academy of Sciences of the Ukrainian SSR, which published a geologic journal and journals on the flora and fauna of the Ukrainian SSR.[164] In 1932, Askaniia-Nova was converted from a research *zapovednik* to land for sheep grazing.[165]

In January 1933, the First All-Union Congress for the Conservation of Nature was held,[166] and the Commissariat of Foreign Trade forced the conservation leadership to concede the transfer of the *zapovedniki* from the Commissariat of Education to the nominal Soviet parliament.[167] Stalinist biology was adopted with its slogan: "The Reconstruction of the Fauna and Biocoenoses of the USSR."[168] The General Plan for the Reconstruction of Fauna in the USSR was based on transforming nature into productive units having value for the human economy.[169]

During World War II, a few smaller reserves were established in Western Ukraine through the efforts of the Commission for Environmental Protection of the Shevchenko Scientific Society. In the postwar period, Soviet authorities exploited the Carpathian forests.[170] And in 1946, Stalin's Plan for the Great Transformation of Nature began to wreak havoc on state nature reserves.[171] A commission, headed by the secret police chief Lavrentii Beria and Nikita Khrushchev, was created to find more land for agriculture and logging.[172] In 1950, the new administrator for the *zapovedniki* proposed a plan for the liquidation of two-thirds of the reserves.[173] The plan was approved, and, in 1952, a Statute on *Zapovedniki* made surviving reserves experimental agricultural stations.[174]

Stalin's death in 1953 was a turning point. For the first time in decades, "increased industrial production did not automatically

164. 1 UKRAINE: A CONCISE ENCYCLOPAEDIA, *supra* note 83, at 42.

165. Weiner, *supra* note 97, at 52.

166. *Id.*

167. *Id.*

168. *Id.* at 52-53.

169. *Id.* at 51.

170. 1 ENCYCLOPEDIA OF UKRAINE, *supra* note 110, at 830.

171. Only the first part of the plan, planting trees in the steppe regions, was completed. Former President Mikhail Gorbachev canceled the second part of the plan which called for the diversion of several major Siberian rivers to the southern arid regions of Central Asia and Southern Russia. Ziegler, *supra* note 73, at 48.

172. Weiner, *supra* note 97, at 54.

173. *Id.*

174. *Id.*

take precedence over other concerns."[175] In 1955, the USSR Academy of Sciences established a Commission on the Conservation of Nature.[176] The Commission lobbied for the restoration of the *zapovedniki* as centers of study.[177] Although a 1958 Academy plan was adopted by the main conservation agencies (the USSR Ministry of Agriculture's Main Administration on Conservation, Hunting, and Reserves; the International Union for the Conservation of Nature; and the International Biosphere Reserves Program), the ecosystems were not properly preserved.[178]

During the late 1950s and early 1960s, "[o]fficial campaigns promoting conservation to maximize economic growth and efficiency legitimized discussion of broader 'environmental' issues by specialists concerned about environmental degradation."[179] Environmental protection laws adopted in 1958 and 1960, and then supplemented in 1964, were intended to improve the situation.[180] However, at the republican level there was insufficient power to force compliance with legislation on a consistent basis.[181]

In 1967, the State Committee for Environmental Protection of the Council of Ministers of the Ukrainian SSR was established,[182] with a proposal for an inspector for every region.[183] The same year, the Communist Party and the Council of Ministers of the USSR issued a resolution on soil conservation.[184] Soil erosion, caused by logging, plowing, and grazing on river banks, had become a major conservation problem.[185] From 1968 to 1972, the USSR Supreme Soviet issued the following laws to be used as models for republican legislation: the Fundamental Principles of Land Law, the Fundamental Principles of Water Legislation, and a resolution on conser-

175. Ruble, *supra* note 111, at 4.

176. The Academy of Sciences Forestry Institute "became a haven for those conservationists who were dismissed from the liquidated zapovedniki." Weiner, *supra* note 97, at 55.

177. *Id.*

178. *Id.*

179. ZIEGLER, *supra* note 96, at 73-74.

180. 1 ENCYCLOPEDIA OF UKRAINE, *supra* note 110, at 830.

181. Legislation enacted by the union republics in the late 1950s and early 1960s lacked sufficient authority to adequately regulate enterprises and organizations within republic boundaries. . . . Legislative authority must remain centralized to preclude regional tampering with nationally set production quotas. Substantial republican powers in environmental questions might create jurisdictional disputes which the central leadership is not willing to allow.

ZIEGLER, *supra* note 96, at 98.

182. 1 ENCYCLOPEDIA OF UKRAINE, *supra* note 110, at 830.

183. *Id.*

184. *Id.*

185. *Id.* at 830-31.

vation and resource utilization.[186] These were "implemented by . . . regulatory agencies responsible for monitoring mineral, air, water, soil, forestry and animal resources."[187]

The 1977 Constitution of the USSR[188] consolidated principles regarding exclusive state ownership of natural resources,[189] the duty of the state to protect and regenerate nature,[190] the rights of collective farms and citizens to use land,[191] and the duties of local agencies to "coordinate and control land use and nature conservation."[192] Article 18 stated:

> In the interests of present and future generations in the USSR the necessary measures shall be taken for the protection and scientifically well-founded, rational use of land and its minerals, water resources, flora and fauna, for the preservation of air and water purity, for ensuring the reproduction of natural wealth, and improvement of the human environment.[193]

Citizens were obliged "to protect nature and conserve [the USSR's]

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186. Soviet environmental law expert Oleg S. Kolbasov identified the following acts as "the keystones of environmental protection in the Soviet Union": Fundamentals of Land Legislation (1968), Fundamentals of Water Legislation (1970), Fundamentals of Mining Legislation (1975), Fundamentals of Forest Legislation (1977), Air Protection Act (1980), and Wildlife Protection and Use Act (1980). Oleg S. Kolbasov, *Environmental Policy and Law in the USSR*, [1987] 17 Envtl. L. Rep. (Envtl. L. Inst.) 10,068, 10,068.

187. The regulatory agencies included the USSR Ministry of Reclamation and Water Resource Management, the USSR Ministry of Agriculture, the State Committee for Hydrometeorology and Control of the Natural Environment, the State Inspectorate for the Supervision of Land Use and Soil Protection, the USSR Ministry of Public Health, the Central Directorate for the Protection of Nature, Nature Preserves, and Hunting, the Council on the Protection of Nature of the USSR Academy of Sciences and the State Forestry Committee. All maintained research branches.

Ruble, *supra* note 111, at 5-6 (citation omitted).

188. KONSTITUTSIIA SSSR of 1977 [KONST. SSSR (1977)]. A translation of the Constitution adopted by the Seventh Extraordinary Session of the Supreme Soviet of the USSR (9th Convocation) on October 7, 1977, and amended June 24, 1981, can be found in BASIC DOCUMENTS ON THE SOVIET LEGAL SYSTEM 3-32 (William E. Butler trans. & ed. 1983).

189. *Id.* art. 11 (amended 1987) (land, minerals, water and forests), *reprinted in* BASIC DOCUMENTS ON THE SOVIET LEGAL SYSTEM 6 (William E. Butler trans. & ed. 1991).

190. KONST. SSSR art. 18 (1977) (improvement of the human environment, fauna, etc.), *reprinted in* BASIC DOCUMENTS OF THE SOVIET LEGAL SYSTEM, *supra* note 188, at 7-8.

191. *Id.* arts. 12, 13 (collective farms and citizens), *reprinted in* BASIC DOCUMENTS OF THE SOVIET LEGAL SYSTEM, *supra* note 188, at 6-7.

192. Oleg S. Kolbasov, *The Concept of Ecological Law*, 4 CONN. J. INT'L L. 267, 272 (1989) (citing KONST. SSSR art. 147 (1977) (duties of local agencies and state power to protect nature)).

193. KONST. SSSR art. 18 (1977), *reprinted in* BASIC DOCUMENTS OF THE SOVIET LEGAL SYSTEM, *supra* note 188, at 7-8.

riches."[194] To this end, over 15,000 public comments were received on drafts of four pieces of legislation covering land use, water, minerals, and forestry.[195]

In 1979, Ukraine had 10 *zapovedniki*, 123 *zakazniki* (wildlife refuges or natural sites), 102 *zapovedni parki* (national parks), 713 local parks, and 4 republican game preserves (where hunting is not permitted).[196] In 1980, the State Planning Committee published a guideline entitled "Temporary Methodology for Determining the Economic Effectiveness of Expenditure for Measures for the Protection of the Environment."[197] Cost-benefit analysis was to be used "with particular emphasis on the measurable external benefits, but without inclusion of certain 'quality of life' factors."[198]

While the Party had permitted some criticism of environmental policy, its control over the means of communication limited the development of an environmental opposition.[199] However, during the 1970s and early 1980s, an "open and controversial discussion of environmental problems" took place in the philosophical journal of the Soviet Academy of Sciences, *Voprosy filosofii*.[200] A growing group of scientists pessimistic about the future of the environment began to challenge anthropocentricism.[201]

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194. Soviet environmental lawyers who had studied the National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321-4371a (1988 & Supp. III 1991), were involved in the drafting of the Constitution. Yost, *supra* note 117, at 50,052.

195. Comparatively, only 500 public comments were received when the U.S. Council on Environmental Quality's regulations implementing NEPA were first proposed. Yost, *supra* note 117, at 50,053 n.10.

196. 1 ENCYCLOPEDIA OF UKRAINE, *supra* note 110, at 830.

197. Maggs, *supra* note 116, at 363 (citing *Vremennaia metodika opredeleniia ekonomicheskoi effektivnosti zatrat v meropriiatiia po okhrane okruzhaiushchei sredy* [Temporary Methodology for Determining the Economic Effectiveness of Expenditure for Measures for the Protection of the Environment], 33 EKONOMICHESKAIA GAZETA 13 (1980) (measures recommended by the State Expert Commission of the State Planning Commission of the USSR)).

198. *Id.* at 363-64.

199. *See, e.g.*, UNICHTOZHENIE PRIRORDY, OBOSTRENIE EKOLOGICHESKOGO KRIZISA V SSSR [The Destruction of Nature: The Aggravation of the Ecological Crisis in the USSR] (1978) (revealing the level of secrecy maintained regarding environmental matters), written under the pseudonym Boris Komarov; the work is translated in BORIS KOMAROV, THE DESTRUCTION OF NATURE IN THE SOVIET UNION (1980). Three of the chapters are titled "Secret Air," "Secret Water," and "Secret Land." *See* Ziegler, *Soviet Images of the Environment*, *supra* note 119, at 371.

200. Subjects included "pollution, resource depletion, the population explosion, and international health problems." DeBardeleben, *Optimists and Pessimists: The Ecology Debate in the USSR*, *supra* note 96, at 128 (citation omitted).

201. *Id.* at 140.

IV.
THE TRANSITION PERIOD[202]

"Soon we will see nature only in this way."
(Overheard in the Ukrainian Central Botanical Garden.)

A. *New Environmental Ethics*

Currently, pessimism about the environment is rampant among the population.[203] The Chernobyl accident shocked Ukrainians and became "a metaphor not only for the horror of uncontrolled nuclear power but also for the collapsing Soviet system and its reflexive secrecy and deception, disregard for the safety and welfare of workers and their families."[204] *Glasnost* allowed the people to question the government publicly, and scientists and writers advocated making Ukraine a nuclear-free zone, emphasizing the need to study alternative energies.

While a high percentage of the population has a traditional love of nature and resorts to *dachas* (summer cottages) in the countryside for respite from urban life, many young people have little interest in the environment. Some people believe the necessary change in thought will not occur until future generations.

> For seventy years, our moral psychology was directed at consumption of nature. . . . In order to improve this situation, two or three generations must change. When we realize that man can't exist without nature, then we will be able to ask questions. First of all, it would be desirable to change human thinking. It will change in the process of

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202. For the purposes of this paper, this period is separated from the Soviet Period, though in fact it is the final part of the Soviet Period.

203. One writer lamented:

> People subconsciously want to live in harmony with nature, which has been torn up and scarred beyond recognition by their own deeds. Beyond recognition to such a degree that coming to visit my grandmother, Varya Shkolnaya in Vokovo-Antratsit, I always recall scenes from "The Stalker." Local scenery, however, is far more horrifying that the fantasies of Tarkovskiy: the smoldering waste pile, the constant, ear-splitting humming in the ventilation shaft which is heard everywhere, the half-destroyed structures and buildings. The dead-end railway tracks at the pond flowing from under the neighboring waste pile in which the grimy children swim and grow smaller with every passing year. An increasing number of old women are seen on crutches moving along the dusty street toward the only food store in the settlement of huts. . . . The heavy trucks and cars are rushing along the Rostov highway. It is simply impossible to get away from the traffic noise which is everywhere . . . .
>
> It is impossible to believe that there was silence here at one time.

P. Shevchenko, *Archipelago Donbass*, NEZAVISIMOST, June 5, 1992, at 8-9, *reprinted* (as *Donbass Unrest Profiled*) *in* F.B.I.S., DAILY REP., CENT. EURASIA, June 22, 1992, at 90.

204. LIBRARY OF CONGRESS, *supra* note 56, at 13.

education.... I want to repeat again, if there is no nature, there is no man.[205]

Religious leaders continue to emphasize the unity of man and nature.[206] Father Boris of the Ukrainian Orthodox Church explains:

> God created the cosmos and man as one and there is an undivided connection between them. The teaching of the church says that man is in a secret, mystical connection with nature .... [Therefore, a] Christian that lives in an environment will try to look after it and preserve the environment and as such it will be left to the next generations in a wholesome condition.[207]

Today's environmentalists have revived the similar philosophy of Ukrainian scientist Vernadsky,[208] whose portrait hangs in the conference room of the environmental organization Zelenyi Svit, which shares its offices with the Green Party. Though streams of people flow into these headquarters for environmental advice, many citizens continue to have little respect for nature. Therefore, the environmentalists have plenty of public education work to do.

B. *The New Players*

Pluralism, instead of corporatism, defines this period. Environmental groups have begun to play a significant role in protecting the environment and institutionalizing environmental protection. The groups have spread information about the state of the environment and, in some instances, have forced the government and its industries to stop polluting. However, the power of environmentalists

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205. Interview with Alexander Shulga, Chief Correspondent, News From Ukraine (weekly), in Kiev, Ukraine (July 19, 1991).

206. In an interview, Patriarch (of Moscow and All Rus) Pimen said:

> Back in Ancient Rus, the profound thought was expressed that nature is a temple in which man performs a creative service.
>
> In our days, the relationship between man and nature often is constructed in such a way that it is no longer possible, to our deep regret, to talk about the "temple of nature." And although recently, thank God, we have stopped using such expressions as "harnessing nature" or "conquering nature," our relationship with the environment in which we live is still dominated by the consumer principle ....
>
> In our view, overcoming the ecological crisis will be possible only when the relationship between man and nature is built on harmonious interaction.

Vladimir Chertkov, *The Orthodox Church: A New Acceptance?*, IZVESTIIA, Apr. 9, 1988, at 3, *reprinted in* 40 CURRENT DIG. SOVIET PRESS, May 11, 1988, at 1, 4; *see* Solchanyk, *supra* note 52, at 22 (discussing religious rebirth); Oxana Antic, *The Revival of Paganism*, 1 RADIO FREE EUROPE/RADIO LIBERTY RES. REP., May 8, 1992, at 54.

207. Interview with Father Boris, Secretary to the First Assistant of the Kiev Patriarch of the Ukrainian Orthodox Church, in Kiev, Ukraine (July 21, 1992).

208. BAILES, *supra* note 108, at 181.

depends upon the democratization process, because they only have as much power as they are given or as they can take. Thus, the Commonwealth of Independent States, the government of Ukraine, the military-industrial complex, and academics continue to be important players in the environmental arena.

1. The Role of the Commonwealth of Independent States

The Commonwealth of Independent States ("CIS") came into being on December 8, 1991 in Minsk, Belorus. CIS, as one writer explained, "is not a state or a confederation; it is a voluntary community of fully independent states bound testily together by the pervasive remnants of decades of central planning."[209] Whether the CIS will survive and whether Ukraine will continue its membership are looming questions.

The CIS's role in environmental protection includes cooperation on transnational pollution.[210] At one of their first meetings, state leaders agreed to coordinate efforts to clean up the aftermath of the Chernobyl disaster. Other environmental issues, such as the irrigation problem shared by Ukraine and Belorus in the region of Palaceya and the pollution of the Azov Sea, which originates in Ukraine and Russia,[211] will have to be solved through negotiations by the independent states involved.[212]

The CIS's primary purpose is to maintain and coordinate economic relations with its focus on trade negotiations and agreements. Consequently, it is hoped that the CIS will present opportunities for coordinating environmental protection activities, rather than dictating environmentally devastating production goals.

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209. Constance Hamilton, *What is the Commonwealth of Independent States?*, INT'L ECON. REV., July 1992, at 5.

210. "The December 8 'Agreement on the Creation of a Commonwealth of Independent States,' which established the CIS, called for a number of cooperation treaties in various areas, including political issues, health care, environmental protection, and science. The December 8 declaration also called for full coordination of economic policy and preservation of a 'ruble zone.' " Hamilton, *supra* 209, at 5.

211. Interview with Svjatoslav Dudko, Senior Scientific Assistant in Kiev, Ukraine (July 4, 1991). Similarly, Russia, Belorus, and Ukraine have agreed to sign a treaty on the Dnieper River. Interview with Vasyl Kostytsky, Vice Minister and Lawyer, Ministry for Environmental Protection of Ukraine and former Vice President of the regional division of Zelenyi Svit of L'vov, in Kiev, Ukraine (July 17, 1992).

212. A dispute "over the disposal of radioactive waste from a Ukrainian power plant" has already been temporarily resolved between Russia and Ukraine. Fred Hiatt & Margaret Shapiro, *Russians Warn on A-Plants; Aging Reactors Seen as Threat to West Following Accident*, WASH. POST, Mar. 29, 1992, at A1.

2. The Ukrainian Government

a. The Central Government

On August 24, 1991, in an emergency session of the Ukrainian Supreme Soviet, the parliament adopted an Act of Independence from the Soviet Union.[213] Thereafter, only republic laws were in force. Today, a common question is whether the democratization process is sputtering. The continuing control of *apparatchiks* (former Communist bureaucrats) is a mounting problem, and one local politician stated:

> Unfortunately, the power structure which was formed seventy years ago was built not only from the top but from the bottom. If we have only one president and even a Cabinet of Ministers, it changes nothing on the city level, regional level, village level, even on the level of thinking of the people.[214]

On December 7, 1990, a law ("On the Local Soviets of People's Deputies and Local and Regional Self-Government") was passed to free local Soviets from central control.[215] The law also created Presidential representatives at the local level, who now have more power than the local governments. "The power shifts from municipalities towards the representatives of the President."[216] Some analysts fear "the possible emergence of dictatorship."[217] President Kravchuk, the former general secretary of the Communist Party of Ukraine, has very broad powers, making deals and dismissing government leaders without any apparent consultation with other authorities. The Cabinet of Ministers is fighting to maintain its power,[218] and infighting is causing divisions within the various political parties. The tumultuous political situation does not sup-

213. Vitaly Portnikov, *The Ukraine Proclaims Independence*, NEZAVISIMAYA GAZETA, Aug. 27, 1991, at 3, *reprinted in* 43 CURRENT DIG. SOVIET PRESS, Oct. 2, 1991, at 12, 12.

Minister of the Environment Yuri Shcherbak said, "For all its history Russia has treated Ukraine as a province, . . . [a]nd it is a shock to them to realize independence is forever. It is like some huge bear deprived of one of its legs." Trudy Rubin, *'Little Russia' Is Now Truly on Its Own*, CALGARY HERALD, Jan. 28, 1992, at A4.

214. Interview with Leonid Scripka, Deputy to the Kiev City Soviet and Chief of the Committee on the Consequences of the Chernobyl Accident and Ecological Problems, in Kiev, Ukraine (July 30, 1991).

215. Ivan Plyushch, *The Representative Branch of Government and the Executive Branch of Government. Local Soviets: Organs of Self-Government*, HOLOS UKRAYINY, June 13, 1992, at 2-3, *reprinted* (as *Plyushch on Local Government Reform*) *in* F.B.I.S., DAILY REP., CENT. EURASIA, July 8, 1992, at 84.

216. Interview with Vitaly Kononov, Member of the Kiev City Council and Speaker for the Green Party, in Kiev, Ukraine (July 20, 1992).

217. Plyushch, *supra* note 215, at 85.

218. Interview with Viacheslav Posadsky, *supra* note 45.

port organized reform.[219]

219. Artur Bilous, an aide to the Supreme Soviet of Ukraine, believes "there is reason to hope that Ukraine, as well as Poland, are [sic] now heading away from atomized systems and towards the significantly more stable systems of polarized pluralism." Artur Bilous, *Five Forces: The Party System in Ukraine Today and for the Near Future*, KIEV DUMA, May 1992, no. 6, at 3, *reprinted* (as *Ukrainian Political Forces Analyzed*) *in* F.B.I.S., DAILY REP., CENT. EURASIA, June 26, 1992, at 67. He identifies five "basic sociopolitical forces" in Ukraine: 1) nationalist, represented by the Ukrainian Nationalist Union, Union of Independent Ukrainian Youth, and the Ukrainian National Assembly; 2) socialist, represented by the Socialist Party of Ukraine and the Peasant Party of Ukraine; 3) national democratic, represented by Rukh, the Democratic Party of Ukraine, and the Ukraine Republican Party; 4) general democratic, represented by the New Ukraine coalition; and 5) state-bureaucratic, represented by the "nonparty 'governing party.'" The last group

> consists of directors of large enterprises, traditional trade unions, and the cadres of the old apparatus. It has significant intellectual potential and substantial informational resources. It is marked by flexible tactics, which change in a sophisticated manner to suit specific needs. This force is the most difficult to analyze, just as it is the most influential and important force on the present political scene. In some respects, it is opposed to radical economic reforms, while in other respects it is the guarantor of social and, in particularly [sic], of national and international stability.

Id. at 67-68.

Volodymyr Hrynyov, deputy head of the Ukrainian Supreme Soviet "stresses that the current government is unable to carry out radical economic reforms, parliament is unable to fully create an economic basis for those reforms, and the president is unable to control the situation." *Review of Kiev Newspapers 14 July: The Power Crisis in Reality*, Ukrinform, July 14, 1992, *reprinted* (as *Official Predicts 'Power Crisis' in the Fall*) *in* F.B.I.S., DAILY REP., CENT. EURASIA, July 17, 1992, at 51.

One writer laments:

> We are in a trap. Some industrial cogwheels are still turning, but the huge machinery of the economy has long been idling. There is no more faith in a government that is incapable of either telling the truth or offering a way out. It is one of the two: Either it does not understand what it does, or it does it for its own benefit.

L. Khazan, *"The Unsinkable": The Supreme Soviet in Person*, KIEV NEZAVISIMOST, June 5, 1992, at 3, *reprinted* (as *Deputies Analyze Outcome*) *in* F.B.I.S., DAILY REP., CENT. EURASIA, July 1, 1992, at 64. In the same article, Deputy Ivan Zayets comments:

> We have lost a lot today. A peaceful replacement of the executive power will now be impossible. We have to wait until the people topple it the way presidents have been toppled in Central Asian countries. We have lost the opportunity to form a new government of consensus and trust on the threshold of a very important moment — the harvest and introduction of a national currency. That is, a time when one does not change horses midstream. But we will have to do it.

Id. at 65.

The political party New Ukraine has called for a new Cabinet of Ministers. V. Naumov, president of the Zaporozhye Oblast Union of Entrepreneurs and deputy chairman of the regional New Ukraine association, said the new cabinet needs to be "capable of carrying out without delay the privatization of land and industrial enterprises, including defense enterprises, demonopolizing foreign trade, and creating, with the countries in the ruble zone, a market area as open as possible to free producers." Viktor Filippov, *'New Ukraine' Unites Entrepreneurs in Power Struggle*, IZVESTIIA, June 29, 1992, at 2, *reprinted* (as *'New Ukraine' Advocates Vigorous Market Reforms*) *in* F.B.I.S., DAILY REP., CENT. EURASIA, July 6, 1992, at 65, 65-66.

Ukraine's independence, however, placed the ministries, and the industries that the ministries direct, under state control. For example, for the first time, Ukraine has control over its nuclear power reactors, the nuclear weapons on its territory, and the army.

b. The Ministry of Environmental Protection

In 1991, the Ukrainian Ministry of Environmental Protection ("the Ministry") was reorganized under the leadership of Yuri Shcherbak,[220] formerly president of the Green Party. The original staff of fifty increased to 175,[221] with a few of the new staff members coming from the environmental organization Zelenyi Svit or from the Green Party.

Initially, the Ministry studied American, Polish, German, Finnish, Italian, and Czechoslovakian models,[222] with the United States Environmental Protection Agency emerging as a model.[223] Though the Ministry has ten departments, three general "branches" of activities have emerged: 1) inspection and control of the environment, including the maintenance of environmental standards; 2) prevention, including monitoring and scientific analysis; and 3) economic incentives and legislation.[224] The latter branch has the tasks of creating a system of ecological legislation, working out bills and presenting them to the Cabinet of Ministers and Supreme Soviet, and working out decrees of the Cabinet of Ministers.[225]

The Ministry has four main programs: protection of the land, water, air, and flora and fauna.[226] Specific projects of the Ministry include establishing "a science center for the protection of water resources in Kharkiv[,] a science center for the protection of the sea in Odessa," the Donetsk Institute of Technological Ecology, dealing with air pollution, and "a subcontract with the Agricultural Acad-

220. A Presidential decree, signed July 26, 1992, transferred Yuri Shcherbak to the post of ambassador to Israel. Interview with Yuri Shcherbak, Minister for Environmental Protection of Ukraine, in Kiev, Ukraine (July 27, 1992.) Yuriy Kostenko replaced him as minister. *See National Security Council Membership Changes; Discusses Nuclear Power*, British Broadcasting Corporation, Summary of World Broadcasts, Dec. 2, 1992, *available in* LEXIS, Nexis Library, Omni File. Shcherbak was formerly a deputy to the Supreme Soviet of the USSR. He was the first democrat to hold a ministerial post in Ukraine.

221. Interview with Vasyl Kostytsky, *supra* note 211.

222. Interview with Yuri Shcherbak, *supra* note 220.

223. Interview with Vitaly Kononov, *supra* note 216.

224. Interview with Vasyl Kostytsky, *supra* note 211.

225. *Id.*

226. Interview with Viacheslav Posadsky, *supra* note 45.

emy, which carries out plans for the protection of the land."[227]

Under Yuri Shcherbak's leadership, the Ministry of Environmental Protection identified five areas of concentration: 1) the elimination of the consequences of the Chernobyl accident; 2) the improvement of the ecological situation in the Dnieper River basin;[228] 3) the improvement of drinking water quality; 4) the prevention of pollution in the Black Sea; and 5) the stabilization of the ecological situation in the Donetsk region.[229]

Shcherbak clearly stated the Ministry's purpose: "We are the eyes, ears and hand of the state, which has to defend the people of Ukraine from destruction."[230] Shcherbak implemented the concept of the citizen's "Right to Know."[231] According to this concept, "[a] person has the right to know the truth about what is going on [in the environment]."[232] To this end, Shcherbak has actively used television to inform the people about environmental issues.[233]

The usual budget for the Ministry is .42% of the gross national income, compared to about 3% in the United States.[234] Of the .42%, "the smallest sum of money goes to the Ministry and its needs and equipment, the biggest sum goes to the building of big cleansing factories, new technologies, and . . . purchasing land for reserves."[235] Yet Shcherbak points out that "in such countries as Ukraine, Poland, Czechoslovakia, which are in a difficult economic situation, fifteen percent of the gross national income must be spent to stabilize the ecological situation and to improve it a little bit."[236]

"In the economic situation that we have now," explains Shcherbak, "it's impossible to reach stabilization of the ecological

227. *Id.*

228. "The Environmental Ministry, feeling responsible for the fate of the river, turned to the President to create a special commission on the problems of the Dnieper and the quality of drinking water. The commission was created and its members include ministers, leaders of various state committees, and a vice president of the Academy of Science. The first meeting was led by President Leonid Kravchuk. During this meeting, it was decided to finish the development of a draft plan to save the Dnieper by December of this year." *Shche Ne Vmerla Ukryna* [Ukraine Isn't Dead Yet], SIGNAL SOS, July-Sept. 1992, at 1 (in Ukrainian).

229. Interview with Yuri Shcherbak, *supra* note 220.

230. *Id.*

231. Interview with Viacheslav Posadsky, *supra* note 45.

232. *Id.*

233. *Id.*

234. Interview with Yuri Shcherbak, *supra* note 220; Trevelyan, *supra* note 41.

235. Interview with Yuri Shcherbak, *supra* note 220.

236. *Id.*

situation."[237] Another Ministry employee points out that there is not enough money to carry out inspections, nor is there transportation, nor laboratories, nor communications equipment. Further, the Ministry's employees do not get feedback.[238]

Dealing with the political and administrative chaos is one of the Ministry's greatest challenges.[239] Yuri Shcherbak explains, "We need maximum decentralization and a maximum transfer of many functions to the system of self-government."[240] The political power struggle has had its effect on the capabilities of the newly reorganized Ministry of Environmental Protection. "The Supreme Soviet does not take the Ministry seriously. The President so far . . . also doesn't take the Ministry seriously."[241] This attitude weakens the Ministry's authority and actions. One employee who is very worried about this new governmental trend of ignoring the environment says:

> Starting with the highest state ranking members — as one such deputy proclaimed, "Wait with your laws about protection of the atmosphere. We are trying to decide political and economic questions" — and finishing with the person of the petty interests — a real case of this was in L'vov area, in the village Dashava, where a factory is producing industrial carbon [and is polluting greatly], the people agreed to reconstruct and increase the output with the condition that a movie theater will be built and the living conditions will be improved and the salary raised. This is environmental nihilism which is accepted by many people.[242]

No one blames Shcherbak for the fact that the Ministry of Environmental Protection did not make great advances in its first year. "Even when Shcherbak arrived [at the Ministry], it was clear he could not change anything in principle."[243]

The Ministry handles disputes with the Ministry of Defense or Energy according to the law. Shcherbak says, "I couldn't come here and say 'Give me this Ministry, eliminate that Ministry'. . . . We have more power over the Ministry of Defense only in the field of ecology, according to the law, where the law must be fol-

237. *Id.*

238. Interview with Viacheslav Posadsky, *supra* note 45.

239. Interview with Yuri Shcherbak, *supra* note 220.

240. *Id.*

241. Interview with Vitaly Kononov, *supra* note 216.

242. Interview with Vasyl Kostytsky, *supra* note 211.

243. Interview with Sergei Ivanovich Kurikyn, Secretary of International Affairs and Member of the Ruling Council of the Green Party, in Kiev, Ukraine (July 28, 1992).

lowed."[244] The army, one of the worst polluters, has challenged the Ministry's authority.[245] In February 1992, the battleship *Moskva* discharged a few tons of fuel oil into the Black Sea at Sevastopol. The Ministry sent an expert to appraise the situation, but he was not permitted to enter the area, despite the fact that the expert had previously been in the military and was cleared to go to all the secret installations. "The command of the fleet pronounced that it is their business and they will resolve it themselves. Such a situation is present on all the military installations,"[246] notes Shcherbak.

Where the Ministry fails, the public and environmental groups can play an important role. In Gorlovka, thirty-two miners were poisoned, some fatally, when chemicals leaked from tanks in a military factory. The People's Deputy for the region was not allowed to enter the territory surrounding the factory. Yet environmental groups "struggle[d] for the truth" and within about a week permission was obtained to enter the factory.[247]

While the Ministry "obviously does not have enough power or will to fight against [the military],"[248] the Ministry has decided to cooperate with the military in order to achieve environmental goals. For example, a subdivision of the Ministry of Environmental Protection was created to inspect army establishments.[249] Also, a commission created in the Ministry of Defense is studying the ecology of disarmament,[250] while a similar group was established in the Ministry of Energy.[251]

Though the Ministry is not against the use of atomic energy, it has the power to deny the construction of new plants. Yuri Shcherbak explains that

> [it] is impossible [to construct nuclear power plants in Ukraine] now because of psychological factors and also because of the lack of water.

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244. Interview with Yuri Shcherbak, *supra* note 220.

245. *Id.* Other ministries which were known as being among the worst polluters include the Ministry of Chemical and Petroleum Refining Industry (which combines the former ministries of chemicals, petrochemicals, and fertilizers), the Ministry of the Timber Industry, and the Ministry of Ferrous Metallurgy. FESHBACH & FRIENDLY, *supra* note 40, at 106-07, 115, 119, 300-304.

246. Interview with Yuri Shcherbak, *supra* note 220.

247. Interview with Vladimir Tikhii, Director of Greenpeace Children of Chernobyl, in Kiev, Ukraine (Aug. 12, 1991).

248. Interview with Sergei Ivanovich Kurikyn, *supra* note 243.

249. Interview with Nikolai Stepanovich Shepetz, Head of the Ecological Protection Commission for the Kiev City Council and Head of the Department for the Protection of the Environment for the Kiev region under the Ministry of Environmental Protection, in Kiev, Ukraine (July 22, 1992).

250. *Id.*

251. *Id.*

> If, for example, the government gives us an assignment to open ten more atomic stations, our department of experts studies the draft and they find that there is not enough water to implement this draft, to build an atomic electric station. Then the committee gives its conclusion that we are against building an atomic electric station, because it violates certain laws and limits. But as a Ministry, we do not fight against the construction of atomic electric stations.[252]

Although the state of the environment has continued to decline, some believe it is not the Ministry's fault.[253] Still, there has been an improvement in the industrial areas of Donbass, Dnepropetrovsk, and Donetsk due to factories closing, not because of the activities of the Ministry.[254]

However, the new Ministry already has critics. One critic believes that the "main shortcoming . . . is that it tried to take on everything in the sphere of the environment. The Ministry should be reformed in such a way so that it will be only an organ that forms environmental policy of Ukraine."[255] Another critic believes that the Ministry "should be a methodological, scientific center, which should have the power and the highest professional base. It should have representatives in all places, cities, and areas. Former *apparatchiki* and bureaucrats should not be working there, but professionals who know their fields or businesses should be working there."[256] This critic believes that the current changes were only cosmetic, "because the majority of the people who worked there a year or two ago remained there. The sign has changed, but the substance remains the same."[257]

In September 1992, in what may prove to be a major setback for environmentalists in Ukraine, Yuri Shcherbak was removed from the post of minister of environmental protection and given the post of ambassador to Israel. Yuriy Kostenko replaced Shcherbak.[258]

c. Local Government

Despite political battles, local soviets or representatives can play

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252. Interview with Yuri Shcherbak, *supra* note 220.

253. Written Interview with Youri Shemshouchenko, Director of the Institute of State and Law, the Ukrainian Academy of Sciences, and President of the Union of Lawyers of the Ukraine, in Kiev, Ukraine (July 1992).

254. Interview with Vitaly Kononov, *supra* note 216.

255. Written Interview with Youri Shemshouchenko, *supra* note 253.

256. Interview with Vadim Sachaev, Doctor and Professor of Economics, and Director of Ecorada, in Kiev, Ukraine (July 22, 1992).

257. *Id.*

258. *See supra* note 220.

an important role in protecting their environments. Under the current administrative system, local governments receive seventy percent of the fines collected from factories for violations of environmental standards. However, "any small town or village cannot . . . force any factory on its territory to reconstruct the factory," and ecological needs are usually ignored.[259]

One local environmental chief in Dnepropetrovsk, a zone of ecological calamity, achieved partial success. He was able to close down "at least six major factories in the region."[260] Still, the Petrovsk steel mill continues to "belch out an annual 46,000 tonnes of dust and chemicals into the residential area next door, including a hospital, three schools and 1,200 homes."[261] The mill has "pumped 144 million cubic metres of waste into the [Dnieper] river in 1990, including oil products, iron, phenol and cyanides."[262] The local chief has stated that the mill, with its 7000 employees, " 'can't be run that way any more, it's impossible. Everyone understands we need production and people need work, but something needs to be done. You can't have old technology, a 100-year-old factory, and do nothing about it.' "[263] Local government officials need to have some authority over the military-industrial complex.

3. The Military-Industrial Complex

When Ukraine was under Soviet control, ninety-five percent of Ukrainian industry was under the direction of Moscow.[264] Consequently, the republican and local governments had little power to control pollution by such industries as the energy, defense, petrochemicals, extractive, and heavy industries. For example, the third largest industrial center, Zaporozhe, had 112 factories controlled by twenty-nine government ministries.[265] This allowed "[i]ndustrial and ministerial misdeeds" to be "easily concealed in the miasma of official secrecy."[266]

Today, the military-industrial complex puts powerful pressure on

259. Interview with Yuri Shcherbak, *supra* note 220.

260. Trevelyan, *supra* note 41 (referring to local environmental chief Nikolai Shpak).

261. *Id.*

262. *Id.*

263. *Id.* (quoting Nikolai Shpak, local environmental official).

264. Epstein, *supra* note 17, at A13.

265. Trimble, *supra* note 43, at 45. Zaporozhe's residents suffer a higher level of cancer than elsewhere. Interview with Viachislav Petrov, Chief of the Department of Independent Trade Unions of the Ukrainian SSSR, in Kiev, Ukraine (July 19, 1991).

266. Trimble, *supra* note 43, at 45.

the President.[267] Approximately seventy percent of industrial efforts have been devoted to the military.[268] Over the past two years, Ukrainian parliamentarians and citizens have expressed their desire that Ukraine become and remain a nuclear-free zone. Yet, nuclear power currently provides one-third of the country's energy,[269] and the Minister of Energy warned that increases in the price of Russian oil could force Ukraine to continue operating its nuclear reactors.[270]

President Kravchuk has become a powerful intervenor for nuclear power. After meeting with representatives of the Nuclear Power Complex, Kravchuk unilaterally declared that there is no alternative to nuclear energy in Ukraine.[271] As one critic points out, "This is one of his biggest mistakes."[272] Kravchuk later "ordered his ministers to find ways to increase public support for nuclear power, and to ensure the safe and uninterrupted operation of power plants."[273]

Demonopolization and privatization are not occurring as fast as some would like.[274] They point out that no structural changes have been made in the economy: ninety percent of industry is still owned

267. Interview with Vitaly Kononov, *supra* note 216.

268. *Nation Joins IMF and World Bank, Requests Financial Aid from West*, 2 E. Eur. Rep. (BNA) 754 (Sept. 14, 1992).

269. *Ukrainian Energy Crisis; Security Council Discusses Republic's Energy Needs*, British Broadcasting Corporation, Summary of World Broadcasts, Dec. 4, 1992, *available in* LEXIS, Nexis Library, Omni File.

270. Lenina Kaybysheva, *From the Electric Lightbulb to the Primitive Torch?*, NEZAVISIMAYA GAZETA, Sept. 28, 1991, at 6, *available in* LEXIS, Nexis Library, Omni File. Lenina Kaybysheva, an official of the former USSR Energy Ministry, criticizing the Soviet Union's environmentalists for "professional incompetence and lack of common sense," said, "The stunning results our Greens have achieved are more than any saboteur could hope for in his wildest dreams." *Id.*

271. Interview with Vitaly Kononov, *supra* note 216; Petrunya, *supra* note 21, at 58; *Republic to Continue Producing Nuclear Power*, (Ukrayinske Radio First Program Network broadcast, June 11, 1992), *reprinted in* F.B.I.S., DAILY REP., CENT. EURASIA, June 15, 1992, at 40.

272. Interview with Vitaly Kononov, *supra* note 216.

273. *Chernobyl, Other RBMKs to Remain Operating — Power Shortage Key*, E. EUR. ENERGY REP., Nov. 15, 1992, *available in* LEXIS, Nexis Library, Omni File.

274. A Deutsche Bank report identifies the following as the two overall goals of Ukraine's market reform plan: "to separate Ukraine's domestic market from the CIS market, and for the country to assume the administration of its own national economy." Andreas Gummich, Deutsche Bank, *Ukraine — a CIS Member Branching Out*, FOCUS: EASTERN EUROPE NO. 52, DEUTSCHE BANK RESEARCH, July 24, 1992, at 2. Individual steps include maintaining control of the money supply and inflation, introducing Ukrainian currency, creating incentives for foreign investors, and privatization. *Id.* In 1992, land used for crops and animal husbandry are to be privatized. *Id.* Beginning in 1993, "most firms in construction, trade, transport and other service areas are to be privatized." *Id.*

by the government.[275] Since many factories are the sole producers of particular goods, they cannot be closed down. "Regardless of Ukrainian mentality or the activities of the Greens, real changes will only occur when industry is demonopolized. As of today, none of these monopolies can be penalized," notes Vitaly Kononov, a member of the Kiev City Council and speaker for the Green Party.[276]

Without economic changes, environmental protection cannot proceed. As economist Vadim Sachaev notes:

> Without reliable environmental protection, the economy of Ukraine cannot be developed. The solution to the environmental problem is not possible without the solution of the economic problem. This is the same task and everything in here should be interconnected. The sooner the people who are in power understand this, the better it will be for us, our kids, and our future generations.[277]

4. Trade Unions

Trade unions have a dual role: to keep their people employed and to protect the labor force, including ensuring minimum environmental standards in the factories. The trade unions may oppose the opening of new plants in areas that cannot support a polluter or when the factory plans do not include the use of new pollution technology. For example, in Kalush, in the Ivano-Frankovsk region, where many harmful factories are located, Occidental Petroleum signed a deal to build a factory to produce polyvinyl chloride ("PVC"). The independent trade union sent a letter to government officials objecting to the construction of the factory and the expansion of industry in such an already polluted region. The project was subsequently canceled.[278]

Trade unions will not overlook the economic interests of their workers, "especially now when levels of industrial production are decreasing, . . . when the standard of living is decreasing."[279] The unions hope to be able to find "the golden middle — to protect ecology and, at the same time, to be able to fight for people's interests."[280]

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275. Interview with Vitaly Kononov, *supra* note 216.
276. *Id.*
277. Interview with Vadim Sachaev, *supra* note 256.
278. Interview with Viachislav Petrov, *supra* note 24.
279. *Id.*
280. *Id.*

5. The Academics

Scientists, writers, and academicians created an environmental lobby, and today, they continue to play an important role. For example, the Academy of Sciences provides help to the Ministry of Environmental Protection "in developing Ukraine's environmental protection policy and preparing drafts of many legislative acts for their presentation in the parliament of the republic."[281] The Academy has worked on recent drafts of laws covering air, forests, parks, and environmental expertise. Together with the Ministry, the Academy held a conference in Kiev on the effectiveness of state and societal control of the environment.[282]

The Union of Writers supplies many of the opposition movements' leaders. Its Director, Ivan Drach, is an active politician. Sergei Petrovich Plachinda, a famous writer who researches questions of ecology, tries to put all his ideas into practice through the Peasant Democratic Party.[283]

Ecorada is an independent group of economic and industry scientists and specialists who want to work in the field of ecology. Ecorada prepares scientific analyses and supports various environmental causes. In 1991, Ecorada managed to stop the building in Barishevka of what would have been the largest European leather factory.[284]

6. Environmental Groups

The Soviet government sacrificed the environment to maintain domestic tranquility, but the attempt backfired.[285] A healthy democratic environmental movement arose out of *perestroika*[286] and Chernobyl.[287] A 1991 law on environmental protection gives envi-

281. Written interview with Youri Shemshouchenko, *supra* note 253.

282. *Id.*

283. Interview with Ivan Zayetz, *supra* note 47.

284. Interview with Vadim Sachaev, Director of Ecorada, Doctor and Professor of Economics, in Kiev, Ukraine (July 4, 1991).

285. ZIEGLER, *supra* note 96, at 43.

286. The amalgam of approaches under the general heading of *perestroika* includes: democratization and the development of pluralist politics; *glasnost*, or "openness," which has significantly liberalized state restrictions on information, discussion, and criticism in public and in the media; and *khozraschet*, which has involved decentralization of economic accountability within the state economic system and liberalization of private economic freedom.

Palmer, *supra* note 15, at 458 (footnote omitted).

287. Chernobyl was a catalyst for popular mobilization. *Id.* at 458 n.23; *see also* Larissa M.L. Zaleska Onyshkevych, *Echoes of Glasnost: Chornobyl in Soviet Ukrainian Literature*, *in* ECHOES OF GLASNOST IN SOVIET UKRAINE 151 (Romana M. Bahry ed. 1989); MARPLES, *supra* note 56, at 137.

ronmental groups the right to join with state inspectors during inspections of factories, to propose referendums, and to sue for compensation for harm resulting from violations of environmental legislation and injury to individuals and property.[288] While a plethora of small local groups has emerged, a few of the larger and more prominent ones are examined next.[289]

a. Zelenyi Svit, the Green World Association

In Kiev, on October 28, 1989, the scientists and writers who participated in the public debate over nuclear power founded Zelenyi Svit.[290] The Green World Association, which in 1990 had some 500,000 members,[291] is a central organization that coordinates member groups and collects dues from members to finance the organization. Zelenyi Svit publishes a monthly newspaper whose articles have included *Alternatives: Solar Energy Conference, When Will the Black Sea Explode?, Western Views of Chernobyl,* and *Ukraine: the History of Ecological Disaster.*[292]

Zelenyi Svit also empowers individuals to protest polluters. For example, one Kievite walked into Zelenyi Svit's offices and complained about a few factories across a lake from her apartment complex that were burning industrial waste at night so no one would catch them. However, the smoke was choking the inhabitants, who had written letters, sent a petition to the local newspapers, and contacted their People's Deputy. For a short while the factories did not burn the waste, but they started again.[293] Zelenyi Svit sent a letter to the Kiev Executive Committee to accompany a petition from other inhabitants, and offered to help her organize a protest.

"A continuing stream of people" with similar complaints flows

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288. Zakon o Ukrainskoi Radyanckoi Socialistichnoi Respubliki Pro Ohrani Prirodnovo Seredovisha [The Law of the Ukrainian Soviet Socialist Republic on Environmental and Nature Protection], chap. 4, § 21, KIEVSKI VESTNIK [Kiev Herald], July 25, 1991, at 2 [hereinafter "Ukrainian Law on Environmental Protection"].

289. New organizations are constantly emerging. One example is the newly formed National Ecocentre of Ukraine, which is a partner with Global ReLeaf. The organization was established by scientists and citizen activists. It is based in Kiev but has over 15 chapters throughout Ukraine. Sonevytsky, *supra* note 48, at 59.

290. " 'Professional plus citizen plus activist' is the formula that describes the vanguard of the environmental movement." Oleg Nikolaevich Ianitskii, *Ekologicheskoe dvizhenie,* SOTSIOLOGICHESKIE ISSLEDOVANIIA, no. 6, at 26 (1989), *reprinted in The Environmental Movement,* 29 SOVIET SOCIOLOGY, Nov.-Dec. 1990, at 39, 50.

291. Epstein, *supra* note 17, at A13.

292. ZELENYI SVIT, June 1991, at 6, 8, 9; *id.* July 1991, at 4.

293. Interview with Kievite, at the offices of Zelenyi Svit, in Kiev, Ukraine (July 23, 1991).

into Zelenyi Svit's office.[294] Zelenyi Svit addresses citizen's "complaints, questions about the environment, and questions that concern them."[295] For example, Zelenyi Svit has organized demonstrations against the construction or the continued use of the following: a nuclear power station in Rovna, a central heating unit in Odessa, a nuclear power station in Crimea, a nuclear central heating unit in Kharkiv, and the radar station in Prestralaya.[296] In each case, construction was stopped or the plant was closed.[297]

The organization derives power not only from its many successful environmental battles, but also from some of its members who are now politicians.[298] "The local Executive Committee knows that it is better to get our sanction for anything. They know if they do not get our sanction, their plans won't be put into practice."[299]

b. The Green Party (also named "Zelenyi Svit")

The Green Party was founded in September 1990 when leaders of the Green World Association recognized that, in order to achieve their environmental goals, they must take political action. One representative noted:

> All democratic changes that had begun sprang from ecological problems. All leaders of nationalist, liberal, democratic, and Christian parties started with Green ideas and used them in their election campaigns. Later, they refused these ideas. Subsequently, we came to the opinion that we should found the party in the Ukraine, in order to solve problems through the parliament.[300]

From the Greens' platform,[301] a new environmental social para-

294. Interview with Yevgeni Korbetsky, First Assistant to Zelenyi Svit and Chairman of the Union Salvation, in Kiev, Ukraine (Aug. 21, 1992).

295. *Id.*

296. Interview with Pavlo Zhovnirenko, Secretary of the Department of International Relations of Zelenyi Svit, in Kiev, Ukraine (June 28, 1991).

297. *Id.*

298. From June 1991 until August 1992, the Green Party's President, Yuri Shcherbak, was the Minister of Environmental Protection. Several members of the organization also became employees of the Ministry. Other members hold posts in both the Supreme Soviet and the Kiev City Soviet. In order that the Green World Association (which accepts anyone as a member) remain apolitical, a separate political organization was formed. *See infra* part IV.B.6.b. "The Green Party."

299. Interview with Pavlo Zhovnirenko, *supra* note 296.

300. Interview with Vitaly Kononov, *supra* note 216.

301. The party's draft program

> condemns the nuclear energy industry as undesirable not only because of the danger it poses to the environment but also because of its alleged administrative-command structure, whereby all the decisions on planning, location, and operation are made by ministries based in Moscow, without consultation either with the republican authorities or with the residents of areas adjacent to proposed stations. The Green Party

digm has evolved for all environmentalists:

1. Continue economic growth, focusing on agricultural production and reducing industrial pollution
2. Eliminate central planning, rely on market forces
3. Develop a complete and effective system of environmental protection
4. Eliminate nuclear weapons and power, promote scientific and technological development of environmentally safe production methods and pollution control
5. Promote pluralism, democracy, independence and direct action
6. Democratize the decisionmaking process by utilizing the research of independent environmental groups and scientists, distributing information to the public, and giving effect to public opinion[302]

c. Greenpeace

Greenpeace started its operations in Kiev in August 1990 with the Children of Chernobyl project. The project was designed to help the health care system by obtaining medical equipment to continue testing. The project also tried to provide new information through a program of visiting physicians. Between February and August 1991, the project's clinic examined 4000 children. This program was handed over to the Ministry of Health in August 1991.

Together with Zelenyi Svit, Greenpeace operates an Independent Ecological Institute that has a mobile, radiological-toxicological testing lab. After decades of government controlled science, the lab serves an important role as an independent, unbiased source of information. The lab checks food, soil, air, and water for radiation and a variety of chemical contaminants. After another, smaller accident at Chernobyl in October 1991, the lab was able to verify that no new contamination occurred.[303]

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program advocates the total prohibition of nuclear power and demands the adoption of a new law on energy and energetics according to which two-thirds of the funds allotted by the state for energy needs would be used for the development of alternative energy sources.

Marples, *supra* note 69, at 18 (citation omitted).

302. *See Kvyten, Chacopis Partii Zelenyik Ukraini* [News of the Green Party], April 1991.

303. Block 2 of the Chernobyl station had to be shut down because of a six-hour fire that blew the roof off the turbine room. N. Pugovitsa, *Flame over Chernobyl*, SELSKAYA ZHIZN, Oct. 15, 1991, at 1, *available in* LEXIS, Nexis Library, Omni File; Chrystia Freeland, *Second Chernobyl Accident Shows Safety Still Poor*, FIN. TIMES, Oct. 14, 1991, at 1. The Ukrainian Minister of Industry and Transport Viktor Hladush said that safety standards at Chernobyl and the 14 other nuclear reactors in Ukraine were dangerously low. *Id.*

d. *The Ukrainian Society of Nature Protection*[304]

The Society has sought a new status in this transition period, and now conducts scientific analyses[305] and can sue violators of environmental laws.[306] The Society's Deputy Chairman notes that "[w]e do not care about meetings and demonstrations. We do practical work, practical solving of problems."[307]

One edition of its newspaper, *Trilishnik* ("Maple Leaf"), featured articles on the Ministry of Defense's construction of an arsenal in the forest of a region that lacks forests, the addition of new endangered species to The Red Book, and how the Dnieper River is to be cleaned.[308] The Society plans to take part in the restoration of the Dnieper River.[309]

7. The Public

While there is wide public support for improving environmental conditions, "the day-to-day struggle of finding enough food, getting better wages, contending with organized crime and surviving amid national unrest" often rank ahead of environmental concerns.[310] As one official puts it:

> The most important thing, in my opinion, is to give people the feeling that they are hosts of themselves, they are in control of their life. Until now . . . people felt that they were part of the collective but no one felt in control of their own life.[311]

Citizens often lack knowledge of environmental rights and have little incentive to sue polluters. These facts are well publicized through the Ministry of Environmental Protection's "Right to Know" program. The 1991 law on environmental protection lists the ecological rights and responsibilities of citizens and gives them

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304. See description of the Society in the Soviet Period, *supra* part III.B.4 "Nature Protection Societies."

305. Ecorada is associated with the Society. *See supra* part IV.B.5 "The Academics."

306. *Status — Zastarili* [Status — Old], TRILISHNIK, Jan. 1991, at 1.

307. Interview with Igor L. Grinchak, *supra* note 146.

308. *Status — Zastarili*, *supra* note 306, at 1.

309. Interview with Igor L. Grinchak, *supra* note 146. The Dnieper cleanup program "is expected to focus on moving industrial production and mining away from the river, stopping the discharge of industrial waste into it and limiting the use of harmful chemicals on farmland." Trevelyan, *supra* note 41.

310. John Omicinski, *Survey: Survival, Not Environment Is Top Concern of Soviet People*, Gannett News Service, June 10, 1991, *available in* LEXIS, Nexis Library, Wires File.

311. Interview with Leonid Scripka, *supra* note 214.

the power to sue for compensation for harm from polluters.[312] However, one legal expert who has fought a long time for such a right, notes:

> The problem here is proof. . . . If we take such a city as Zdonoff, there are thousands of smokestacks there. It is impossible to prove which smokestack injured your health. If you sue any factory, this factory gives to the court special documents that at that period it did not pollute.[313]

In some instances, however, the public has battled against the toughest of bureaucrats and prevailed. For example, in 1985, a ballistic missile early warning station was being constructed in Western Ukraine with 100 million rubles already invested in the project. For two years, local residents had protested the radar's construction, and 700 thousand people had signed a petition calling for its closure. The regional soviet supported the public's demands and finally sent police officers to the site to block delivery of construction materials. In April 1990, a government commission recommended that the construction be halted, and by August 1990, Moscow authorities backed down and ordered the radar dismantled.[314]

C. *Environmental Legislation After Chernobyl*

Gorbachev's *perestroika* introduced a process of controlled decentralization. However, after the Chernobyl accident, state control over the process slowly eroded.[315] In 1987, the law "On the State Enterprise (or Association)"[316] was adopted with Article 20, providing "for the duty of an enterprise to ensure the effective use and regeneration of natural resources, to use them with care, to protect the environment against pollution and other harmful influences and also to engage in production on the basis of waste-free

312. Chap. 2, §§ 9-12, Ukrainian Law on Environmental Protection, *supra* note 288, at 3.

313. Interview with Youri Shemshouchenko, Director of the Institute of State and Law, Ukrainian Academy of Sciences, in Kiev, Ukraine (July 8, 1991).

314. D.J. Peterson, *The Impact of the Environmental Movement on the Soviet Military*, REP. ON U.S.S.R., Mar. 15, 1991, at 5, 6-7 (citing Radio Kiev, Apr. 2, 1990; Radio Moscow, Apr. 4, 1990; Radio Moscow, Aug. 13, 1990; TRUD, Feb. 25, 1990; PRAVDA UKRAINY, Mar. 21, 1990; PRAVDA, Apr. 1, 1990; IZVESTIIA, Apr. 26, 1990; and Central Television, June 11, 1990); *see* D.J. Peterson, *A Wave of Environmentalism Shakes the Soviet Union*, REP. ON U.S.S.R., June 22, 1990, at 8.

315. *See supra* part I.C "Chernobyl."

316. Kolbasov, *supra* note 192, at 273 (citing 26 Vedomosti SSSR, item 385 art. 20 (1987)).

technology."[317]

Although Ukraine had its own Ministry of Environmental Protection for over forty years, it was not until 1988 that the CPSU Central Committee and the USSR Council of Ministers established the USSR State Committee for Environmental Protection, known as Goskompriroda.[318] It was hoped that Goskompriroda would combat departmentalism and create economic incentives for compliance with environmental legislation.[319] Goskompriroda's first chairman, Fyodor Morgun, retired in 1989, after battling the Forest Ministry, which had regained its independence, and the petrochemical industries, which fought the early cleanup attempts. Soon thereafter, air pollution monitoring and control were restored to the State Committee on Hydrometeorology.

The second chairman of Goskompriroda was the first non-Communist minister, Nikolai N. Vorontsov. His leverage in the Council of Ministers remained weak, though his emergency powers allowed him to override some decisions.[320] On November 27, 1989, the Supreme Soviet adopted a resolution entitled "Urgent Measures to Promote the Country's Ecological Recovery."[321]

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317. *Id.*

318. *Environmental Protection Agency Set Up*, PRAVDA & IZVESTIIA, Jan. 17, 1988, at 1, 1-2, *reprinted in* 40 CURRENT DIG. SOVIET PRESS, Feb. 17, 1988, at 7.

319. Economic methods of management are underestimated in the practice of environmental-protection activity. Owing to the absence of effective economic levers and stimuli, enterprises and organizations have no stake in ensuring the comprehensive and rational use of the natural resources put at their disposal and in reducing the pollution of the environment

. . . .

An irresponsible attitude on the part of some USSR ministries and departments toward questions of nature use had led to a drastic worsening in the state of the environment in certain regions of the country. Departmentalism and a subjectivistic approach in adopting economic decisions prevail in many units of branch management.

Id.

320. Nicholas A. Robinson, *Soviet Environmental Protection: The Challenge for Legal Studies*, 7 PACE ENVTL. L. REV. 117, 128-30 (1989).

321. *Id.* (citing *USSR Supreme Soviet Resolution on Urgent Measures to Promote the Country's Ecological Recovery*, PRAVDA, Dec. 3, 1989, at 1). Several of the main points are the following:

(a) The Supreme Soviet declares that the USSR's environmental degradation is worsening, "exacerbated by the irresponsible attitude of the leaders of many USSR Ministries and departments . . . toward the execution of nature conservation measures . . . ." (b) The forthcoming Five Year Economic Plan is to provide emergency help to ecological disaster regions, to eliminate urban air pollution where maximum health standards are exceeded (at least 103 such sites exist), to eliminate drinking water contamination and assure food safety. (c) No work programs in 1990 can proceed unless approved by *Goskompriroda's* independent "State Commission on Ecological Experts," the environmental impact assessment process. . . . (e) In 1990 a new State Energy Program is to be established using "non-traditional, ecologically safe sources

Despite decentralization and the introduction of economic incentives, the environment continued to deteriorate. The lack of authority to force compliance with environmental legislation along with a lack of financial wherewithal to introduce pollution control equipment encouraged some Ukrainians to seek independence. Yuriy Mishchenko, one of the leaders of the Green World Association, said, "When we have our independence, we can control our own budget. We think this is the most important element for solving our environmental problems."[322]

On July 16, 1990, the Ukrainian Supreme Soviet adopted a Declaration of Sovereignty that gave Ukrainians property rights over Ukraine's territory and the right to maintain their own troops, and expressed an intention to be a nuclear-free state.[323] However, All-Union laws only provided "for a transition to substantial economic autonomy by 1991."[324]

In July 1991, the "Ukrainian Law on Environmental Protection" was adopted,[325] though many provisions of the Law are only declaratory in nature.[326] The provisions describe the ecological rights and duties of citizens; the authority of government bodies in the area of environmental protection; and the powers of social organizations in the area of environmental protection.[327] The Law covers such subject areas as monitoring and inspection of the environment, economic mechanisms for ensuring protection of the environment, protected territories, and responsibilities for violating environmental protection legislation.[328] Critics argue that the Law cannot be practically implemented or achieved because of its declaratory

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of energy" and safer nuclear reactor designs. . . . (f) Economic incentives are to be examined in the Council of Ministries to tax harmful activities, and encourage environmentally benign activities such as water conservation. (g) Park land is to be expanded. The Procurator-General is to expand the system of nature conservation prosecutors' offices. . . .

Id. at 131-32.

322. Epstein, *supra* note 17, at A13.

323. *See Declaration of Sovereignty*, PRAVDA, July 17, 1990, at 2, summary *reprinted in* 42 CURRENT DIG. SOVIET PRESS, Aug. 29, 1990, at 8, 8.

324. Palmer, *supra* note 15, at 468 (citing *Law on the USSR, Republic Economic Ties*, IZVESTIIA, Apr. 16, 1990, at 1-2, *reprinted in* 42 CURRENT DIG. SOVIET PRESS, July 18, 1990, at 17, 17-19; *Law of the Union of Soviet Republics: on the Demarcation of the Powers of the USSR and the Members of the Federation*, IZVESTIIA, May 3, 1990, at 1, 1-2, *reprinted in* 42 CURRENT DIG. SOVIET PRESS, June 13, 1990, at 23, 23-24.

325. Ukrainian Law on Environmental Protection, *supra* note 288, at 3.

326. Written Interview with Youri Shemshouchenko, *supra* note 253.

327. *Id.*

328. *Id.*

nature.[329]

The Environmental Protection Law allows citizens to sue for damages from environmental violations,[330] and the Ministry has been advertising this right.[331] Two reasons cited for the lack of individual lawsuits are discovering whom to sue for damages and the lack of environmental lawyers.[332]

Chapter 10 of the Environmental Protection Law, titled "Economic Measures for Securing Environmental and Nature Protection,"[333] lays out how payments for natural resources will be made, fines levied for pollution of the environment, and incentives used to protect the environment.[334] For example, the law allows fines to be increased to the price of purifying equipment, and in some cases, this means the fine will be dozens or hundreds of times higher.[335]

On August 24, 1991, after the Moscow coup attempt, Ukraine declared independence.[336] With the dissolution of the USSR Supreme Soviet, Ukraine seceded from the Union on December 31, 1991.

In May 1992, the Ministry of Environmental Protection published a "State Program of Environmental Protection and Rational Use of the Natural Resources of Ukraine." The document was the joint work of the Ministry of Environmental Protection and the Ministry of Economics, the Ministry of Health Protection, the State Committee of Geology, and the Academy of Sciences of the Ukraine. In order to "guarantee the ecological security of the present and future generations, . . . we must create a system of ecological legislation, implement new incentives of regulation of the use of nature, through administrative and economic incentives."[337] Vasyl Kostytsky, vice minister of the Ministry of Environmental Protection, says the plan

> must be a trunk of the ecological tree. The root system of this ecological tree must consist of legislative and normative decrees concerning every natural resource . . . protection and use of animals and plants,

329. *Id.*

330. Ukrainian Law on Environmental Protection, *supra* note 288, at 2.

331. Interview with Vasyl Kostytsky, *supra* note 211.

332. *Id.*

333. Ukrainian Law on Environmental Protection, *supra* note 288, at 3.

334. *Id.*

335. Interview with Vadim Sachaev, *supra* note 284.

336. The failed coup was staged by hard-line Kremlin conservatives, attempting to oust Soviet leader Mikhail Gorbachev. The three-day coup collapsed on August 21, 1991. Vincent J. Schodolski & Thom Shanker, *Soviet Coup Attempt Fails*, CHI. TRIB., Aug. 21, 1991, at 1.

337. Interview with Yuri Shcherbak, *supra* note 220.

soil, land, air. . . . The foliage of the tree is laws of preventive character, . . . such as the law on ecological expertise, on the status of regions of extreme ecological situations, decrees on state ecological control.[338]

The Ministry completed a draft of an Administrative Code in July 1992.[339] The new code does not set specific fines because of hyperinflation.[340] Instead, rates are set at two to twenty times the minimal salary at the time the fine is imposed.[341] Also, the criminal code will be strengthened.[342]

In 1991 and 1992, the Ministry of Environmental Protection wrote several draft laws that are to be presented to the Supreme Soviet this year.[343] About thirty to forty legislative decrees or laws of the Supreme Soviet are being worked on.[344] After the legislation

338. Interview with Vasyl Kostytsky, *supra* note 211.

339. *Id.*

340. *Id.*

341. *Id.*

342. *Id.*

343. A unique draft law is that on environmental insurance. The law would provide for two types of insurance, governmental and private. A new program that has been implemented in a specific region is based upon the bubble principle. However, one Ministry employee comments that due to the pace of economic reform it will be difficult to determine the success of this project. *Id.*

The following is a list of the drafts of Ukrainian environmental legislation:

1. Law on State Control over the Protection of the Environment and Usage of Natural Resources
2. Methods of Developing State Environmental Programs
3. Payments for Reducing the Quality of Natural Resources
4. Payments for Adversely Affecting Human Health and Environment
5. Law on Environmental Learning and Education
6. Methods of Reporting on the Condition of the Environment
7. Methodology for Determining Where to Locate Installations in Accordance with the Regulation on Obtaining Real Property
8. Recommendations on How to Implement the Complex Environmental Expertise of the Draft Materials from the Ministry of Nature of Ukraine
9. Methods of Determining Fines for Polluting Underground Waters by Oil Products
10. Law on Environmental Insurance
11. Law on Hunting
12. Development and Implementation of Environmental Standards
13. Law on the Use and Protection of the Forests Located Near Inhabited Regions
14. Law on the Classification and Status of Areas of Environmental Disaster
15. Law on Environmental Expertise
16. Usage of Statistics in Environmental Protection
17. Law on Vacation Resorts
18. Law on Sanitary Protective Zones

Sklod Rabochik Grup Dla Razrobki Zakonodavchih ta Normativnih Activ [Appendix: Members of the Groups for Producing Legislation and Standards] (n.d.; in Ukrainian).

344. Interview with Vasyl Kostytsky, *supra* note 211.

goes through the Supreme Soviet, the Ministry will work to codify the laws.[345] The former Soviet code contains about ten thousand titles,[346] and the process of analyzing these laws allows the Ministry to determine which of the former decrees are still acceptable and which should be canceled.[347]

The Ministry hopes to implement a bill on ecological education.[348] The purpose of the bill would be to make sure citizens have a basic knowledge of ecology and to increase the "ecological culture of all citizens."[349] The bill would create a reference book which would require a certain level of ecological knowledge for specific professions.[350]

As for Chernobyl, the European Community, Ukraine, Russia, and Belorus signed an agreement that deals with its consequences.[351] Over $5 million will be invested in the project.[352] France is opening a center for nuclear safety in Kiev and is helping Ukraine build a new shell for the reactor destroyed in the accident.[353] American and Swiss nuclear power experts are also helping to build a technological complex in Ukraine to "use the powerful nuclear potential of Ukraine and solve the problems of employment."[354]

Despite the lack of local authorities, new initiatives are being implemented. For example, Kiev created an environmental police force[355] consisting of thirty-two officers.[356] Kiev also implemented

345. *Id.*
346. *Id.*
347. *Id.*
348. *Id.*
349. *Id.*
350. *Id.*
351. *Agreement on Chernobyl Assistance Signed*, Kiev Radio Ukraine World Service, June 25, 1992, *reprinted in* F.B.I.S., DAILY REP., CENT. EURASIA, June 30, 1992, at 7.
352. *Id.*
353. France's Directorate for the Safety of Nuclear Power Plants signed an agreement to exchange information with the Ukrainian Committee for Nuclear and Radiation Safety. Aleksey Trotsenko, *France, Ukraine Cooperate on Nuclear Engineering*, TASS, June 29, 1992, *reprinted in* F.B.I.S., DAILY REP., CENT. EURASIA, July 1, 1992, at 2, 2.

An international competition was organized to find a solution to the problem of the reactor's crumbling sarcophagus. *Ukraine to Hold Chernobyl Competition Info Meeting*, 18 World Env't Rep., Nov. 24, 1992, *available in* LEXIS, Nexis Library, Omni File.
354. *U.S. Experts to Assist in Science Complex*, Kiev Radio Ukraine World Service, July 30, 1992, *reprinted in*, F.B.I.S., DAILY REP., CENT. EURASIA, July 31, 1992, at 41.
355. Within two months, the ecology police of Ivano-Frankovsk collected 600 fines between 20 and 100 rubles. Violations included taking gravel from the banks of a river, dumping trash in forbidden places, chopping down trees, and transportation pollution. Interview with Yuri Somolienko, Deputy of the Kiev City Soviet and Kiev Department

"Operation Clean Air," during which the emissions of 3000 cars and over seventy transportation companies were checked.[357] In Odessa, the Black Sea port where petroleum, ammonia, and carbolite is handled, the government enacted a tax on "the transportation of ecologically hazardous products."[358]

To date, environmental laws have not been effective due to conflicting laws, lack of a jurisdictional basis for mandatory inspections, and the lack of enforcement authority.[359] The Ministry has recognized some of these contradictions and is preparing changes in the laws.[360]

Although the institution of a legislative base for environmental protection will be a significant step, the new legislation cannot be effective unless it is enforced. Academic Youri Shemshouchenko notes that "not only environmental laws are not properly followed but all the others as well. And there is no mechanism that punishes their violation."[361] Establishing a strong legal base throughout the country is a challenge for the whole Ukrainian government.

V.
CONCLUSION

> Today, we came to the conclusion that ecological policy is the most important policy. If we solve these ecological problems, only then will we be able to solve economic, national, social and all other problems. If we don't solve these ecological problems, it is doubtful that we will be able to solve the others.[362]

As the Ukrainian government attempts to democratize and institute market reforms, it must also consider the catastrophic state of the environment. The intangible aesthetic, social, and psychological benefits, as well as material benefits, such as efficiency of resource usage and a clean environment, are key to Ukraine's future. However, "[i]n the midst of internal political stalemate and economic collapse, wholesale environmental rehabilitation could only

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of the Ukrainian Ministry of Environmental Protection, in Kiev, Ukraine (July 23, 1991); *see* Shirochenko, *We Need Ecology Policy*, ZELENYI SVIT, July 1991, at 6.

356. Interview with Nikolai Stepanovich Shepetz, *supra* note 249.

357. *Id.*

358. Nicholas A. Robinson, *In Ex-U.S.S.R. Pollution Controls Developing*, NAT'L L.J., Apr. 13, 1992, at 27, 28 (citing SOVIET PRESS DIG., MOSCOW ROSSIYSKAYA GAZETA, Dec. 28, 1991, at 6).

359. Interview with Viacheslav Posadsky, *supra* note 45.

360. Interview with Vasyl Kostytsky, *supra* note 211.

361. Written Interview with Youri Shemshouchenko, *supra* note 253.

362. Interview with Vadim Sachaev, *supra* note 284.

be a distant dream."[363]

The success of the environmental movement is dependent upon four factors. First, Ukraine needs to revive its environmental ethic. Its traditions, history, and religion show a respect for land and nature. Ukraine's youth need to feel that they can make a difference, both in their lives and in their environment.

Second, the democratic process must be carried out in Ukraine. President Kravchuk's transfer of Yuri Shcherbak from Minister of Environmental Protection to the post of Ambassador to Israel bodes ill for both the democratic and environmental movements. Therefore, environmentalists must continue to strive to assume positions of power within the Ministry. Environmental groups must be able take advantage of the new pluralism by acting first, informing the public, and empowering individuals, thus encouraging a majoritarian result. They could be the primary force when the government makes environmental decisions.

Third, Ukraine needs to become a law-based society, and legislation supporting environmentalist goals must be implemented *and* enforced. Already Ukraine's Ministry of Environmental Protection is actively reforming and implementing a legislative base for environmental protection, but the citizenry must respect the laws. The judiciary must uphold the regulations and impose stiff penalties — criminal and financial. Enforcement of reasonable regulations is critical to the future of environmental protection.

Finally, and most important, money needs to be appropriated to protect and restore the environment. Domestic and foreign investment in clean technologies must be encouraged and coordinated. Economic reforms, including demonopolization and privatization, need to be carried out swiftly in Ukraine. Only then can environmental legislation be effectively implemented.

The environment has yet to become Ukraine's number one priority.[364] Therefore, environmental groups, scientists, writers, private citizens, and politicians must fight together to restore and preserve Ukraine's land and nature. From out of the shadow of Chernobyl, and in the midst of political and economic chaos, the bud of a new environmentalism has appeared. Ukrainians must nurture it so that it will blossom.

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363. Igor Reichlin, *How the Soviet Union Poisoned Its Own Wells*, BUS. WK., Aug. 3, 1992, at 8 (quoting MURRAY FESHBACH & ALFRED FRIENDLY, JR., ECOCIDE IN THE USSR (1992)).

364. Interview with Vadim Sachaev, *supra* note 256.