The Environment and Development in the Russian Far East*

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This article examines the impact of past extraction methods and present inattention to resource maintenance on the protection and development of the Russian Far East's natural resources. I focus on the forestry sector in particular because of the great importance of forest resources to environmentalists and developers alike. While the Russian Far East contains some of Russia's last remaining old-growth forests, the forestry sector is also of prime interest to developers—in attracting foreign investors, it ranks among the top five sectors in the Russian economy. Foreign investors have been mainly interested in extracting raw materials from the Russian Far East for processing in their home countries. Although this type of cooperation meets the short-term economic needs of the region, debates are taking place in the Russian press about the need to balance pressing needs for investment in resource extraction with the development of high quality processing industries and environmental protection in the Russian Far East.

Keywords: Russian Federation, environment, forestry, sustainable development, Russian Far East

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The Russian Far East is a unique region of the Russian Federation because it contains both large quantities of valuable resources as well as significant numbers of rare species of plants and animals. The region has long captured the imagination of explorers and writers and now is attracting the attention of developers and environmental organizations who have pursued seemingly divergent interests. The long-term economic viability of the region, however, requires a co-

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ordinated approach to development which will both promote economic activity and safeguard the region's natural resources.

Despite its economic potential, environmental importance, and strategic location at the crossroads of Northeast Asia, the Russian Far East currently lacks a coherent development strategy. Because of the great distance between the Russian Far East and Moscow, regional leaders and central government officials often have very different perspectives on regional development. Moreover, the Russian Far East has a differentiated society—indigenous peoples, environmental activists, and the military based in the region are sometimes at odds with regional authorities over development objectives. Since there has been no attempt yet to achieve a consensus about the relative priorities of environmental protection and development, the result is that the various interests have coalesced on a case-by-case basis. As these groups voice their concerns, there is hope that, in the absence of strong central leadership on regional development issues, regional interests will learn to work together to devise a sustainable development strategy.

This article examines the impact of past extraction methods and present inattention to resource maintenance on the protection and development of the region's resources. I focus on the forestry sector in particular because of the great importance of forest resources to environmentalists and developers alike. While the Russian Far East contains some of the country's last remaining old-growth forests, the forestry sector is also of prime interest to developers—it ranks among the top five sectors in the Russian economy in attracting foreign investors.[1] This article notes that the lack of a coordinated regional development strategy for the Russian Far East has exacerbated conflicts between environmentalists and developers. In the absence of a regional strategy, however, localities have begun to formulate their own conceptions of development, some of which seek to mediate between the need for resource development and the desire to protect the region's environment.

Foreign investors have been mainly interested in extracting raw materials from the Russian Far East for processing in their home countries. Although this type of cooperation meets the Russian Far East's short-term economic needs, debates are taking place in the

[1] *The Taiga Trade*, Report by the Taiga Rescue Network (Jokkmokk, Sweden: 1995), 35.

regional press about the need to balance pressing needs for investment in resource extraction with the development of high quality processing industries within the Russian Federation. Moreover, conservative political forces, such as Vladimir Zhirinovskiy's Liberal Democratic Party, which decry Russia's transformation into a "Third World resource appendage" attracted almost one quarter of the vote in some regions in the Russian Far East in the 1993 elections. In light of the strong support for market-oriented economic reform critics such as the Communist Party in the December 1995 parliamentary elections, the issue of foreign investment in the region's resources is likely to remain at the forefront of current political debate.

Background

The Russian Far East is large—it occupies 36 percent of Russia's territory but only 5 percent of its population lives there. Located east of Siberia and stretching to the Pacific Ocean, the Russian Far East includes nine territories: the Republic of Sakha (Yakutia), Primorskiy Kray, Khabarovskiy Kray, Amurskaya Oblast, Kamchatskaya Oblast, Magadanskaya Oblast, Sakhalinskaya Oblast, the Jewish Autonomous Oblast, and the Chukotskiy Autonomous District (Okrug). The population is almost 90 percent Slavic and native peoples account for less than 6 percent of the total.

Due to the harsh climate in the Russian Far East, the region's poor infrastructure, and its great distance from European Russia, it has been relatively unscathed by industrial development. The completion of the remaining spurs of the Baikal-Amur Railway will improve access to the interior areas of the Russian Far East for mining and timber-felling, but some resource-rich regions such as Kamchatka are for the most part accessible only by helicopter. Despite the difficulties with access and transportation, the Russian Far East is a major source of natural resources. It accounts for 15 percent of all Russian mining, 13 percent of its nonferrous metals, and over 7 percent of its timber. Fish from the seas bordering on the Russian Far East (Bering Sea, Sea of Okhotsk, and Sea of Japan) constitute half of Russia's total catch.

Ever since the days of the tsars, the Russian Far East has played the role of a resource periphery and a gateway to the Pacific.[2] The

[2]Gary Hausladen, "Perestroyka and Siberia: Frontier Resource Development," in *The*

region supplied important minerals as well as timber and fish to European Russia, but produced few manufactured goods. With the onset of the Cold War and the development of Sino-Soviet conflict, the Russian Far East also represented a line of forward defense against the People's Republic of China (PRC) and Japan and was the site of numerous military bases and industries.

While the military funded defense-related industries, other sectors were dependent either on subsidies from Moscow or foreign investment. In the 1970s, for example, there was an expectation that the global energy crisis would prompt countries like Japan to invest heavily in the region to obtain a steady supply of fuel resources.[3] This never happened, however, due to the success of Japan's energy conservation program and the controversy over the Kurile Islands—which remains an important barrier to substantial Japanese investment to this day. The massive investments needed for oil and gas exploration and changeable taxes and laws have continued to be important stumbling blocks for foreign investment in natural resources. A US$8 billion deal for the development of offshore oil and gas off the coast of Sakhalin, for example, has been stalled due to inadequate legislation concerning land rights and delineating the tax jurisdiction of regional and federal authorities.[4]

Since the collapse of the Soviet Union, the Russian Far East has pressed for greater economic autonomy, but this goal has proven difficult to achieve given the high transportation costs, poor infrastructure, and energy shortage in the region. If distance has complicated the integration of the Russian Far East into the economic life of the Russian Federation, the improvement of relations with the PRC in the mid-1980s and the end of the Cold War have given the region the opportunity to live up to its potential as a gateway between Russia and Northeast Asia. While the improved international climate may present new opportunities, the Russian Far East may be trading in its previous relationship with European Russia—resources for manufactured goods—for a similar relationship with the Northeast Asian countries. Today, as before, natural resources

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Soviet Union: A New Regional Geography, ed. Michael J. Bradshaw (London: Belhaven Press, 1991), 103-4.

[3]Leslie Dienes, "Economic and Strategic Position of the Soviet Far East: Development and Prospect," in *The Soviet Far East*, ed. Allan Rodgers (London: Routledge, 1990), 272-73.

[4]*Russian Far East Update* (Seattle), April 1995, 5.

constitute the lion's share of the Russian Far East's exports—approximately 70 percent.[5]

The Russian Far East's Environment

Many pristine natural areas, rich in plant and animal life, remain in the Russian Far East, due to its relative inaccessibility and low population density. There are three major vegetation zones in the region which contain distinctive flora and fauna and face different challenges from development.

Mixed forest can be found in the southern part of the Russian Far East, extending from the plains and mountains of the Amur region to the valleys of the Ussuri River. This zone hosts a mixed conifer and broad-leaved forest which is unique to the region. A wealth of plant species from both the northern taiga and southern subtropics can be found here, including a large number of endemic species, many of which date back 65 million years to the Tertiary period.[6] The region is also home to an exotic mixture of rare animals that came from the forests of East and Southeast Asia to escape glaciation.[7] Indigenous peoples like the Udege and Nanai in Primorskiy Kray make a living from hunting and fishing in these regions.

Location and climate make the mixed forest area one of the more accessible in the Russian Far East for development. Agriculture in the Amur lowlands and mining and logging in the Ussuri valley have had a detrimental impact on the region's environment, however.[8] The regeneration of boreal forests is slow—each birch tree can take up to forty years to grow. Many endangered species are among the fauna, such as the Siberian tiger, the Amur leopard, and the Sika deer.

A second vegetation zone, the taiga, can be found in the northernmost part of the Russian Far East—the Chukotskiy Autonomous District and Sakha (Yakutia). With the exception of coastal areas,

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[5]Pavel A. Minakir, "The Economy of the Far East," in *Siberia, the Russian Far East, and Northeast Asia: Boundaries in a Transnational Region*, ed. Stephen Kotkin and David Wolff (Armonk, N.Y.: M. E. Sharpe, 1995), 182.

[6]Algirdas Knystautas, *The Natural History of the USSR* (New York: McGraw-Hill, 1987), 25. One-third of the plants are endemic to the region. Also see pp. 116-19.

[7]Ibid., 119-34.

[8]Vladimir Krever et al., eds., *Conserving Russia's Biological Diversity* (Washington, D.C.: World Wildlife Fund, January 1994), 119.

which are covered by Arctic vegetation and tundra, the taiga extends southward to the Kamchatka peninsula, and then to Magadan, Khabarovskiy Kray, Sakhalin Island, and the higher elevations of the Sikhote-Alin range in Primorskiy Kray.

Kamchatka boasts many active volcanos and their high peaks make for a spectacular landscape. From the Kamchatka peninsula southward, the coastal areas contain mixed conifer and broad-leaved forests, while the mountainous areas are covered with Erman's birch, dwarf pine, and alder.[9] This zone is the habitat of the brown bear, the only type of sea otter found in the eastern Pacific, the Kurile seal, the Arctic fox, Blackiston's fish owl, the brown hawk-owl, and Steller's sea-eagle.[10] Because of the permafrosted region's harsh climate and limited transportation, development has not had as negative an impact, but scattered mining and logging activities pose a threat to its fragile ecosystems. Like the mixed forest zone, the taiga is the home of several indigenous peoples: Koryaks, Itelmeni, Yukagiri, Sakha, Eveni, Evenki, and Nivkhi, who depend on the region's natural resources for their livelihood.

The third type of vegetation, Arctic flora, can be found in the northernmost areas of the region, adjacent to the Laptev, East Siberian, and Bering seas. This type of vegetation is sparse, limited to mosses, lichens, and some hardy flowering plants. The tundra zone, in northern Sakha just below the Arctic region, has a greater diversity of plant life due to its somewhat milder climate. Dwarf birch, Siberian spruce, and Daurian and Siberian larch can be found there.[11]

There are several endangered species endemic to the Arctic and tundra zones, including the polar bear, walrus, wild reindeer, red-breasted goose, and Siberian crane.[12] Due to the importance of the areas adjacent to the Bering Strait for the migration of birds, marine mammals, and polar bears, the United States and Russia have been working to create an international Beringia National Park on both sides of the former land bridge between the two countries.[13]

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[9]Ibid., 127.
[10]Ibid.
[11]Knystautas, *The Natural History of the USSR*, 33.
[12]Krever, *Conserving Russia's Biological Diversity*, 36. On the Siberian crane, see Knystautas, *The Natural History of the USSR*, 80-81.
[13]Philip R. Pryde, *Environmental Management in the Soviet Union* (Cambridge: Cambridge University Press, 1991), 269.

Plant and animal life in the Arctic and tundra regions are particularly susceptible to environmental degradation. The combination of thick permafrost, a harsh climate, and a short growing season limits the regeneration of flora. Similarly, the animals who live there are slow to grow and it is difficult to replenish their numbers.[14]

In an effort to protect the rich plant and animal life in the Russian Far East, several protected areas are located there.[15] However, the eighty-year old Russian system of protected areas is menaced by severe underfunding. Nature areas are understaffed and those who work there live on meager salaries. They lack the basic equipment to carry out their duties—helicopters, side arms, and special clothing.[16] In winter months they are often left isolated due to inadequate transportation and communications.

Some game wardens have been known to hunt the animals they were supposed to protect and then sell the skins for several thousand dollars—a real temptation considering their salaries often come to less than US$20 per month.[17] The fine for poaching is only a fraction of the value of a tiger skin, which can bring in US$10,000. Aleksey Yablokov, the chairman of the Ecological Commission in the Russian Security Council, notes that "poaching has today reached unprecedented scales. Sometimes it is easier to halt the implementation of broad-scale ecologically harmful projects . . . than to collar one person setting off on a hunt."[18] Many of the most aggressive poachers are traders from mainland China's Heilongjiang province who are interested in glands from various rare animals such as the Himalayan brown bear for use in traditional medicines.[19]

Although Russian President Boris Yeltsin recommended that each region in Russia set aside 3 percent of its territory for either

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[14]Knystautas, *The Natural History of the USSR*, 62.

[15]*Zapovedniki* are wilderness and research areas which are not open to the public, while *zakazniki* are nature reserves which allow public use and economic development subject to restrictions. For more on nature reserves, see Knystautus, *The Natural History of the USSR*, 136-37. Also see Pryde, *Environmental Management in the Soviet Union*, chap. 8.

[16]Vsevolod Stepanskiy, head of the main directorate of wilderness reserves, Ministry of Environmental Protection, "The Land of Frightened Birds," *Spasenie* (Rescue) (Moscow), October 1993, 4.

[17]Suzanne Possehl, "Russia and America Team Up to Save Endangered Tiger," *New York Times*, August 31, 1993, C4.

[18]Interview with Aleksey Yablokov, "In Rescuing We Are Rescued!" *Kultura* (Culture) (Moscow), April 24, 1993, 3, trans. in JPRS-TEN-93-014 (May 28, 1993): 62

[19]Dorinda Elliott and Daniel Glick, "The Wasteland," *Newsweek*, July 26, 1993, 28.

national parks or protected areas (*zakazniki* or *zapovedniki*), the devolution of political control to the regional level has enabled local authorities to override environmental interests for economic ones.[20] Federal protection efforts will only be successful if they are adequately funded and managed at the local level.

Resource Use and Environmental Degradation

Environmental damage occurs in the Russian Far East, as in other areas of Russia, due to inefficient resource use and inattention to maintenance. Over half the volume of all timber harvested in Russia, for example, is wasted during felling, processing, shipping, and transport. This tremendous waste accentuates the need for reforestation. Moreover, the boreal forests are slow-growing and maintaining a stable level of forest cover through replanting is particularly important. V. Pominov, head of the forest administration for Khabarovskiy Kray, has stated that in the southern part of the territory, erosion due to deforestation is assuming frightening proportions.[21] Since 40 percent of the wood in the Russian Far East comes from Khabarovskiy Kray, regeneration should be a top priority.[22] In many areas of the region, however, forest cover is scanty.[23] In an effort to address this problem, a new plan now requires that 50 percent of all taxes paid by logging companies in the region go to reforestation.[24]

Valeriy Shubin, head of the Russian Forest Service, has admitted that forest regeneration has been a low priority in recent years.[25] Recognizing the problems caused by inattention to reforestation in the past, the Forest Service came up with an ambitious reforestation plan for 1993-95. Due to the economic crisis, however, Shubin admitted that the volume of reforestation amounted to just 36 percent of plan in the first half of 1993.[26]

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[20]On this issue, see note 16 above.

[21]"Their '500 Days'," *Lesnaya gazeta* (Forest News) (Moscow), February 4, 1993, 1.

[22]Ministry of Environmental Protection and Natural Resources of the Russian Federation, "National Report on the Condition of the Natural Environment of the Russian Federation in 1992" (Moscow, 1992), 59.

[23]Interview with V. Pominov, "For the Past Grandeur of the Taiga," *Lesnaya gazeta*, January 14, 1993, 2.

[24]*Russian Far East Update*, September 1994, 6.

[25]Speech by Veleriy Shubin to the Presidium of the Council of Ministers, "National Program of Forest Restoration in Russia," *Lesnaya gazeta*, August 14, 1993, 1.

[26]Ibid.

In addition to the difficulties facing the reforestation problem, considerable waste occurs due to the inaccessibility of vast areas of forest to harvesting, which are left to rot.[27] Prior to the completion of the Baikal-Amur Railway, only 22 percent of the commercially exploitable growing stock in the Russian Far East and 12 percent of all tree species were accessible by road. Even with the use of this new rail route, transportation costs will continue to limit the commercial viability of harvesting in the Russian Far East.[28]

As the regions have acquired greater economic autonomy, control over mineral resources has become an issue in relations between Moscow and the regions and a source of conflict among competing interests within the regions. Economic pressures for greater extraction are often counteracted by the difficult access to many resources due to climate, inadequate transportation links, and poor infrastructure.

The mining sector is also plagued by inefficiency and waste.[29] While the mining industry in the Russian Far East leads in output in many resources,[30] the exhaustion of some mineral deposits has made extraction difficult. This is the case for lead and zinc in many areas, tin in Primorskiy Kray, Khabarovskiy Kray, and the Chukotskiy Autonomous District, and diamonds in Sakha. Sakha is a unique source of many minerals,[31] but inefficient use and overexploitation has led to the premature exhaustion of deposits. As the more ac-

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[27]Interview with Vladimir Letyagin, in Paul Soler-Sala, "Institutions and Trends in the Russian Forestry Sector during a Time of Great Transition; A Set of Interviews with Russian Foresters, September 1992-March 1993" (Report prepared for the Office of International Forestry, USDA Forest Service, Washington, D.C., 1993), 38.

[28]Brenton M. Barr, "Forest and Fishing Industries," in Rodgers, *The Soviet Far East*, 122-23.

[29]Yuri I. Bakulin and Vitaly T. Shishmakov, "Mineral Resources of the Russian Far East: Prospects for Export," in *CIS Energy and Minerals Development*, ed. James P. Dorian, Pavel A. Minakir, and Vitaly T. Borisovich (Dordrecht, The Netherlands: Kluwer Academic Publishers, 1993), 172.

[30]For example, the Russian Far East produces all of the brucite, nearly 100 percent of all diamonds, 98 percent of the tin, 90 percent of the boron, and 80 percent of the fluorspar, as well as considerable quantities of coal, natural gas, and oil. See Bakulin and Shishmakov, "Mineral Resources of the Russian Far East," 165. For more information on the region's mineral resources, see Craig ZumBrunnen, "Resources," in Rodgers, *The Soviet Far East*, 83-113.

[31]On Sakha, see Mikhail Nikolayev (President of Sakha), "The Northern Forum and the Future of the World Arctic Region: The Role and Position of Russia, the Role and Position of Yakutia," *Nezavisimaya gazeta* (Independent News) (Moscow), October 29, 1993, 1, 3, trans. in FBIS-USR-93-146 (November 17, 1993): 97; and Victor L. Mote, "The South Yakutian Territorial Production Complex," in Rodgers, *The Soviet Far East*, 163-81.

cessible sites are used up, the more remote deposits will be explored—at a higher cost, given the increased expenses for transportation and infrastructure.

Mining has also had a detrimental impact on the environment in many areas of the Russian Far East. In Amurskaya Oblast, gold extraction has led to a high level of mercury in the surface water.[32] Khabarovskiy Kray has experienced considerable landscape destruction due to mining.[33] Runoff from enterprises in the coal industry contributes to water pollution in Sakhalin and throughout the Russian Far East.[34]

Overuse of pesticides in agriculture, and overfishing also contribute to the depletion of the natural resources of the Russian Far East. The Russian Far East has always depended on imports of food products, previously from other parts of the Soviet Union, and now increasingly from Asia. Nonetheless, the southernmost part of the region does have land suitable for agriculture. In Amurskaya Oblast, the principal agricultural region in the Russian Far East, 50 percent of the land is marsh-ridden and water-logged, with high levels of acidity.[35] In Primorskiy Kray, pesticides have damaged the soil. Pesticides used in rice paddies in nearby Heilongjiang province, for example, threaten the unique marshlands of Lake Khanka, where three species of cranes are common.[36]

The Bering Sea, Sea of Okhotsk, and Sea of Japan account for half of Russia's catch. Herring, cod, salmon, plaice, navaga, and whiting make up 90 percent of the catch, with whiting alone accounting for 71 percent. In recent years the number of whiting has declined, particularly in the Bering Sea, due to overfishing. As a consequence, whiting fishing has been concentrated in the open area of the Sea of Okhotsk, and a moratorium on whiting fishing may be necessary to avoid further depletion. There has also been a decline in the herring and cod populations, and the supply of Far Eastern salmon is at a low average level, although there is some indication that their numbers are growing. Progress has been reported in in-

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[32]"National Report on the Condition of the Natural Environment," 58.
[33]Ibid., 59.
[34]Ibid., 40.
[35]Ibid., 59.
[36]Ibid. The three species of cranes are the Common Crane, the Manchurian Crane, and the White-napped Crane. See Knystautas, *The Natural History of the USSR*, 197.

creasing the numbers of flounder and sardines.[37]

The pollution of the region's rivers and seas also threatens the fishing industry. Untreated sewage is responsible for the pollution of many of the region's rivers, such as the Amur, the Ussuri, and the Lena. Other rivers are mainly polluted by runoff from resource processing industries, such as oil exploration in Sakhalin, diamond processing in Kolyma, and timber industries in Kamchatka.[38]

The seas bordering the Russian Far East are moderately polluted by untreated sewage, although the level is much lower than in the Baltic or the Black seas. The Bay of Peter the Great, near Vladivostok, is the most polluted area in the region due to untreated sewage. The harbor area near the city of Dal'negorsk has a high concentration of heavy metals, boron, and sulphur. Because of their important impact on public health and quality of life, today water issues are of particular concern to residents in the region and are often discussed in the regional press.

Thus, the emphasis on resource extraction and the inefficient techniques employed in the process have taxed the region's accessible resources. Realizing that Moscow is no longer willing or able to subsidize the development of natural resource sectors, the Russian Far East is increasingly looking to its neighbors in Northeast Asia for economic cooperation.

Development and Regional Foreign Policy

Geography is destiny in the Russian Far East, as the development of this region has been influenced by its great distance from Moscow and proximity to Northeast Asia. Due to the high cost of transportation to and from European Russia, the Russian Far East is orienting itself more and more toward the Pacific rim countries. For example, many Russian traders prefer to use Seattle as a supply point rather than Russia—it only takes ten days to send goods to Seattle by ship, and up to three weeks to ship them by rail to Moscow.

Not surprisingly, Moscow fears losing control over its borders, as the most resource-rich regions in the Russian Far East have acquired greater bargaining power vis-à-vis the central authorities. Moscow agreed to let Sakha, the region which produces almost all of Russia's

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[37]"National Report on the Condition of the Natural Environment," 27-28.
[38]Ibid., 13-14.

diamonds, keep all of its tax revenues. When Primorskiy Kray officials began talking about independence for the region in the summer of 1993, Prime Minister Viktor Chernomyrdin visited almost immediately and offered assistance to the hard-pressed energy sector.

Conflicts have developed between the central authorities in Moscow and certain regions in the Russian Far East over economic cooperation involving natural resources with some Northeast Asian states. In one case, officials in Moscow expressed reservations about renewing an agreement with North Korea to provide workers for the timber industry in Khabarovskiy Kray, but regional authorities strongly supported its renewal. Parliamentary and Foreign Ministry officials in Moscow were responding to allegations that the North Korean workers engaged in logging on Russian territory were kept in prison camp conditions. Environmentalists also opposed renewing the North Korean contract on the grounds that the North Korean workers often broke the rules governing forest use and illegally gathered protected species of plants for use in Eastern medicines. Khabarovskiy Kray authorities lobbied hard to keep the North Korean contract, however, contending that the North Korean workers provided cheap labor for the region's ailing forest industry. As a result of the controversy, some local firms offered their own services to the Khabarovsk authorities as an alternative to the renegotiation of the agreement, under discussion since 1993.[39] Nonetheless, the contract with North Korea was recently renewed.

Regional and central authorities have taken opposite positions with respect to mainland Chinese traders' interest in barter trade for natural resources from the Russian Far East. Although Moscow places a priority on expanding economic relations with the PRC, in the past two years officials in the Russian border regions have been complaining steadily about problems with the sale of resources to their neighbor. They are dissatisfied with barter arrangements involving the exchange of Russian valuable natural resources for mainland Chinese consumer products and would prefer to deal in hard currency, which is more difficult for Chinese firms. Moreover, the influx of illegal immigrants from Heilongjiang province to the Russian border regions has become cause célèbre in the regional press.

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[39]ITAR-TASS, "North Korean Lumbermen in Russian Forests," *Lesnaya gazeta*, August 18, 1994, 2; A. Khoroshilov, "They Created an Alternative," ibid., December 27, 1994, 2.

The attitude toward the PRC's involvement in regional development plans is noticeably cooler in the Russian border regions than in Moscow. For example, although the Yeltsin government strongly supported the Tumen development plan, which would have called for increased cooperation with mainland China, the Russian border regions preferred a smaller-scale alternative, focusing more on increasing ties to Japan. Launched in 1991, the twenty-year US$30 billion Tumen development project envisions the creation of a new transnational economic zone in the Tumen River area, which would be jointly administered by Russia, North Korea, and the PRC, and would involve Mongolia, South Korea, and Japan as well.[40]

The most grandiose version of the project would have entailed major infrastructure projects, such as the building of eleven new harbors and new rail and road lines to increase access to natural resource deposits. This version has been all but abandoned due to the enormous financial resources which would have been required, lack of agreement among the participants about the main objectives, unresolved political and security issues, and competing interests.[41] Regional authorities in Primorskiy Kray, for example, opposed aspects of the plan which would have led to infrastructural improvement in the PRC. They feared that any new ports built there would lead to competition with Primorskiy Kray's existing ports—Posyet, Zarubino, Vladivostok, Nakhodka, and Vostochniy. In Primorskiy Kray, there was also concern about the impact of the plan on the unique ecosystems in the Khasanskiy district, adjacent to the Tumen River. Instead, a more modest infrastructural improvement plan is being carried out in the Tumen area which will upgrade railroad transportation in the region and facilitate cross-border trade.

Impact of the Economic Crisis on Forest Resources

Despite conflicts between regional and federal authorities over the sale of natural resources to foreign buyers, many regions in the

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[40]For information about the Tumen project, see Mark Valencia, "The Tumen River Project: Problems and Prospects" (Unpublished paper, August 10, 1992); Lincoln Kaye, "Hinterland of Hope," *Far Eastern Economic Review*, January 16, 1992, 16-17; UNDP Press Release, "Tumen River Initiative Enters Pre-Feasibility Stage," October 6, 1992.

[41]Amos A. Jordan and Jane Khanna, "Economic Interdependence and Challenges to the Nation-State: The Emergence of Natural Economic Territories in the Asia-Pacific," *Journal of International Affairs* 48, no. 2 (Winter 1995): 448.

Russian Far East have sought to expand international cooperation in the forestry sector, which has been hard hit by the economic crisis. Resources for forest fire prevention and day-to-day management have dried up. Underpaid and understaffed, foresters are fighting a losing battle against common problems such as safeguarding the forests from harmful insects, a particular concern in the Far East, and preventing poaching.[42]

Every year several million acres of forest land in Russia burn because of fires started by people.[43] Sakha is one of the regions which faces significant damage from fires every year. In 1992, 305,000 hectares burned and in 1993, 131,000 hectares Amurskaya Oblast also has had a significant number of fires, with 215,000 hectares burning in 1992.[44] Many forestry experts cite forest fires as the number one threat facing forests, but foresters lack the aviation and ground equipment necessary to fight fires.[45] Aleksey Grigoriev, a forestry expert and environmentalist, has stated, for example, that the Bikin forests in Primorskiy Kray face an unusually high incidence of forest dieback, and, unless measures are taken to protect the forests, they may go up in smoke at any point, destroying a unique ecosystem.[46] Stanislav Sinitsin, head of Science and Research at the Russian Forest Service, has noted that forest fires in Siberia and the Russian Far East are particularly difficult to put out given the lack of roads, transportation, and low population density in these areas.[47]

In 1992, in the aftermath of the Soviet Union's collapse, timber processing in Russia decreased by 20 percent and overall wood exports fell by 11 percent.[48] Since then the Russian timber industry

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[42]Roza Budrina, "They Are Destroying the Forest—More Than Wood Chips Are Flying," *Rossiyskie vesti* (Russian News) (Moscow), May 4, 1993, 3.

[43]Lyubov' Latypova, "A Record Number of Fires Are Expected in the Far East," *Izvestiya*, April 16, 1993, 4; Carl Reidel, "Back to the Future in the Land of Genghis Khan," *American Forests*, May-June 1992, 22.

[44]For 1992 figures, see "National Report on the Condition of the Natural Environment," 21; for 1993 figures, see O. Andreeva, "White Book of Alarm," *Lesnaya gazeta*, November 29, 1994, 2.

[45]Interview with Valeriy Aleksandrovich Shubin, RSFSR Ministry of Forestry (now called Forest Service), by Konstantin Klimenko, editor-in-chief of *Ekologicheskaya gazeta* (Ecological News) (Moscow) 6, nos. 11-12 (1991), trans. in JPRS-TEN-92-008 (May 5, 1992): 75.

[46]Personal communication, December 1993; and interview with Aleksey Grigoriev in Soler-Sala, "Institutions and Trends," 123.

[47]Interview with Stanislav Sinitsin in Soler-Sala, "Institutions and Trends," 171.

[48]O. Borisov, "Disquieting Tendencies," *Lesnaya gazeta*, January 21, 1993, 1.

has continued to experience an economic downturn, symptomatic of the depressed state of the overall economy. In an effort to give a boost to the forestry sector, President Yeltsin signed a decree in December 1995 abolishing all export duties on timber products.

Because timber production is no longer under the control of the federal Forest Service, which is now only responsible for forest management and protection, the newly created private forestry interests are experiencing a severe shortage of capital for investment in processing technology and infrastructure.[49] As a consequence, they mainly supply raw logs, mostly for foreign markets, while local areas experience shortages of processed wood products. Key timber-producing areas like Khabarovskiy Kray have such low levels of timber utilization that they are forced to import logs from other areas.[50]

Although the economic crisis may have a dampening effect on logging activities, environmentalists are not rejoicing at the timber industry's economic decline. Many ecological problems are actually caused by inefficient and wasteful processing methods which the timber companies now lack the funds to correct. Because processed timber is in greater demand overseas and attracts a higher price, improved processing techniques would be beneficial both for the timber industry and the health of the forests.

According to a Russian government official, approximately 50 percent of all timber volume harvested in Russian forests is wasted during felling, processing, shipping, and transportation. Improvements in these areas would mean cutting fewer trees and reducing Russia's dependence on foreign processing.[51] Minister for Environmental Protection and Natural Resources Viktor Danilov-Danilyan has stated: "The most effective and economical means of protecting the environment is the rational and sustainable use of each of the resources."[52]

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[49]Leonid Zavarskiy, "Timber-merchants Discussed Their Own Future," *Kommersant* (Merchant) (Moscow), no. 44 (March 11, 1993); interview with Peter Voronkov, chief forestry economist at the All-Russian Scientific Research Institute of Silviculture and Forest Mechanization, October 1992, in Soler-Sala, "Institutions and Trends," 24.

[50]Barr, "Forest and Fishing Industries," 126.

[51]Interview with Aleksandr Yeremeyev, deputy chief of the Russian government's Department of Nature Use, Ecology, and Health Protection of the Population, December 11, 1992, in Soler-Sala, "Institutions and Trends," 118. On transportation problems, see P. Dubynin, "Let's Hope It Doesn't Rot," *Lesnaya gazeta*, April 27, 1993, 3.

[52]Viktor I. Danilov-Danilyan, "For the Protection of Nature—A United Policy," *Lesnaya gazeta*, April 13, 1993, 2.

New Legislation Regulating Forest Use and Protection

In an effort to enhance the protection of Russian forests, a new Forestry Law was passed in March 1993.[53] This law purports to introduce market elements into forest management; for example, Russian and foreign commercial loggers must be licensed by local authorities and pay fees for short- or long-term leases up to fifty years. The new law also specifically prohibits monopolistic practices and advocates equal access to forest resources, but preference is given to timber enterprises with a record of logging and processing in particular areas.[54]

Under the new law, timber companies are responsible for the environmental health of the forests they contract to use and may be fined for violations.[55] The new Forestry Law's limited reliance on market mechanisms, however, constrains its ability to set incentives for forest protection.[56] For example, timber companies remain unable to purchase forested land, and thus have little incentive to invest in regeneration, since they would not reap any of the benefits of replanting before their fifty-year lease expired. According to Andrey Laletin of the Krasnoyarsk Institute of Forests, given the central government's poor record in caring for forest resources, privatization would encourage sustainable use.[57] Looking back to the prerevolutionary period, however, Stanislav Sinitsin contends, on the other hand, that private ownership of forests would lead to abuses.[58] Aleksey Grigoriev has taken a middle position; he believes that some forests should be privately owned and some, like the Baikal watershed, should be set aside for federal protection.[59] Due to the grey areas in the Forestry Law, however, different forms of ownership

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[53]"Principles of the Forestry Law of the Russian Federation," *Rossiyskaya gazeta* (Russian Daily) (Moscow), April 17, 1993, 10-12. For an analysis of the development of the forestry law, see Julia Levin, "Russian Forest Laws: Scant Protection during Troubled Times," *Ecology Law Quarterly* 17 (1992): 712-14.

[54]*Russian Far East Update*, April 1993, 7.

[55]"Principles of the Forestry Law," 11. Enforcing the Forestry Law is likely to be difficult since it does not include criminal penalties or make officials personally liable. See Levin, "Russian Forest Laws," 713.

[56]Interview with People's Deputy Vladimir Ageevich Tikhonov, "The Favorites Again?" *Lesnaya gazeta*, February 11, 1993, 1; L. Bolodina, "The Law—Taiga, Who Is the Boss?" *Spasenie*, January 1993, 1.

[57]Interview with Andrey Laletin, in Soler-Sala, "Institutions and Trends," 77.

[58]Interview with Stanislav Sinitsin, ibid., 173.

[59]Interview with Aleksey Grigoriev, ibid., 127-28.

are likely to persist. Moreover, some forests, such as those on collective farms[60] as well as those managed by the ministries of Defense and the Interior, are not covered by the new law.

The law's inadequate delineation of the responsibilities of the federal, regional, and local authorities has created equally serious problems.[61] All three levels of government are supposed to manage the forests jointly, but local authorities are in charge of granting logging licenses while the federal and regional governments have no right to intervene. Local authorities also have the right to set the fines for violators of the Forestry Law. Given the dire state of the economy, cash-poor local governments may set unreasonably low fines to maintain logging activities or be easily bribed by developers.[62]

While the new Forestry Law applies in its entirety to foreign companies, the economic situation gives them an unfair advantage in certain areas. For example, while Article 30 specifically forbids monopolistic practices in forest use, it would be difficult for a local timber company to outbid a foreign company because of the low value of the ruble.[63]

The vast resources of Siberia and the Russian Far East and their great distance from the central government have led to pressures for autonomy since the early 1800s.[64] Since 1992, local authorities in Siberia and the Russian Far East have taken advantage of the center's loss of control over political and economic activities in the regions to demand a greater say in the management and use of their resources. Although regional authorities claim that they are best suited to manage their own resources, in Aleksey Yablokov's view they "appear not as guarantors of the preservation of nature but initiators of its destruction. The cause of such a situation is the . . . lack of a strong state

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[60]According to Yuriy Kukuev, one of the authors of the new Forestry Law, the agrarian lobby fought hard to maintain control over the forests located on collective farms. Interview in Soler-Sala, "Institutions and Trends," 104-5.

[61]For a discussion of this problem, see Yu. Kukuev, "New Law—New Anxieties," *Lesnaya gazeta*, May 15, 1993, 1; L. Mazurova, "Everyone Can Give Advice," ibid., January 26, 1993, 1. On the legal confusion, see the interview with Aleksey Yablokov, "In Rescuing We Are Rescued!" 61.

[62]Aleksey Grigoriev, "Russia's New Forestry Act," *Surviving Together* (Washington, D.C.), Summer 1993, 19-21.

[63]Interviews with two of the authors of the Forestry Law, Olga Krirodagova and Yuriy Kukuev, in Soler-Sala, "Institutions and Trends," 111; and Aleksey Grigoriev, "Critique of Proposed Basis for Russian Forestry Law," ibid., 234.

[64]"Panel on Siberia: Economic and Territorial Issues," *Soviet Geography* (Silver Spring, Maryland), June 1991, 368.

authority capable of organizing inexhaustible use of nature in the interests of the entire society."[65]

In an interview in *Lesnaya gazeta*, Valeriy Ṣhubin explained that current federal responsibilities in forest management include research, reforestation, and protection of forests from pests and fires.[66] Logging companies pay two types of taxes, one to the Forest Fund, which will support the federal activities mentioned above, and the other to the local government.[67] Some forestry experts are concerned, however, that local governments will not allocate sufficient funds for forest protection.[68]

According to Genadiy Alekseytsev, a forestry specialist on the presidential staff, there is strong disagreement between the Russian government's vision of forest management and the desire of local and regional authorities to assume greater control over forest resources. Local and regional governments think that the federal authorities should restrict their protection efforts and infrastructure maintenance.[69] This is a reaction to the previous system of federal management whereby the center both paid for forest protection and collected all the revenues from local forest use.[70] However, going to the other extreme through excessive devolution of control to the regions could adversely affect the resolution of problems with interregional implications, such as the privatization of forested land, forestry research, and protection networks.[71] As a consequence, some forestry specialists have argued in favor of greater autonomy for regional authorities as long as a certain amount of centralized control

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[65]Yablokov interview "In Rescuing We Are Rescued!" 61.

[66]Interview with Valeriy Shubin, "Russian Forests Have a Boss," *Lesnaya gazeta*, January 5, 1993, 1.

[67]Interview with Aleksey Kornienko, in Soler-Sala, "Institutions and Trends," 16.

[68]Interview with Vladimir Letyagin, Russian Forestry Project Institute, in Soler-Sala, "Institutions and Trends," 36; Yuriy Kukuev, Federal Forest Service, "It Is Necessary to Divide Federal Natural Resources," *Lesnaya gazeta*, April 28, 1994, 2.

[69]Interview with Genadiy Alekseytsev, in Soler-Sala, "Institutions and Trends," 10. For a view that supports this position, see Andrey Laletin interview, ibid., 78. Laletin argues that local governments can make more appropriate judgments over resource use and that the Forest Service should confine its activities to information-gathering, monitoring, and enforcement.

[70]Interview with Aleksandr Yeremeyev, in Soler-Sala, "Institutions and Trends," 117. Yeremeyev states that the current trend is to develop a system where local governments pay for asubstantial portion of forest protection and management activities, but reap the benefits from their area's forest resources. The federal government's main role is in forest protection enforcement and management policy.

[71]Interview with Yuriy Kukuev, in Soler-Sala, "Institutions and Trends," 111.

and funding is retained to ensure resource protection.[72]

Conflict over Development in Primorskiy Kray: The Hyundai Case

The unclear division of authority among the federal, regional, and district levels of government complicates development as well as environmental protection. For example, the South Korean conglomerate, Hyundai, one of the first foreign companies to invest in the forestry sector in the Russian Far East, was stymied in its attempt to expand operations westward from its original concession in the city of Svetlaya, Primorskiy Kray, to the Bikin watershed due to conflicting interests in the region. In 1991, Hyundai had entered into a joint venture with the Primorskiy State Timber Industry (Primorlesprom) which was granted a thirty-year concession to cut one million cubic meters of roundwood a year on 600,000 acres on the east side of the Sikhote-Alin mountain range near the city of Svetlaya. The work site aroused concern in the environmental community because this area of Primorskiy Kray contains old-growth forest, including protected species such as Korean pine, and overlaps with the northern range of the Amur tiger, an endangered species; logging has resulted in habitat loss for the Amur tiger and has contributed to the decline in their numbers to fewer than five hundred.[73] Although the joint venture was supposed to cut only dead or dying trees, it reportedly proceeded to clear the area.[74]

Despite concerns about the environmental impact of logging in this area of Primorskiy Kray, the joint venture went ahead with logging before the Primorskiy Kray and federal Russian environmental impact statements were carried out.[75] Eventually these statements were drafted, as required, and revealed negative assessments. Nevertheless, the logging continued with the support of local and regional

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[72]Ibid.

[73]See note 17 above.

[74]*Hokkaido shimbun*, November 8, 1992, in *RA Report* (Biannual report of the Center for Russia in Asia at the University of Hawaii, Manoa), January 1993, 85; David Gordon and Antony Scott, "The Russian Timber Rush," *Amicus* (Washington, D.C.), Fall 1992, 15; "Foreign Logging Threatens Siberian Tiger and Its Forests," *Surviving Together*, Spring 1992, 13; "Bikin Valley Forest Preservation Becomes International Issue," ibid., Fall/Winter 1992, 19.

[75]Interview with Aleksey Grigoriev, January 1993, in Soler-Sala, "Institutions and Trends," 124.

authorities, who viewed the joint venture as a source of revenue.[76] Since the venture exports raw logs to Japan and other countries, Primorskiy Kray could only expect to reap short-term profits from the venture, however.[77]

In the spring of 1992, Hyundai tried to expand its operations into Pozharskiy district, near the Bikin watershed, which was reserved for the native Udege people as a hunting ground. The Udeges, related to descendants of the Manchus, are hunters who have traditionally lived in the Sikhote-Alin mountains and along the coast of the Sea of Japan.[78] In an effort to protect the traditional homelands of the small peoples of the North, an April 1992 federal decree stipulated that these lands could not be developed without the consent of the resident indigenous people.[79] Although the Udeges and the local government in Pozharskiy district were opposed to logging in the Bikin valley, on July 21, 1992, then-governor of Primorskiy Kray Vladimir Kuznetsov gave Hyundai permission to move its operations there and log 500,000 cubic meters of timber annually.[80]

The Udeges, joined by another indigenous people living in the region, the Nanai, as well as the largest Russian environmental organization, the Socio-Ecological Union, protested against the governor's decision.[81] As a result of their efforts, the Primorskiy Kray Soviet passed a law overturning the governor's decision on September 2, 1992. This law elicited a protest from the joint venture, which continued to press its case for expanding logging activities. Later that month, the Primorskiy Kray court ruled that the Soviet had exceeded its powers in overturning the governor's order.[82] The Primorskiy

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[76]Levin, "Russian Forest Laws," 692; Gordon and Scott, "The Russian Timber Rush," 15.

[77]Aleksey Grigoriev interview in Soler-Sala, "Institutions and Trends," 123.

[78]James Forsyth, *A History of the Peoples of Siberia* (Cambridge: Cambridge University Press, 1992), 211. The 1989 census reported that there were 2,011 Udeges. See *Utro Rossii* (Russia's Morning) (Vladivostok), August 20, 1993, cited in *RA Report*, January 1994, 143.

[79]The decree also stipulates that the small numbers of Northern peoples have the right to conclude agreements and licenses for the use of renewable resources. Decree of the President of the Russian Federation, "On the Urgent Measures for the Protection of the Sites of Residence and Economic Activity of the Small Numbers of Northern Peoples," *Rossiyskie vesti*, April 24, 1992, 4.

[80]"Bikin Valley Forest Preservation," 19; "Russian Supreme Court Rules Against Hyundai Logging Operation," *Surviving Together*, Spring 1993, 32.

[81]The Nanai, like the Udege, are descendants of the Manchu. They live along the Amur River in neighboring Khabarovskiy Kray. See Forsyth, *A History of the Peoples of Siberia*, 9.

[82]"Russian Supreme Court Rules," 32.

Kray Soviet and the Udeges appealed to the Russian Federation Court, which also upheld the order. Finally they appealed to the Supreme Court of the Russian Federation.[83] On November 27, 1992, the Supreme Court ruled against Hyundai's bid to log in the Bikin valley and held that the Primorskiy Kray Soviet had the right to overturn the governor's decree granting joint venture logging rights in this area.[84]

Currently the Svetlaya joint venture cuts only 300,000 cubic meters of roundwood per year, a far cry from Hyundai's target—one million cubic meters. The proposed expansion of logging operations to the Bikin valley was intended to make the joint venture more profitable by expanding the yield; now there are reports that the joint venture may cease operations entirely in the near future. Primorskiy Kray officials, for their part, fear that the controversy over Bikin will put a brake on foreign investment in the region's timber industry.[85]

The Supreme Court ruling in favor of the Udeges has not solved the problem of conflicts of interest and overlapping forestry law responsibilities since the courts' decisions cannot create new laws or regulations.[86] In fact, a similar situation is developing in southern Khabarovskiy Kray and northern Primorskiy Kray, where the Udeges and environmentalists are opposing a proposal by Russian developers to build a new road connecting logging areas near Supkai, southeast of Khabarovsk, to a new port at the southern tip of the region, Denbi. The Udeges are against the building of the road because it would run through their territory. Environmentalists fear that the road would make pristine wooded areas in Upper Supkai accessible for logging for the first time.[87]

Prospects for Environmental Protection and Development

The lack of a regional strategy, coordinated by regional and

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[83]Seoul YONHAP in English, November 26, 1992, in JPRS-TEN-93-001 (January 3, 1993): 64.

[84]"Russian Supreme Court Rules," 32.

[85]*Russian Far East Update*, February 1993, 4; and *Hokkaido shimbun*, November 8, 1992, in *RA Report*, January 1993, 85.

[86]Tatiana Zaharchenko, "The Environmental Movement and Ecological Law in the Soviet Union: The Process of Transformation," *Ecology Law Quarterly* 19 (1994): 467.

[87]*Russian Far East Update*, April 1995, 11.

central authorities, has hampered the overall development of the Russian Far East. As a result, development is occurring piecemeal—driven by a particular sector in a specific region or an interest group in a locality. Sakhalin Oblast, for example, is vigorously modernizing its processing capabilities and courting customers for its wood products in Asia. Sakhalin's efforts were rewarded—the region managed to avoid the sharp drop in production figures experienced by the forestry industry in other areas of Russia.[88] Indeed, Pavel Minakir, director of the Institute of Economic Research in Khabarovsk, has argued that the development of processing capabilities for timber and fish products, as well as for mineral resources, is an area in which many regions of the Russian Far East and Northeast Asian states could expand cooperation.[89]

At least in the short term, however, Sakhalin, like many other areas in the Russian Far East, is selling its natural resources to pay for badly needed foreign processing technology. This is occurring on a national scale, as well. In June 1994, for example, U.S. Vice President Al Gore and Russian Prime Minister Viktor Chernomyrdin signed a Memorandum of Understanding regarding cooperation in forest product industries. The US$4 billion five-year agreement calls for the export of logs from Russia, including the taiga in the Russian Far East, and Russia's use of export earnings to purchase processing technology.[90] According to leading Russian environmental organizations, however, the implementation of this agreement could lead to the disappearance of the Ussuri taiga in ten to twenty years.[91]

In small communities such as Sikhote-Alin in Primorskiy Kray, however, smaller-scale development is proceeding, and emphasizes marketing renewable forest products, such as nuts and berries, instead of selling timber.[92] Environmental organizations in the Russian Far East are increasingly turning their attention to devising strategies for sustainable development, such as forest products industries and

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[88]Interview with Boris Masliy, director of Sakhalinlesprom, "Sakhalinlesprom: An Island of Relative Prosperity in a Marketized Ocean," *Lesnaya gazeta*, November 15, 1995, 1-2.

[89]Minakir, "The Economy of the Far East," 183-84.

[90]*The Taiga Trade*, 39.

[91]ITAR-TASS, "Ecology: They Are Leaving No Taiga for Russia," *Priamurskie vedemosti* (Khabarovsk), March 24, 1995, 2.

[92]Larry Evans, "Cultivating the Non-Timber Forest Industry," *Surviving Together*, Spring 1995, 15-16.

ecotourism. Their efforts have been supported by foreign assistance. The U.S. Agency for International Development, for example, recently launched a new program in sustainable forest management in Primorskiy Kray and Khabarovskiy Kray. For more than a year Canada and Russia have been cooperating to develop a model forest in Khabarovskiy Kray. Canada plans to invest US$3 billion over the next three years in the program, which will include the use of forest products and the organization of tourism.[93]

There are many active environmental organizations in the region which have links to international groups. These contacts provide Russian environmentalists with valuable information about environmental issues and can publicize conflicts over ecological concerns. Nonetheless, the Russian environmental movement has lost some of its focus since it functioned as an opposition movement in the late 1980s—its leaders are adjusting to participation in government at a time when environmental protection has declined in importance in public perceptions, relative to economic survival.[94] As an example, an electoral bloc called Green Russia, which advocated more environmental protection laws and additional state funding for preservation programs, including a forestry preservation program, fared poorly in the December 1995 parliamentary elections. Green Russia, which includes the Green Party, as well as the major Russian environmental organizations, i.e., the Socio-Ecological Union, the Green Cross, and the All-Russian Society for the Preservation of Nature, did not receive the requisite 5 percent of the popular vote and thus did not earn the right to representation in the State Duma as a party.

Many of the environmental problems plaguing the Russian Far East stem from structural causes, however, as its economy is based on resource extraction and its industrial sector is dominated by defense industries. As a consequence, solutions to these problems will be linked to long-term changes in the economy of the region, particularly the diversification of economic life through new approaches to land management, defense conversion, and the development of new industries. During this critical transition period in the region's economic restructuring, the environmental impact of new development

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[93]Valeriy Golovin, "A Model Forest—A Normal Forest," *Priamurskie vedemosti*, May 23, 1995, 1.

[94]Barbara Jancar-Webster, "Introduction," in *Environmental Action in Eastern Europe*, ed. Barbara Jancar-Webster (Armonk, N.Y.: M. E. Sharpe, 1993), 6-8.

strategies should be taken into account to preserve fragile resources as well as to ensure greater efficiency in their use. Given the lack of input from Moscow and the conflicts of interest that have arisen between the central government and regional authorities in the Russian Far East, it is up to the residents of this unique region to devise a strategy that will provide for their immediate needs without sacrificing the diverse natural resources which constitute their children's inheritance.