International Cooperation for the Sustainable Development of the Russian Far East

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Peaceful relations among countries in any region require stable and mutually beneficial relations at all levels, both governmental and non-governmental, and in all dimensions, including political, economic, security, and social-cultural fields. When countries' ideological orientations pit them against each other and their economic systems are incompatible, there is little or no prospect of cooperative relations among the countries. This is particularly so if their historical hostilities cloud contemporary views of each other and their national security establishments see each other as adversaries. Alas, this was largely the case for the former Soviet Union and its capitalist neighbors in Asia-Pacific during the Cold War era.

Within the Cold War geostrategic context, the Russian Far East had almost exclusively a military significance in Asia-Pacific, with largely negative implications for its capitalist neighbors in Asia-Pacific. Moreover, in contrast to the growing economic interdependence among the capitalist countries of Asia-Pacific, the Russian Far East's economic ties to the region were extremely limited. On the contrary, the complementarity between the region's natural resource-based economy and the increasingly capital- and technology-intensive economies of its Asia-Pacific neighbors, particularly that of Japan, had actually declined during the latter decades of the Cold War. Finally, any desires in

the Russian Far East for closer relations with its Asia- Pacific neighbors were held hostage to Moscow's historical view of the region as a dependent frontier to be protected by a fortress of military arsenal.

Now that the Cold War is over, will Russia be able to forge a stable, peaceful relationship with its Asia-Pacific neighbors, politically, economically, culturally, and even in the security realm? The most important requirements for successful integration of Russia into the Asia-Pacific economy are political stability and the development of a market-oriented economy in the country. The country's Far Eastern region has an essential role to play in this process. This region's economic development is a prerequisite for Russia's successful integration into the Asia-Pacific economy. There are many obstacles, however. Among them are the continuing political turmoil in Moscow, the deteriorating national economy, the uncertain relations between Moscow and the regions, including the Russian Far East, and the serious lack of indigenous foundations of economic development in this region.

The region's economic development depends critically on the exploitation of its rich natural resources, the most important, and arguably the only asset the region has to offer for its own exploitation and for export. However, the combination of limited political support, an underdeveloped legal regime, fragile social institutions, and constrained financial and technological resources for environmental protection in the region mitigates against ecologically sustainable development of its natural resources.

Given the geographical contiguity and trans-border environmental impact of industrial and resource development activities in the economies of Northeast Asia, including that of the Russian Far East, cooperation among them in both industrial and resource development and environmental protection will be particularly important. International cooperation is not only morally desirable but also economically and politically essential.

My purpose in this brief analysis is to ascertain the prospects for international cooperation in the sustainable development of the Russian Far East. I will first describe the challenges facing this region's economic development. I will then discuss the challenges to its environmental protection and resource conservation and management. I will then assess the region's readiness for international cooperation. I will conclude with a set of norms and principles that will be essential for the development of international cooperation in this area.

Economic Challenges in the Russian Far East

The introduction of radical economic reform since 1992 and the accompanying political confusion have brought about a severe recession throughout the country. The departure in 1993 of the architect of the reform plan, Yegor Gaidar, has not altered the key objectives of the reform program, namely a reduction of federal budget deficits, control of currency and credit circulation, and privatization of large state enterprises. In many respects, the reform has been a curse to the Russian Far Eastern economy.

The fiscal condition of both the state and the private sector has deteriorated. In the Russian Far East, the cumulative debts of the public and private enterprises reached 760 billion rubles in September 1993. This amounted to one-half of the total industrial output during the January-September period. Outstanding bank loans in the region stood at 970 billion rubles. With 30 percent and 10 percent of the region's public and private enterprises in the region in debt, respectively, many factories were closed down and the payment of workers' salaries was delayed by as many as four months. Industrial output has continued to decline. By 1993, the region's industrial production had fallen to the 1983-85 levels.

Another important trend in the region's economy are the high inflation rates. In 1993, the region's inflation rate was 1,100 percent, surpassing the national rate of 1,000 percent. The inflation rate for the first eight months of 1994 stood at 640 percent for the nation and 800 percent for the Russian Far East. Wages of workers could not keep pace with the inflation. The average wage in the Russian Far East in September 1992 was 40,000 rubles, but it increased to only 114,000 rubles a year later. As a result, consumer purchases were constrained and retail sales, including consumer durables and foodstuffs, dropped by 11 percent from 1992 to 1993. However, goods on local markets are increasingly diversified, including luxury items such as passenger cars, computers, and electric home appliances. Although market prices of these items have gone up by 20-30 percent, their supplies are stable and even growing. Better housing market is also moving, with demand exceeding supply. These trends indicate a growing gap in purchasing power among the region's population.

Investment activities in the Russian Far East have also slowed down in recent years. In 1987 prices, the total investment in the region in 1993 amounted to only 1.1 billion rubles, compared with the 4 billion rubles that was invested in the region's economy in 1987-88. Far Eastern enterprises have had to use most of their profits to pay rising wages in an attempt to counter the effects of the fast-growing inflation. To hedge against inflation, banks would issue only short-term loans, the average term of a loan being only 3-4 weeks, and charge interests as high as 260-280 percent.

Although privatization is proceeding in the region, this has not necessarily improved the region's economic life. By the end of 1993, as many as 1,700 enterprises had been privatized, of which 450 were large enterprises. About 26-27 percent of large state enterprises had been privatized, but all of them were experiencing financial difficulties. Most enterprises have had to lay off workers. The official unemployment rate in the Russian Far East was less than one percent as of August 1993, but the number of jobless people (28,000) was three times as large as a year earlier. Capital shortages have also strained private farms in the region, which number about 15,000. Their output accounts for merely 1.5-5 percent of the total production of agricultural products in the Russian Far East.

Economic problems continue in the Russian Far East. During the first half of 1994, for example, the economic output of Primorye dropped by 27 percent in volume from a year earlier. The volume of production dropped by 10.1 percent in the fuel-energy industry and 11-15 percent in the electric power and coal industries. The military- industrial complex also suffered a decline in production, by as much as 50.4 percent. All other major industries experienced similar declines in production: 35.5 percent in timber, 23-53 percent in construction materials, 76.6 in fishing, and 15.3 percent in food production.

There is one bright spot in the otherwise dismal Far Eastern economy. International trade has grown and become a very important part of the region's economic life. The region's total exports increased by 30 percent in 1992, to $1.2 billion. Especially important is the growing trade with the neighboring Asian countries. In 1993, Russia's trade with its 22 main Asian partners reached almost $20 billion, up $5 billion from the previous year. This is particularly noteworthy because the nation's world-wide trade had declined during the same period. As Table 1 shows, Russia's most important Asian trading partners in 1993 were China (two-way trade reaching $7.68 billion), Japan ($3.2 billion), Turkey ($1.86 billion), South Korea ($1.49 billion), India ($1 billion), Afghanistan ($911 million), and Iran ($723 million). The trade with Asia is marked by a substantial Russian trade surplus, especially with China, Iran, Japan, Turkey, and Korea. Russia's trade turnover with China is expected to climb to $8 billion in 1994, with the largest increases expected in exports of machinery and equipment, especially plant to build and modernize power, metallurgy and chemicals facilities, and vehicles. Foodstuffs and consumer durables are also important, accounting for 35 percent and 50 percent of imports from China, respectively. A large portion of Russia's trade with Asian countries is conducted by the Russian Far East. As Table 2 shows, China's two-way trade with the

region in 1992, excluding Kamchatka, amounted to $971.3 million and Japan's trade with the Russian Far East stood at $889.8 million.

[Tables 1 and 2 about here]

Primorye leads the rest of the Russian Far East territories in international trade. It is followed by Khabarovsk, Amur, Sakhalin, Sakha, Kamchatka, and Magadan (Table 3). There is substantial potential for expansion in the region's foreign trade if its dilapidated transportation and communication infrastructure is improved, but this will require enormous investment. Given the serious capital shortage affecting the entire country, the region will have no choice but to turn to the international community for the necessary funds. However, the Russian Far East must compete against the other capital-short regions of Northeast Asia, namely China and North Korea. Competition also exists between the territories of the Far East. Moreover, developmental investment must also compete against investment in environmental protection and resource conservation programs.

[Table 3 about here]

There are two other important aspects to the growing foreign trade activities in the Russian Far East. One is that natural resources constitute the most important export sector. As shown in Table 4, this sector, including fuels, minerals, metals, construction materials, timber and forestry products, and food products (mostly fish and other marine resources), accounted for over 70 percent of the region's total exports in 1992, excluding those of joint ventures. Although these products' combined share has declined in the last few years (from 86.4 percent in 1991), they clearly remain the most important export sector. One can reasonably expect to see their importance to remain as the region develops closer economic ties with the many resource-short Asia-Pacific countries. This, of course, has important implications for resource conservation and management in the Russian Far East, as I will discuss below.

[Table 4 about here]

Another important point about the region's growing trade with Asia-Pacific countries is the role being played by joint ventures. As of July 1992, there were 445 joint ventures in the Russian Far East as a whole. As Table 5 indicates, 21 percent of these were with US partners, followed by those with Japanese partners (20 percent), Chinese (17 percent), North Korean (5 percent), and South Korean (3 percent). Business enterprises with foreign capital participation in the Russian Far East accounted for as much as $386.9 million in exports and $215.8 million in imports. They were most active in the export of raw materials and semi-processed products and in the import of industrial machinery and equipment, as well as consumer goods. 75.6 percent of their exports were in fish and other marine products, 7.2 percent in timber and forestry products, 3.6 percent in ferrous and non-ferrous metal scraps. The bulk of their imports were in industrial machinery and plant (65.8 percent of the total) and consumer goods (29.7 percent).

[Table 5 about here]

Foreign trade and foreign investments in the Russian Far East are growing against the backdrop of a gradual reduction of tensions in Northeast Asia. With North Korea being the only exception, international relations in this part of Asia-Pacific have improved substantially since the early 1990s. The waning of the Cold War gave birth to a host of proposals for international development projects and renewed interest in cooperative projects that had been on the back- burner due to Cold War conflicts. Many of these proposed projects directly involve the Russian Far East: natural gas development in Yakutia (Sakha Republic), oil and gas development on the Sakhalin continental shelf,

development of the Tuman River Basin, development of the greater Vladivostok area, construction of a new bridge over the Amur River connecting the Russian city of Blagoveschensk and the Chinese city of Heilongjiang, expansion and improvement of port and harbor facilities in the Russian Far East, repair of the Khabarovsk-Amur railroad bridge, development of forestry resources in the Russian Far East, and establishment of a free economic zone (FEZ) in Nakhodka.

It is beyond the scope of this paper to describe each of these projects. What is common to all of these projects is that they require a high level of international cooperation. Another common feature is that they call for enormous capital investments. For example, the Tumangan Project, as envisaged by the UN Development Program, calls for the investment of $30 billion over a 20-year period. One of the Sakhalin offshore oil and gas development projects and the Russian-US-Japanese project to transport natural gas from Yakutia to Japan via two pipeline routes stretching a total distance of 7,500 km is expected to cost 1 trillion yen each. A third common characteristic among the proposed developmental schemes is that they all have important environmental implications. A good example is the Tumangan Project. Although various plans with different scopes and foci exist, they all envisage major infrastructure development, including the construction of railroads, roads, ports and harbors, and other transport/communication facilities. The Greater Vladivostok Concept calls for an investment of $15-20 billion for the development of transportation, communication, and industrial infrastructure. Needless to say, all resource development projects have implications for the region's natural resources. One of the forestry resource development projects envisages export of 6 million cubic meters of raw timber and 400,000 cubic meters of lumber over a 5-year period. Although this is expected to add $1.4 billion to the Russian-Japanese two-way trade, major environmental impact cannot be denied. Although hard currency shortages on the Russian side have long delayed the start of the project, both sides continue to show interest.

Environmental Challenges

The environmental situation in the region is serious. There is a systemic problem of ineffective environmental protection and resource management throughout the Russian Far East.

There are many instances of accidental and intentional pollution. In 1993, for example, there were 34 discharges of harmful substances in Khabarovsk krai, with damages totalling an estimated 130 million rubles. 560 people were called to administrative responsibility and three to criminal responsibility for violating ecological regulations in the krai. The total sum of fines reached 58 million rubles. Production at eight plants was halted for violating environmental regulations. In Primorye, the situation was no better. There were 144 emergency discharges of pollutants, including 74 into water, for an estimated 248.5 million rubles in damages. 492 people were called to administrative responsibility for violating environmental laws and fined a total of 16.1 million rubles. Enterprises were fined 708.5 million rubles. Another 734 individuals were called to administrative responsibility for violating hunting, fishing, or plant regulations, and were fined 14.4 million rubles.

In Primorye, after a brief improvement of environmental quality in the late 1980s, the ecological situation has deteriorated in the 1990s. The major polluters in the region are electric power, mining, chemical, and woodworking industries.

Ironically, however, the economic recession in the last several years has been something of a "blessing" to the region's environment in that the decline in industrial production has led to a reduction in industrial discharges. In 1992, for example, the output of industrial waste in Primorye dropped by an average of 12.5 percent. A survey of 220 enterprises in the region for the first six months of 1994 revealed that the total amount of industrial waste had dropped by 18.2 percent from a year earlier. On the other hand, 63 enterprises, mostly in construction, public utilities, and transportation, increased the amount of waste by 20,200 tons. The use of poor quality fuels and old

treatment facilities was blamed for this problem. Power plants in Primorskii krai have increased their atmospheric emissions. During the first half of 1994, electric power enterprises accounted for 53.7 percent of pollution in Primorye. Also increasing pollution in recent years are private vehicles, most of which are imported from Japan.

Atmospheric emissions in Primorye include gaseous and liquid pollutants, including sulfuric anhydride (60 percent of the total), carbon oxides (26 percent), and nitrogen oxides (11 percent). More than 40 percent of these pollutants are released into the atmosphere untreated. In Primorye, the most polluted air is found in Vladivostok, Artyom, Partizansk, Luchegorsk (where thermal power plants are located), Spassk (cement production), and Dalnegorsk (fertilizer and boron chemicals production). According to Zinaida Redkovskay of Primoskgidromet, the amount of dust in the air in Vladivostok exceeds the maximum permissible level by 50 percent; nitrogen dioxide levels in the atmosphere in Vladivostok, Partizansk, and Ussuriysk are two and a half times the allowable levels; and benzopyrene (a carcinogen) is found at levels twice to three times higher than allowed in Vladivostok, one and one-half times in Partizansk and Dalnegorsk, and five times in Ussuriysk.

The level of pollution in reservoirs, rivers, and coastal sea areas in Primorye is also high. The main causes of this problem are the shortage of treatment facilities, out-of-date treatment technology, suboptimal locations of treatment plants, and waste dumping. In 1992, 18 enterprises were cited for violating water disposal regulations, fined, and ordered to halt their operations. These penalties have had no apparent effect, however, and illegal waste water discharges continue. Sewage discharge is about 800 million cubic meters a year, of which 42 percent is raw sewage and 57 percent untreated service water. As a result, high levels of ammonium nitrogen are found in many small rivers of Primorye, in some areas as high as five to ten times the maximum permissible levels. There are no purification systems for sewage in Vladivostok, and 96 percent of raw sewage flows into Amurskii Bay. Lack of funding is the major problem and has delayed plans to construct special treatment facilities and introduction of new methods of treatment, including the use of micro-organisms. Only 100 million rubles have been set aside for these purposes in 1994.

The major polluters of water reservoirs in Primorye are utility establishments, accounting for over 50 percent of the total sewage discharge, farms (10 percent), mines (9 percent), and metallurgical works (5 percent). Many coastal sea areas are seriously contaminated by organic and biogenic substances, particularly pesticides. 70 percent of Golden Horn Bay is covered by patches of oil. The most contaminated body of water in Primorye is the Peter the Great Bay, with river run-off in the area carrying transit waste water and a large volume of sewage from Vladivostok and Nakhodka (34 percent and 11 percent of the entire sewage in the krai, respectively).

Efforts at protecting the environment are focused on water pollution control, which is receiving as much as 90 percent of Primorye's budget for the environmental protection. Air quality protection receives a scant 7 percent of the krai's anti-pollution budget.

The bad environmental situation is continuing throughout the Russian Far East. During the first half of 1994, 20 cases of accidental releases of pollutants in water resources were reported in Primorye, with damages totalling 67.1 million rubles. There were eight registered cases of illegal industrial discharges into land resources in the krai, for an estimated 17.4 million rubles in damages. 121 enterprises exceeded maximum permissible levels for waste discharged into water reservoirs and 60 enterprises for land resources. The total sum of penalties for these violations was 188.2 million rubles. 188 persons were called to administrative responsibilities and fined 13.5 million rubles and five individuals were called to criminal responsibilities.

Health Consequences

In combination with the poor food situation, vitamin deficiencies, and the high rate of female labor, the deteriorating natural environment in industrial cities and residential areas of the Russian Far East, which are often very closely located, is taking a heavy toll on people's health. For example, 16 out of every 1,000 residents in Primorye suffer endocrine illnesses and nutritional and metabolic disorders. 370 and 60 persons suffer respiratory and digestive diseases, respectively. The death rate in Primorye increased by 8.4 percent from 1991 to 1992. According to specialists from the Mechnikov Medical Society based in the Institute of Epidemiology and Microbiology of the Siberian branch of the Russian Academy of Sciences, over the last 20 years there has been a 40 percent increase in mortality rate from cancer in Primorskii krai. The specialists' surveys indicate a direct link between the increased incidence of cancer and the state of the environment in the region. The alarm has been sounded about the state of health of the residents in the areas where open-cast enriched ore mining is conducted and in the city of Bolshoi Kamen where a nuclear-powered submarine repair dock is located. According to D. Fefelof of Yakovlevskii rayon of Primorye, the poor quality of drinking water in his region is the result of money shortage for repair work on water systems and activities of military plants. In 1993, over 3,000 infectious diseases were registered.

A 1992 study of the environmental condition of Magadan indicates alarming levels of pollution and serious health consequences. The level of atmospheric pollution in the oblast is quite high, the largest polluter being thermal power stations (35 percent of the total air pollution), followed by motor transport (33.5 percent), city industrial plants (20.5 percent), and heating stations (10 percent). In 1990, 661 sources of air pollution were counted, including 21,000 units of transport vehicles, many unpaved roads, machine building plants, construction plants, construction materials and cement producers, and ore plants. Only 98 of these sources, or 14.8 percent, were equipped with dust traps, of which only one-half were working properly. High levels of dust, sulfur dioxide, carbon oxides, nitrogen dioxide, and benzopyrene are found in the atmosphere. Air pollution has resulted in high incidents of deaths from respiratory and blood diseases and allergies. There is a high level of use of ash and slag (slack) waste in Magadan. The region produced about 57 million tons of ash and slack waste in 1992. Garbage collection and recycling are poorly done. The Kamenuschka River, an important reservoir in Magadan, is contaminated by chromium, organic substances, and bacteria. Many cases of infection and gastric diseases have been reported. The quality of water in the Gertner Bay and the Nagaeva Bay is bad, with high concentrations of oil products, phenol, and ammonium nitrogen found in these bodies of water, which are used for recreational and fishing purposes.

An outbreak of trichinosis and salmonella has also been reported in Primorskii krai and in Amursk, respectively. The growing consumption of wild animal meat by people, especially in taiga areas, has been blamed for the trichinosis outbreak and contamination of food is the suspected cause of the outbreak of salmonella.

Nuclear Environmental Hazards

As if these environmental problems are not enough, the Russian Far East is facing another potential environmental disaster, the dumping of nuclear waste in the Sea of Japan. In 1993, it was revealed that between 1959 and 1991, the Soviet Union dumped nuclear waste from old battleships into the Arctic, more precisely at five points in the Barents Sea and at eight points in the Kara Sea. The dumping included seven nuclear reactors containing radioactive material. The Russian government also admitted that the former Soviet Union had also dumped nuclear waste, including two nuclear reactors, into the Sea of Japan. The announcement came as a shock to the Japanese and Koreans, especially to those involved in fishing. It was also acknowledged that the Russian Navy resumed dumping of nuclear waste in the Sea of Japan in 1992.

The Russian government asserted that the nuclear dumping of low-level radioactive waste did not

violate the 1973 London Convention banning the dumping of high-level radioactive material in the sea. Moscow repeatedly stated that the dumping did not pose any threat to people's health, and the report prepared by a special commission appointed by the Russian president to investigate the ecological effects agreed. Japan's Science and Technology Agency also stated there were no apparent effects on Japanese territories. However, the general public in Japan and elsewhere protested against the continuing dumping of nuclear waste by the Russian government. Greenpeace obtained and made public in April 1993 a Russian government report which indicated the former Soviet Union had designated 10 dumping points at sea and that after the collapse of the Soviet Union, the Russian Navy continued to dump small amounts of radioactive waste into the ocean. The report concluded that the Russian Navy would continue this potentially hazardous practice until ground disposal facilities were built in 1997.

In April 1993, the Japanese government decided to conduct a study on the environmental effects of the nuclear dumping in the Sea of Japan and asked for Russian cooperation. This preliminary study determined in August that the current level of nuclear waste dumping by the Russian Navy did not affect human health. International concerns did not go away, however. At the June 5, 1993 "sherpas' meeting" in preparation for the G7 Summit later that year, it was agreed that the G7 members would cooperate in the study of environmental effects of Russia's nuclear waste dumping into the ocean and to prepare a new plan to assist Russia in developing alternative ways of disposing of nuclear waste.

On October 17, 1993, four days after President Boris Yeltsin had paid an official visit to Tokyo to promote bilateral cooperation, Greenpeace reported that the Russian Navy resumed nuclear waste dumping in the Sea of Japan. Many Japanese were stunned by the announcement and the Japanese government protested. The US government demanded that Russia stop nuclear waste dumping into the ocean and questioned whether the Russian Navy was keeping the standards required under the London Convention. On October 21, Prime Minister Chernomyrdin stated that Russia would not conduct nuclear waste dumping in the near future. The statement was reiterated by the Minister of Atomic Energy. Ten days later, however, the Commander of the Pacific Fleet of the Russian Navy said that dumping in the Sea of Japan would take place again soon because the ground storage facilities were filled to capacity. Local opposition to the nuclear waste dumping was also registered, with Primorye Governor Nazdratenko openly criticizing the Navy's action. Conflicting statements continued into 1994, with the Russian government announcing in May that it would dump into the sea radioactive waste that had been held in storage facilities on tankers in the Vladivostok port in three months' time.

One of the byproducts of the controversy was the adoption at the November 1993 meeting of the London Convention members of a resolution banning the dumping of low level radioactive waste for 25 years. Of the 42 countries participating in the vote, the US, Japan, Canada, and 34 other countries voted in favor of the resolution, but Russia, Britain, France, China, and Belgium abstained from the vote.

Another consequence of the controversy over the dumping of nuclear waste in the ocean was the agreement between Russia, Japan, South Korea, the US, and the IAEA to cooperate in the study of the environmental impact in the Sea of Japan. After several postponements, the study was conducted in March-April 1994. It found no particular abnormalities in seawater and seabed samples collected at seven spots southeast of Vladivostok. Japan and Russia also agreed in June 1994 to cooperate in the building of a disposal plant for liquid nuclear waste near Vladivostok. The facility, to be built through international bidding, would filter radioactive substances from the liquid waste. In the coming years Russia will dismantle some 60 nuclear submarines. Several storage ships, including a 2,000-ton tanker fully loaded with nuclear waste, are currently mooring off Vladivostok, but the

vessels are worn out and could pose a serious environmental threat. Japan's contribution to the project will come out of the $70 million Japanese grant for the dismantling of Russian nuclear weapons and nuclear waste disposal.

Another nuclear development in the Russian Far East that is raising international concerns is the proposed construction of nuclear plants in the region. The economic crisis in Russia has led to the breakdown of old energy supply networks and has therefore increased the need for reliable energy sources. Under these circumstances, in January 1993, the Russian government announced it would begin construction of three nuclear power plants, ending the moratorium imposed after the Chernobyl disaster in 1986. The new reactors are scheduled to be constructed by 1995 at the cost of $58 million. Feasibility studies are also planned to study the possibility of building up to 23 additional reactors. The Russian Far East is seen as a prime location for some of these nuclear reactors. The heads of administration of seven raions of Khabarovsk and Primorskii krais have asked the government to begin work on a feasibility study for building small atomic power stations in remote villages. Serious consideration is also being given to the possibility of using nuclear reactors from submarines to supply electricity to Primorskii krai. Some are also entertaining the possibility of a joint Russian-Japanese construction of underground nuclear power plants in the area of Komsomolsk-na-Amure.

Leading industrialized nations are concerned with accident prevention and have set up a fund, through the European Bank for Reconstruction and Development, to improve safety standards in nuclear plants throughout Russia and eastern Europe. France and Germany pledged $110 million to this fund. Japan is expected to provide the fund with approximately $5-$10 million. In a related development, the Russian government proposed that Japan annually purchase $100 worth of uranium left over from the dismantling of nuclear weapons in Russia, but the Japanese government has rejected the request saying that Japanese uranium supplies are already enough for ten years.

These developments point to four urgent needs. First, alternative ways of disposing of nuclear waste must be developed and additional ground storage facilities must be built. This problem boils down to finances. Since transportation of solid radioactive waste on the Trans- Siberian railroad is prohibited, it is necessary to build additional storage facilities in Primorye, but the regional government does not have the funds to make this possible. Second, nuclear safety will continue to be a serious problem so long as political instability continues in Russia, where the Russian government is not fully in control of the activities of the military as far as this issue is concerned. Third, Russia must adopt effective measures to ease the problem of energy shortage in the Russian Far East. Fourth, international cooperation is urgently needed in the energy, technology, financial, and research field.

Problems of Natural Resources Development

The need to balance the exploitation and conservation of natural resources in the Russian Far East is as acute as the need to balance energy development and environmental protection. The fundamental problem is that the region's economic life depends heavily on the development of its natural resources but that resource conservation measures are lacking and what limited regulations that exist are not effectively enforced.

One of the most important natural resources in the region is surface water (mainly river water), which is used as the main source of water supply in the region. In Primorye, for example, water use amounts to 1,800 million cubic meters per annum, of which 37 percent is for industrial use, 31 percent for agricultural irrigation, and 19 percent for public use and drinking. Because of the irregular river run-off, there is a shortage of water supply in almost one-half of the whole territory, particularly in Vladivostok and Artyom. There is an acute problem of water quality as well. Causes of

the problem include violations of health regulations in water reservoir areas, the overloading of treatment plants during rainfall seasons, and shortage of coagulants.

The rational management of forestry resources remains a very difficult task under the current political and economic condition in the Russian Far East. Although 73 percent of Primorskii krai is covered by forests, the resource situation is rather serious. The mixed coniferous-broad-leaved forests, a main economic asset of the territory, are substantially overexploited by large-scale logging. The decision of the Council of Ministers of the USSR on the Improvement of Foreign and Logging Management of March 10, 1988 had an adverse effect on the forestry resources in the territory. The decision transferred most of the valuable forests and governmental forest protection agencies to the administration of the logging industry under the jurisdiction of regional production associations. This resulted in the reduction in the number of illegal logging cases that were brought to light. In response, on January 17, 1991, the Council of Ministers issued a decree on the Improvement of Forestry Management, whereby all management of forest areas and forestry resources was returned to government bodies. Moreover, the Primorskii krai soviet made a decision to set up an out-of-budget fund of forest resource protection and regeneration, in which 5 percent of the wholesale price of each cubic meter of timber logged in the territory would be deducted beginning on January 1, 1993. It was hoped that these actions would improve the situation. However, as the Svetlaya controversy demonstrated, this was not the case.

Svetlaya is a Russian-South Korean joint venture capitalized at $32 million (50-50 split between the partners), with a production capacity of one million cubic meter a year for 30 years. The company was registered with the Monetary and Economic Department of the Ministry of Finance on August 20, 1992. Its founders are the Primorsklesprom Association, the Terneyles Association, and Hyundai. 400,000 cubic meters of over- mature spruce-fir forests in Terney District and 600,000 cubic meters in Pozharski District are scheduled to be logged each year over a 30-year period. A feasibility study was approved by the Ministry of Wood Industry, credits were obtained, and equipment was purchased for logging, road construction, chip production, and greenhouse cultivation of 2.8 million seedlings per annum. The joint venture was expected to operate at a profit if its felling volume was 650,000-700,000 cubic meters per annum. However, in 1992, the company logged 373,000 cubic meters and had losses at the end of the year.

Unfortunately, the rash manner in which the joint venture was established caused a major problem. When the company was set up, agreement had not been secured from the authorities of Pozharski District for the clear-felling of large volumes of timber. Moreover, the felling areas of the joint venture were in the dwelling area of Udege, a small minority people, whose protection against degradation and extinction is a major focus of national attention. Thirdly, the ecological section of the feasibility report was incomplete with respect to reforestation and capacity estimation. The Land Code of the Russian Federation was violated under which land areas associated with economic activities of native peoples must not be allotted without a special referendum. Also violated was the President's decree on the Urgent Measures Regarding the Protection of Areas of Dwelling and Economic Activities of Minority Peoples of the Russian North.

The Administration of Primorskii krai allotted, without the consent of the Territory Soviet, wood-cutting areas for Svetlaya on the ethnic territory of Udege. This provoked a stormy reaction of both residents and experts and a confrontation between the parties concerned. In the end, the controversy was discussed by a working group by order of the Russian government, by the krai court which took the side of the krai administration, and by the Supreme Court, which submitted the case for review. In 1992, the public, Udege, Cossacks, and others, placed pickets in the upper reaches of the Bikin River to prevent logging. This action was supported by Greenpeace, which visited Primorsky krai on the Rainbow Warrior in November 1992. The vessel attempted to call attention to

Hyundai- Svetlaya's allegedly destructive practices by blocking a company barge transporting logs cut in the Terney forests.

As of May 1994, it was reported that a group of environmentalists, led by Greenpeace activities, chained themselves to timber cutting machines owned and operated by the Russian- Korean joint venture and temporarily stopped the logging operation. The chairman of the krai administration's Natural Resources Committee is reported to have said that his committee had not received any formal complaints about Hyundai's activities in Primorye forests. Relicensing of the logging operation was expected. Thus, the controversy is not likely to disappear in the foreseeable future.

The Ussuri taiga is also subjected to environmental strains of various kinds. Poaching has increased. The main games are Ussuri tiger, musk deer, and roe deer. Many valuable medicinal herbs, such as ginseng, are collected in large quantities. According to the new provisional regulations on hunting which were established in 1992, the krai administration manages the hunting resources, hunters are all considered tenants of the hunting forests, and nature preservation committees are to insure compliance. However, there are many loopholes in the legislation and huntsman services are poorly supported. Therefore, the situation is not expected to improve any time soon.

Other biological resources in the region are also facing increasing problems. Many rivers, reservoirs, and lakes are important because they serve as spawning grounds for a variety of fish. However, water pollution and poaching in these areas have become a serious threat to the fish. For example, because of logging-caused pollution, the Partizanskaya (or Suchan) River, which is an important source of drinking water for Nakhodka, is no longer a major fishing area. The Razdolvaya River, flowing through Ussuriysk, is also losing its significance in fish production.

Recent trends in the development of marine fishery resources in the Russian Far East add to the region's difficult task of developing its natural resources on a sustainable basis. My studies in this area over the last several years have concluded that in the 1960s to the 1980s the former Soviet Union developed fairly stable and predictable bilateral regimes with Japan and South Korea for the management of foreign fishing activities in the Soviet exclusive economic zone (EEZ) in the northwest Pacific. However, the dissolution of the Soviet Union and the subsequent political turmoil and economic crisis in Russia have had serious consequences. A combination of the decentralization of resource management authority, the termination of Moscow's subsidies for the region's economy, the absence of regional financial resources, and the rather disorderly process of privatization of industrial enterprises has resulted in a serious weakening of the Far Eastern fishing industry. Fishing boats and equipment are in disrepair, investments in repair facilities are woefully inadequate, and underpaid or unpaid crews are leaving the industry for other opportunities. Moreover, both regional fishing concerns and their foreign partners in joint ventures and other cooperative arrangements have rushed into the catching of their allotted or purchased fish quotas for more immediate financial gains, ignoring the long-term resource consequences.

Visible declines in the regional authorities' ability to enforce fishery laws and regulations have led to increases in poaching by both Russian and foreign fishermen. Smuggling by Russian fishermen has increased, depriving the Russian and regional governments of important tax revenues. Illegal exports have also reduced overall export prices. Poaching by foreign, particularly Japanese fishermen has also increased. Russia claims that there were as many as 8,000 cases of Japanese illegal fishing in Russian coastal waters. These developments have increased international tensions. In the spring of 1994, Russia began a major campaign to crack down on Russian smuggling and foreign poaching. In the process, the Russian Border Guard have resorted to shooting at foreign fishing boats suspected of illegal fishing. As of August 1994, 77 Japanese fishermen had been captured. In September, one Chinese fishing boat and one South Korean boat were captured by the Border Guard and in the process two fishermen died.

Amidst these unfortunate developments a new area of Russian-Japanese cooperation has been proposed in recent months. The mayor of the southern Kuril district of Sakhalin, Nikolai Pokidien, has proposed that Japanese fishermen pay fees for fishing in the waters surrounding the disputed Northern Territories. If implemented, the proposed scheme would bring some badly needed hard currency to the depressed economy of the islands. The defective transportation system of Russia does not guarantee a regular supply of fuel to the islands and the fishing and marine product processing industries there have deteriorated to dangerous levels. Pokidien hopes that his proposal will expand transactions between the people of Hokkaido and the residents of the Russian-controlled islands and arrest their economic deterioration.

Hokkaido's fishing industry and the prefectural government have welcomed the proposal. However, the Japanese Foreign Ministry is concerned that Japan's agreement to pay fishing fees in the Russian-controlled waters would imply de facto recognition of Russian jurisdiction over the disputed territories. It is reported that the Japanese government would prefer a private-level arrangement between Japanese fishing industry groups and their Russian counterparts. Such an arrangement might include joint research of the state of marine resources in the area, such as crabs which are reportedly being depleted. The resources caught under the name of joint research could be sold on the Japanese market, and a portion of the sale should be paid to Russia as Japan's contribution to the joint research. The Japanese government is expected to announce its response shortly.

Environmental Policy Development

The above description of the economic and environmental challenges facing the Russian Far East makes amply clear that the region faces some enormous problems. The region must strengthen its foundations of economic development but it must do so with a view to protecting the natural environment and human health against the detrimental effects of industrial and resource development. The Russian Far East must meet the challenges of environmental problems on all fronts. It must improve the quality of air, the quality of surface waters, including reservoirs, rivers, lakes, coastal waters, and of course the quality of drinking water.

These challenges are not unique to this region. Indeed, they are facing the entire country. Before the collapse of the Soviet Union, Soviet authorities created a new environmental agency, the State Committee on Environmental Protection (or Goskompriroda), but the Soviet system of central economic planning was inherently predisposed toward industrial growth, to the neglect of environmental protection. Moreover, increasing economic difficulties meant that in practice, the government paid little attention to environmental problems, making virtually no funds available for action.

The Russian Federation has only recently established a basic legal framework for the protection of its environment and natural resources. The Law on the Protection of the Environment, adopted on December 19, 1991, establishes the importance and general principles of environmental protection, giving the Russian Federation Supreme Soviet first priority in determining environmental programs and passing further legislation. The Russian government is accorded primary responsibility for implementing such programs, and specially-designated government agencies have the power to implement specific portions of such programs, such as environmental controls. The law requires regional and local authorities to consult and coordinate with federal authorities and to manage and protect resources under their control.

The legislation establishes certain rights of private citizens and social organizations, such as rights to protest ecological harms, obtain environmental information from official bodies, initiate administrative or judicial proceedings concerning environmental harms, and bring claims for damages against polluters. The law introduces broad regulation of activities affecting the

environment, requiring industrial users of natural resources inter alia to enter into a use agreement with regional or local authorities and receive a special license. Funds for repair of environmental damage and other activities under the law are to come from an "Ecological Fund," to be financed, in part, by fines and damage payments from polluters. The law provides a detailed list of the categories of environmental standards to be promulgated by federal authorities, in areas ranging from radiation to noise pollution. It requires compliance with environmental norms in the construction, expansion, and operation of industrial, transportation, energy, and other facilities. "Ecological disaster areas" or "extraordinary ecological situations" can be declared by federal authorities. The law empowers designated authorities to declare various types of nature preserves and privileged areas, including national nature parks and natural monuments, in which environmentally impacting activities are strictly limited.

One of the weakest areas of the law has to do with the role of governmental agencies in monitoring and enforcing compliance with the environmental laws. It provides only a very general provision, merely referring to a number of federal and regional authorities who are to be involved in "ecological control." Dispute resolution procedures are provided. Perhaps the most important section of the law deals with liability for ecological harm. It imposes several categories of liability for violations of environmental laws and regulations. It makes individual managers and workers, as well as enterprises, responsible for their actions which are harmful to the environment. For example, enterprise managers and employees may be disciplined for environmental offenses they commit in the course of performing their official duties. "Administrative responsibility" and associated fines may also be imposed for a variety of environmental offenses, including failure to observe environmental norms and regulations. Criminal liability for environmental harms is also introduced but it is not very specific. The law requires parties causing environmental harm to make full reimbursement for the damages, including the actual costs of restoring the damaged areas, as well as lost profits and other resulting losses. It also requires such parties to pay compensation for damages done to the environment, human health, or property. Victims, their families, the state prosecutor, and environmental organizations are permitted to bring law suits seeking compensation, as are enterprises and individuals who wish to seek outright termination of a broad range of environmentally hazardous activities.

Although the 1991 law is a landmark legislation, the Russian government has been slow to adopt follow-up and implementing legislation and its effectiveness is yet to be demonstrated. Moreover, the respective roles of federal, regional, and local authorities in establishing the norms, emission and dumping limits, and other environmental standards remain unclear.

Under these circumstances, it is quite understandable that the development of environmental policy at the regional level is still in its early stages and its impact is quite limited. There is no comprehensive environmental policy as such in the territory or in the Russian Federation as a whole. There are only fragments of environmental measures. Development of environmental plans and programs in the region has generally followed progress at the national level. For example, only in 1993 did Primorye adopt a Long-term Program of Nature Preservation and Rational Utilization of Natural Resources up to 2005. On August 3, 1993, the Russian government issued a special decision (No. 532), "On the Improvement of Efficiency in the Country's Economic Usage of Information and Data about Environmental Pollution." The decision requires regional environment protection committees to appraise the efficiency of environmental measures of industrial enterprises. In response, Primorskgidromet has begun developing plans for the use of ecological information by industrial enterprises.

The Far Eastern region must improve its ability to control pollutants at the source. This includes the improvement of equipment to treat and control atmospheric, water, and soil pollutants. Urgently

required is the improvement of sewage treatment and discharge facilities, water treatment facilities, and household waste collection and recycling. With the increasing number of automobiles in the region, anti-smog devices must also be installed and properly maintained. Equally important is improved monitoring of radioactive releases into the environment from storage facilities and disposal sites of radioactive waste, as well as the construction of additional storage facilities.

Recognizing the importance of natural resource development to the region's economy and its ecological impact, the region must develop a long-term economic plan which balances its developmental needs and environmental requirements. Such a plan must include effective resource conservation and management regimes, including resource restoration programs. Above all else, rational resource development plans and restoration programs must be effectively and consistently implemented. This is particularly critical in the forestry and fishery industries, where developmental interests and short-term financial gains provide more powerful incentives than conservation requirements. Allocation and enforcement authority must be clearly delineated so as to avoid jurisdictional disputes and the resulting failure to carry out resource conservation programs. Not only must the regional and local authorities be financially equipped to carry out these programs, plans must be developed in an open, democratic fashion, with input from all affected parties, including minority populations.

The institutional and legislative foundations of environmental policy are in early stages of development, and the financial, material, scientific, and technological services and agencies of nature conservation are similarly in formative phases. Nevertheless, the various decisions on environmental protection which have been made in the past are of significance. They specify restrictions on the location of production activities and their operation. They are focused on the preservation of ecological balance and restoration of ecosystems, the protection of the environment and the prevention of air, water, and soil pollution, and the rational exploitation and utilization of natural resources. Preferential government credits and tax incentives are provided to encourage enterprises to take nature conservation measures. Laws exist for the protection of various types of resources, including water, air, and forestry. There are state plans for rational utilization of natural resources and environmental protection. The Ministry of Ecology and Natural Resources is responsible for the adoption of environmental codes, regulations, rules, and standards regarding natural resources utilization, environmental protection, and ecological review of economic projects. A number of nature conservation laws and governmental decisions also exist, including Laws on Mineral Resources, on Environmental Protection, on the Protection of Natural Resources of Territorial Waters, Continental Shelf and Economic Zone, and on the Payments and Penalties for Environmental Contamination.

Following progress at the national level, environmental measures are being developed at the regional level as well. For example, in Primorskii krai, any design project must contain an environmental section and will be evaluated from the standpoint of environmental safety. A project proposal is reviewed by the special-purpose office of the Ministry of Ecology and Natural Resources in Vladivostok. The limits on atmospheric emission and sewage in the surface reservoirs are calculated in terms of maximum allowable limit of emissions (MALE) and maximum allowable limit of sewage (MALS). For enterprises with outdated equipment and processes, however, temporary MALE or MALS is specified until their emissions or sewage are reduced to prescribed levels. Maximum allowable concentrations (MAC) of atmospheric pollutants are used as normative indicators of environmental quality. Included in the air pollution control system are sulphur dioxide, carbon monoxide, nitrogen dioxide, nitric oxide, hydrogen fluoride, and lead and its compounds. Surface water pollution control targets petrochemicals, phenols, synthetic substances, copper, cadmium, and hydrogen ion exponent.

Payments are collected for environmental pollution in Primorye, with the amounts credited to the account of the Primorskii Krai Committee of Nature Conservation. The payments are made from the income or other funds of enterprises. Vehicular pollution of the atmosphere is also subject to payments, with the rate of payments depending on the type of fuel, i.e., diesel fuel, leaded gasoline, and unleaded gasoline.

International Cooperation

Effective international cooperation for the sustainable development of the Russian Far East requires, first and foremost, the recognition on the part of the region's leaders of the need to cooperate with the neighboring countries. Second, the recognition must be translated into institutional support and resource commitment for carrying out cooperative efforts. As one of the participants in international cooperation, the Russian Far East must possess the necessary legal authority, administrative capacity, and financial, technical, and other resources. Since the region is critically handicapped in these capabilities, it must be given access to the resources of its neighboring countries. Thirdly, the cooperating parties must have the political will to overcome obstacles to cooperation. For example, territorial disputes and domestic jurisdictional conflicts must not be allowed to disrupt cooperative arrangements between the Russian Far East and its neighbors. Fourth, there must be a reasonable expectation and fairly short-term demonstration of tangible benefits to the parties. Finally, each cooperating party must have sufficient confidence in the others' ability to carry out their respective responsibilities and obligations.

Under the present circumstances of political uncertainty and economic crisis in Russia in general and in its Far Eastern region in particular, it is unrealistic to expect that all these conditions will be satisfied in the near term. One must be realistic about the prospects of cooperation, particularly in terms of the readiness of the Russian Far East region. There are some indications of regional support for international cooperation. However, there is also ample evidence that suggests that caution, care, and sensitivity are necessary in developing international cooperation involving the Russian Far East.

A 1992 opinion survey by the Institute of History, Archeology, and Ethnography in Vladivostok reveals important facts about Primorye residents' attitudes toward international cooperation. 1,202 individuals responded to the survey which was conducted in 19 southern Primorye cities and towns in August-September 1992. Interviews were also conducted with 120 high-ranking officials in regional and Vladivostok administrations, the biggest state enterprises, new economic organizations, scientific institutions, universities, and others. The respondents were asked to state their opinions on such issues as the Nakhodka Free Economic Zone (FEZ), the Greater Vladivostok Project, the Tumangan Project, and the integration of the Russian Far East into the Asia-Pacific economy. The survey revealed general support for expanding the region's international economic ties, but there were some significant differences of opinion among different groups. There was a great deal of reluctance among directors of state enterprises and older and less educated strata. It was also evident that only administrative officials and economic leaders were relatively well informed of the various proposals and prospects for international cooperation.

In the immediate areas where international projects and the FEZ were being planned, three-fourths of the respondents to the 1992 survey favored such projects. The most enthusiastic were the managers of new private economic organizations, followed by their employees, industrial and transportation workers, agricultural workers, students, out-of- industry intellectuals, military personnel, pensioners, company officers and engineers, and housewives, in that order. Respondents from the Nakhodka area, where major international ports are located, were the most supportive regional group, reflecting their positive experiences with foreigners. The support among the region's high-ranking administrative officials was based on expectations of improved living standards, higher

production and consumption levels, enhanced private initiatives, resolution of regional problems, greater chances of economic reform, and improved local economic and social condition. These were also the most informed group of individuals about the various developmental projects. They also favored private property and the provision of real estate and other forms of long-term credits to finance such projects, and also urged compliance with international law and other standards in foreign affairs. However, between one-tenth and one-fifth of non-industrial experts, directors of state enterprises, and mangers of scientific institutions and new economic organizations feared that the proposed international projects might place Primorye in the status of dependent supplier of raw materials.

Moscow had expressed their readiness to join China, North Korea, South Korea, and Mongolia in the international research on the development of the Tuman River area, including the creation of a free trade zone and a city of 100,000-300,000 people in the swampy border area of Russia, China, and North Korea. However, many groups in Primorye were more supportive of the Nakhodka Free Economic Zone and the Greater Vladivostok Project. Evidently, there was little coordination between Moscow and Primorye leaders on the Tumangan Project. Moreover, in the Russian Far East, the possible ecological consequences of the project have received only very limited attention. There are virtually no Russian environmental experts involved in the study of the project.

Successful international cooperation will also depend on the Russian Far East people's attitude toward the neighboring countries. The 1992 survey in southern Primorye cited above revealed a high level of confidence in Japan as the most reliable business partner, with almost one-half of the respondents giving preference to their neighbor to the southeast. The United States was favored by 40 percent of the respondents, South Korea and Germany by 20 percent, and China by 10 percent. Administration officials, directors of state enterprises, and business organizations in southern Primorye favored economic integration first with Japan, South Korea, and the United States, and then with China, Taiwan, Australia, Germany, and North Korea. The largest proportion of southern Primorye residents (40 percent of the respondents) believed that Japan should be the most interested in the Greater Vladivostok Project, followed by the United States, China, South Korea, North Korea, and Mongolia. For the Tumangan Project, the residents ranked China, Japan, South Korea, North Korea, and Mongolia, in that order. Japanese and German firms were the most preferred business partners among the southern Primorye population, followed by South Korean, US, Chinese, Taiwanese, and Australian firms. Administrative officials wanted to work with US, Japanese, German, South Korean, Taiwanese, and Chinese firms, in that order.

A vast majority of the southern Primorye people acknowledge the need to receive foreign economic assistance, with younger and more urban segments accepting this necessity more readily than agricultural workers and older generations. Preferred forms of aid, particularly among the people in their thirties, out-of-industry intellectuals, people with advanced technical education, and leaders of new economic organizations, are high technology, technical training, and managerial training. Additionally, regional administrators and economic experts recognize that foreign investments and other foreign business involvement in the region will require the granting of privileges to foreign business concerns, including (in the order of preference) reduced import-export fees, favorable terms for repatriation of capital and profits, low income taxes, freedom to invest capital in any economic sector, and guarantees for long-term credits including real estate. However, a substantial number of individuals whose organizations receive state budget allocations, e.g., university administrators and directors of scientific institutions and state enterprises, see little need to invite foreign investments. The granting of credits involving real estate and natural resources is not a popular choice among most leaders in southern Primorye. All in all, the strongest support for granting special privileges to foreign businesses is found among city mayors and their deputies, experts and consultants of authoritative bodies, and chairmen and vice-chairmen of the soviets.

Limited support comes from the leaders of new economic organizations and directors of scientific institutions. Resistance can be expected from army officers, directors of state enterprises, and presidents and vice-presidents of universities.

How are joint ventures seen by the residents of Primorye? There is substantial interest (50 percent) among regional and local administrative officials in working in joint ventures with American, Japanese, and German firms, in that order. Among the general public, there is much less interest, although one-third would be ready to work for Japanese and German companies, 10-20 percent for South Korean firms, and a very small proportion for Chinese and North Korean businesses. When it comes to the local impact of joint ventures and other cooperative business schemes, however, serious questions are being raised about the distribution of benefits both within the communities and between Russian and foreign participants in such arrangements.

International cooperation in the environmental field is still very limited and in its beginning stages. Most notable in this area is the January 1994 agreement between Japan and Russia to cooperate on 17 environmental conservation projects such as joint studies on acid rain and air pollution. The announcement came at the conclusion of a Japan- Russia joint committee meeting on environmental conservation in Tokyo. This was the first meeting to be held on the basis of the 1991 accord on environmental conservation concluded during the historic summit between Soviet President Mikhail Gorbachev and Japanese Prime Minister Toshiki Kaifu. The joint projects to be conducted in 1994 and 1995 include joint studies on acid rain, the quality of water of Lake Baikal, the environment of the Sea of Japan, and observation of the greenhouse effect in Siberia. The program also includes joint observation of methane gas from permafrost regions and exchange of information to prevent air pollution in both countries.

There are some private-level initiatives to develop international cooperation in environmental protection and resource conservation and management. A good example is the cooperation among non-profit organizations from Russia, the US, and Japan to conduct research on pollution and environmental protection of Lake Baikal. The US and Japanese participants in the project are contributing equipment and training local members in how to use it. The local Russian participants are monitoring the water quality on a continuing basis and data analysis is being done by all participating groups. They will jointly develop a clean-up plan as well. Information is being shared with the local residents.

It can be concluded that generally favorable attitudes toward international economic and environmental cooperation exist among the better educated and the more internationally experienced segments of the population, with the greatest support coming from regional and local administrators. One should remember, however, that there is significant reluctance among those who are supported by state institutions. It should be remembered that cooperative arrangements may not necessarily generate tangible benefits that can be readily and equitably shared between parties with disparate resources and capabilities.

Conclusions In developing environmental and resource conservation regimes that balance the developmental needs and environmental requirements of the Russian Far East, the Russian government and the regional administrations should adopt "sustainable development" as the essential goal of the region. In this connection, the recent discussion among the environmental ministers of APEC member countries is particularly instructive.

In March 1994, the environmental ministers of APEC member countries issued an "APEC Environmental Vision Statement." The statement included a "Framework of Principles for Integrating Economy and Environment in APEC." While discussion of the principles in this framework is beyond the scope of this paper, let me conclude this paper by offering some ideas,

consistent with those principles, which may be considered in developing environmental and resource conservation regimes in the Russian Far East.

1. Any foreign participation in industrial or resource development projects should be conditioned on the preparation of an environmental impact assessment and a plan for pollution abatement. If Russian parties to international joint ventures lack financial resources or technical capabilities to meet such requirements, the foreign participants should be required to contribute their own resources. Such contributions should be taken into consideration when determining the tax rates, the terms of capital and profit repatriation, and other conditions affecting the joint enterprises in question.

2. Foreign parties planning to engage in industrial or resource development projects should be required to establish their environmental credibility by documenting satisfactory environmental performance in their home countries. If the environmental standards they maintain at home are more stringent than those required of Russian enterprises by local law, then the foreign enterprises should be encouraged to apply the more stringent standards. If the cost of maintaining higher than local standards is prohibitively high, the Russian, regional, and local authorities should provide additional incentives, such as lower taxes, lower rents, higher rates of capital and profit repatriation, etc.

3. Private Russian and foreign lending institutions which provide loans, credits, and other support for environmentally sound developmental projects should receive favorable guarantees and other protection from their respective governments.

4. Any foreign enterprise which plans to export or import natural resources from the Russian Far East, either in raw or semi-processed form, should obtain from the regional and local authorities a certificate of environmental worthiness for its resource development operation in the region, as should its local business partners.

Until Russia becomes a member of APEC, international cooperation should be undertaken at the non-governmental level to facilitate Russia's eventual adoption of rules and principles that are consistent with those that will inform and direct the future sustainable development efforts in the APEC countries. Eventually, APEC-consistency may be made a requirement for Russia's membership in the forum.

ENDNOTES:

1. Pavel Minakir, "The Present Condition and Future Prospects of the Russian Far East Economy," Rotobo Chosa Geppo (Rotobo monthly survey), no. 2 (February 1994), Tokyo: Rotobo, 1994.

2. Ibid., pp. 46-47.

3. Ibid., p. 48.

4. Ibid.

5. Krasnoe Znamya, July 27, 1994, p. 2.

6. Pavel Minakir, "Roshia Kyokuto Keizai no Genjo to Hatten Keikaku" [The present condition of the Russian Far East economy and its development plan], Roshia Kyokuto Chiiki ni okeru Toshi Kankyo [Investment climate in the Russian Far Eastern region], Tokyo: Roshia To'o Boekikai Roshia To'o

Keizai Kenkyujo, 1993), pp. 1 and 4.

7. Interfax News Agency, Interfax Business Report, no. 35 (696), February 21, 1994, p. 3.

8. Russian Far East Update, vol. 3, no. 6 (June 1993), p. 10.

9. Roshia Kyokuto Data Book [Russian Far East data book], Tokyo: Roshia To'o Boekikai Roshia To'o Keizai Kenkyujo, 1994, p. 12.

10. Asahi Shimbun, April 23, 1993, p. 12.

11. RA Report, no. 17 (July 1994), p. 18.

12. Unless otherwise noted, most of the environmental data are from Evgeny E. Jarikov, "The Current Situation of Environmental Protection in Primorsky Territory," in Primorsky Territory: Its Political, Social, and Economic Situation and Environmental Protection, Vladivostok: Center for Pacific Economic Development and Cooperation; and Monterey, California: Center for East Asian Studies, Monterey Institute of International Studies, 1993). The Center for Pacific Economic Development and Cooperation prepared this report for the Center for East Asian Studies.

13. Utro Rossii, August 9, 1994, p.3.

14. Vladivostok, August 23, 1994, p. 4.

15. Ibid.

16. Novosti, August 17, 1994, pp. 1-2.

17. Jarikov, pp. 17-18.

18. Krasnoe Znamya, July 27, 1994, p. 2.

19. Reported by Itar-Tass; cited in Vladivostok, June 24, 1994, p. 2.

20. RA Report, no. 17 (July 1994), p. 167.

21. Utro Rossii, July 23, 1994, p.3.

22. A.D. Chernukha, Medico-ecological and Social Health Factors of Town Population in the Northeast of Russia, Magadan, 1992

23. Ibid., p. 24.

24. Chernukha, p. 45.

25. Ibid., p. 47.

26. RA Report, no. 17 (July 1994), p. 166.

27. The United States, France, the United Kingdom, and Japan had dumped low-level radioactive waste in the sea for many years. These countries had opposed a proposal by Denmark to ban all dumping of nuclear materials in the sea. In 1985, however, the advanced western countries, including Japan, decided to temporarily suspend the dumping of nuclear waste into the ocean.

28. "Facts and Problems Related to Radioactive Waste Disposal in Seas Adjacent to the Territory of the Russian Federation (Materials for a Report by the Government Commission on Matters Related to Radioactive Waste Disposal at Sea, Created by Decree No. 613 of the Russian Federation President, October 24, 1992)," Office of the President of the Russian Federation, Moscow, 1993. Translated by Paul Gallager and Elena Bloomstein, Albuquerque, New Mexico.

29. Hokkaido Shimbun, November 3, 1994, p. 4.

30. Kyodo, May 20, 1994; cited in RA Report, no. 17 (July 1994), p. 164.

31. Hokkaido Shimbun, November 13, 1994, p. 1.

32. Japan Times, April 17, 1994, p. 2.

33. Kyodo, June 23, 1994, Japan Times, May 17, 1994, p. 1; cited in RA Report, no. 17 (July 1994), p. 165.

34. Christian Science Monitor, February 2, 1993, p. 7.

35. Finansovye Izvestiya, January 13-19, 1994, p. 1; cited in RA Report, no. 17 (July 1994), p. 113.

36. Itar-Tass, February 15, 1994; cited in RA Report, no. 17 (July 1994), p. 113.

37. Tass, April 8, 1994; cited in RA Report, no. 17 (July 1994), p. 114.

38. Christian Science Monitor, February 2, 1993, p. 7.

39. Hokkaido Shimbun, March 1, 1993, p. 1. Earlier, in July 1992, Japan had agreed to come up with a $25 million grant to address the nuclear safety concerns of the former Soviet Union and eastern Europe.

40. Hokkaido Shimbun October 26, 1993 p.3

41. A statement by Evgeniy Stomatuk, Chairman of the Committee on Natural Resources of Primorskii Krai Administration; cited in Krasnoe Znamya, June 28, 1994, p. 1.

42. Jarikov, p. 19.

43. Vladivostok News, May 27, 1994, p. 2.

44. Akaha, "From Conflict to Cooperation: Fishery Relations in the Sea of Japan," Pacific Rim Law & Policy Journal, vol. 1, no. 2 (Summer 1992), pp. 225-280, and Akaha, "The Postwar Japan-Soviet Fisheries Regime and Future Prospects," Ocean Yearbook, Chicago: University of Chicago Press, 1992, pp. 28-56

45. Akaha, "Japanese-Russian Fishery Joint Ventures and Operations: Opportunities and Problems," Marine Policy, May 1993, pp. 199-212.

46. Hokkaido Shimbun, June 4, 1994, p. 1.

47. Asahi Shimbun, May 17, 1994, p. 3, and August 16, 1994, p. 3.

48. Hokkaido Shimbun, September 14, 1994, p. 31.

49. Brian L. Zimbler, "Legal Remedies Address a Catastrophic Situation: The Russian Law on Protection of the Environment," CIS Environmental Watch, no. 3 (Fall 1992), p.41. This article provides a summary description of the 1991 Russian Federation legislation.

50. Part I of the Law. The following summary of this law draws from Zimbler.

51. Part I.

52. Part II.

53. Part III.

54. Part IV.

55. Parts VI and VII.

56. Part VIII.

57 Part IX.

58. Part X.

59. Part XII.

60. Part XIII.

61. Part XIV.

62. This problem is pointed out by Zimbler in his discussion of Resolution No. 545, "On Approving the Procedure for Drawing Up and Approving Ecological Norms for the Emission and Discharge of Pollutants into the Environment and the Limits for the Use of Natural Resources and for Dumping Waste," adopted by the Russian government on August 3, 1992. (Zimbler, p. 45)

63. Krasnoe Znamya, August 17, 1994, p.3.

64. Jarikov, p. 24.

65. Ibid.

66. MALE is the level of harmful substances in the lower air layer which does not exceed the prescribed levels and MALS is the maximum allowable mass of substances in discharged sewage, with the proviso that the water quality in the control point is ensured. Jarikov, pp. 24-25.

67. Jarikov, p. 26, Table 6.

68. Jarikov, p. 25.

69. The survey was named "The Public Opinion in the Southern Primorye in connection with the Greater Vladivostok Project, Tumangan Project, and Incorporation of the Russian Far East into the Economic Structures of the Asia-Pacific Region." Results of the survey are summarized in Nikolai G. Shcherbina, "The Reaction to the Foreign Presence in the Primorsky Region," a report prepared for the Center for East Asian Studies, Monterey Institute of International Studies, March 1993.

70. Shcherbina, pp. 4-6.

71. Ibid., pp. 2-3.

72. Utro Rossii, July 21, 1994, pp. 1 and 3.

73. Shcherbina, pp. 8-9.

74. Ibid., p. 9.

75. Ibid., p. 11.

76. Ibid., p. 14.

77. Ibid., p. 14.

78. Japan Times, January 29, 1994, p. 3.

79. Asahi Shimbun, July 19, 1992, p. 26.

80. Adopted by APEC ministers responsible for the environment, Vancouver, Canada, March 25, 1994.

81. It should also be noted that the ideas offered below are consistent with the recommendations of APEC's Eminent Persons Group. In August 1994, the group issued a second report calling, inter alia, for (1) the sharing of environmental technologies between the environmentally more advanced and less advanced members of APEC, (2) consideration of joint funding of environmentally sound development projects, with more advanced members contributing to the costs of pollution control in less advanced parts of the region, (3) promotion of international acceptance of the principle of internalizing environmental cots, and (4) the gradual convergence of environmental standards among APEC members. ("Achieving the APEC Vision: Free and Open Trade in the Asia Pacific," Second Report of the Eminent Persons Group, August 1994, pp. 27-29.)

82. These ideas are consistent with the principles of "internalization of costs," "technology transfer," and "financing for sustainable development" of the APEC environmental framework.

83. This recommendation is consistent with the "technology transfer" and "financing for sustainable development" principles of the APEC environmental framework.

84. Ibid.

85. This is consistent both with the spirit of "open regionalism" which is guiding the APEC process and with the principle of "environmental education and information" in the APEC environmental framework.

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