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PERESTROIKA AND PRIRODA: ENVIRONMENTAL PROTECTION IN THE USSR

Nicholas A. Robinson*

I. Introduction

Environmental protection is becoming a substantial field of endeavor today in the Union of Soviet Socialist Republics (USSR). Soviets know the environment as *priroda*, a word which is literally translated as "nature," but whose meaning encompasses all aspects of life within the biosphere. *Priroda* connotes "mother nature," a nurturing and even moral realm, while also suggesting the ambient environment and all ecological systems.¹ Protection of the environment has been elevated to a top priority in the Soviet Union because the Soviet's harm to *priroda* throughout that nation has become acute.² In order to reverse pollution's environmentally damaging trends, to stay the depletion of natural resources and to restore degraded conditions resulting from years of neglect during the heavy and rapid industrialization in the USSR, the Communist Party has decided to radically restructure its environmental protection programs as part of an extraordinary redesign of its economy and society generally. Known as *perestroika*,

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1. See Nature Protection In Russia 35-39 (A. Inozemtsev ed. 1981).

2. See B. Komarov, *The Destruction of Nature In the Soviet Union* (1980); M. Goldman, *The Spoils of Progress: Environmental Pollution in the Soviet Union* (1972); P. Pryde, *Conservation in the USSR* (1972); *Environmental Misuse in the Soviet Union* (F. Singleton ed. 1976).

this radical restructuring is characterized by Soviet President Mikhail S. Gorbachev as "a revolution from above."³

This article reviews the initial Soviet decisions through 1988, applying *perestroika* to the problem of protecting *priroda*. Surveyed here is the scope of the ecological problems in the USSR and traditional responses, followed by an examination of the current Soviet policy to restructure its administrative and legal system for environmental protection. These initial reforms will not all result in a direct or immediate improvement of the Soviet environmental protection regime. For instance, the reforms also are stimulating the Soviet "not in my backyard" (NIMBY) phenomenon, or local opposition to the siting of developments ranging from electrical power plants, to facilities needed for treatment of sewage or hazardous wastes. Some of these environmental reforms and their collateral effects, as in the NIMBY phenomenon, will conflict with and impede the new Soviet policy of *uskorenie*, or acceleration of socio-economic development.

Until economic development is fully integrated with measures for environmental protection, at least with respect to new projects, the economy is not likely to accelerate very rapidly. Because the public in most northern reaches of the USSR cares deeply about *priroda*, as *perestroika's* reforms to promote democracy take effect the public debate about protection of *priroda* will assume a role more central than that of economic *uskorenie*. The cluster of reforms launched under the umbrella of *perestroika* have set up this conflict between reinvigorated economic development and protecting ecosystems. At the same time these reforms have also set in motion a gradual, if open and stormy, process of reconciling these competing demands through the newly equipped democratic institutions. The environmental commissions of the Supreme Soviet and other organs of government will search out ways to mediate between and reconcile these demands within the Soviet Union. As the Soviet Union advances its new domestic regime for environmental protection, it will increasingly em-

3. M. Gorbachev, *Perestroika: New Thinking For Our Country and The World* 55 (1987).

phasize international and further bilateral measures to protect the regional and global environment.

II. The Context of American and Soviet Environmental Protection

Together with Canada, the USA and USSR share common borders and similar nature protection interests in the Arctic and northern hemisphere generally. The United States has known for many years of the increasing Soviet interest in environmental protection, and has acknowledged the need for international cooperation in this field. In 1985, General Secretary Mikhail Sergeyevich Gorbachev and President Ronald Wilson Reagan met in Geneva.⁴ They had just received the report of the tenth meeting of USA-USSR Joint Committee on Cooperation in the Field of Environmental Protection, held the prior week in Moscow.⁵ Acknowledging the usefulness of those meetings, their joint statement concluding the summit meeting observed that “[b]oth sides agreed to contribute to the preservation of the environment a global task through joint research and practical measures.”⁶

This Summit Meeting statement reflected years of actual work together. Joint USA and Soviet endeavors in environmental protection since 1972 have forged a unique set of literally hundreds of joint working projects on air pollution, water pollution, marine pollution, protection of nature and wildlife, climate analysis, management of urban environments, protecting arctic regions, and works concerning the “legal and administrative measures for protecting environmental quality.”⁷ These efforts have taken place under the auspices of the Agreement on Cooperation In The Field of Environmental Protection.⁸

4. See Shabecoff, *U.S.-Soviet Accord On The Environment Approved In Geneva*, N.Y. Times, Dec. 13, 1985, at A1, col. 5.

5. Green, *The Amerikanskis Are Coming*, 12 EPA J. 21 (Jan.-Feb. 1986).

6. *Text of Joint USA-USSR Statement Issued at the Geneva Summit Meeting*, N.Y. Times, Nov. 22, 1985, at A13, col. 1 [hereinafter Geneva Summit].

7. See N. Robinson & G. Waxmonsky, *The U.S.-U.S.S.R. Agreement To Protect The Environment: 15 Years of Cooperation*, 18 *Envtl. L.* 403 (1988).

8. Agreement on Cooperation In the Field of Environmental Protection, May 23,

Despite sixteen years of joint efforts in the science, technology, management and law of environmental protection, much remains to be done in order to achieve the goals of this 1972 American-Soviet agreement on environmental protection. In the words of the preamble to the Agreement, the basic reason that both nations work together to protect the environment is because each recognizes that "economic and social development for the benefit of future generations requires the protection and enhancement of the human environment today."⁹

As the volume of pollution grows and as natural resources are depleted, the truth of this proposition becomes clearer than ever. Environmental problems shared by the USA and USSR are substantial, as discussed below. Each nation is aware of the other's progress or problems with maintaining environmental quality. The balance of this century will present unprecedented and world-wide environmental problems associated with the warming of earth's atmosphere, rising sea levels, climate changes and stratospheric ozone depletion.¹⁰ At the same time, these years provide an extraordinary opportunity to mobilize human talent to succeed in what both national leaders called this "global task," no less than "the preservation of the environment."¹¹

Despite sixteen years of active bilateral cooperation, and the recognition among American and Soviet specialists alike that environmental protection is important, generally the Soviets remain unaware of the USA measures to protect the environment and of the strong American conservation movement which began in the 1890s and was reinforced by the vigorous environmentalism since 1969. On the other hand, Americans are still ignorant of the early commitment of Vladimir Ilyich Lenin to the protection of nature,¹² which reflected

1972, 23 U.S.T. 845, T.I.A.S. No. 7345.

9. *Id.* at Preamble.

10. See World Watch Institute, *The State of the World* (1987-89); World Commission On Environment and Development, *Our Common Future* (1987).

11. Geneva Summit, *supra* note 6, at A13, col. 5-6.

12. Kolbasov, *Leninist Ideas on Nature Protection*, *Priroda*, April, 1958, at 41-44.

the strong scientific and popular support for nature study and protection among the educated Russian people. Constituencies for nature protection later emerged among the peoples of the Soviet Georgian Republic, the Baltic Republics and other regions. Each nation separately has evolved an indigenous popular social movement devoted to environmental protection, a fact which bodes well both for the success of each nation's domestic environmental protection programs and for future common endeavors as both nation's confront increasingly serious shared environmental problems.

A. *Shared Environmental Problems*

Soviet and USA environmental protection alike is driven by the need to remediate actual problems. These are measurable and reflect disruptions of natural systems which ecology, hydrology and other scientific disciplines can describe in reasonably objective ways. Factually premised, the study of similar environmental problems should lead to similar prescriptions to solve the problems. Protection of the environment can be enhanced by sharing data, environmental technology, and experiences with the management systems and laws suited to cope with environmental problems.

It is increasingly evident that the phenomena of environmental degradation are similar in both the USA and USSR. While common patterns of environmental degradation have been recognized since the 1960s, only recently have political leaders perceived that the problems are acute enough locally and internationally to require increased cooperation. For instance, in the late 1960s Marshall I. Goldman identified the "convergence of environmental disruption"¹³ and Dr. Andrei D. Sakharov posited that "the salvation of our environment requires that we overcome our divisions and the pressure of temporary, local interests. Otherwise, the Soviet Union will poison the United States with its wastes and vice versa."¹⁴ Goldman concluded that industrialization is the primary

13. Goldman, *The Convergence of Environmental Disruption*, 170 Sci. 37 (1970).

14. A. Sakharov, *Progress, Coexistence & Intellectual Freedom* 49 (1968).

cause of environmental disruption in either a capitalist or socialist system;¹⁵ Sakharov urged international collaboration toward framing "a law of geohygiene" to "become part of world efforts in this area."¹⁶

In the score of years since scientists like Goldman and Sakharov identified the disruption of natural systems on both a regional and worldwide basis, the environmental problems have become worse. Political leaders relegated these problems to a low priority while the disruption was not acute. With global phenomena such as the loss of stratospheric ozone, however, the necessity for transnational political cooperation increasingly is being accepted. This, in turn, leads both to a readiness to enter into multilateral and bilateral environmental protection agreements, and to a willingness to enact analo-

15. Goldman, *supra* note 13, at 42.

16. Sakharov, *supra* note 14, at 88. Sakharov's views include the following:

We live in a swiftly changing world. Industrial and water-engineering projects, cutting of forests, plowing up of virgin lands, the use of poisonous chemicals - all this is changing the face of the earth, our 'habitat.'

Scientific study of all the interrelationships in nature and the consequences of our interference clearly lag behind the changes. Large amounts of harmful wastes of industry and transport are being dumped into the air and water, including cancer-inducing substances. Will the safe limit be passed everywhere, as has already happened in a number of places?

Carbon dioxide from the burning of coal is altering the heat-reflecting qualities of the atmosphere. Sooner or later, this will reach a dangerous level. But we do not know when. Poisonous chemicals used in agriculture are penetrating the body of man and animal directly and in more dangerous modified compounds, are causing serious damage to the brain, the nervous system, blood-forming organs, the liver, and other organs. Here, too, the safe limit can be easily crossed but the question has not been fully studied and it is difficult to control all these processes.

I could also mention the problems of dumping detergents and radioactive wastes, erosion and salinization of soils, the flooding of meadows, the cutting of forests on mountain slopes and in watersheds, the destruction of birds and other useful wildlife like toads and frogs, and many other examples of senseless despoliation caused by local, temporary, bureaucratic, and egotistical interest and sometimes simply by questions of bureaucratic prestige, as in the sad fate of Lake Baikal.

The problem of geohygiene (earth hygiene) is highly complex and closely tied to economic and social problems. This problem can therefore not be solved on a national and especially not on a local basis. The salvation of our environment requires that we overcome our divisions and the pressure of temporary, local interests. Otherwise, the Soviet Union will poison the United States with its wastes and vice versa. At present, this is a hyperbole. But with a 10 per cent annual increase of wastes, the increase over 100 years will be multiplied 20,000 times. *Id.* at 48-49.

gous national laws on the same environmental topics in order to marshall comparable behavior, achieve similar social norms and secure the same effective measure of protection. Analysis of these problems is beyond the scope or purpose of this article; nonetheless, in order to gauge the probable effectiveness of the recent Soviet environmental reforms it is useful to survey the problems and the trends which have been exacerbating over the past two decades. It is these conditions that the emerging Soviet environmental protection regime must address.

The adequacy and extent of USA or USSR environmental protection programs should be measured objectively in terms of whether they cope with these problems. All human life is found within the biosphere. The biosphere is a relatively thin envelope of atmosphere, water and matter between outer space and the core of the earth. This is a finite space. It can be graphically envisioned in the scale of a student's globe of the earth in a school room, painted with a layer of clear varnish. That thin layer of varnish would represent the size of the biosphere in proportion to the vastness of earth's interior and to the vastness of outer space.

Viewed from space, the biosphere seems small and self-contained. It traps all the wastes of an industrialized society, just as it sustains all life. Industrial burning of coal and oil releases gaseous carbon dioxide (CO₂) into this biosphere. Natural systems disperse pollution worldwide. As society synthesizes new compounds, new chemical substances are disbursed through the biosphere; a pesticide like DDT is found in Antarctic penguins, far from any place where DDT is used. Discarded chemicals bioaccumulate in the food chain, and humans can ingest them. Even stable chemicals cause problems. Fishing is closed on a number of rivers because chemicals have bioaccumulated in the fish. The release of inert waste hydrocarbons into the Mississippi River in the 1960s and early 1970s seemed safe, but lower down the river, municipal authorities treated the water with chlorine before providing it for drinking. People ingested chlorinated hydrocarbons, which cause cancer, thus cancer rates in communities drinking this water were twice as high as adjacent communities with

wells. Cancer rates are reported to be growing in the USSR and remain high in the USA. Chemicals contaminate even remote wetlands, and have similar effects on wildlife. Soviet rivers are often severely polluted.¹⁷

Chemicals contaminate the rains. Waste gases from factory smokestacks mix with water vapor, adhering to water molecules. The rain has been found to have a pH of 3.5, which is quite acidic. "Acid rain" has increased the acidity of lakes in New York's Adirondack mountains to the point where fish cannot reproduce. Similar conditions exist in parts of the USSR. Acid rain corrodes buildings and outdoor art in Poland and the Ukraine; it also harms plant life. The acidic clouds kill trees on mountaintops. Chemical air pollutants also produce acid fog and snow, and even dry deposition as acid dust.¹⁸

Acid rains today are found moving from Germany to Scandinavia, from Poland to the USSR, from Asia to Hawaii. In his book entitled *Perestroika*,¹⁹ Mikhail Gorbachev notes that in the European area, "industry and transport have developed to a point where their danger to the environment is close to being critical."²⁰ The Arctic, faces another phenom-

17. V. Miniaev and I. Poliakov attribute increased incidents of cancer in urban settings like Leningrad to environmental factors. See B. Jancar, *Environmental Management in the Soviet Union and Yugoslavia* 291 n.40 (1987).

The pollution of the Hudson River with polychlorinated biphenols (PCBs) by the General Electric Company has led to a thirty year process attempting to clean up the river. See generally United States Env'tl. Protection Agency, Region II & New York State Dept. of Env'tl. Conservation, *Draft Joint Supplement to the Final Environmental Impact Statement on the Hudson River PCB Reclamation Demonstration Project* (Jan. 1987) (on file with Pace Env'tl. L. Rev.).

Studies of the Mississippi River by the Environmental Defense Fund led to the discovery that communities living along the river using its waters had cancer rates sixty per cent higher than inland communities which drew water from wells or non-river sources. See generally Baum, *Drinking Water Chlorination and the Regulation of Organics*, 3 *Harv. Env'tl. L. Rev.* 399 (1979).

18. See Off. of Tech. Assessment, U.S. Cong., Rep. No. OTA-O-204, *Acid Rain and Transported Air Pollutants: Implications for Public Policy* (1984) [hereinafter *OTA Report*]. The author has identified art destruction in L'vov and Cracow during visits in 1988 and 1987.

19. Gorbachev, *supra* note 3.

20. *Id.* at 196.

ena: Arctic haze.²¹ A layer of contaminated air seems to be collecting permanently in the Arctic, fed by air contaminants from smokestacks largely in the USSR and to a lesser degree from Europe and North America.

The release of chlorofluorocarbons and halons is believed to be reacting with stratospheric ozone to reduce the volume of ozone.²² This layer screens out a range of solar ultraviolet rays which cause skin cancer and may also affect other forms of life. Loss of this screen will necessitate new measures of care for human health.

At the street level, releases of solvents and other gases produce photochemical reactions and "smog." Urban air pollution exceeds health standards in sixty-eight American cities, and 102 Soviet cities. Smog impedes plant growth and harms human breathing capacity, particularly for the very young and old, and those persons with respiratory illnesses. With more motor vehicles and factories, smog increases. Both New York City and Moscow had dirty air in the 1950s, from burning coal and high sulfur oil; it is ironic that this earlier air pollution was largely cleaned up by burning cleaner fuels, only to be replaced by today's smog resulting from motor vehicle emissions and solvents. While notorious air pollution from the Shchokino Chemical Combine has been somewhat abated, no longer immediately killing the celebrated woods at Tolstoy's summer estate, Yasnaya Polyana, there are many less famous woods which factory fumes are ruining in the USSR, in Germany and elsewhere.²³

The accumulation of all these gases in the atmosphere also contributes to a warming of the earth's biosphere.²⁴ The gases trap solar radiation as heat reflected off the earth's surfaces. The biosphere is like a greenhouse. The USA and USSR

21. See K. Rahn & G. Shaw, *Arctic Haze* (1982).

22. Shabecoff, *Study Shows Significant Decline in Ozone Layer*, N.Y. Times, Mar. 16, 1988, at A25, col 1.

23. See M. Sun, *Environmental Awakening In The Soviet Union*, 241 Sci. 1033 (1988); Komarov, *supra* note 2, at 20-31; Approval and Promulgation of Implementation Plans, 40 C.F.R. §§§§ 52.50-52.2827 (1987).

24. See generally Titus & Seidel, *Overview of the Effects of Changing the Atmosphere*, in I Effects of Changes in Stratospheric Ozone and Global Climate 3 (1986).

lead the world in carbon emissions from fossil fuels: in 1967 the USA released 1,224 million tons of carbon (2.28 tons/person; 276 grams per dollar gnp) and the USSR released 1,074 million tons of carbon (1.62 tons/person; 427 grams per dollar gnp).²⁵ As a result of global warming, the sea level is rising, leading to loss of low-lying coastal areas and erosion in storm conditions. Coastal areas along North America will be lost as storms erode barrier islands, wetlands and coasts. Global warming may also affect climate. The distribution of rainfall may change, with major implications for agriculture and water supplies.

Beyond the atmosphere, most nations are polluting marine areas, discharging waste into the seas deliberately, hoping it will disperse.²⁶ Waste, fertilizers and pesticides run off land into streams and coastal waters. Local wastes made swimming unsafe last summer in many lands. During the summer of 1988, officials prohibited bathing in some famous resort beaches in the Baltic Sea, the Crimea and elsewhere along the Black Sea of the USSR,²⁷ and on the New Jersey shore and Long Island in the USA. Marine biologists report stressed sea life in many areas.

Major contributors of sea pollution are the world's rivers. Nations still treat rivers like sewers. Heavy metals in the Rhine have steadily increased from 1975-85, for instance, 5,700 metric tons of zinc (Zn) flowed into the North Sea in 1984. In 1970, the Cayahoga River in the USA and the Volga River in the USSR both caught fire. While USA river water has been gradually cleansed, Soviet river pollution is still a major unresolved problem. Currently, the Elbe River's wastes from the heart of Europe are a cause of algal growths which have destroyed much shellfish and fin fish off Scandinavia in the summer of 1988.²⁸

At a time when trees are needed for their local cooling

25. Flavin, *The Heat is On*, 1 *Worldwatch* 10, 19 (Nov. - Dec., 1988).

26. See Borgese & Kriegor, *The Tides of Change* (1975); Barnes, vol. II, *Technical Report, The Global 2000 Report To The President* 298-316 (1979).

27. Interviews in USSR (Sept. & Nov., 1988).

28. See generally French, *Industrial Wasteland*, 1 *Worldwatch* 21 (1988).

effect and to fix carbon dioxide worldwide, nations increasingly are cutting them down without replacing them. In the tropics, vast areas of rain forests are being lost in vast acreage; an area the size of Great Britain each year. As much as twenty percent of the world's species of life may be lost if trends continue.²⁹ Timbering interests clearcut Alaskan rain forests and continue to cut giant redwoods in California even though these redwoods are irreplaceable and exist only in this one location. Vast areas of taiga are clear-cut in Siberia and Canada; these areas are not being replanted and in effect are being exhaustively mined.³⁰ Wetlands are drained or filled throughout the world, removing wildlife and preventing recharge of aquifers. Agricultural chemicals are polluting the Everglades National Park and gradually destroying these unique oceans of grasses.³¹ Prime agricultural land in the USA is converted to other uses rapidly; each year acreage the size of a state like Illinois is lost to farming.³²

Water policies lack effective environmental planning. In the USSR, excessive removal of water from the Aral Sea and the rivers which supply it for agricultural irrigation, such as new cotton fields, has caused water levels to drop forty feet between 1960 and 1987. Over sixty-five percent of the Aral Sea's volume has been lost and the sea is drying up. Salt left dried on the exposed lake bottom, blows in the winds; salt has been detected in the fertile Fergana Valley in Georgia. Where once 173 animal species lived in the Aral Sea's incoming river deltas, only thirty-eight survive there today; of twenty-four native fish species in the Sea, only four remain today. Vast agricultural areas are threatened by salt dust pollution and a water shortage.³³

29. See generally Wolf, *Avoiding a Mass Extinction of Species*, in *State of the World - 1988* (L. Brown ed. 1988).

30. See Postel & Heise, *Reforesting the Earth*, in *State of the World - 1988* (L. Brown ed. 1988); Compare with Komorov, *supra* note 2, at 69-70.

31. See Conservation Foundation, *State of the Environment: A View Toward the Nineties* 542-43 (1987).

32. For a discussion on farmland losses in the USA, see Department of Agriculture, *National Agricultural Land Study* (1981). See generally N. Robinson, *Environmental Regulation of Real Property* (1982).

33. P. Micklin, *Desiccation of the Aral Sea: A Water Management Disaster in*

The disaster of the Aral Sea is reminiscent of that of the "Dust Bowl" in the 1930s in the USA. Erosion was severe and dust from mid-America blew even into Washington, D.C. and Chicago.³⁴ Today, in the USA the dust bowl is gone, but desertification in the Sahel in Africa is a crisis.³⁵ The UN reports that annually six million hectares of new desert emerge. Although the USA has established effective soil protection, America's natural aquifers are at risk. In the USA, among the most serious trends is the depletion of groundwater from the vast Ogallala Aquifer under the central states. Over the past decades groundwater levels have fallen in Arizona, Colorado, Kansas, Nebraska and parts of Oklahoma, New Mexico and Texas. Consumers are removing more groundwater than nature replenishes. Already Arizona has by law banned all new development which does not rely on currently established water supplies. Thirty-four of the one hundred largest USA cities depend primarily on groundwater supplies; eighty percent of the some 60,000 community water supplies depend entirely on groundwater. These trends indicate that many Americans face water shortages if depletion rates continue.³⁶

These environmental problems are accumulating not just in the USA and USSR. Mexico City, Rio de Janeiro, and New Delhi face acute air pollution; Japan still dumps its wastes primarily into the sea and air, subsidizing its economy by passing its pollution to the commons. Africa faces rapid loss of wildlife habitat, and Lagos, Nigeria's fast growing capitol city of five million people, still lacks a city-wide sewage system. There is ample need for the USA and the USSR, as technologically advanced nations, to allocate foreign aid to ameliorate such conditions abroad.

In twenty years there will be more urban dwellers than rural ones. For the first time in human history 3.62 of the 6.99 billion of earth's inhabitants will live in cities; today only

the Soviet Union, 241 Sci. 1170 (1988); Keller, *Developers Turn Aral Sea Into A Catastrophe*, N.Y. Times, Dec. 20, 1988, at C1, col. 3.

34. See Owen, *Natural Resource Conservation: An Ecological Approach* 89-93 (1980).

35. See Brown, *Reversing Africa's Decline*, *Worldwatch Paper* 65 (1985).

36. See Reisner, *Cadillac Desert* (1986).

forty percent live in cities and at the time of the Soviet Union's October Revolution only fourteen percent of the world's peoples lived in cities. Ninety percent of this urban growth will be in developing countries. The world's population will increase by adding two billion more people to earth in less than one generation (thirty years).³⁷

Just to accommodate new births, vast new socio-economic development will be needed. This development itself will cause environmental changes, both localized and accumulative, as in the incremental growth of water pollution or air emissions which exacerbate the "greenhouse" effect. What happens in these new cities is likely to affect the quality of life in Moscow and Washington, D.C.

This inventory of illustrative environmental problems is enough to demonstrate that environmental problems are widespread and often shared in common.³⁸ Even if miraculously all pollution ended today, it would take years to restore the damage done. What have the USA and USSR been doing positively to address these trends? How can both nations cooperate to help resolve such problems? As the essays in this issue of the *Pace Environmental Law Review* demonstrate, Soviet jurists are active in evaluating new applications of the law to cope with some of these trends. There are substantial bodies of expertise and policy in both the USA and the USSR to deploy in the service of environmental protection; both nations have established systems of environmental law. Four conditions exist in both the USA and USSR which account for similarities in each other's efforts at environmental protection. These circumstances also afford a basis for useful bilateral cooperation and for taking roughly congruent foreign policy stands on environmental issues.

37. Ehrlich & Erhlich, *Population, Plenty, and Poverty*, 174 *Nat'l Geo.*, Dec. 1988, at 914.

38. For a comparable survey of these environmental problems, see generally *Time*, Jan. 2, 1989.

B. *Common USA and USSR Foundations for Effective Environmental Protection*

Characteristics common to both the USA and USSR sustain progress in fashioning effective environmental protection programs. The Soviet Union has been slower on some issues such as pollution, and advanced in others such as preservation of natural habitat in scientific sanctuaries (*zapovedniki*). As Fyodor T. Morgun, the head of the USSR's new environmental agency puts it, "[o]ur air is not up to the proper mark, our soil is polluted, and our forests are affected. Drastic measures were taken in the West fifteen to twenty years ago to protect the environment. Now my country must get to work on this as well."³⁹ The convergence of problems and emergence of institutions to cope with the problems is likely to develop more cooperation on resolving environmental problems.

First, both the USA and the USSR have strong scientific resources. Academies, institutes and universities in each nation have documented these problems. Scientists understand a great deal about the problems and about preventing further environmental harm; there is a consensus among the specialists. Moreover, both nations have strong education systems which can be stimulated to train a new generation of environmental protection specialists.

Second, both countries unfortunately continue social and economic policies which contribute to environmental degradation. The harm resulting from misguided economic endeavors is the result of a lack of understanding about the causes of environmental harm on the part of both political leaders and the general public. The scientific consensus about pollution has not yet been understood by other segments of society. Industrial and agricultural leaders, urban planners, managers of city sewage, refuse and water supplies, and developers generally do not intend to cause this harm to public health or nature. They do so ignorantly by narrowly pursuing the specific needs of their own enterprises and jobs. Their mission is, for instance, to manufacture paper, and not to cope with water

39. Thompson, *The Greening of the U.S.S.R.*, Time, Jan. 2, 1989, at 68.

pollution or new forest production. In Lake Ladoga, this narrow perspective has led to such acute degradation of water quality that even the mills are adversely affected.⁴⁰ In both nations, the manager's parochial view has been that environmental protection is someone else's job, especially if it costs money without increasing productivity. They resist adding environmental protection to their duties. Agencies and enterprises defend "their own turf" and their "departmentalism" actually impedes environmental protection.⁴¹

This recalcitrance has led in turn to a third trend: creation of the new field of Environmental Law. To overcome these patterns of pollution or misuse of natural resources, since the early 1970s both the USA and USSR quite independently began to enact major new environmental laws.⁴² In

40. Interviews in Leningrad (Sept., 1988).

41. Departmentalism, or the narrow focus of Soviet ministries and departments on fulfilling their plan even at the cost of losses to society, is described in Kramer, *Environmental Problems In The USSR: The Divergence of Theory and Practice*, 37 J. Pol. 886-99 (1974). See also C. Ziegler, *Environmental Policy in the USSR* (1987).

42. An illustrative list of the Soviet and U.S. Environmental Laws would include the following:

A. USSR

For Soviet Environmental Laws in English translation, see Butler, *Collected Legislation of the USSR and Constituent Republics* (1981); Butler, *The Soviet Legal System: Legislation and Documentation* (1978). Professor Butler's collection includes the following laws:

1. General Questions

Decree on Measures for the Further Improvement of Nature Conservation and the Rational Utilization of Natural Resources

Decree on the Intensification of Nature Conservation and the Improved Utilization of Natural Resources

Edict on Intensifying Nature Protection in Areas of the Far North and Marine Areas Adjacent to the Northern coast of the USSR

2. Land Legislation

Fundamental Principles of Land Legislation of the USSR and Union Republics

Edict on the Continental Shelf of the USSR

List of Living Organisms Which are Natural Resources of the USSR Continental Shelf

Decree on the Procedure for Conducting Work on the Continental Shelf of the USSR

3. Legislation on Minerals

Fundamental Principles of Legislation of the USSR and Union Republics on Minerals

each nation, Environmental Law is one of the fastest growing

Statute on State Control Over the Conduct of Work Relating to the Geological Study of Minerals

4. Water Legislation

Fundamental Principles of Water Legislation of the USSR and Union Republics

Statute on State Control Over the Use and Protection of Water

Decree on Compensation for Losses Caused by Carrying Out Water Conservancy Measures and the Termination or Change of Water Use Conditions

Decree on Intensifying Responsibility for Pollution of the Sea by Substances Harmful for the Health of People or for Living Resources of the Sea or by Other Wastes or Materials

5. Forestry Legislation

Fundamental Principles of Forestry Legislation of the USSR and Union Republics

Statute on State Fire Supervision in the USSR

6. Protection of the Atmosphere

Law on Protection of the Atmosphere

Statute on State Control Over the Work of Gas Purification and Dust Catching Devices

7. Protection and Use of Flora and Fauna

Law on Protection and Use of the Animal World

B. USA:

For US Environmental Laws, see the consolidated provisions of the U.S. Code for the following illustrative subjects:

1. TITLE 7, Agriculture

Environmental Pesticide Control, 7 U.S.C. §§ 136 - 136y (1982)

2. TITLE 15, Commerce And Trade

Toxic Substances Control, 15 U.S.C. §§ 2601 - 2654 (1982)

3. TITLE 16, Conservation

National Park Service, 16 U.S.C. § 1 (1982)

Endangered Species Act, 16 U.S.C. §§ 1531-1542 (1982)

Forest Service Organic Act, 16 U.S.C. § 476 (1982)

Multiple Use, Sustained - Yield Act, 16 U.S.C. §§ 528-531 (1982)

4. TITLE 29, Labor

Occupational Safety and Health Act, 29 U.S.C. §§ 651-678 (1982)

5. TITLE 30, Mineral Lands And Mining, 30 U.S.C. §§ 1-1757 (1982)

6. TITLE 33, Navigation And Navigable Waters

Water Pollution Prevention and Control, 33 U.S.C. §§ 1251-1387 (1982)

Ocean Dumping, 33 U.S.C. §§ 1401 - 1445 (1982)

7. TITLE 42, The Public Health and Welfare

Safety of Public Water Systems, 42 U.S.C. §§ 300f - 300j-11 (1982)

National Environmental Policy, 42 U.S.C. §§ 4321 - 4370a (1982)

Noise Control, 42 U.S.C. §§ 4901 - 6991i (1982)

Solid Waste Disposal, 42 U.S.C. §§ 6901 - 6991i (1982)

Air Pollution Prevention and Control, 42 U.S.C. §§ 7401 - 7642 (1982)

Comprehensive Environmental Response, Compensation and Liability, 42 U.S.C. §§ 9601 - 9675 (1982)

fields of law, and becoming one of the largest. Both nations have enacted major new laws on air and water pollution, on soil conservation, on mineral resources, forests and wildlife since 1970.

While enactment of new environmental statutes is a positive trend, these legislative accomplishments have been less effective than expected due to inadequate administration and enforcement. Although there are a number of instances in the USSR of strong enforcement of these laws through the system of prosecutors known as the Procuracy,⁴³ there remains a need for stronger administrative enforcement in all regions. The various inspectorates have been singularly ineffective. With the creation of the All-Union, or federal, State Committee on Environmental Protection, known as *Goskompriroda* in 1988, and with the establishment of analogous Committees for Environment Protection in Republics and local regions, the USSR moves toward instituting effective means to set and publicize enforceable standards for protection of the environment.⁴⁴ While ahead of the USSR in creating a nationwide administrative system and enforcement, the USA has not adequately staffed and financed the Environmental Protection Agency (EPA) to do all that Congress requires of it. The EPA is not even a cabinet level agency. Few state environmental agencies are adequately staffed. As a federal agency, EPA needs more resources to meet its statutory mandates. For instance, in 1988 New York State's Department of Environmental Conservation employed more environmental police than EPA had for all of the USA.

Given the magnitude of the growing environmental problems in both the USA and the USSR, political leaders acknowledging that the severity of these environmental trends will necessarily act to strengthen their respective scientific,

Emergency Planning and Community Right-To-Know, 42 U.S.C. §§ 11001 - 11050 (1986)

43. See W. Butler, *Soviet Law* 101-09, 255-57 (1983).

44. For the decision of the CPSU Central Committee and USSR Council of Ministers which established *Goskompriroda*, see *On A Radical Reorganization of Environmental Protection In The Country*, *Pravda*, Jan., 17, 1988 [hereinafter *Pravda*](on file with *Pace Env'tl. L. Rev.*). See also *Tass* (Jan. 16, 1987).

technological, legal and administrative efforts to protect the environment. Stronger environmental protection programs result not from enlightened self-interest, but rather as a result of growing public pressure. This public, political force constitutes a fourth pattern common to both nations. Quite independently there is a strong, educated and increasingly vocal public constituency demanding effective environmental protection in the USA and the USSR. This constituency has strong roots, having independently emerged in each nation over seven decades ago. Moreover environmentalism is growing in each nation.

In the USSR, Lenin initiated conservation programs in 1918, including reforestation of areas devastated in the war.⁴⁵ From 1918 to 1921, new forest conservation laws, parks, fishing and hunting laws, and the measures to protect fish and marine mammals were promulgated. In the forefront of those calling for these laws were the Russian environmentalists. The system of nature preserves, or *zapovedniki*, dates from these early years. The All-Russia Society for the Protection of Nature was established in 1924;⁴⁶ it advocated creating more *zapovedniki* and conducting nature studies as an essential prerequisite to natural resource use. By 1933, there were sixty-nine *zapovedniki* comprising 6,114,568 hectares.⁴⁷

Soviet conservation policies were compromised from 1933 to 1964. Further development of the young science of ecology was arrested until after the fall of Premier Nikita Khrushchev by the non-scientific ideological diversions of I.I. Present, an adherent of the mistaken views of T.D. Lysenko.⁴⁸ A number of *zapovedniki* were given over to agricultural, forestry or mining enterprises for exploitation to meet Stalin's Five Year Plans, without the benefit of solid scientific analysis. New mega-projects were built with little or no examination of their unintended environmental consequences. The war disrupted

45. D. Weiner, *Models of Nature: Ecology, Conservation, and Cultural Revolution In Soviet Russia* 24 (1988).

46. Inozemtsev, *supra* note 1, at 51.

47. Weiner, *supra* note 45, at 241-50.

48. See generally Z. Medvedev, *The Rise and Fall of T.D. Lysenko* (I. Lerner trans. 1968); Weiner, *supra* note 45, at 182-87.

conservation measures even further. Pollution increased, largely unabated. By 1952, a statute on the *zapovedniki* listed forty comprising only 1,465,000 hectares.⁴⁹

In the post-Stalin era, the Soviet Union's public nature protection movement has grown again. The All-Russia Society has chapters throughout that Republic embracing forty million members. Similar societies exist in other republics. *Komsomol* and groups such as The All-Union Society *Znaniye* (Knowledge) promote environmental protection. The Soviet press has been writing about environmental problems vigorously since the late 1960s.⁵⁰ The USSR Academy of Sciences, through the far-sighted leadership of Professor Oleg S. Kolbasov, established a Sector on Ecological law in its Institute of State and Law. This Institute has played a major policy role in the development of Soviet Environmental Law and in the debate over the design of *Goskompriroda*. Professor Petrov began teaching Environmental Law at Moscow State University, and instruction in Environmental Law is expanding rapidly under new scholars such as Irena O. Krasnova at the All-Union Juridical School in Moscow and Svetland N. Kravchenko at L'vov State University in the Ukraine.

The pressure of organized civic groups, the news media, and scholars has produced a growing public interest in more effective pollution control. This social pressure helped to persuade the Central Committee of the Communist Party and the Council of Ministers to adopt far-reaching reforms in January of 1988 designed to radically reorganize environmental protection throughout the USSR.⁵¹ *Goskompriroda* was established with power to close down polluters and funds for emergency clean-ups. As a part of *perestroika* and the related policy of promoting democracy (democratization) by decentralizing decision-making and promoting pluralism, many new ecology clubs have been founded. These clubs pressure offi-

49. Weiner, *supra* note 45, at 228.

50. See generally B. Jancar, *Environmental Management in the Soviet Union and Yugoslavia* (1987).

51. Pravda, *supra* note 44, at 1.

cialists for more environmental protection and will be vocal in the elections of 1989, and subsequently, for delegation to the Supreme Soviet. Symbolic of the effectiveness of popular environmentalism was the Council of Minister's decision in 1987 to halt timber cutting at Lake Baikal and order the phase out of the two paper and pulp mills polluting on that pristine lake.⁵² It has taken twenty years of campaigning for environmentalists in the USSR to win this victory.⁵³

A similar pattern is found in the USA. National writers such as Emerson and Thoreau argued that there was an ethical duty to protect nature, and criticized the pollution of the industrialization of New England.⁵⁴ The Sierra Club was established in 1892 by John Muir, to protect the Sierra Nevada mountains.⁵⁵ Named after the American painter of birds, John James Audubon, the National Audubon Society began in 1901 to protect bird habitats.⁵⁶ With the election of President Theodore Roosevelt, conservation became a national policy.⁵⁷ Popular support has grown; in 1936, the National Wildlife Federation united sportsmen and naturalists to protect nature. Each of these three national environmental organizations now have international programs.

Congress established the National Forests system and National Park system.⁵⁸ Battles were waged to establish parks at Yosemite, Yellowstone, and many other sites. In the 1930s, with President Franklin D. Roosevelt's leadership the Soil Conservation Services was created to combat the Dust Bowl.⁵⁹ These agencies continue their work today.

After World War II, membership in environmental groups grew enormously in the USA, as it also did in the USSR. The

52. See SP SSSR Decree 599, Ct. 112, No. 32 (Mar. 26, 1987).

53. On the early aspects of the campaign to save Lake Baikal, see M. Goldman, *supra* note 2 at 183-185.

54. See generally P. Brooks, *Speaking for Nature* (1980).

55. H. Jones, *John Muir and The Sierra Club* (1965).

56. See R. Elman, *America's Pioneering Naturalists* (1982).

57. See F. Graham, Jr., *Man's Dominion: The Story of Conservation in America* (1974).

58. See generally P. Gates, *History of Public Land Law Development* (1967).

59. See O. Owen, *Natural Resource Conservation: An Ecological Approach* 82-124 (1980).

American public was concerned about growing pollution levels, filling coastal wetlands, and the loss of open space. In 1969, known as "Earth Year," massive public demonstrations were held demanding more environmental protection.⁶⁰ New groups, such as The Natural Resources Defense Council and Friends of the Earth, were founded. Additionally, President Nixon, by executive order, established the EPA.⁶¹ Universities established degrees in environmental sciences and environmental law came to be taught in all American law schools.⁶²

Given these strong and parallel social trends for environmental protection in both the USA and USSR, it is not surprising that bilateral cooperation has made steady progress since 1971.⁶³ It is interesting that such contemporary collaboration continues a little acknowledged earlier tradition. Ever since Mikhail Lomonosov, founder of the Russian Academy of Sciences, exchanged views in the 18th century with American scientists like Benjamin Franklin and Ezra Stiles, there has been a bilateral sharing of ideas on science and the environment.⁶⁴ In 1929, the journal *Okhrana Prirody* published Russian translations of USA President Theodore Roosevelt's account of Yellowstone National Park.⁶⁵ Soviet readers learned that Roosevelt advocated "wise laws" and "resolute enforcement of the laws" to protect nature. He wrote that "what has been actually accomplished in the Yellowstone Park affords the best possible object-lesson as to the desirability and practicability of establishing such wilderness reserves."⁶⁶ *Okhrana Prirody* also reported on the many Soviet campaigns to estab-

60. See, e.g., J. Ridgeway, *The Politics of Ecology* (1970).

61. See generally *Decision Making in the Environmental Protection Agency* (1977).

62. Environmental Law course statistics can be found in the bulletin of each law school. Tabulations of some have been made, see, e.g., 1986 *Assoc. of Am. L. Sch.*; 1985 *Nat. Resources L. Tchrs. Inst.*

63. See Robinson & Waxmonsky, *supra* note 7, at 417-431.

64. *The United States and Russia: The Beginning of Relations (1765-1815)* (N. Bashkina ed. 1980).

65. Weiner, *supra* note 45, at 49.

66. See T. Roosevelt, *Wilderness Writings, Wilderness Reserves: The Yellowstone Park 147-172* (P. Schuller ed. 1986).

lish vast new *zapovedniki*.⁶⁷ Soviets reintroduced their wood bison, or *zubr*, by breeding with stock from European zoos, helped by buffalo from America.⁶⁸ In 1931, the New York State Museum published in English the Soviet Union's first major ecology text, *Environment and Community* by Daniil Nikolaevich Kashkarov.⁶⁹

Perhaps the best example of cooperation, however is the 1963 Treaty between the USA and USSR, done in Moscow, on "Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and Under Water."⁷⁰ President John F. Kennedy and Premier Nikita Khrushchev did more than reduce the threat of nuclear war. They eliminated the scourge of radioactive fallout which resulted from the testing; that fallout produced doses of strontium 90 and other radioactive elements which make the cloud of radioactive elements from the Chernobyl accident look modest indeed.

The USA and USSR, together with the United Kingdom, stopped the Cold War's radioactive pollution of the earth's atmosphere. As President Kennedy told Americans on television, the Atmospheric Test Ban Treaty was "a shaft of light cut into the darkness."⁷¹ The USA and USSR can build on this precedent to begin to control air and water pollution and protect the natural systems of our shared biosphere with the same effectiveness.

One clear way to do so is to increase cooperation through the bilateral environmental protection agreement. Funding on the Soviet and USA side, while productive, has been at minimal levels.⁷² Each side should devote enough resources to joint environmental protection work to assure the environmental

67. Weiner, *supra* note 45, at 49.

68. See Prioksko-Terrasny, State Nature Reserve (L. Zablotskaya ed. 1974).

69. Weiner, *supra* note 45, at 164.

70. Treaty Banning Nuclear Weapon Tests in the Atmosphere, In Outer Space and Under Water, Aug. 5, 1963, United States-U.S.S.R., 14 U.S.T. 1313, T.I.A.S. No. 5433, 480 U.N.T.S. 43.

71. G. Seaborg, Kennedy, Khrushchev, and the Test Ban 233 (1981).

72. On the successful bilateral cooperation in this field, see Robinson & Waxmonsky, *supra* note 7, at 417-431; On efforts to increase support, see N. Robinson, *Soviet Environmental Law: Nature Protection Under Perestroika*, 8 N.Y. St. B.A. Env'tl. L. Sec. J. 1 (1988).

security in the biosphere. The joint work to date is well below what is required effectively to resolve the problems in either country alone, much less internationally for the biosphere. In order to gauge the likelihood of a positive Soviet response to strengthening this bilateral agreement, it is useful to examine what *perestroika* has meant to Soviet environmental protection.

II. Perestroika:

Perestroika, as explained by Premier Gorbachev:

is an urgent necessity arising from the profound processes of development in our socialist society. This society is ripe for change. It has long been yearning for it. Any delay in beginning perestroika could have led to an exacerbated internal situation in the near future, which, to put it bluntly, would have been fraught with serious, social, economic and political crises. It became typical of many of our economic executives to think not of how to build up the national asset, but of how to put more material, labor and working time into an item to sell it at a higher price. Consequently, for all 'gross output,' there was a shortage of goods. We spent, in fact we are still spending, far more on raw materials, energy and other resources per unit of output than other developed nations. Our country's wealth in terms of natural and manpower resources has spoiled, one may even say corrupted us.⁷³

Additionally, Gorbachev states that:

[t]he directors and the managerial staff of any enterprises, particularly big ones, could afford to ignore persistent and fair demands from the Soviets to build housing, air and water purifying facilities, promote social and cultural programs, develop public transport networks, provide better comforts in these areas, etc.⁷⁴

73. Gorbachev, *supra* note 3, at 17-19.

74. *Id.* at 111-12.

Perestroika is a program of radical restructuring of the economy, of management techniques, of decentralized economic decision-making including market economic activity by cooperatives and joint-ventures with foreign commercial enterprises, and of revamped social policies to enhance the quality of life.⁷⁵ These reforms are to be promoted through democratization and increased use of law. "Observance of law is a matter of principle for us. . . . There can be no observance of law without democracy."⁷⁶ New laws include those "to improve public health and environmental protection."⁷⁷

Since *perestroika* encompasses every aspect of Soviet public life, it is not yet clear whether environmental protection will be accorded the highest priority or be compromised in favor of short-term economic reforms. Reform of economic performance seeks to accelerate production. At the outset, however, it appears that the Soviet Union's leadership intends to make issues of "ecology" of transcendent importance.

A. A Soviet Priority: "Ecology"

Protection of the environment in the USSR has become a matter of high political importance. Growing concern about environmental degradation has been expressed by the Central Committee of the Communist Party, as reflected in a series of decisions to increase environmental protection taken between 1972 and 1985.⁷⁸ Few of these decisions, however, were meaningful in achieving any actual improvement in either effective environmental protection or improved conditions. Trends reflecting deteriorating conditions in environmental quality continued despite decisions by the Communist Party of the Soviet Union (CPSU) Central Committee and USSR Council of

75. *Id.* at 98.

76. *Id.* at 105.

77. *Id.* at 108.

78. The first decision was taken in 1972 by the CPSU and Council of Ministers. The debate to adopt a new national constitution led to a policy decision in 1977 to include a new provision in the Fundamental Law: Article 42 (health protection by measures to improve the environment) and Article 67 (duty to protect nature and conserve its riches). The Council of Ministers adopted decrees in 1985 to press more observance of environmental protection rules.

Ministers. Throughout 1987, at the highest levels there was vigorous debate about how to reorganize the Soviet government to more effectively protect the environment. Some proposed the establishment of a new agency, while others wanted to expand the authority of the existing State Committee on Hydrometeorology (Hydromet). By the fall of 1987, an agreement was reached to consolidate a new agency rather than expand the framework of Hydromet, and on January 7, 1988, the CPSU Central Committee and the Council of Ministers adopted the decision entitled "On a Radical Reorganization of Environmental Protection in the Country."⁷⁹

The importance which the Soviet Union's top political leadership attaches to environmental protection is evidenced by actions following the decision. Early in 1988, the State Committee on Environmental Protection, *Goskompriroda*, was established as the new agency consolidating parts of several others.⁸⁰ In March General Secretary Gorbachev asked the Ukrainian CPSU leader, Fyodor T. Morgun, who had established a solid reputation in effective soil conservation work, to become a member of the Council of Ministers and to serve as chairman of *Goskompriroda*.⁸¹ By summer, the new agency had offices turned over to it by the State Committee on Science & Technology in downtown Moscow.

At the 19th All-Union CPSU Conference on July 1, 1988, Chairman Morgun announced the decision to place new restrictions on new industrial development in polluted areas.⁸² He bluntly described the need for stringent new steps. As he put it:

79. Pravda, *supra* note 44, at 1.

80. The CPSU decree based *Goskompriroda* on subdivisions taken from *Gosabroprom*, the Ministry of Land Reclamation and Water Resources, Hydromet, the Ministry of Fish Industries, the Ministry of Geology and others. Originally the State Committee for Forestry was included, but by the summer it had been excluded from the integration of the new *Goskompriroda*.

81. Interviews with F. T. Morgun, in Boulder, Colorado, (Nov., 1988). For a discussion on Morgun's life work, including agriculture and soil conservation with no-till planting, see F. Morgun, *Bread and People* (1975).

82. See Remnick, *Foul Air, Water Problems Wake Soviets to Ecology*, Washington Post, July 31, 1988, at A1.

[it] is not the individual as you often claim uneducated dilettantes who are rejecting this; it is the people who are hitting back everywhere. And the people are not fools. Mankind has no chance of salvation if protection of the environment and its accessibility do not become a major element determining the whole of our development.⁸³

This clearly articulated high level commitment to improving environmental quality was reflected also in September, 1988, during presentations at the 4th Chautauqua Conference on USA-Soviet Relations held in Tbilisi, Georgia. Deputy Secretary of the USSR Foreign Ministry, Anatoly L. Adamishin, called "the ecology problem" one that "threatens tragedy for all mankind."⁸⁴ Shishkin, Deputy Secretary for Foreign Affairs of the CPSU Central Committee, said that we need "spiritual ecology" or "moral ecology" if we are to reverse environmental degradation. He noted that the "disaster in the Sea of Aral" and last summer's pollution on the ocean shores were evidence of the need for more effective action to protect our "beautiful world."⁸⁵ He stressed the need for international environmental security, noting that the time needed to correct environmental problems is "melting away catastrophically."⁸⁶ He asserted that ecology was the number one issue for USA-Soviet cooperation, now that arms reductions were proceeding. Referring to pollution and resource misuse, he observed that "if we behave as unwisely as we have in the past, then humanity faces a very short period of life."⁸⁷

Goskomprroda's representative at the Chautauqua Conference was the Vice Chairman in charge of the new agency's Pollution Control Division, V.F. Kostin. He reiterated these themes in a prepared text, which was the first by a spokesman for *Goskomprroda* intended for a foreign audience, stressing

83. Text of F.T. Morgun's Party Congress Address, Foreign Broadcast Information Service, July 1, 1988 [hereinafter Morgun] (on file with Pace Env'tl. L. Rev.).

84. Lectures at Chautauqua Institution's 4th Chautauqua Conference on U.S.-Soviet Relations, Tbilisi, USSR (Sept. 20, 1988) (on file with Pace Env'tl. L. Rev.).

85. *Id.*

86. *Id.*

87. *Id.*

equally the vigorous mandate which *Goskompriroda* intended to pursue within the USSR and the Soviet Union's commitment to work with other nations on international collaboration to resolve environmental problems. Even if *Goskompriroda* has had little time to accomplish much to date, the Soviet message clearly is that this new agency intends to do a great deal to protect the environment, at home and abroad.

B. *Kostin's Chautauqua Address*

The essence of Kostin's presentation can be summarized briefly here to give the flavor and a sense of the policy framework which *Goskompriroda* has initially adopted.⁸⁸ It is significant that Kostin, trained as an engineer and responsible for inspection and control of domestic enterprises, squarely placed the importance of his work in a global context. This account is illustrative, and not a definitive rendering of the address:

* Ecology is a most serious issue. In the past, progress in the Soviet Union was implemented without giving due consideration to ecology and protection of nature. There was an absence of economic stimulants to promote or assure the rational use of natural resources in the USSR.

* Shortcomings in planning were particularly acute in the southern Ukraine, in Khazakstan, in Siberia, in the Sea of Aral and at Lake Baikal. Shortcomings exist in many other places. Soviets live in a big country and have wasted their natural resources and harmed the environment.

* Despite these past problems, Soviets today are not oblivious to restructuring, especially with respect to ecology. Last January 1988, by decision of the State Committee on Environment Protection, *Goskompriroda* was created. *Goskompriroda*, has broad terms of reference. It is to monitor air and water purity, and to develop economic norms and standards. It is to exercise state control and licensing of the disposal of industrial waste, of the use of water, and of the protection of natural resources.

88. *Id.*

* The Soviets have embarked on *perestroika*, the radical restructuring of its society. Protection of the environment is part of *perestroika*.

* *Goskompriroda* is preparing a plan for the step by step protection of the environment to the year 2005. This plan will include programs for elimination of waste production in industry; for non-waste producing manufacturing. It will have new controls for a stage by stage realization of sanitary and hygienic norms. It will improve the economy and require payment for the use of natural resources and will impose fines for pollution of the environment. In the new system of self-financed economic enterprises, the new fines will be effective. Additionally, training is absolutely critical.

* Concern for protection of the environment is of international importance. Trends are apparent in international relations which will ensure progress. Global environmental issues require international cooperation, for instance, for the protection of the ozone layer, the elimination of ocean pollution and the resolution of issues concerning the warming of earth's atmosphere. The USSR has ratified the 1971 Long-Range Air Pollution Treaty and is committed to reducing sulfur dioxide emissions by thirty-five percent under the plan of this Treaty. Additionally, the USSR is also committed to nitrogen oxide emission reductions. The USSR is also a member of the London Dumping Convention under which all marine dumping of waste is regulated. The USSR participates in the Baltic Agreement which prohibits dumping of everything except dredging material from rivers.

* The USSR is a party to the Vienna Convention on the Stratospheric Ozone and has signed the Montreal Protocol requiring a fifty percent reduction in those emissions threatening the ozone layer by the year 1990. The USSR has stopped commercial trade in freon and is engaging in an exchange of information.

* The USSR has agreed to a fifty percent reduction in the discharge of heavy metals into the Baltic Sea by the year 1995. Negotiations have begun with the nations bordering on the Black Sea to prepare a convention covering the elimination of pollution into the Black Sea.

* These various international problems have produced useful international work. The USSR looks forward to expanded activity in international protection which will result in more intergovernmental agreements. For instance, in the USA-USSR Agreement For Cooperation In The Field of Environmental Protection, the USSR worked on over fifty project events in the year 1987. The last Summit Meeting particularly emphasized our environmental protection cooperation.

C. *Soviet Policy on Ecology*

Kostin's presentation surveys the broad approach which the Soviet Union has decided to pursue on environment protection. The top priority accorded to ecology was reiterated in the address by Mikhail Gorbachev upon accepting election as Chairman of The Presidium of The Supreme Soviet on October 1, 1988. He said that "[I]t is extremely important for the Soviets to master more quickly new methods of management, to take charge of environmental protection."⁸⁹ While it is evident that environmental issues are among the top agenda items today in the USSR, it is less clear how successful the Soviet programs described by Kostin will be.

The Soviet leadership refers to environmental protection broadly as "ecology," and does not use that word in the more specific scientific term for the discipline of Ecology. Similarly, Environmental Law is referred to as "Ecological Law."⁹⁰ When the Council of Ministers was debating the name for the new Soviet State Committee, some favored the use of "ecology" or "environmental protection" in the title. Others, including the Chairman of The Council of Ministers, Nikolai Ivanovich Ryzhkov, preferred use of the term *priroda* which can be translated literally as "nature" but which connotes to Russians more broadly "all life," encompassing natural systems and even the urban environment. Ryzhkov reportedly fa-

89. See *Key Excerpts from Speech by President*, N.Y. Times, Oct.14, 1988, at 14, col.1.

90. For instance, the sector in the USSR Academy of Science's Institute of State and Law which deals with Environmental Law is called "The Sector on Ecological Law."

vored *priroda* because it was the term the Russian people understood best.⁹¹ There is a long tradition of using protection of *priroda* in the USSR since the earliest days of the post-revolution. The venerable All-Russia Society for the Protection of Nature (*Obshestva Organizy Ochrana Prirody*) published a journal named *Priroda* for many years between the Society's founding in 1924 and the pre-World War II period. Use of *priroda* has strong connotations of a respect for nature and a duty to protect it. The CPSU and Council of Ministers have decreed that the new, forthcoming weekly newspaper is to be called *Priroda*. Use of the word "ecology" seems to be employed as a more *au courant* version of these same ideas. The leadership of *Goskompriroda* has decided to translate this new agency's name in English as "State Committee for Environment Protection" in order to connote the broader meaning ascribed to *priroda* in the title of the agency.⁹²

D. *The Decision of January 1988*

The decision in January of 1988⁹³ to radically revamp Soviet efforts at environmental protection has several inter-related components. This decision itself takes the form of a policy resolution, directing follow-up action to implement it. Specialists in the Ministry of Justice are preparing the texts of statutes needed to implement the decision, to be circulated for public debate in draft, nationally around March of 1989.⁹⁴ There is considerable political "turf" battling presently among the various natural resource and environmental agencies headquartered in Moscow about these new laws, since literally core parts of their programs and authority are at stake.

For instance, the environmental issues of forests are not reassigned to *Goskompriroda*, despite its duty to direct scientific and technical policy in environmental protection and the

91. Interviews in the USSR (Sept. and Nov., 1988).

92. Communication with N. Dobrovulskaya, USSR Executive Secretary for the U.S.-USSR Joint Committee on Cooperation in the Field of Environmental Protection (Sept., 1988).

93. *Pravda*, *supra* note 44, at 1.

94. Interviews in Moscow (Nov., 1988).

rational use of natural resources. *Goskompriroda's* monitoring duties cover use and conservation of lands, surface and underground water, minerals, air, flora and fauna (including fish), marine habitat and the natural resources of the territorial sea, continental shelf and exclusive economic zone. The restructuring of the USSR's environmental protection program is evolving in a peculiarly Soviet mode, based upon terms of the decision of January 1988. The key points of the environmental protection program as outlined in *Pravda*⁹⁵ are as follows:

* *Goskompriroda* will submit proposals to the State Committee on Planning (GOSPLAN) for environmental protection measures to be included in the draft concept and basic guidelines for Five Year Plans; each of the fifteen Republics is to establish a counterpart Committee and localities and regions are to set up subsidiary counterpart Committees.

* *Goskompriroda* will undertake the "State Ecological Expert Analysis" of new projects, developments, siting of facilities, etc.

* *Goskompriroda* and the fifteen Republican Committees will have the power to prohibit any new or on-going activity which violates environmental rules. The Committees can conduct investigations. All other agencies are directed to cooperate. "Special attention must be given to staffing organs of the USSR *Goskompriroda* system with highly skilled, principled workers who are devoted to their work and capable of skillfully resolving environmental protection problems in conditions of the broad democratization of society and transfer of the economy to new economic management methods."⁹⁶

* Heavy fines and sanctions will be instituted, so that timely construction or upgrading of pollution control facilities will be more "lucrative" than continued pollution; "industries and farms that previously polluted the environment with impunity now face the risk of bankruptcy in the new economic conditions of cost-accounting and self management."⁹⁷

* Use of natural resources will require payment for their

95. See *Pravda*, *supra* note 44.

96. *Id.*

97. *Id.*

value. Discharges of waste shall require payment. If emissions of pollutants exceed permitted levels, a multiple of that payment will be assessed. "Pricing will be used to stimulate the production of ecologically clean output."⁹⁸ Fees paid are to finance environmental restoration and maintenance programs.

* An emergency clean-up or prevention fund is to be established in *Goskompriroda*.

* Management of nature sanctuaries, preparation of the *Red Book* of endangered species, and the system of *zapovedniki* are to be under the administration of *Goskompriroda*.

* A broad public information program is to be established, with participation by all organs of the media and social organizations. There is to be a particular emphasis on youth, "so as to foster a solicitous attitude toward and love of nature."⁹⁹ A weekly newspaper called *Priroda* is to begin publication in 1989. All public education efforts are "to radically improve the work of publicizing environmental protection and instilling in the Soviet people a solicitous and highly moral attitude toward flora and fauna, land and water resources, and minerals."¹⁰⁰

* International cooperation on issues of environmental protection is assigned to *Goskompriroda*, which is to carry out measures to increase the effectiveness of Soviet international cooperation for environmental protection.

* A broadly representative public advisory body is to be established to advise *Goskompriroda*.

* An All-Union federation of nature protection societies is to be encouraged.

* State Committee on Planning and the Ministry of Justice are to prepare a draft All-Union law implementing these provisions for release in March of 1989 for national debate, revision and eventual adoption by the Supreme Soviet.

Although implementation of this resolution is required by almost every agency of Soviet Society, no procedure for over-

98. *Id.*

99. *Id.*

100. *Id.*

sight of these measures has been established. This leaves the Council of Ministers and CPSU Central Committee as the oversight bodies. Both have many other matters to attend to thus, if implementation appears to be sluggish, both may escalate pressure on affected agencies to adhere to the resolution. Creating *Goskompriroda* is the most highly visible initiative of the decision. The amount of work accomplished is the best measure by which to gauge the Soviet Union's progress in implementing the resolution.

Of co-equal importance with this decree are demands for more effective environmental protection by the press and public as a result of journalistic and other media accounts about environmental problems. The continuing frank admission about all environmental problems is enhanced by the policy of *glasnost*, or openness. Equally, the role of the many new ecology clubs and their protests, which are widespread throughout the Soviet Union, appear to be intended to keep pressure on all components of the society to move toward implementing the resolution. These new environmentalist groups are encouraged under the policy of democratization. It appears that the pressures of the public and the media are being relied upon to support implementation of *Goskompriroda's* new roles, in the wake of predictable, "departmental" opposition from manufacturing or resource exploitative enterprises.

Oversight from above is apparently not intended to be the principal driving force to assure that these environmental reforms will be realized. Nonetheless, the CPSU Central Committee's oversight can be expected to be exercised at key future junctures, such as review of the proposed legislation now being prepared to implement the 1988 resolution. It would be logical to assign authority of *Goskompriroda's* chairman superior to that of other ministers since its role is to guide other ministries' to achieve environmental protection. If *Goskompriroda* is left as a co-equal with a manufacturing ministry, the latter may assert its "plan" in opposition to any reforms sought by *Goskompriroda*. Such an impasse would then require repeated interventions by Ryzhkov, as Chairman of the Council of Ministers, and/or GOSPLAN. Such supervision could delay implementation of environmental protection and

would not be efficient. The new law may clarify this situation.

E. *Goskompriroda's Framework*

The new State Committee for Environment Protection, and its Republic counterparts,¹⁰¹ are currently being organized. *Goskompriroda* is in its initial stages of organization. Personnel have been drawn from all the agencies which gave up jurisdiction to the new State Committee.¹⁰² Chairman Morgun of *Goskompriroda* is an experienced party leader who will rely on *Goskompriroda's* specialized Deputy Chairmen for the expert direction of the new agency. In order to give *Goskompriroda* additional political authority in disputes with other State Committees, most of which are of long standing and have built substantial political clout, it may be necessary for the Council of Ministers to select *Goskompriroda's* Chairman to serve as Vice-Chairman of the Council of Ministers. Prior to the Decree of January, 1988, the Council of Ministers had a Commission on the Environment chaired by a Vice-Chairman of the Council of Ministers which resolved differences on ecological issues between competing ministries. This Commission in effect was replaced by *Goskompriroda*, and the Commission no longer meets. *Goskompriroda* is now one of several co-equal ministries represented on The Council of Ministers. Other Ministries, such as those engaged in chemical manufacturing, do not wish to defer to *Goskompriroda* and strive to prevent any loss of authority to *Goskompriroda*. Their attempt to preserve their authority by curbing *Goskompriroda's* status as it is being created could be remedied by either recreating the Commission on the Environment in the Council of Ministers, or elevating the *Goskompriroda* Chairman above other Ministers to be a Vice-Chairman of the full Council. A third solution would be to give *Goskompriroda* new statutory authority in 1988 to govern the environmental

101. For instance, the chairmen of *Goskompriroda* in the L'vov Oblast of the Ukraine Republic had been appointed as of October, 1988, and the Latvian Republic Chairman as of the same date. No local staff or offices has as yet been established. Interviews in L'vov and Riga (Oct. and Nov., 1988).

102. For a list of the agencies, see *supra* note 80.

performance of all other ministries, as suggested above. It is unclear at present where the "departmentalism" of other ministries *vis a vis Goskompriroda* will lead, but the competition is likely to retard rapid development of *Goskompriroda*.

Goskompriroda is divided into seven operating divisions. It also has a Jurisconsult, the agency's house counsel directed by Asipov, who previously served in this role for the State Committee on Science and Technology. Each of the seven divisions is headed by a Deputy Chairman, and under him by a director of the division.

These divisions are as follows:

1. *Pollution Control and Inspection*

This sector is responsible for compliance. It is establishing working relations with the Procuracy for enforcement. Its staff has been in existence in other agencies. It is headed by Deputy Chairman V.F. Kostin, a former water engineer who headed inspections in the Ministry of Water and Land Reclamation.

2. *Science & Ecological Standards*

This sector is to establish norms and standards for effluents, emissions and operations. It is headed by the First Deputy Vice-Chairman, V.G. Sokolovsky, formerly at Hydromet.

3. *Expert Assessment*

This sector conducts and provides *Goskompriroda's* participation in the system of Expert Environmental Assessment for major projects. Their expert assessment environmental impact review process involves active participation by a number of specialized bodies. It is headed by Deputy Chairman E.V. Minaev.

4. *Economic Aspects & the Rational Use of Natural Resources*

This sector is responsible for *Goskompriroda's* economic mandate and the conditions for natural resources development and conservation. N.N. Lukjianchikow is the director, and the Deputy Chairman has not yet been named.

5. *International Cooperation and Personnel*

Coordinating the work for the USA-USSR 1972 Agreement on Cooperation in the Field of Environmental Protection, and the USSR's other international agreements is the re-

sponsibility of this sector.

6. *Information & Education*

This sector is responsible for the educational and propaganda functions.

7. *Internal Administration*

The secretariat, budget, and construction functions for *Goskompriroda* are provided by this sector. It is internal to the Committee and is unlikely to have contacts with substantive specialists outside the Committee. It is headed by Deputy Chairman I.P. Bystryukov.

Since the headquarters staff of *Goskompriroda* as of 1988 is projected to have ultimately only 300-400 persons, it is unlikely that the new agency will itself be able to operate directly in the field. *Goskompriroda* is intended to work through Republic and Oblast Committees and other agencies. The currently projected size of the All-Union staff is probably too small for a nation as large as the USSR. The Finance Ministry has been reluctant to accord the agency the resources which it immediately needs in part because it was established after all other agency budgets were set and the fiscal year put in place.

By the time the draft statutes are ready for final promulgation in late 1989, the core leadership and structure of *Goskompriroda* will be in place. Its first tasks include preparation of a phased plan designed to cleanup pollution and to restore degraded areas by the year 2005. The more profound environmental problems, especially those such as the deteriorated condition of the Aral Sea, cannot be restored in this time frame. It is interesting to note that during the same period, the Academy of Sciences is preparing an independent and separate study extrapolating current environmental trends to the year 2005 in order to demonstrate the dimensions of global environmental problems and problems in the USSR. As *Goskompriroda* begins its work, it will soon recognize the difficulty and magnitude of its tasks. The Academy study will help corroborate *Goskompriroda's* findings. As the year 2005 approaches, there will be more solid documentation about the environmental degradation in the USSR. This record will probably stimulate measures to strengthen the system of envi-

ronmental protection.

Establishing an administrative process including discharge limits, fees, permit conditions, and enforcement thereof, will be an enormous task. Fixing a natural resources user's fee will also pose considerable economic difficulties. *Goskompriroda* has an enormous agenda ahead of it, even if all other external conditions remained constant. As it is, however, *Goskompriroda* faces radical restructuring in all aspects of those external conditions, most dramatically in the economic sector.

F. *Economic Revitalization: Uskorenie*

Most environmental problems in the USSR are the result of the unbridled natural resource exploitation and uncontrolled industrial wastes which characterized economic development since Stalin. These problems were driven by the Five Year Plans which guided the Soviet economy since they were instituted by Stalin. These Stalinist plans were highly centralized. Unlike the earlier relatively decentralized mixed economy contemplated by Lenin in his "New Economic Policy," the Stalinist model treated natural resources as "free" goods, and pollution as an externality. The vast size of the USSR permitted reliance on dilution and dispersion of wastes and sustained relatively inefficient mining of all resources, whether renewable or finite, to meet society's needs.

Eventually, the scarcity of resources and the growth of pollution exposed the inefficiency of this model. Moreover, the Soviet economy was not able to develop high technology or modernize as rapidly as other nations. Soviet economic growth and productivity slowed down from 1971 to 1980, and the economy did not function as intended in the Eleventh Five Year Plan which concluded in 1985. Quality of production declined and productivity was measured by a gross value of total output measured in rubles (*valovaia produktsiia* or VAL); if an enterprise increased its VAL, its management and staff were rewarded. Since VAL is computed on a cost-plus basis, there was no incentive to find less expensive raw materials and no incentive to cut expenses since that would reduce the

VAL. Any investment in pollution control or enhancing quality would reduce productivity and thus VAL, and was avoided. As Marshall Goldman observes, the VAL system "has resulted in excessive use of raw materials, and that helps explain the perennial Soviet complaint that products are too heavy and that raw materials are needlessly squandered in the production process."¹⁰³

As long as an approved plan required a level of production, all efforts were directed at fulfilling the plan. John Kramer quotes one industrialist in 1970, frankly admitting the way environmental protection was sacrificed: "You think we do not see? But what is to be done? . . . What about the plan? Are you going to order the plants to stop? That is the dialectic. One has to choose between civilization and one's love of nature."¹⁰⁴ In the past, as Kramer concludes, "unfortunately, for those interested in protecting the Russian environment, the political power of Soviet industrialists often appears decisive in determining the priorities emphasized in the Soviet system."¹⁰⁵

An example of the ineffectiveness of the former controls is the account of the cement works in Riga, Latvia. This is an old plant, once located outside the city. As Riga grew, the cement dust became a problem. Housing and commercial activity came to be located near the plant. The managers were accountable to Moscow to produce the volume of cement as planned, and disregarded local authorities who demanded that either measures be introduced to reduce cement dust or that the plant be relocated. The "Mayor" of Riga, Chairman of the Executive Committee of the Riga City Soviet, Alfreds Rubiks, in 1987-88 asked inspectors to come from Moscow to deal with the problem. Upon arrival, the inspectors made two recommendations: either lower the standards of emissions so that the plant would be found to be in compliance; or adjust the monitoring equipment to find that the plant as operating

103. M. Goldman, *Gorbachev's Challenge: Economic Reform in The Age of High Technology* 22 (1987).

104. Kramer, *supra* note 41, at 890 (quoting Pravda, June 26, 1970 at 3).

105. *Id.* at 899.

was in compliance. Scandalized, Rubik's response was to take the inspectors to the plant to stand outside and become covered with cement dust, and ask how their proposals would deal with that phenomenon. The Riga City Soviet then passed a law forbidding operation of the plant, and setting up a political power struggle with the central cement manufacturing ministry in Moscow. This dispute was unresolved by the end of 1988 but Chairman Rubiks predicts that Riga's order to close the cement works will be implemented.¹⁰⁶

Such accounts can be reproduced in many different settings. Soviet critics note the failure of their economy in coping with pollution. Valentine A. Koptiug, Chairman of the Siberian Branch of the USSR Academy of Sciences, wrote in the May, 1988 issue of *Kommunist*, the Communist Party's leading journal, that "the general ecological situation [in Siberia] is already extremely serious and it shows obvious tendencies to deteriorate further."¹⁰⁷ Koptiug notes that:

during the discussion of every ecological problem generated by industry, the first corrective measures proposed typically center on improving the cleaning systems. However, if one examines the problem as a whole, it becomes obvious that the backwardness of the technology in industry and agriculture represents the root of our troubles. *Ecological strain begins in the sphere of technology* and is only exacerbated by imperfections in the cleaning systems. The primary reason for economic and ecological troubles is this: the extensive method of development of our economy. Enterprises pursue 'VAL' while ignoring the need to reduce expenditures on natural resources, materials, energy, and to decrease waste and harmful losses on the path of perfecting technology.¹⁰⁸

Too often, Koptiug observes, environmental standards are met not by pollution abatement, but by "for example, diluting

106. Interview with Alfreds Rubiks in Riga, Latvia (Nov. 1988).

107. V. Koptiug, *Ecology: From Concern to Effective Policy*, 7 *Kommunist* 24, 25 (1988).

108. *Id.* at 25-26.

runoff with clean water until the needed level of concentration of polluting substances is achieved. There is an analogue in industrial air pollution: the higher the smokestack, the more dilution. This is precisely how many industrial enterprises prefer to handle the issue."¹⁰⁹

Koptiug concludes "that nature protection and socioeconomic development are, in essence two sides of the same coin and can only be examined as an indivisible unity."¹¹⁰ Unfortunately for environmental protection programs, Soviet economists do not all share this viewpoint. One of the leading economists, a member of the Presidium of the USSR Academy of Scientists, is Abel Aganbegyan. In his book, *The Economic Challenge of Perestroika*, he describes the stagnation in the Soviet economy. Aganbegyan outlines the CPSU's new economic strategy as advanced by Gorbachev, making scant reference either to the widespread environmental problems confronting the USSR, or to the contest between environmental protection and industrial practices.

Aganbegyan writes that "[a]t the root of this new economic strategy lies the concept of *uskorenie*, the acceleration of social and economic development. This revolutionary strategy is in contrast to the tendency of *zamedlenie*, the slowing down of development of the last 15 years."¹¹¹ *Uskorenie* will be achieved through improvements in efficiency of manufacture and management. He projects significant new growth to the year 2000, to be achieved by measures which focus on quality of performance and assuring the needs of the public. A decentralized system of economic decision-making is being established to promote these measures.

In Aganbegyan's characterization, the former "[a]dministrative methods of management . . . based on a schedule of commands which make up the state plan . . . handed down each year from the top [will now] be scrapped."¹¹² Enterprises will design their own plans based

109. *Id.* at 27.

110. *Id.* at 33.

111. A. Aganbegyan, *The Economic Challenge of Perestroika* 1 (1988).

112. *Id.* at 112.

upon orders for goods or services "on the basis of consumer demand."¹¹³

Aganbegyan estimates that these economic reforms will be immediately effective. He states that:

[b]y the year 2000 differences between the USSR and other countries should be largely eliminated. Increases in labour productivity and other indicators of effectiveness and quality of products will create a material basis for an end to the wide differences which currently exist in the USSR in levels of real income, food and consumer goods, housing, health provision and many other aspects of the standard of living.¹¹⁴

Noticeably lacking from Aganbegyan's analysis is any agenda for cleaning up past pollution or natural resource damage and assuring a high ambient environmental quality. He projects a shift to more petroleum-efficient diesel engines,¹¹⁵ but is silent on how their contribution to air pollution will be handled. He would strengthen the machine tool and computer production sectors,¹¹⁶ but says nothing of their role in effecting pollution control. His account of the cost anomalies between oil and coal, and the need to reduce oil while increasing coal usage,¹¹⁷ ignores the environmental cost associated with producing greenhouse gases and acid rains. He praises the mass production of cars from the Volga Car Factory built by Fiat,¹¹⁸ but says nothing about the role of the authorities in improving traffic safety or curbing the automotive smog in urban centers from Moscow to Alma-Ata.

Perestroika in the economy apparently will adjust for these environmental processes because pricing of all materials (presumably including air and water) will be designed to include externalities. Each enterprise is to be independently

113. *Id.*

114. *Id.* at 39-40.

115. *Id.* at 13.

116. *Id.* at 14, 86-90, 106.

117. *Id.* at 117.

118. *Id.* at 148.

managed and self-accounting, self-financing and self-managing.¹¹⁹ One aspect of self-accounting "is related to the levy each enterprise pays for all types of natural resources used in production: for land (including all natural resources), labour and capital goods."¹²⁰ As Aganbegyan puts it, "[f]or historical reasons the prices for natural resources and agricultural products have been depressed. . . . Low prices for fuel and raw materials led to waste and impeded resource conservation and economics in their use."¹²¹

Some of the new prices will be set centrally, and in this way the Soviet Union's new market differs from a free-enterprise market. As Aganbegyan notes:

the socialist market is a regulated market in the case that the prices for the most essential products will be set centrally, i.e. fuel, electricity, the most important raw materials, rolled steel machinery, and some consumer goods. This is done to give the government power over the rate of growth of prices and the means to stave off inflation, and to prevent enterprises from raising their prices in these cases.¹²²

Under the January 1988 decree establishing *Goskompriroda*, prices are to be set for water use and other raw materials. Perhaps emission fees based on use of available biological oxygen demand (BOD) or chemical oxygen demand (COD) will be set. Even the use of air in a combustion process could be assessed. Since *Goskomprioroda's* budget will be financed by receipt of these fees, along with fines levied and a Finance Ministry allotment, the establishment of these envi-

119. *Id.* at 114.

120. *Id.* at 115.

121. *Id.* at 133. Aganbegyan notes further that:

with prices at these levels, many geological enterprises and even whole extraction branches (like coal mining) are unprofitable and their losses are simply covered by grants from the states. Depressed prices for agricultural products, where their production is relatively costly because of low productivity, have also been covered by state grants. This impairs the stimulating effect of prices on the development of agriculture. *Id.*

122. *Id.* at 119.

ronmental prices will be of substantial interest to *Goskompriroda*.

Other ministries and enterprises, however, can be expected to oppose paying anything other than a most nominal sum for what had presumably been assumed to be free goods, owned by the public and entrusted to each agency to reap and improve. Aganbegyan has strongly criticized the "departmentalism" in the Soviet system.¹²³ In his estimation:

[a]n inevitable corollary of this system of management was bureaucracy at the opposite pole to democracy. As part of the current radical reform we have to break this administrative system and offset the tendency to bureaucracy by changing over to a fundamentally different system of management based on the use of economic levers

123. *Id.* at 193-94.

The peculiar and extreme conditions in which socialism was built in the Soviet Union (industrialization, war, restoration of a ruined economy), have led to a deformation in the application of the principle of democratic centralism. In the first instance, what should have been its secondary aspect, that of centralism, was over-emphasized to the extent that it suppressed democratic principles of management. This was indivisibly associated with the prevailing administrative system of predominantly command management. As the Soviet socio-economic system became more complicated, the administrative system of management became broader and deeper. The number of management bodies proliferated. The number of links in the chain of management ramified and the administrative network itself increasingly deteriorated into a self-aggrandising system. Each management body, each department, followed its own self-interest, reflected in the effort to increase the role it could play. In this way departmentalization arose and developed. Correspondingly, local bodies strengthened and accentuated their narrow local interests. A complex, cumbersome, interacting administrative system arose. Suffice it to say that the highest executive body in the Soviet Union, the Council of Ministers of the USSR, directed more than one hundred ministries and departments, working separately from each other. Besides this the fifteen Republic Councils of Ministers would turn out for the meeting of the Council of Ministers of the USSR. Yet the Council of Ministers for RSFSR (The Russian Soviet Federal Socialist Republic) held no responsibility for the problem of developing heavy industry, nor for most of construction, nor for the railways and air and sea transport. Therefore all local bodies (and in the RSFSR there are seventy-one autonomous republics, separate provinces, administrative regions and two cities, Moscow and Leningrad, subordinate to the Union) bypass the Council of Ministers of the RSFSR and report directly to the Government of the USSR with all their many problems. *Id.* at 194.

and incentives and on the development of democracy.¹²⁴

By engaging the public in the process, a popular demand for quality and improvement can sustain the reforms.

Local authorities will be given more power over local decisions, including land uses. Central ministries will have a lesser role. In Aganbegyan's evaluation:

[l]ocal authorities have been granted extensive legal powers. But many authorities have not as yet exercised their rights, complaining that everything remains as it was with real power still preserved in the ministries, etc. They have forgotten that powers are not simply given but must be taken. There are others which have taken them up, like the enterprise urban executive committees which are using the housing and social funds of institutions like certain regions and provinces, which are undertaking campaigns to protect the environment. . . . But, regrettably all this is still an isolated and not a widespread phenomenon.¹²⁵

The inertia of many local authorities is associated with the lack of developed democracy. Aganbegyan does not explain, or perhaps anticipate, that local authorities will want polluting industry immediately relocated or closed, as in the case of Riga's cement works. In a nation which guarantees employment, the loss of income producing jobs does not seem to constitute a political deterrence. Plant closings would not accelerate economic development in the short run, although they may prompt new capital investment critical to modernization in the long run. Aganbegyan has no prescription for building the new political consensus necessary for ecologically sound development, as the only counter-weight to the emergent NIMBY phenomenon about which he is silent. Somehow new management techniques are expected to overcome these difficulties, driven by popular democratic political forces.¹²⁶

124. *Id.* at 194.

125. *Id.* at 121-22.

126. *Id.* at 121. After the fact, and without a prescription to cope with the grow-

There are also, of course, many opportunities for advancing environmental protection in the course of economic *uskorenie*. If more trade is to be encouraged in international sales of chemicals,¹²⁷ some part of the hard-currency income could be earmarked to pay for installing and maintaining state-of-the-art pollution control technology which must be imported if it is to be immediately put into service on a na-

ing water supply needs of Khazakstan and Uzbekistan, Aganbegyan notes that public opinion plays a critical role in highly visible environmental disputes:

In the life of the Soviet Union, public opinion is playing an ever increasing role. Writers, academics, experts, workers are actively voicing their protest at certain decisions and actions of ministries, departments and state authorities. This was how it was in the public campaign against the project to reverse the flow of some northern rivers southward and to create large irrigated areas as a result. In accordance with government decisions the project was not only prepared, but practical work on the digging of channels was begun and the construction of reservoirs to direct a proportion of the flow of northern rivers of the European part of the country to the south, into the Volga. In the draft Basic Directions of Economic and Social Development in the USSR for the 1986-90 period, which was published for discussion before the XXVII Party Congress, there is a requirement that work continue on the reversal of a proportion of the flow of northern rivers to the south. In newspapers, journals and at meetings many writers and academics took part in the discussion of this point. In particular, the President of the Academy of Sciences of the USSR, Academician A.L. Yanshin, and other academics submitted an article to the newspaper *Pravda* on the untenability of this project for economic and ecological reasons. Our letter was published together with a letter from the Director of the Institute for Water Problems of the Academy of Sciences of the USSR, and corresponding member of the Academy of Sciences, G.V. Voropaev, who in reply stood up for the cost-effectiveness of this river reversal scheme.

Public efforts were not in vain. For, when it was discussed at the commission on the draft of the Basic Directions, a decision was taken to exclude the proposal as not yet fully substantiated. But digging continued. Further efforts were needed for the issue to be examined at the Presidium of the Council of Ministers of the USSR. I attended this discussion and spoke up but opinion was divided. Nevertheless the majority of the leadership, including the President of the Council of Ministers, N.M. Ryzhkov, sided decisively against the continuation of work. As a result a resolution was passed to discontinue all work and planning on the scheme. Almost one hundred million roubles already spent were written off. The departmental self-interest of the Ministry of Water Management and Land Improvement had cost the state dear. But many billion roubles of further expenditure were averted, and most importantly the natural environment was protected and no irrevocable harm was done to it. *Id.* at 200-01.

127. *Id.* at 142.

tionwide basis. There is substantial interest, and some significant current activity in recycling and reuse of waste in the USSR; this process can be accelerated. As economic planning looks toward the year 2000, it will become increasingly evident that the expenses needed to restore and maintain environmental quality are much higher than previously estimated, as has been the case in North America and Western Europe. Some adjustments will be needed in optimistic forecasts, such as Aganbegyan's, about a short-term economic revival toward the year 2000.

To his credit, Aganbegyan does acknowledge that environmental protection is underway, and that the work to date was "only a beginning."¹²⁸ While he wrote his book *The Economic Challenge of Perestroika*, Goskompriroda was being established, although the narrow but powerful departmentalism of the Ministry of Forests was able to exempt itself from the reach of the Soviet Union's new environmental agency. It remains to be seen whether the CPSU Central Committee and the Council of Ministers will continue to give a preference to environmental protection over future economic development issues, as was done with the preservation of Lake Baikal or the abandonment of the Northern Rivers Diversion proposals.

Uskorenje which ignores the need to protect *priroda* is destined to find opposition by ecology clubs, scientists, and local Soviets. Most enterprises lack expertise in ecological planning and environmental management. The education of a new generation of specialists will take more than a decade, first to educate new teachers and design curriculum and sec-

128. *Id.* at 223. Aganbegyan states that:

Recently the authorities came to pay increased attention to environmental protection. Important resolutions were passed on the protection of Lake Baikal, the improvement of ecological conditions on Lake Ladoga. Enterprises polluting the environment have begun to be closed down - something that did not occur before. I believe that this is only a beginning. The question of creating a single state authority to head up nature-protection activities is being considered, in place of the various separate bodies that have already been created in some Republics of the Union. Thus a new initiative is needed here to protect and augment the unique natural environment of the Soviet Union and to guarantee the ecological cleanliness of the air, water and soil. *Id.* at 223.

ond to train the needed generation of new environmental protection specialists for employment throughout the economy and government. The *perestroika* of the educational system is underway,¹²⁹ but new education and training programs in the environmental technical and scientific fields have yet to be put on line. Even when sufficiently trained specialists are available to industry, it will take some time to plan and implement the pollution controls and redesigned industrial manufacturing processes required to arrest the severe pollution levels. If environmental protection is to be taken seriously, the only economic "acceleration" which can move quickly will be that which is carefully designed to maximize the protection of nature. Even then, experience in the United States shows that once one set of environmental problems are resolved, the next generation of issues can be seen. It must be recognized that environmental protection is a long-term and continuing process requiring ongoing institutionalized programs.

Once the initial targets for environmental protection are achieved, more intransigent and complex tasks will be evident. Hints of this dynamic already exist. For instance, Aganbegyan projects that "in the period up to the year 2000 it is intended that the food supply problem will be solved and the diet of the population will reach the scientifically established norms of intake required."¹³⁰ Even if this goal is reached, the currently emerging concern among many well educated Soviets is the safety of food ingested. There is interest in limiting cancer-producing chemicals. Questions are being asked about levels of pesticide and fertilizer residues in foods, about the level of radioactivity in foods in this post-Chernobyl society, and about the level of food additives. This growing health concern drives a whole new series of environmental protection measures and is not easily solved by competitive pricing in the marketplace.

Perestroika, in Aganbegyan's view, is ultimately a socie-

129. *Id.* at 223-24. See also Legras, *Shakeup in Soviet Union Seen Accelerating Pace of Educational Reforms*, XXXV *The Chronicle Of Higher Education*, Oct. 12, 1988, at 1, col. 1.

130. Aganbegyan, *supra* note 111, at 223.

tal-wide reform for social justice.¹³¹ The revitalization of the economy is one key dimension of this effort. If nature is to be duly protected in the course of these reforms, the new environmental laws must be rigorously observed. Gorbachev has stressed the need to perfect socialist legality. He stated that:

the deeper the restructuring, the more strictly and consistently the principles of socialism should be implemented, and the rules of life of socialist society codified in its Constitution and laws observed.

Perestroika sets higher demands as to the very content of legislative acts. . . . But, setting up this rigid framework, law is also called upon to make room for the initiative of citizens, work collectives and their organizations. . . . Let's strictly observe the principle: everything which is not prohibited by law is allowed.¹³²

While laws on environmental protection have been enacted and the new All-Union environmental law will be proposed in 1989, these laws will need vigorous enforcement and new rules will be needed as society's understanding of nature protection becomes more sophisticated.

Strict observance of environmental law has the potential to slow down economic acceleration since many enterprises initially will not want to recognize the legitimacy of seemingly difficult or unneeded environmental reforms. For instance, Soviet specialists doubt that chlorofluorocarbons (CFCs) can be eliminated from use in the short-term¹³³ fast enough to satisfy the curbs of the Montreal Protocol which are designed to halt the release of CFCs which deteriorate stratospheric ozone.¹³⁴ Again, only new developments which are premised on use of maximum environmental protection measures are likely to achieve the *uskorenje* desired as a component of *perestroika*. Delays in substituting new compounds for CFCs will contrib-

131. *Id.* at 119.

132. Gorbachev, *supra* note 3, at 107-08.

133. Interviews, in Moscow (Nov., 1988). See also Lemorick, *Deadly Danger in a Spray Can*, *Time*, Jan. 2, 1989, at 42, col. 2.

134. Montreal Protocol On Substances That Deplete The Ozone Layer, *open for signature* Sept. 16, 1987, reprinted in 26 I.L.M. 1541 (1987).

ute to global harm as solar ultraviolet rays increasingly cause skin cancers as the stratospheric ozone layer deteriorates. If, as seems likely, a total ban on CFCs will soon be established, Soviet industry will be caught short should the government enforce the ban. Moreover, to accelerate economic development without protecting the environment would permit a failure of socialist legality and frustrate another dimension of the radical restructuring. Continued reluctance to safeguard the environment will also face acute local opposition from the activist public whose ambient environmental interests have been disregarded.

III. The Unexpected Reaction: The NIMBY Phenomena in the USSR

Uskorenie would be difficult enough in the complicated Soviet economy even if it did not also have to cope with environmental problems. Similarly, the environmental efforts are made more complex by democratization and glasnost. Beyond the predictable challenges facing *Goskompriroda*, such as industrial "departmental" resistance to investing scarce capital or profits in pollution abatement technology in lieu of improving manufacturing productivity, the new agency confronts other reactions. Opponents have emerged locally against the siting of new polluting projects and even of new developments meant to enhance environmental protection. "NOT-IN-MY-BACK-YARD"¹³⁵ (NIMBY) is a battle cry which today is heard from Latvia to Georgia and the Ukraine to Siberia. The phenomena of organized citizen opposition to siting new developments in their home territory is growing throughout the Union of Soviet Socialist Republics. NIMBY activity in the USSR has emerged publicly as a consequence of that nation's societal reforms.

The pervasive opposition to new development has troubled Soviet leaders, partially because it was not anticipated by them. Local opposition to the new land uses proposed by the

135. For an earlier discussion of these trends, see N. Robinson, *The NIMBY Question In The USSR* (prepared for the Land Policy Institute, Lincoln Institute for Land Policy) (Nov. 1988) (on file with the Pace Envtl. L. Rev.).

central ministries headquartered in Moscow had been muted prior to the radical restructuring of *perestroika*. As the Communist Party under General Secretary Mikhail Gorbachev dismantles parts of the centrally planned economy, it has also opened the way to decentralized land use decision-making. Local people have direct access to local decision-makers. Moreover, as *glasnost* encourages open and candid exchanges of opinion, strongly held opinions about proposed new developments are now vented. Policies of democratization permit and even encourage the newly created local ecology clubs and other special interest groups to organize and espouse their views.

While the Soviet NIMBY reflects very different social issues than those of the American NIMBY,¹³⁶ in both nations the tendency to perpetuate vested traditional land use patterns often co-exists with a more objective newer drive to enhance environmental protection by preserving existing land uses. NIMBY advocates can espouse the *status quo* and when that condition is undeveloped habitat for flora and fauna, the advocacy is congruent with environmental preservation interests. NIMBY advocates can also oppose new economic developments in a purely traditionalist opposition to change. In each nation, some of the non-environmental vested interests may exploit environmental protection issues to further their non-environmental ends. In both nations issues of protecting vested social values can be detached from the need to solve the scientifically verifiable environmental problems.

A. *The Reaction Against "Development"*

At the 19th Congress of the Communist Party, *Goskom-priroda* Chairman F.T. Morgun, specifically endorsed the demands of environmentalists and admonished his listeners, both in the hall and watching on the unprecedented national television broadcasts, to treat environmental claims as valid, not as a negative NIMBY phenomenon. He spoke as follows:

136. Glaberson, *Coping In The Age of 'NIMBY'*, N.Y. Times, June 19, 1988, § 3 (Business), at 1.

The seas are becoming polluted. The concentration of carbolic acid in the Caspian Sea is nine times above the permitted norm and four times above the norm in the Baltic Sea. The Aral is a zone of ecological disaster. The living conditions and everyday activities of almost one million inhabitants in Karakalpakia and a number of oblasts in Kazakhstan and Turkmenia have become extremely complicated. The main polluters of the air, the soil and the waters are the enterprises of the Ministry of Power and Electrification, the Ministry of the Chemical Industry, the Ministry of Mineral Fertilizer Production, the Ministry of Ferrous Metallurgy, the Ministry of Non-ferrous Metallurgy, the Ministry of the Petroleum Industry, the State Committee for the Agro-Industrial Complex, and others. A particular blow is being inflicted on nature today by ill-considered chemicalization. Comrade chemical workers! Put a brake on your present expansion! Take time off and let people breathe normal air, and let the rivers and the soil cleanse themselves of all the rubbish! [applause] During this brief halt, put the existing plants on these rivers and soils in order — and this is the main thing, propose ecologically pure and economically beneficial waste-free projects and your requests for the construction of new factories will willingly be accepted in Ufa, Volgograd, Dzhabul, Kirishi, Cherkassy, Grodno, even in Kremenchug, and everywhere where factories are being waved away today like persistent flies. *It is not individuals as you often claim uneducated dilettantes who are rejecting this; it is the people who are hitting back everywhere. And the people are not fools.* Mankind has no chance of salvation if protection of the environment and its accessibility do not become a major element determining the whole of our development. In the sphere of ecology and restructuring it is also not just necessary, it is inevitable (emphasis added).¹³⁷

Local opposition to new development is more pervasive than Chairman Morgun's address suggests. It is not just "factories" which are being "waved away like persistent flies" by

137. Morgun, *supra* note 83.

the individuals who do not want them. The people have blocked new hydroelectric dams, and a battle rages currently opposing a hydroelectric dam proposed for the Kartun Valley of the Altai Alps.¹³⁸ The Chernobyl accident has raised safety concerns about nuclear power plants,¹³⁹ and the construction of new atomic energy electrical generating facilities has been curbed.¹⁴⁰ Georgians demonstrate openly in the streets of Tbilisi against continued use of a bombing range near ancient monasteries, since the vibrations are threatening these cultural monuments.¹⁴¹ Citizens from Angarsk march in the streets to protest air pollution from a pharmaceutical factory and march to the mouth of the Angara River to demand more protection for Lake Baikal by banning all industry from the lake's shores.¹⁴²

Such organized citizen campaigns against specific new developments have emerged throughout the USSR. In the period before *perestroika*, new developments were often criticized in the press when they caused acute environmental damage,¹⁴³ and the press consistently attacked deteriorating ambient environmental conditions.¹⁴⁴ However, the critical

138. Interviews in the USSR (June and Sept. 1988). For a discussion of the reports on the Kartun Valley dam, see Shabad, *Soviet Projects Debated in Press*, N.Y. Times, Dec. 21, 1986, at L15, col. 1.

139. See C. Flavin, *Reassessing Nuclear Power: The Fallout From Chernobyl*, Worldwatch Paper 75 (1987); L. Malone, *The Chernobyl Accident: A case Study in International Law Regulating State Responsibility for Transboundary Nuclear Pollution*, 12 Colum. J. Envtl. L. 203 (1987).

140. Keller, *Public Mistrust Curbs Soviet Nuclear Power Efforts*, N.Y. Times, Oct. 13, 1988, at 1, col. 2.

141. Interviews in Tbilisi (Sept. 1988).

142. Interviews in Irkutsk (1988); Angarsk is a large city north of Irkutsk, approximately forty miles from Lake Baikal.

143. Thus, for instance, when the Uzbekistan Republic's State Design Institute prepared the master plan for the Uzbek City of Dzhizak, planning urban development on 3,000 hectares "of the most fertile irrigated land belonging to collective farms," while leaving undeveloped nearby hill areas just as well suited for development, *Izvestiya* reported the episode. *Izvestiya*, Aug. 15, 1968, at 3. For further illustrations, see Kramer, *Prices and the Conservation of Natural Resources in the Soviet Union*, *Soviet Studies*, Jan. 1973 at 366.

144. For instance, *Izvestia* reported estimates of the USSR Academy of Sciences that 100 million cubic meters of raw sewage was discharged daily into Russian waterways, a ninety per cent increase over 1959 a decade earlier. Kramer, *supra* note 41 at 888 (citing *Izvestia*, July 27, 1970, at 914).

tone of the journalists infrequently triggered public protests, and rarely resulted in any changes whatsoever in the harmful activity. The Ministries' new projects proceeded as planned, and their unwanted environmental side-effects seemed to be tolerated.

B. *Environmental Advocacy*

Soviet laws, in general, have required protection of nature. However, the central ministries in Moscow had promulgated their production plans and each of the production units was expected to meet the plan. As described above, the salary and fringe benefits of both management and workers were tied to successfully fulfilling those production plans. Repeatedly, plant managers ignored pollution control and compliance with general nature protection laws in order to fulfill plans.¹⁴⁵ Small fines were paid out of requests made by the polluter to the central Finance Ministry in the next round of budgets, thus they had no deterrent effect.

One writer, Vladimir Soloukhin, described how the waste water control manager for the Yuriev-Polsky tapestry factory bemoaned the fact that his plant had no filters to clean the discharges; the installation of filters would be too expensive. Inspections and controls had no effect. As Soloukhin observed:

we are told of works and factories which are fined two million roubles every year for pollution of rivers. It is a ridiculous situation: money is transferred from one account to another account, but this makes it no better for the fish in the river, nor for the people living near the river.¹⁴⁶

145. *Izvestia* quoted a plant director who expelled inspectors from the State Sanitary-Epidemiological Service from a cement plant. "When reminded that there was a nature protection law that had to be obeyed, the Director declared, "There is only one law for me - the production program!" "Kramer, *supra* note 41, at 893 (citing *Izvestia*, Aug. 6, 1971).

146. V. Soloukhin, *A Walk in Rural Russia* 108 (1967). The factory is in the Vladimir Region, north of Moscow.

So driven have managers been to meet their production quotas that they ignore impacts on nature while blinded by their "departmental" viewpoint. Since only their own department's needs are recognized they have pursued their own needs and defended their own turf rigorously. Hydro-electric dam projects flooded vast areas of land since the sponsors did not need to pay for the land. Managers believed that dislocated farming, timber or other activities could always be relocated to a new site and passed responsibility for such relocation onto another agency. Wastes could be dumped in surface waters or put up a smokestack and were "out of sight, out of mind." When a mining operation encroached upon forest lands, the one ministry could claim damages from the other before an arbitral tribunal,¹⁴⁷ but the compensation was limited to losses arising from an inability to meet the production plan.

As a result of the centrally directed economic framework with rampant departmentalism, the environment suffered. As mentioned above, air and water pollution is severe throughout vast areas of the USSR, renewable natural resources are depleted, and prime agricultural land is sacrificed to other competing non-farming demands. Industrial waste dumps proliferated and vast "dead zones" exist awaiting remediation. Traditional villages, churches and cultural sites were converted to other uses. Drinking water supplies are contaminated in some places and water supplies are in short supply in other locations.¹⁴⁸

147. The State Arbitrazh is provided for in Art. 163 of the USSR Constitution, and elaborated in the Law on State Arbitrazh of Nov. 30, 1979. See Butler, *Collected Legislation of the USSR and Constituent Republics* (1981).

148. For a recent account of the widespread environmental harm in the USSR see generally S. Hedlund, *The Ruin A Fact* (1988). These phenomena have been evaluated by scholars in the west, as they have been in the Soviet press. The western press, however, tended to ignore the Soviet environmental debate until glasnost. See e.g., Sun, *supra* note 23. For useful scholarly critiques of deteriorating environmental trends see Goldman, *supra* note 2; C. Ziegler, *Environmental Policy in the USSR* (1987). While the Soviet press criticized the Soviet system for its environmental problems, the Soviet government did not like westerners doing so. M. Goldman's fine book was acknowledged for a period by the USSR officialdom and resulted in the denial of travel visas which would have allowed him to return for further studies.

The leadership of the Soviet Union has been warned often about these trends. Studies entitled "Nature 1980" and "Nature 1990" were commissioned by the GOSPLAN.¹⁴⁹ The Central Committee of the Communist Party and the Council of Ministers adopted a series of resolutions and decrees between 1972 and 1985 demanding more effective protection of the environment. The Supreme Soviet adopted new All-Union statutes on air protection,¹⁵⁰ on wildlife,¹⁵¹ and on a number of other topics.¹⁵² The Hydrometeorological Service was elevated to become the State Committee on Hydrometeorology and Control. Despite these measures, the quality of the environment continued to deteriorate, largely because of departmentalism. As *Goskompriroda's* Chairman Morgun put it:

Ecological problems do not arise spontaneously. They are the consequence of our technological and ecological incompetence, bad management, and irresponsibility. Things have gone too far. It is time to put a stop to the unintelligible gabble about the consequences of anthropogenic activity, the activity of abstract people. Those behind every outrage against nature and instance of damage to people's health are specific academicians and scientists, planning institutes and construction workers, and members of state commissions, with whose blessing facilities that destroy the environment are commissioned. And, finally, those who work at these enterprises: from director to worker. Those who planned seas on the Dnepr and the Volga and promised greater benefits but in fact caused problems must be named and receive their just deserts. One might say that for a whole era our party and professional propaganda and science have been intolerably passive as far as ecology is concerned. For many decades the environment has been undergoing catastrophic pollution,

149. These studies were described in a *samisdat* book by the ecologist Zev Volfson, published in the U.S. under the pseudonym B. Komarov, *The Destruction of Nature in the Soviet Union* 139 (1980).

150. USSR Law on Protection of the Atmosphere, *Ved. Verkh. Sov. SSSR*, No. 27, item 528 (June 25, 1980).

151. Law on Protection and Use of The Animal World, *Ved. Verkh. Sov. SSSR*, No. 27, item 531 (effective Jan. 1, 1981).

152. See statutes cited *supra* note 42.

forests have been disappearing, and minerals have been mined without a care. Instead of forestalling and taking sensible steps to inhibit this reckless extravagance and sounding the alarm, they sang odes to the conquerors of nature. An entire generation of people grew up not knowing that by destroying nature they were planting a time-bomb under themselves.¹⁵³

The appearance of small, local, and independent ecology clubs and environmentalist groups, while allowed by the authorities, has been apparently spontaneous and is widespread throughout the USSR. These groups give vent to a widespread and hitherto pent-up need to act to protect nature. The joint decision of the CPSU Central Committee and USSR Council of Ministers of January 17, 1988,¹⁵⁴ to require more effective environmental protection has added legitimacy to the demands of the new environmentalist advocates. These advocates may also increasingly find allies in the management of ministries beyond *Goskompriroda*; GOSPLAN was directed to include environmental protection in the Five Year Plans for the Economic and Social Development of the USSR.¹⁵⁵ Local authorities are obliged to create their counterparts to *Goskompriroda*. The stage will now be set for either a flourishing of NIMBY activity, a more effective environmentalism, or a mix of both.

C. *The Two Environmental All-Union Victories*

The emergence of local groups opposing new development has been encouraged by victories in two major national battles. First was the fight to protect Lake Baikal mentioned above.¹⁵⁶ The second was the battle to prevent the diversion of water from the rivers flowing north into the Arctic through canals to the southern regions.¹⁵⁷ The decisions to close down

153. Morgun, *supra* note 83.

154. Pravda, *supra* note 44.

155. In September, 1988, apparently for the first time, the draft Five Year Plan was rejected, with instructions to build in more environmental protection.

156. See generally Goldman, *supra* note 2.

157. See Albright, *Diversions of Russian Rivers Could Alter World's Climate*,

all industry on Lake Baikal and to shelve the plans to divert the rivers culminated nearly two decades of battling by environmentalists, scientists and others against the engineers and production ministries. If these mega-battles could be won and publicized in the press, then surely local environmental amenities might be successfully protected; the new ecology clubs have been emboldened to take action.

The Baikal battle is itself a well documented instance of an environmental national campaign in support of local sentiment that new industry should not be built in the "backyard" of Irkutsk, on Lake Baikal's shores. The offending land use was the two paper and pulp mills at Baikalsk in the Buryat Autonomous Region on the eastern shore of Lake Baikal. Buryat officials welcomed the new plants and the local jobs and wealth they engendered. In addition to creating employment, this cellulose combine discharged liquid waste into the pristine lake waters, polluted the air and caused rafts of logs to be brought to it by tug boat. Timbering activity in the lake's watershed also endangered the purity of the water. No effective environmental protection measures existed.¹⁵⁸

Scientists, including Dr. Grigory I. Galazi, who headed the Limnological Institute of the Siberian Academy of Sciences, documented the damage which the Baikalsk plants were causing to the world's largest freshwater inland sea. Eventually, effluent from the mills covered ten square kilometers of lake area, injuring the *epischura baicalensis*, small crustaceans which are critical in cleansing the water. Cellulose waste encouraged other microorganisms to grow. Despite relatively strict plant effluent standards, accidents often occurred. Vast plumes of air pollution also settled over the area. Rafts of logs were floated to the mills by tug boats. Logs lost in transit would decay, using the lake's oxygen, and timbering in the watershed led to erosion of tributaries. Sulfate levels have risen near the mills and although chemical tests are currently being made for the first time, there is a suspicion that other

The Atlanta Constitution, Dec. 12, 1985, at A16, col. 1.

158. See Goldman, *supra* note 2, at 202-205; Kramer, *supra* note 41 at 890; interviews with Dr. G. Galazi in Irkutsk and Iystvianka (Sept., 1988).

chemical contaminants have entered the lake's waters.

The environmental protection agents here are a coalition of local writers including the Irkutsk Writers Union, scientists in the various institutes in Irkutsk of the Siberian Branch of the USSR Academy of Sciences, and allies in the media and local nature groups. The All Russia Society for the Protection of Nature demanded protection of Lake Baikal. In 1986-87, students demonstrated against the mills in Irkutsk. These advocates prepared studies of the problems and conveyed their reports to their counterparts in Moscow and Leningrad. While local groups opposed industrial growth "in their backyards," they were joined by like-minded environmentalists across the USSR. A national constituency of writers, scientists and environmentalists made submissions to GOSPLAN and CPSU officials opposing the plants.

Nonetheless, the powerful central cellulose Ministry continued to press for expansion of the plants. The Ministry attacked the environmentalists as opposed to progress, as merely negative NIMBY interests. The Ministry established its own Scientific Research laboratory on Lake Baikal to enable it to marshal its own scientific case defending the plants operations and refining its pollution control. While the lab apparently produced reasonably objective data, the reports ultimately were viewed with suspicion as being the product of a vested interest.

For two decades, opponents of the plants had argued that there should be no mills on the lake at all.¹⁵⁹ As the Siberian writer Valentin Rasputin explained it, "the crowing glory and mystery of nature, Baikal was not created for production needs but for us to drink its water, its priceless and most important wealth, marvel at its stately beauty and breathe its precious air. First and foremost, we need it for ourselves."¹⁶⁰

159. In 1966, M. Sholokhov told the 23rd Congress of the CPSU: Perhaps we will find the strength to renounce felling the forests around Baikal and the construction of the cellulose enterprises, and instead build some that will not endanger the purity of the lake. Later generations will not forgive us if we do not conserve this glorious sea, our blessed Baikal. Komarov, *supra* note 2 at 5.

160. V. Rasputin, Introduction to A. Bogomolov, M. Sergeev, A. Freidberg 4 (S.

The battle to save Baikal took on an almost moral or religious tone. "Holy" Baikal was the reverential title used in discussing the Lake.

When Dr. Galazi first rose to defend Baikal, the first Secretary of the Buryat Region's Soviet labeled Galazi an "enemy of the Buryat people."¹⁶¹ The mills, after all, employed Buryat peoples and enhanced the economy. The cellulose provided a domestic source for cord products which the USSR previously had purchased from Europe with hard currency. Dr. Galazi was subsequently designated by the United Nations Environment Programme as the first Soviet environmentalist on its international roll of five hundred distinguished individuals dedicated to the cause of environmental protection. Nonetheless, the Siberian Branch of The Academy of Sciences found it expedient to replace him as director of the Limnological Institute. The rationale for the change was that he did not undertake sophisticated chemical tests of the Lake Baikal waters necessary to show whether the pollution was worse than feared or could assimilate more discharges.

The victory to protect Baikal came gradually. First, the planned expansion of two mills to four mills was tabled by GOSPLAN. When opponents proposed to close the mills, the Ministry countered with a plan to leave the plants operating but to build a seventy kilometer pipeline through the lake to transport the effluent to the Irkutsk River to take it out of the lake's watershed. It required enormous efforts by the opponents to combat the pipeline proposal. Finally, the USSR Council of Ministers issued a decree on April 13, 1987, to protect Baikal. Under the terms of this as yet unpublished decision, no new industry could ever be located on the lake. Timber operations in the watershed were to close down. The mills were to cease operations and be converted into furniture factories, producing no effluent. Other sources of pollution were to end. In the Buryat Region, 110 projects were identified to comply with the decree.

Under the terms of its 1987 decision, the Council of Min-

Ess trans. 1988).

161. Komarov, *supra* note 2, at 7.

isters had decided that the mills are to close by 1995. Two new National Parks are being set up on either side of the lake and tourism is being readied as the lake's major economic use. A Japanese-Soviet joint venture is building a large resort hotel on the Angara River near the lake.¹⁶² *Uskorenie* around Baikal apparently will be based on tourism and recreational uses of the region.

Similar success followed years of battles between local authorities in Khazakstan and Uzbekistan who wanted water from the rivers flowing north; primarily the Ob and Irtyski Rivers. Excessive irrigation of new agricultural areas with waters from the two rivers feeding the Aral Sea had caused rapid depletion of the Sea, lowering its level by forty feet over two decades. The result is ecological disaster.¹⁶³ Another river diversion was contemplated because Lake Lodoga near Leningrad has also been polluted by paper mills. A river diversion in that area was envisioned as a source of new freshwater for areas unable to use polluted Lodoga water.

The Council of Ministers decided to discontinue the northern river diversion plan. Such mega-engineering projects increasingly have fallen into disrepute in the USSR, usually because of environmental side effects which negate promised benefits. In addition to the destruction of the Aral Sea, there are other illustrations. The failure of endeavors such as the Kakhovka hydroelectric and irrigation project in the Ukraine have produced salinization of croplands and produced swamp conditions in what was planned to be a lake. Instead of enhancing the local climate, such projects created a political climate against them.

As with the twenty year struggle by environmentalists to save Lake Baikal, in the case of the proposals to divert northern flowing rivers, the environmentalists, scientific institutes and writers in Leningrad and Moscow worked for years to oppose the diversions. They rallied to question the potentially vast ecological consequences of such engineering. The diver-

162. Interviews in Irkutsk (May, 1988).

163. P. Micklin, *Desiccation of the Aral Sea: A Water Management Disaster in the Soviet Union*, 241 Sci. 1170-71 (1988).

sions have strong political and economic champions. The All-Union and Russian Republic Ministries of Water and Land Reclamation had invested enormous sums in studying how to accomplish the diversion. Agricultural interests in the south and the Academies of Science in the southern Republics urged that immediate new water supplies be brought to help save the Aral Sea and extend irrigation to expand the region's agriculture. The GOSPLAN tended to favor the project, as did the news media in the southern Asian Republics. One of the themes which the opposition raised was the fact that the new reservoirs and canals would destroy historic farming regions, cultural sites, historic monuments, Russian Orthodox Churches and native Siberian wilderness. The canals would be costly to construct especially if cement lining was needed to avoid water losses.

By the 27th CPSU Congress in February of 1986, the opposition forces had prevailed. Further study of the diversions was to be discontinued, although the Water Ministry reportedly still seeks to continue its studies and local officials in the Uzbek and Khazak Republics have urged President Mikhail Gorbachev to keep the All-Union studies alive. The decision to stop the diversion plan was viewed as a great vindication of public participation by environmental interests in government decision-making.¹⁶⁴

D. *Emboldened NIMBY Roles*

The examples of these two national controversies on a grand continental scale have stimulated other disputes on a smaller, more prosaic scale. One issue, unresolved throughout 1988, concerns the relocation of the Moscow City Zoo. The current zoo near the U.S. Embassy in Moscow is aging and cramped. A new location has been proposed in a park in an outer area of Moscow. This location would permit construction of a more modern habitat design, thus providing better living conditions for animals and better educational exper-

164. Interviews in Moscow (1988); Interviews with Soviet officials in New York, New York (1986 and 1987).

iences for visitors. However, persons living near the proposed site for the new zoo do not want the zoo near them. In public meetings to discuss the relocation, the would-be zoo's neighbors complained about the noise, the smell and the possible danger if an animal escapes. The residents also want to preserve the land in their park as a natural park and do not wish to give up a part for the zoo. Given the tendency of municipal land use officials to allow encroachments on park use, the principled opposition to a loss of dedicated parkland is important, but may be mixed with less substantiable objections by neighbors in a NIMBY frame of mind. Nonetheless, these sorts of issues have prevented the relocation of the zoo for several years.¹⁶⁵

One of the interesting phenomena of these protests are the sub-themes. To be sure, respectable scientific issues exist in the case of the preservation of unique Lake Baikal and Northern Rivers diversion controversies. However, non-scientific forces seem to have had a significant effect on the decisions. For instance, *Pamiat* (Memory) is a strongly nationalistic Russian organization which opposes dams or any other projects which endanger historic and cultural sites of "Mother Russia." Another group, *Otechestvo* (Fatherland) has similar views. They use environmental positions to defend existing traditional land uses. They believe that "Holy" Baikal should be saved for the good of their souls, and not necessarily or primarily for the Lake's scientific importance. Traditional landscapes and land uses should be preserved for nationalistic or patriotic pride.

Another theme is regionalism. In Irkutsk, some of the opposition to the Baikask cellulose mills is couched in anti-Moscow rhetoric: what does the central ministry in Moscow know about local conditions; let local home rule prevail. In other non-Russian republics, the anti-Moscow rhetoric is mixed with nationalist overtones. Thus, Latvians oppose new heavy industry which Moscow-based ministries propose for their territory. Georgians oppose a new railroad tunnel in the Cauca-

165. Interviews in Moscow (May, 1988).

sus Mountains because it may injure forests, cultural sites and even bring in non-Georgian laborers. In the Ukraine, in 1987, writers protested siting a nuclear power plant on the Kremenchug reservoir near Chigirin, the historical capital of the Ukrainian Hetman State. They espoused nationalistic reasons to protect the site, as well as operational safety of a nuclear power plant in the post-Chernobyl era.¹⁶⁶

There are some one hundred separate "nationalities" or ethnic groups in the USSR.¹⁶⁷ Where it suits them, as in the Baltic Republics, environmental protection battles become a surrogate for asserting nationalistic interests. Environmental issues offer a politically legitimate protective cover for nationalistic or even anti-Soviet demonstrations.¹⁶⁸

Whether the theme is home rule, ethnicity, religion, nationalism or environmental protection, the effect can be much the same. A proposed development is rejected by those in whose "backyard" it may be located. As the economic decisions are decentralized, and various enterprises are to become self-financed, local NIMBY opposition will find it easier to stall or stop a project. The leverage of a central ministry in Moscow will not be available to muscle aside the local adversaries.

As democratization and *glasnost* fuel such potential NIMBY activity, there will be a role for "new" techniques for coping with public opposition to new projects and building public consensus in support of environmentally sound development. In the USA, these techniques include the widespread public hearings used in connection with environmental impact assessments and the more recent experiments in environmental mediation. Such public consultations were attempted during 1987-88 in the Altai Alps regarding a proposed hydroelec-

166. See D. Marples, *Ukrainians Denounce New Nuclear Plant*, *Soviet Analyst*, Sept. 30, 1987 at 5-7.

167. See R. Clem, *Ethnicity in The Soviet Union Today* 303 (J. Cracraft ed. 1988).

168. C. Ziegler suggests that the dispute between Armenia and Azerbaijan over control of Nagorno-Karabakh had its origins in an Armenian protest over air pollution. Testimony by C. Ziegler to the Commission on Security and Cooperation in Europe (Helsinki Final Act) Washington, D.C. (Apr. 26, 1988).

tric dam for the Kartun Valley. The dam is sought to supply electricity without providing further pollution of the Siberian air, and to reduce dependence on polluting fossil fuel electrical generating plants. The proposed dam has twice been subjected to the Soviet inter-agency system of expert ecological assessment. Citizen protests, such as those of the All-Russian Society for the Protection of Nature, stress loss of historic monuments in this valley through which caravans travelled from Asia to Europe and a mercury pollution problem. A final decision is pending, but the public consultations are reported to have reduced local opposition to the siting of the dam.¹⁶⁹

Whenever pollution and public health issues are the demonstrable impacts associated with a new development, there is an objective basis for distinguishing opposition based on environmental protection grounds from other sorts of NIMBY opposition. It is not so easy to make this differentiation when the values involved are not amenable to scientific description, such as defense of wilderness, cultural sites, or traditional historic land uses. However, it can be done by building an open and complete record of the relevant facts, holding public hearings, and making reasoned, written, publically announced decisions. The Soviet experience with NIMBY shows the need to clarify this distinction between environmental impacts and socio-economic or cultural impacts. The future effectiveness of environmental law and of economic *uzkorenie*, indeed all of *perestroika*, depends on how the Soviet Union's political leadership copes with such grassroots, popular action.

IV. Conclusion: Toward Ecologically Sound *Uskorenie*

Initiating *perestroika* and protecting *priroda* have in common the shared phenomenon of change. *Perestroika* is altering patterns of human activity throughout the USSR. Natural change, for better or worse, occurs in response to human activity. The characteristics of this human activity as it affects nature will change the social restructuring brought about by

169. Interviews in Irkutsk and Moscow (1988); Interviews with the All-Russian Society for the Protection of Nature, in Washington, D.C. (Oct., 1988).

perestroika. Soviet environmental law, as enforced and administered by *Goskomprroda*, will determine whether the social restructuring can protect human conduct fast enough to contain the trends which today are so damaging to natural conditions.

Since 1985, a principal stimulus for *perestroika* has been the need for *uskorenie*, the acceleration of advanced economic development. How the Soviet Union establishes its priorities in promoting *uskorenie* will largely determine the success or failure of its new regime for environmental protection.

The marketplace and the forthcoming pricing of hitherto free goods and externalities alone cannot solve the Soviet Union's environmental problems. Given the magnitude and scope of the problems, it will require the mobilization of resources far beyond those allocated to *Goskomprroda*. Previously set work plans of other social enterprises and authorities will need to be set aside and new tasks taken on. Even the planning to do this is more than one new agency can provide. It is ironic that the disillusionment with a centrally planned economy seems to have blinded Soviet analysis about the use of planning as a positive tool to assure ecologically sound development. Although *Goskomprroda* is to advise the GOSPLAN on environmental aspects of new Five Year Plans, and is to have its own departmental plan, the Soviet Union will not yet adopt a central and over-arching national environmental protection plan. Models for such a plan exist. The *World Conservation Strategy*¹⁷⁰ of the International Union for the Conservation of Nature and Natural Resources specifically provides for policies to integrate conservation and development, environmental planning and rational natural resources use allocation, and essential management measures (legislation, organization, training and research). The development of national and sub-national conservation strategies are envisioned as components of sustainable, ecologically sound development both nationally and internationally.

The decree of January, 1988, makes no use of the propos-

170. Int'l Union for Conservation of Nature and Nat. Resources, *World Conservation Strategy* (1980).

als of the World Conservation Strategy, despite their endorsement by the United Nations Environment Programme. There are, nonetheless, outstanding examples of early environmental protection planning in the USSR. One is the dedication of vast areas of Lake Baikal and its watershed as *zapovedniki* and national parklands, together with the designation by the Procurator-General of two special prosecutors for environmental protection of the Lake. Scientists at the reorganized Limnological Institute of the Siberian Branch of the USSR Academy of Sciences are now studying how deposition of air pollutants can and may be contaminating the lake, and curbs on air emissions in the region are likely to follow release of these studies. The unique nature of Baikal and the outstanding advocacy of scientists and ecology clubs in promoting its protection has triggered efforts to plan for environmentally sound uses of the lake. The foundation for such a plan is good. Scientific baseline data has been collected for years at the Lake and new studies in water chemistry are underway through the Limnological Institute. Tourism, fishing, nature study, and modest agricultural or commercial activity are the economic uses suited to the Baikal ecosystems. To be sure, the paper and pulp industry, and many in the Buryat Autonomous Region who favor rapid industrialization of the watershed on the eastern side of Lake Baikal vigorously dissent from these protective measures. Nonetheless, it appears that the new regime of ecologically sensitive *uskorenie* is coming into place.¹⁷¹

The Ukraine offers further examples. In L'vov, local authorities in 1987-88 tabulated emissions from all smoke stacks in and around the city. This permitted for the first time an assessment of ambient atmospheric conditions and the development of models to show how "permissible" emission levels from certain factories would interact and accumulate and cause increasingly severe air pollution conditions. This data base is crucial to the design of adequate air pollution controls. On the basis of these studies, L'vov authorities persuaded an

171. Interviews in Irkutsk (May, 1988).

existing but not yet operating electricity generating facility to use only natural gas to drive its turbines, rather than coal or oil as originally planned.¹⁷²

Another outstanding model is the publication of the Ukrainian Republic's *Green Book* prepared by the Botanical Institute of the Ukrainian Academy of Sciences in 1987.¹⁷³ The *Green Book* identifies, through detailed maps, the location of all habitats and landscapes in the Ukraine which need protection in order to preserve species or natural phenomena. Patterned on the successful *Red Books*, which describe endangered species in need of protection, this *Green Book* is the first such text identifying land preservation priorities. The *Green Book* provides essential baseline data for land use managers and allows planning to avert new environmental degradation. The intense pollution of the industrial cities of the south Ukraine may have helped sensitize the leaders in L'vov and at the Ukraine Academy of Sciences to the need for assembling better baseline data and for more comprehensive environmental planning.

Perhaps the new Soviet Union law on environmental protection will require the establishment of data inventories and environmental planning. Ideally, it would mandate promulgation of national and sub-national conservation strategies which would set the parameters for the economic developments guided by GOSPLAN or by the independent enterprises and local authorities. One challenge which *Goskompriroda* faces will be to assemble successful local or regional initiatives such as these and to institute them on a national basis. In any event, there are several evaluations which can be made of the future work of *Goskompriroda* and of the other environmental protection reforms in order to gauge how successfully the Soviets protect the environment. Since much pollution is transfrontier and global in scope, it is important that the USA and other nations make these evaluations to be sure that environmentally damaging activity in the USSR is effectively controlled. Similarly, one can use these measure-

172. Interviews in L'vov (Nov., 1988).

173. Ukrainian SSR *Green Book* (Y.R. Shelyaga-Sosanko ed. 1987).

ments to assess the importance of the environmental law reforms described or proposed in the several essays by Soviet authors which appear in this issue of the *Pace Environmental Law Review*.

There must be a correlation between the personnel, skills and budget of *Goskompriroda* and its effectiveness in securing observance of environmental laws. The USSR Finance Ministry has not viewed environmental protection as a high priority. Funds for data collection, training of personnel, laboratory tests, and enforcement programs will need to be provided. Information on budgets should be openly published by *Goskompriroda* and made available through the newspaper *Priroda*. Similarly, reports on changes in base line data revealing actual environmental conditions should be routinely published at predicted intervals.

Reporting mechanisms by Oblast, Krai, Autonomous Regions, and Republic Committees on Environmental Protection should be established. Data on non-observance of norms should be routinely published, at least annually, for the public. Priorities for remediation of several polluted sites should be established and plans for the remediation set and monitored as implemented.

Before data can be collected in a uniform way and before the field programs of *Goskompriroda* can be established, training courses, new manuals, and standard operating procedures will need to be established. Guidance must be issued nationwide. This will usefully build on the system developed by Hydromet.

Three functions of *Goskompriroda* can be scrutinized to ascertain how well budgets, reporting and personnel needs are being met. These are: (i) the environmental impact assessment (EIA) procedures, (ii) the inspection and control programs, and (iii) the establishment of new standards tied to achievable pollution abatement methodologies as well as to protection of nature and public health.

The EIA process should be redesigned, building upon the hitherto largely informal system of expert assessment which was used by GOSPLAN to convene expert panels to critique large-scale projects. Environmental Impact Assessments

should be required at all levels of government for decisions which may have a significant impact on the environment. Environmental Impact Assessment procedures are probably the best means available to the USSR to cope constructively with its burgeoning environmentalist movement and its NIMBY phenomenon. Environmental Impact Assessment standard procedures will need to be promulgated and personnel will need to be trained on how to implement the procedures. The media and *Priroda* will be important in publishing the environmental impact studies and reports associated with EIA so that the public can have access to information and participate meaningfully in the EIA process. Since EIA procedures are standard in the European Economic Community,¹⁷⁴ in the USA,¹⁷⁵ and elsewhere, it should be relatively easy for the USSR to establish its own EIA process. It will also be possible to measure the Soviet undertakings against an international standard of performance on EIA.¹⁷⁶

Inspection and control faces complex challenges. All prior inspectorates will need to be integrated into a new team. New environmental audit and testing procedures will be required. Reporting and monitoring will have to be established in a relatively uniform way throughout the country. The prior loyalties of inspection personnel to their former agencies will need to shift to *Goskompriroda*. Close cooperation with the Procuracy will be important if the inspection and control functions are to be taken seriously. Here too an international standard has emerged on how economic enterprises should perform environmental audits,¹⁷⁷ and Soviet enforcement measures can be objectively evaluated.

Finally, standard setting must develop a strong empirical

174. Council Directive On the Assessment of the Effects of Certain Public and Private Projects on the Environment, 85/337/EEC, Eur. Econ. Comm., No. 1. 175/40 (June 27, 1985).

175. National Environmental Policy Act, 42 U.S.C. §§§§ 4321-4370(a) (1969).

176. See, e.g., *Environmental Impact Assessment: The Preparation and Review of Environmental Impact Statements*, 1987 N.Y.S.B.A. Sec. Env'tl. L. (N. Robinson ed.).

177. See, e.g., F. Friedman, *Practical Guide To Environmental Management* (1988).

base. A close identity with standards in the USA and Europe will be desirable, both to avoid the need to recreate the baseline data in a duplicative way and to conform to an emerging international practice. Harmonized conduct in establishing and observing effluent and emission standards will be important to protect nature in transnational and global contexts. The availability of proven pollution control technology should be identified as an early part of advising how standards are to be met. This can be a priority for bilateral USA-USSR cooperation through the 1972 Agreement on Cooperation in the Field of Environmental Protection.¹⁷⁸

In all these efforts, the over-arching challenge will be to secure socialist legality. Can the same Environmental Law operate everywhere in the USSR? Will observance of environmental rules be required by all? To do so, vigorous formal and informal education is needed to communicate what laws must be observed. Laws need to be widely published and disseminated. Many decisions of The Council of Ministers today are not even published, making it probable that they will be disregarded out of ignorance. Since what is not prohibited, is now allowed, persons not understanding the need to protect the environment may naively believe their expedient use of nature for short-term economic benefit is even encouraged. All *Goskompriroda's* rules and decisions will need to be printed and distributed nationally. Even if all decisions of the Council of Ministers cannot be published at once, at least the environmental ones should be. Educational institutions must set up courses. In service training will need to be established. Ecology clubs and the media will need to spread this information.

Beyond these steps, rigorous enforcement is needed by *Goskompriroda's* administrative control groups and by the Procuracy. Tough new environmental crime provisions will need to be added to the revised USSR All-Union Criminal Code. Evaluation of these criteria permits a judgment as to whether socialist legality is being perfected or is still impaired.

178. See *supra* notes 7-8 and accompanying text.

Many of the initial decisions about these issues will be disclosed in the new draft All-Union Environmental Law scheduled to be released for debate in 1989. This forthcoming law may well be an organic act for *Goskompriroda* and will set in statutory form the January 1988 decision of the CPSU and Council of Ministers. The new law should also address the sorts of issues identified here. When the law is debated nationally prior to its enactment, the role of ecology clubs, the public and news media in advocating strong provisions will be important. Will this public voice press scientific environmental concerns, or traditionalist and *status quo* concerns? How will the concept of environmentally sound progress be articulated in the new law?

Once the All-Union environmental protection statute is in place, there will be at least a fifteen year process of implementing it, to the year 2005. *Goskompriroda* is preparing a study of how to control pollution and curb natural resources degradation by 2005. Given scarce funds, there appears to be little likelihood that *Goskompriroda* can in fact secure environmental quality by 2005. What it can do is build the strong institutional base for a longer-term program in ongoing environmental protection.

The work demanded of agencies like *Goskompriroda* and the US EPA is enormous. Leadership in the EPA has been severely tested by its workload, and turnover in its leaders has been frequent. The USSR will need to be solicitous of *Goskompriroda's* current and future leaders. Theirs is a most difficult task; rapid evolution in leadership may occur, and should not be viewed as a failure of personal commitment, but rather as evidence of the intense political difficulty of the assignment. More than the personalities, what will be important to see is the plan which emerges for *Goskompriroda's* work, including how it will set targets of environmental remediation and then meet those targets. The ongoing environmental protection process and its monitoring will be of the highest importance. *Goskompriroda's* priorities and targets can be compared to the USSR Academy of Sciences study which is projecting current trends to determine how much worse the Soviet environment will be in the year 2005 if current trends

are allowed to continue. The Academy's study and *Goskomprroda's* plans, in turn, must be compared to the Five Year national economic plans which will push development to achieve *uskorenie*.

Of course, all these steps need to be taken openly. Only if *glasnost* applies fully can these steps be known and understood both within the USSR and internationally as a basis for more effective cooperation in achieving environmental protection. Democratic decision making requires disclosure of these reports. Just as natural systems disregard political boundaries, so understanding those systems must be based on a full exchange of information about them.

Perhaps what Marshall Goldman called the "convergence of environmental disruption," will in turn produce harmonized international standards and a common law of "geohygiene" in Andrei Sakharov's terminology. Perhaps also a resurgence of *status quo* oriented traditionalism, nationalism or regionalism and related NIMBY behavior will prevent the appearance of harmonized standards, and frustrate efforts for both a revitalized economy and environmental protection in the USSR. If *Goskomprroda* is denied the fiscal and personnel resources it needs, the centrifugal forces may strengthen local interests and frustrate the All-Union framework from being equally effective in all parts of the USSR.

Given the international scope of environmental disruption, it is significant that *Goskomprroda* has the mandate to advance international cooperation to solve environmental problems throughout the biosphere. Closer joint efforts among all nations are needed if meaningful steps are to be taken to abate marine pollution, atmospheric contamination and other trends. Even with its scarce resources, at least now when *Goskomprroda* negotiates an international environmental protection measure, it also has the responsibility and means to implement that measure. This integration of functions is a significant step forward.

Environmental protection in the USSR is entering a new era. With careful preparation of All-Union and sub-national Conservation Plans, the USSR can realize ecologically sound *uskorenie*. Whether *prroda* is protected by *perestroika*, or

must await another period of even more intensive environmental pressure following deteriorated environmental conditions by a period of *uskorenie* which ignores ecology, is an open question. In the resolution of these questions lies the fate of environmental law in the USSR, and that nation's drive to establish the rule of law envisioned by the goals of socialist legality.