

Preface

The Russian Far East with the current population slightly more than 7 million people occupies a vast land (6,216,000 km²) of the northeastern part of the Eurasian Continent. Its eastern end is very close to Alaska, the fiftieth state of the United States. The narrow Bering Strait separates Russian Far East from Alaska. The national border lies between Big Diomedes Island (Russia) and Little Diomedes Island (U. S.), which are only a few kilometers away from each other. Its southern most end is touching to North Korea though only in a short stretch. Its island portions, i.e., Sakhalin island and Kurile archipelago are almost visibly close to Japan. The most of its lengthy southern rim is directly facing China with Amur River and one of its tributaries, i.e., Ussuri River being the national border. Its southwestern corner is very close to Mongolia. In the west, it is connected with East Siberian territories ; Chita oblast, Irkutsk oblast, and Evenki and Taymyr autonomous okrugs. (Oblast, krai and okrug are large administrative units in Russia Federation.) Its northern part belongs to the Arctic circle and faces the Arctic Ocean.

Arctic tundra covers the northern portion of this vast land. Its central portion is dominated by forest taiga. Large parts of the southern portion are the Amur and Ussuri River basins. The land is diverse not only in natural but in ethnological conditions. More than 25 ethnic groups live there with their own culture. Mainly remote and sparsely populated areas are rich in precious minerals, diamonds, gold, tin, and more.

From an administrative point of view, the Russian Far East consists of the following ten territories : Amur Oblast, Chukotka Autonomous Okrug, Jewish Autonomous Oblast, Kamchatka Oblast, Khabarovskiy Krai, Koryak Autonomous Okrug, Magadan Oblast, Primorskiy Krai, Sakha Republic (Yakutia), and Sakhalin Oblast.

Under the support of the Doshisha University Academic Frontier Research Project (1999–2003 academic years), we visited some cities, towns, and villages in this region every summer in the period of 2001–2003 to find how its economy and environment have been changing since the Soviet collapse in 1991. This is the report of our observations, interviews, and literature readings on this region, followed by our own analysis. We also made field trips to East Siberia in the period of 2000–2002 under the support of the same project as above. If we think that it is important for us to compare the situation of the Far East with the one of East Siberia, we describe our observations in the latter as well.

This report is organized as follows. Chapter 1 is devoted to our understanding of gen-

eral situation of the Russian Far East. Chapter 2 is a brief history of Sakhalin and its current condition. Chapter 3 is the travel diary of our research trip to the Lower Amur, Magadan and Kamchatska. Chapter 4 is devoted to describe the current situation of energy sector in the Far East with some mention of East Siberia. Chapter 5 is the analysis of the wood industrial sector. Chapter 6 presents the current status and future perspective of ecotourism in Kamchatka in comparison with the Baikal region (mainly Republic of Buryatia and Irkutsk oblast). At the end, we present our summary and conclusion. Statistical Appendix serves the readers to obtain a general overview of the Russian Far East and its ten territories.

All photographs in this report are supplied by Haruna Murota (currently a student of Ryerson University, Toronto, Canada) who participated in several of our research trips in Russia as our assistant in charge of photo documentation. Maps are made by Mr. Sergei Sofronov, Moscow and Mrs. Chikoto Haruki-Sekiya, Tokyo.

We greatly owe to the Doshisha University Academic Frontier Research Project (1999–2003) for its financial support. Deep thanks are also due to all of the Russian researchers and company personals who kindly spent time with us for our interviews, which sometimes lasted for long hours. We are thankful to Ms. Yuka Kinugawa of the Doshisha University Research Center for World Wide Business (RCWOB), who gave us a laborious editorial assistance. Parts of the writings for this report by Murota were made possible during his stay at the Beijer Institute (Director : Dr. Karl-Gölan Mäler), the Royal Swedish Academy of Sciences, Stockholm, Sweden, on leave from Doshisha University (October 2003 – September 2004). He is very grateful for an office space and computer facilities of the institute.

Responsibilities of remaining errors, however, solely belong to the authors.

February 2004

T. H., Moscow
and
T. M., Stockholm

Chapter 1

Overview of the Russian Far East : History and Present

1. 0 Historical Outlook in Brief

Immensely vast space, which is now called the Russian Far East (RFE), was the land where many ethnic groups of people were making livelihood in tribal forms. They were mostly the forest people (Thiel, 1957). The Evenki and the Even, both were Tungussic peoples, lived widely if sparsely along the Lena River, its tributaries and other rivers. Other Tungussic peoples such as the Nanay, the Udegei, the Ul'ch, the Negidal and Orok inhabited mostly in the Amur River basin. In the Lower Amur, the Nivkhi (Gilyak) were active, and in Sakhalin they also dwelled along with the Ainu.

The RFE was, and is also the land of Paleo-Asiatic peoples such as the Koryak, the Itelmen (Kamchadals), the Chukot and the Chuvan. They were, and are mostly in the eastern part of the RFE including Kamchatka peninsular. In the eastern end of the RFE, the Aleut from the present day Alaska and nearby Aleutian islands were fishing and hunting marine mammals. The Yakut (or Sakhan) belonging to a northern Turkic linguistic group were in western part of RFE. The Tatars of a northern Turkic group were also there.

Their main activities for livelihood were fishing, hunting, gathering and intertribal commerce. But some people were, and still are, nomads engaged in reindeer herding. Since the densely wooded area of the RFE was cut through by almost countless many rivers and lakes, waterways were their main highways. In their south, Chinese empires rose and fell. Dynasties in China liked to put the northern peoples under their influences and developed the system of tribute trade with them.

Russians began to approach the area to assimilate it in the late 16th century. Cossacks first built forts and settlements. Russian fur traders followed them soon afterward. In the early 19th century, the Japanese authorities got alert to such Russian moves toward the Pacific Rim and began to send investigation teams to Sakhalin. In the middle of the 19th century, Russians took advantage of the once prosperous but then weakened Chinese empire of the Qing dynasty to occupy all of the territory north of the Amur River (Heilongjiang in Chinese). In 1860, they occupied the land east of the Ussuri River (a right hand tributary of the Amur River). In 1875 the Russians took Sakhalin, which was formerly under joint Russo-Japanese control, from Japan in exchange for the Kuril islands. With completion of the Trans-Siberian Railway, Russian settlement of the area accelerated. As a result of Rus-

sia's defeat in the Russo-Japanese War (1904–05), Japan was awarded the southern Sakhalin while Russia retained the rest of the island under the Treaty of Portsmouth (1905).

After the October Revolution in 1917, “Japanese forces landed at Vladivostok and occupied large parts of the Russian territory. They were joined by a U. S., British, and French expeditionary force, which arrived in the apparent hope of preventing the Germans from using the area's resources during World War I. The interventionist forces gave considerable support to the anti-Bolshevik units of Admiral Kolchak, which had occupied most of the region. By 1920, Bolshevik units had defeated Kolchak's troops, and the Allies withdrew. However, the Japanese remained, and in 1920 the Far Eastern Republic was formed as a buffer state between Japan and the Soviet Union. In 1922, the Japanese forces withdrew, the republic was dissolved, and the area was incorporated into the USSR as a region” (Web site : History of Far East).

In the period of 1926 to 1938 this area was called the Far Eastern Territory and it was renamed the Soviet Far East. From the 1930s on, it became a center for the development of rich natural resources by forced labors of political dissents and others. The entire area was closed to the eyes of foreign countries. Immediately after Japan's defeat in World War II, the Soviet Union acquired the southern half of Sakhalin and the Kuril Islands.

The Japanese soldiers, who were caught by the Soviet troops in the northeastern China and Sakhalin, were sent to many camps in East Siberia and the RFE. Then, they were forced to contribute their labors to various kinds of construction works there. As long as the territory question was concerned, the Japanese government “subsequently disputed Soviet rights to the southern four islands in the Kuril chain. In 1969, Sino-Soviet clashes erupted along the Amur and Ussuri frontiers. Negotiations bogged down, and both sides re-inforced their forces along the long border” (Web site as above).

“Glasnost and perestroika brought an opening of the Soviet Far East : Vladivostok was allowed to accept foreign ships, and air flights began between Alaska and various cities. The dissolution of the USSR brought renewed struggle for autonomy, particularly among the Yakut and Chukchi peoples, and the area also lost population due to Russian outmigration. The disagreement over the fate of the Kuriles prevented Japanese investment in the region, and in the 1990s there was friction between local officials and foreign investors. Since the late 1990s, however, trade with China and Chinese investment in the region, mainly in the south, has become increasingly important” (Web site as above).

Because of its proximity to the Pacific Rim countries including USA, the present day RFE region had been expected to be one of the military forefronts of the Soviet Union. The

Cold War throughout the 1950s and 1960s and the controversy with China after 1960 led the Soviet authorities expand the Pacific Fleet including ballistic missile submarines. Many of the missile facilities “were stationed near Petropavlovsk and operated in the Sea of Okhotsk, although a smaller number were also stationed near Pacific Fleet headquarters in Vladivostok as well to ply the Sea of Japan and more southerly waters. In 1989, the Soviet Pacific Fleet peaked at a strength of 126 operational submarines, including 25 SSBNs, 22 SSGNs, and 30 SSNs, a total of 77 nuclear submarines” (Web site : Pacific Fleet).

Environmental problems are now threatening because “facilities that deal with the liquid and solid radioactive waste and spent fuel generated by these vessels are inadequate to the task. . . .The United States and Japan have provided dismantlement and liquid waste filtration equipment to the Zvezda facility in Bolshoy Kamen, Primorye, to speed the dismantlement of decommissioned nuclear submarines and the processing of nuclear waste” (Web site as above). Their effectiveness, however, is still in doubt (Burns, 2002, pp. 284–286). Pollution not only by radioactive wastes but toxic chemical are feared in the northern Sea of Japan.

Back to the everyday life of people, air traffic is relatively well developed in the Russian Far East, obviously because of the vastness of the land and the distant separation of cities and towns from each other. At the same time, the significance of railway traffic remain the same as in the 20th century. The Trans-Siberian Railway connects Vladivostok with Moscow all the way through the southern portion of the RFE (Details are in Richmond and Vorhees, 2002). In the north of this century-old trunk railway, the Baikal-Amur Railway (BAM) extends from Sovetskaya Gavan, port town in Khabarovsk krai facing the Mamiya/Tartar Strait to Tayshet, a city of Irkutsk oblast, East Siberia which is the junction with the Trans-Siberian (Details are in Globe Trotter, 2003).

River transportation is also important especially for cities, towns and villages along the Amur River. Many roads are developed in the southern part of the Russian Far East. The more one goes toward north, the less convenient the road transportation becomes. The Lena River serves the people in Sakha Republic both as a waterway when it is not frozen and as an icy road when thickly frozen.

In what follows, we present a brief introduction of each of the ten administrative territories of the Russian Far East in an alphabetical order.

1.1 Amur Oblast — Land of Endless Taiga with China as a Southern Neighbor

This oblast of 363,700 km² stretches from the Stanovoy mountain range bordering the

Sakha Republic in the north to the Amur River in the south. To the west it borders East Siberian territories, and to the east Khabarovsk Krai and Jewish Autonomous Oblast.

The Zeya River begins in the Stanovoy mountains in the northeast of this oblast. “The middle reaches of this great river were dammed to create the huge Zeysky Reservoir, which sprawls over 2,500 km² between the Stanovoy mountains and a southern parallel range running across the center of the Oblast. The low lands between these two mountain ranges make up the Upper Zeysky Plain, which is primarily marshland with larch and pine forests. South of the second ridge is the vast Amur River plain which covers up to 40% of the region” (Web site : Ecology/Environment of Amur Oblast).

“The economy of Amur oblast is diversified. The main branches are power generation, non-ferrous metallurgy, food, timber and timber processing industries. The power generation is concentrated mainly in four stations : the Zeyskaya and Bureyskaya hydroelectric power stations, the Raichikhinskaya state rayon power station and the Blagoveshchenskaya heat and electric power station.” (Bilingual Guide Book, 2001)

“The mineral resources of the oblast are unique : numerous deposits and ore-bearing sites of gold, ferrum, titanium, tungsten, molybdenum, mercury, antimony, lead, zinc, copper, platinum, rare-earth elements, brown and mineral coal, black lead, talcum, apatites, phosphorites, natural cement, precious stones, mineral and thermal waters, and many other minerals are found here. A greater part of the located deposits is in the immediate proximity to the major transport arteries and foremost to the Baikal-Amur Railway” (Bilingual Guide Book, 2001).

Since the beginning of oblast, it has developed a most important agricultural area. “Summer wheat and oats growing became the main agricultural branch. Despite of the economic crisis, the agricultural sector “annually accounts for over a fourth of the gross oblast’ product” (Bilingual Guide Book). Summer wheat, oats and soy-bean are the main products.

In the transportation sectors, the roles of Trans-Siberian and Baikal-Amur Railways are significant. These railway and their extensions undertake the bulk of all cargo (up to 70%). “The oblast’s motor roads are over 16,000 km long, including 609 km of federal status roads. . . .The inbound waterways exceed 2,100 km and carry over 500,000 tones cargo and thousands of passengers annually. Four ports are operating in the oblast : Blagoveshchensk and Poyarkovsk on the Amur River, and Zeyskiy and Svobodniy on the Zeya River” (Bilingual Guide Book, 2001).

Among all administrative territories in Russia, this oblast has the longest border with China. From such a location, the fact arises that “the share of China in the oblast’s trade

turnover today is almost 80%. At present the program ‘Economic Cooperation Strategy of the Amur Oblast with the CPR Subjects’ adopted by the oblast administration is under way. This program sets it a target to expand the foreign trade and other linkages with China” (Bilingual Guide Book, 2001). Construction of a bridge across the Amur River connecting the towns of Blagoveshchensk and Heihe (黒河) in China is on the agenda.

The population of this oblast : 1,058,000 in 1989 slightly went down to 982,200 in 2001. The oblast’s capital is Blagoveshchensk. Its population is 220,100 as of 2001. Other big cities include Belogorsk (population 73,700), Tynda (70,000) and Svobodny (68,800). Tynda is important in the sense that “the BAM construction company’ headquarters are here, and it’s from Tynda that the as-yet-unfinished AyaM (Amur-Yakutskaya Magistral) railway will extend toward Yakutsk” (Richmond et al., 2003, p. 591).

1.2 Chukotka Autonomous Okrug – Land under a New Governor’s Promise (?)

The Chukotka Autonomous Okrug (CAO) of 737,700 km² locates in the northeastern corner of the Russian Federation. It faces the Arctic Ocean in the north and Bering Sea in the southeast. This okrug had been one of the least popular areas in Russia. But it suddenly became a worldly known, well publicized area with the name of its new governor, Roman Abramovich, who controls the Siberian Oil Company (Sibneft).

In terms of its ecological conditions, the land of CAO is “dominated by tundra interspersed with low mountains, with some areas of taiga in the south and west. Wildlife that can be found there includes caribou (this in addition to the domestic reindeer that are herded), wolves, bears (grizzly bear and polar bear), Arctic fox, walrus, seals, whales, cranes, and a variety of Arctic birds” (Web site : CAO).

From a viewpoint of natural resources, the CAO has the second largest reserves of gold and tungsten in Russia and significant reserves of coal, oil, natural gas and tin ores. It is also rich in fish stocks along its very long coastlines.

The land of the present day CAO, which originally was the homes to the native peoples such as Chukchi, Chuvan, Siberian Yupik, and Aleut, was dominated by the Russian Empire in the early 17th century. American traders too became active there until the Cold War closed the national border between Soviet Union and USA. In the Soviet era, many non-natives (Russians, Ukrainians, and many other nationalities) migrated to Chukotka. This inflow of non-natives continued to such an extent that the native population was reduced to less than 10% of the total toward the end of the 1980s. The entire population of Chukotka rose to about 160,000 by 1989.

The reason why so many non-natives came to work in the land of harsh climate was simply because they could earn much higher wages than they could do back in the warmer zones of Soviet Union under the government subsidies to this strategically important territory close to Alaska. In Chukotka, they could work in construction and mining sectors and service sectors such as administration, teaching, and military works.

But the Soviet Union collapsed. “It is no longer profitable to live and work there, and life is harder in the North (and seems especially so if you are not a native of the area), so many people are now abandoning the region — 5180 people left in 2000 alone. The population has dropped by more than half since 1989 — the official records show 75,300 people registered as residents in Chukotka as of January 2001, but only 68,908 were physically present.” (Web site as above).

It is noticeable, however that “other people are moving in to Chukotka — 1,792 people arrived in Chukotka in 2000, and these tend to be miners, entrepreneurs, bureaucrats. While most of the population — and especially the people in the rural areas (who are predominantly native) — are struggling to get by or falling into abject poverty, there are signs of wealth being flashed in Chukotka’s cities” (Web site as above). This is related to a prospect of oil and natural gas fields development ; both onshore and offshore.

In terms of per capita GDP, the CAO belongs to the lowest group in Russian Federation. Chukotkans then wanted a change, and elected Roman Abramovich, a superstar in the oil businesses in Russia to the position of the Governor in January 2001. “He is committed to strengthening the region’s economy, infrastructure, and delivery of education, health, and other services. The new Chukotka administration is seeking Alaska’s collaboration in effecting change in the region. The governor is pursuing a total policy reorientation featuring openness, transparency, and the rule of law, in which economic and cultural relations with Alaska and Alaska’s economic and business models would play a major role in Chukotka’s future.” (Web site : CAO Now)

The CAO has a nuclear power station in Bilibino built in 1973. Since it is going to be out of service in 2007, a plan has been made to replace it by floating nuclear reactors on a steel barge for electricity generation and sea water desalination. But it has been receiving criticisms of environmentalists both inside and outside of Russia.

The capital of CAO is Anadir, a city of 12,000 people (in 2001) at the mouth of Anadir River. The second largest city is Pevek which faces the Arctic Ocean. While the potentials for tourism, especially ecotourism are quite high, infrastructure is underdeveloped for its development (Web site : CAO Overview, 2004). The CAO was formerly a part of Ma-

gadan Oblast, but obtained and an administrative independence in 1992.

1.3 Jewish Autonomous Oblast — Land of 20th Century Settlements in Plains and Hills

Jewish Autonomous Oblast (JAO) is the smallest oblast (36,000 km²) among the ten administrative territories of the RFE. Occupying the southern part of the RFE, it is bounded by Amur oblast and Khabarovsk krai. It borders with China across the middle stream of the Amur River. While the northeastern part of the oblast is covered by forested low hills, most of the oblast's area is swampy plains.

The JAO was opened to settlement in 1927. The policy behind it was that “the Soviet authorities conceived the idea of a homeland for Jews in the sensitive border region of the far east. Some 43,000 Jews, mainly from Belarus and Ukraine but also from the US, Argentina and even Palestine, made the trek. The harshness of the land and climate (temperatures can drop as low as -40°C here) meant only a third stayed. Despite being proclaimed the Jewish Autonomous Region in 1934, the anti-Semitism and prosecutions of later Soviet years killed off the project. All Jewish institutions in the region, including the schools and synagogue, were shut down and the use of Hebrew was banned. Since 1991, and the establishment of diplomatic ties between Russia and Israel, there has been a further outpouring of Jews.” (Richmond et al., 2003, p. 589)

In the JAO, relatively fertile soil has been utilized to develop agriculture along the Amur River. Timber processing constitutes an important industry along the railroads. “Birobijanskaya Furniture Making Factory Public JSC is steadily increasing output, and improves the design and production quality. The joint Russian-Chinese company Lesnye Resursy (Timber Resources) deals in logging and timber processing. The new technological equipment has been installed and the production volumes will increase, there are plans for deeper processing of timber and for manufacturing lumber and parquet flooring.” (Bilingual Guide Book, 2001)

Many mineral deposits and ore-bearing sites are known : “in the immediate proximity to the Trans-Siberian ferrum fields are located (the main of them being the Kimkasnoye, the Sutarskoye, the Kostenjginskoye field) with the commercial reserves exceeding 700 million tons and the inferred reserves estimated at 2 billion tons. . . .The south-western and eastern parts of the Khingansky ore body contain about 20 manganese deposits, this mineral being a constituent of almost all grades of cast iron and steel, manganese bronze, brass and other alloys also used in the electrical engineering, chemical and ceramic industries. The to-

tal reserves are up to 13.2 million tons” (Bilingual Guide Book, 2001). The JAO is also rich in limestone and brown coal. Tin is mined at Khingansk. Khinganskoye Olovo (Khinganskoye Tin) Public JSC has been playing a central role in its metallurgy” (Bilingual Guide Book, 2001).

Electric engineering, metallurgy, mechanical engineering and light industries are relatively well developed in the JAO.

The population of oblast ; 216,000 in 1989 dropped to 194,600 in 2001, out of which only 4.2% are Jews. The capital of the oblast is Birobidzan, the city (population 78,000 in 2001) along the Bira and Bidzan Rivers both of which are the tributaries of the Amur.

1.4 Kamchatka Oblast – Wilderness Land of Ice and Fire Cohabitation

Kamchatka oblast (472,300 km²) occupies the southern half of Kamchatka peninsula of 1,250 km long. It lies between Bering Sea to the east and the Sea of Okhotsk to the west. It also includes Komandorsky Islands (Bering Island and Medny Island) in Bering Sea.

The central valley and the Kamchatka River are sandwiched by large volcanic ranges, containing around 160 volcanoes, 29 of them still active. The highest is Klyuchevskaya Volcano (4575 m). The most striking and recognizable for visitors are the three volcanoes seen from the city of Petropavlovsk-Kamchatsky : Koryaksky, Avachinsky, and Kozelsky. In the central part of the peninsula is found the Valley of Geysers, which is the worldly attraction to tourists and scientists.

“Fish, timber, hunting, land, water, recreational opportunities, minerals, construction and energy materials are among the oblast resources. The waters around Kamchatka belong to most productive fishery zones of the World Ocean and the fish resources are a backbone of the oblast economy. 2.5–3 million tones biological resources or a half of the total marine resources of the Russian Federation belong to self-sustaining natural resources.

At least 400 various fish species are found in the Bering Sea and the Sea of Okhotsk washing Kamchatka. Many of these are commercial : pollock, herrings, cod, navaga, flounder, halibut, bass, greenling, smelt, goby, capelin, grenadier and all types of Pacific salmon – humpback (pink) salmon, blueback salmon, silver (coho) salmon, chum salmon, chinook (king) salmon. The sublittoral part of the coastal waters swarm with bottom fauna and flora many species of which are commercial too. Of particular importance is Kamchatka (king) crab which became a commercial fishing item back in 1914. At present its large colonies are left only close to western Kamchatka.”

“Among common for the peninsular minerals are explored and proven reserves of min-

eral coal, peat, natural gas, gold, platinum, silver, copper and nickel ores with cobalt, mercury, tin, sulphur, intaglio, and semi-precious stones, various construction materials, thermal and mineral waters, hydro resources” (Bilingual Guide Book, 2001). Resources unique to this volcanic oblast are the deposits of volcanic slag and pumicite.

Most of the inhabitants live in the regional capital, Petropavlovsk-Kamchatky. The main employment sectors are fishing, forestry, tourism, and the military service. Among them tourism (domestic and international as well) is a growing industry.

Kamchatka oblast is the beautiful land of ice and fire. But one cannot forget that “the Rybachiy Nuclear Submarine Base exists in the southern edge of the Krasheninnikova peninsula, across Krasheninnikova Bay from Vilyuchinsk, near Petropavlovsk. Nuclear-powered submarines have operated out of Rybachiy base since the mid-1960s. By the late 1980s, Rybachiy had become Russia’s largest nuclear submarine facility, serving as the home port to 15 Soviet SSBNs” (Web site : Russia’ Military).

The population of this oblast ; 466,000 in 1989 dropped to 351,700 in 2001. The capital of the oblast is Petropavlovsk-Kamchatky (population 194,000 in 2001. Elizovo (36,400) and Viluchinsk (33,200). About 80% of the total population are Russians while Ukairinians, Koryaks, and others occupy 71.4%, 1.5%, and 8.4%, respectively in 2001.

1. 5 Khabarovskiy Krai — Spacious Land of Amur River Basin and Deep Mountains

The Khabarovsk krai is located in the center of the Russian Far East. At a first glance, meandering, wide flows of the Amur River and associated water surfaces predominates a vastly flat scenery of this large krai of 788,600 km². However, one will soon realize that “mountains and plateaus from 500 m up to 2,500 m high occupy three fourths of the krai’s area” (Web site : Khabarovsk Krai 1).

History of Khabarovsk krai has been closely connected with the one of the city of Khabarovsk, and is summarized in Richmond et al. (2003) as : “Khabarovsk was founded in 1858 as a military post by eastern Siberia’s governor general, Count Nikolay Muravyov, during his campaign to take the Amur back from the Manchus. It was named after the man who got the Russians into trouble with the Manchus in the first place, 17th century Russian explorer Yerofy Khabarov. Khabarovsk remained a garrison, a fur trading post and an Amur River landing until the Trans-Siberian Railway arrived from Vladivostok in 1897. During the civil war, it was occupied by Japanese troops for most of 1920. The Bolshevik victory in the Far East was at Volochaevka, 45 km to the west” (Richmond et al, 2003, pp.

580–582).

The largest plain space of the krai, the marshy Sredne-Amur Plain, stretches on both sides of the Amur River. Being washed by the Sea of Okhotsk and the Sea of Japan, the krai has the coastline of 3390 km long. On the coast of the Mamiya/Tatar Strait, “there are water areas convenient for the construction of ports, such as the Chikhachev Gulf and Vanino Bay and especially the unique complex of deep, sheltered bays that form the Gulf of Sovetskaya Gavan. This gulf and the neighboring Vanino Bay are accessible for vessels during the winter period” (Web site : Khabarovsk Krai 1).

“Over 120 thousand small and large rivers, 55 thousand lakes are found in the krai. The freshwater reservoirs are home to over one hundred fish species, among them Amur sturgeon, Great Siberian sturgeon, elopichthys, whitefish, white and black carp, silver carp, Hucho, Siberian salmonid fish, grayling, wild carp, and crucian. The rivers flowing into the Sea of Japan are migration ways for salmon. In the Lower Amur one finds dogfish and marsoon. The Khabarovskiy krai is the largest commercial salmon resource in Russia” (Bilingual Guide Book, 2001).

Over 48.4 million hectares of land is covered by forests in the krai, out of which almost 90% of them are commercially used.

In addition of the immense wealth of forest, water, and biological resources, Khabarovskiy krai has enormous amounts of mineral resources. The priority of development has been given to placer and ore gold.

“The commercial reserves of hard coal exceed one billion tons, the inferred reserves of coking coal are calculated at four billion tons. Brown coal is found in the Sredne-Amurskiy basin with the forecasted reserves of seven billion tons. Good prospects open up for ore copper and nickel production. About 20 ore-bearing sites are registered in the Jugdjur range. There are seven larger tin-bearing fields. Titanium-containing complex ore reserves should also be mentioned. Japanese companies show great interest in molybdenum in the Okhotskiy and the Verkhne-Bureinskiy rayons. The larger world-level Algominskoye deposit of zirconium was located in the Ayano-Mayskiy rayon” (Bilingual Guide Book, 2001).

The manufacturing industry predominates the krai’s economy. The main sectors of the industry are the ferrous and non-ferrous metallurgy, mechanical engineering, metal working, shipbuilding, ship-repair, oil refining, mining, chemical industry, logging, timber-processing, and food industry. Based on the highly developed mechanical engineering and metal working sectors, aircraft manufacturing and shipbuilding stand.

“A recognized leader of Russian aircraft manufacturing is Komsomolsk-na-Amure Aircraft Production Association. Thousands of different purpose military aircrafts including the modern fighter Su-27 have been produced by the plant for almost 70 years of its existence” (Bilingual Guide Book, 2001).

The same source tells : “Timber and wood-working industries are also important in the krai’s economy. They constitute 8–10% in overall production of the krai. The krai’s fisheries are undertaken by 78 companies in harvesting and processing of fish and sea food, including 27 fishery farms, two marine fishing ports, 49 joint-stock companies. The fishing fleet has larger and medium-capacity vessels, ocean-going seiners, smaller capacity coastal seiners. About 6% of the gross product is with agriculture” (Bilingual Guide Book, 2001).

Aviation is an important industry in the krai. While there are three aviation companies, the largest is the State Unitary Company of Dalavia with the airport having a modern international terminal and an old domestic terminal in Khabarovsk. Dalavia operates regular flights to many Russian and CIS cities and abroad.

“Amur River Shipping Company Public JSC still remains a larger transport company in Russia with the fleet of 300 vessels. They carry cargo not only to the river towns and settlements but also to northern Sakhalin, the Okhotsk Sea coast. Such well-known Japanese companies as Mitsubishi and Marubeni are investing in the Amur River Shipping Company and shipping companies of the Republic of Korea and China are its close partners” (Bilingual Guide Book, 2001).

Marine transport is supported by the ports of Vanino, Sovetskaya Gavan, Nikolaevsk-na-Amure, and De-Kastri. With the collapse of Soviet Union, Russia lost access to over a half of marine ports which had been accessible before. This rather gives a favorable condition to these ports in the sense that “the beneficial transport and geographical location of the Russian Far East can be used in shipments of mineral coal, ferrous and nonferrous metals, timber production and mineral fertilizers to the Asian Pacific Rim markets” (Bilingual Guide Book, 2001).

“Almost the whole area of Khabarovsk krai is occupied with lands bearing biological products. The most intensively used among them are agricultural lands, the total area of which is 695,500 hectares (0.9% of the krai land reserves)” (Web site : Khabarovsk Krai 2). Over 20 million hectares (26% of the whole area of the krai) are used for deer pastures.

While hydroelectric power potential of the rivers is great, their utilization is limited in many cases since many of the rivers are reserved for salmon spawning. This is good from



MAP 1. Overview of Russian Far East

an environmental point of view.

The population of this krai has been decreasing as other territories in Russian Far East. But the rate of decrease is not high compared with others. While it was 1,609,000 in 1989, it is 1,485,800 as of 2001. Needless to mention, the capital of the krai is Khabarovsk of 600,500 people (in 2001). The second biggest city is Komsomolsk-na-Amure of 286,700 people (in 2001). The demographic situation is characterized by the continued outflow of the population and a somewhat slowed-down but still registered mortality level over birth rate. The city of Khabarovsk obtained the status of the Far Eastern Federal Okrug Center in May 2000.

1.6 Koryak Autonomous Okrug — Hidden Stripe between the Two Seas

Koryak Autonomous Okrug (KAO) of 301,500 km² in area occupies the northern and north-eastern parts of the Kamchatka peninsula and the southern end of the Koryak range on the mainland. It is sandwiched by the Sea of Okhotsk and Bering Sea.

“The rugged mountainous relief and the severe dank and cold climate allow only tundra vegetation or sparse birch forests, below the cold desert mountains. There is no urban

settlement, the administrative center being the village of Palana on the west coast. Some coal is mined and timber is exploited, but economically still more important are fishing on the coast (especially for crabs), fur hunting and reindeer breeding.” (Web site : KAO)

“The orkug is inhabited by several indigenous peoples : the Itelmen (Kamchadal) a mainly settled people, living from fishing, hunting and gathering, the Chukchi and Evens. The Koryak people, after whom the autonomous okrug was named, account for 16.45% of the okrug’s population (the 1989 census numbers 8900 Koryaks, 6572 of whom live in the okrug). . . . Originally, and partly still nowadays, the Inland Koryak lived as nomadic reindeer herdsman, whereas the Coastal Koryak fished and hunted sea mammals. The Koryak, though rapidly declining in number, have partly retained their traditional culture, animistic beliefs, and egalitarian social structure” (Web site : KAO).

In 1996 the KAO called nationwide media attention when Valentina Bronevichi, who had been a chairperson of a local executive committee, was elected to the seat of a Governor. She was the first female governor in Russia. After serving four years, however, she failed to be reelected in 2000. Vladimir Loginov, the president of Koryakgeoldbycha geological prospecting and mining company won the competition.

The population of the okrug ; 39,000 in 1989 dropped to 28,500 in 2001. The capital of the okrug is Palana, a town of 4,100 people (in 2001).

1.7 Magadan Oblast — Sorrowful Land of Gold Seeking a Different Future

Magadan Oblast of 461,400 km² in area is located in the northeast of the Sea of Okhotsk. It borders Koryak Autonomous Okrug in the east, Chukotka Autonomous Okrug in the northeast, Sakha Republic in the northwest, and Khabarovskiy Krai in the west. It is mostly covered by mountains.

While relatively small rivers in the southern part of this oblast empty into the Sea of Okhotsk, bigger and longer rivers including Kolyma River flow down through the northern mountains into Sakha Republic, and finally empty into the Arctic Ocean. “Apart from swampy taiga along the coastline, most of the rugged mountainous area is covered by tundra on permafrost soil. Economically, apart from some fishing to the south, the most important industry is mining, especially of gold and other non-ferrous metals, mainly around the upper reaches of the Kolyma River. Of the indigenous peoples, traditionally living on reindeer breeding, most numerous are the Even (Lamut), who belong to the widespread Manchu-Tungus language family” (Web site : Magadan 1).

Early Russian explorers came to the area of present day Magadan oblast in the late

1600's in search of furs. Afterward, the area turned into a support base for the exploration of minerals. It became the center of the Gulag Archipelago described by such worldly writers as Solzhenitsyn and Ginsburg. "Exiled politicians and criminals were sent by Trans Siberian Express windowless cars and transferred by barge to Magadan. They built the famous Kolyma Highway, the road reaching from the gold mines to Yakutia. More than a million people who were declared enemies of the state died in Magadan camps" (Web site : Magadan 2). The statue called 'Mask of Sorrow' on a hill near the city of Magadan now symbolizes such a painful history.

"The oblast is rich in ferrum, complex metals, tin, tungsten, copper, molybdenum, brown and mineral coal. Rather impressive are the estimates of the ferrous and nonferrous metals which inferred reserves reach US\$145 million. . . .The Kolymsky gold refinery with the capacity of 40–50 tons refined gold «9999» grade in ingots and with 120–150 tons silver «9995» grade was built in 1998. The ingots answer world top requirements and the Russian standards. This production is being purchased by commercial banks, and it replenishes the gold reserves of the Bank of Russia and the State Depository of Russia" (Bilingual Guide Book, 2001). In the field of explosives for mining operations, Kolymavzry-Vprom Public JSC has been the leader.

Commercial prospects also are told of new bedrock gold and silver deposits, placer gold reserves, and copper, molybdenum, tin, and tungsten deposits. The copper-molybdenum commercial ore body called «Lora» is inferred to have reserves of 850 million tons ore.

Offshore oil and gas fields have explored too. According to Bilingual Guide Book (2001), the total recoverable reserves in northern Sea of Okhotsk offshore fields are for 1.4–2.5 billion tons oil, and 2.7–4.5 trillion m³ gas-condensate. At present the preparatory work for an open international tender for the exploration, survey and production of shelf oil is ongoing.

The northern part of the Sea of Okhotsk water area washing the oblast's shores is close to 600 km² and belongs to one of the most productive seas in the World Ocean. "At present the known reserves of fish, invertebrate and algae are about 26% of the Russian Far East seas and such valuable commercial items as herring, pollock, crab, capelin, halibut reach 21–92% of the total Far Eastern reserves" (Bilingual Guide Book, 2001). Accordingly, fisheries and marine food processing play very important roles in the economy of the oblast, especially in its export branch with the customers in the United States, Japan, the Republic of Korea, Germany and so on.

Practically all energy needs of the oblast territory is fulfilled by the central energy network of Magadanenergo JSC. Its generating facilities are the two thermal power stations (the Magadanskaya cogeneration station and the Arkagalinskaya state rayon electric power station) and the Kolymaskaya hydroelectric power station.

The city of Magadan owes much to the Sea of Okhotsk for its foundation. It locates deep inside of the bay first named Volok and later renamed Nagaeva Bay. The advantages of this bay are in that it is deep, and has an even bottom so the vessels can come close to the shore. Today the Magadan commercial port is the major transport gateway of the oblast via which the main flow of cargoes safely comes in. Magadan also has an international airport which handles passenger and cargo connections with other Russian regions, CIS and foreign states.

In the absence of railways in the oblast, the role of the Kolyma Highway is crucial to connect this oblast with Sakha Republic. In the field of telecommunication, the new telephone station System 12 of the Belgian company Alacatel Bell was launched in 1995, in addition to the already existing Magadansvyazinform, Rostelecom JSC.

As far as foreign investment is concerned, the investors brought their capitals mostly into gold mining. Among them one can find large and worldly well known companies such as Cyprus Amex (USA), Aryan Resources Limited (Canada), Silver Standard Resources (Canada), BHP (Australia), Boston Management Corporation (Canada), Pan American Silver (Canada), and others. To further attract attention of foreign and Russian investors, the law on the ‘Special Status Economic Zone for the Oblast Territory’ “went into force on July 8, 1999. It is valid as far as December 31, 2014” (Bilingual Guide Book).

Population of this oblast ; 386,000 in 1989 drastically dropped to 229,200 in 2001. The capital is the city of Magadan (population 120,400 in 2001).

1. 8 Primorskiy Krai — Homes to the Pacific Fleet, and Natural Beauty as Well

The Primorski krai (165,900 km²) locates in the southern part of the Russian Far East. In the north it is bordered by the Khabarovski Krai, in the east by the Sea of Japan and in the west by China and southwest by North Korea.

“The Sikhote-Alin mountain range covers most of the territory from the southwest to the northeast. The mountains rise to a height of 1,855 m. Rivers on the western side of these mountains flow into the Ussuri River, a major tributary of the Amur River. The Sea of Japan washes the eastern coast, which has estuaries and lagoons, beautiful beaches and a diversity of marine and wildlife” (Web site : Primorskiy Krai).

The area of this krai has a rather well studied history as follows: “the first inhabitants of the Primorski Krai were the Paleoasiatic and Tungus ancestors. The descendants of the Tungus speaking tribes are still living in the Primorski Krai. For many centuries the rich lands of the Primorski Krai were not cultivated, as hunting and fishing were the main occupations of the inhabitants. Russians who entered the territory in the 17th century therefore found a primitive society” (Web site as above).

It is interesting to note that: “In the 18th and first half of the 19th century the land of the Primorski Krai actually did not belong to any one. The land was considered neutral territory” (Web site as above). But the conflict between Russia and China intensified in the middle of the 1850s. The Treaty of Beijing of 1860 then “awarded the territory to Russia. It took the Primorski Krai almost half a century to enter into the all-Russian economic and cultural programs and to establish close contacts with the Asia Pacific region” (Web site as above).

Located on the Golden Horn Bay, which is a natural deep harbor and warm water port, Vladivostok had grown both as a naval base and a trading port of linking between the Orient and European Russia. The Soviet era wiped out such an open nature of the city. Vladivostok became a strictly closed city as the headquarter of the Pacific Fleet. It was only in 1992 that the city opened again to the world.

On the other hand, native peoples' culture is still alive. “Today the Udege, Nanai and Oroche inhabit the river banks of the Ussury, Bolshaya Ussurka, the Bikin watershed and Samarga Rivers. Traditional indigenous economic activities include hunting, fishing and gathering of non timber forest product” (Web site as above).

With regard to the main natural resources, “Primorskiy has abundant natural resources with more than 2 billion tons of coal, 1.7 billion m³ of timber (including 0.5 billion m³ of Korean pine), gold, silver, tin, fluoride, bromite, lead, zinc, and tungsten. Marine species fished include salmon, cod, flounder, herring, king crab, shrimp, and mollusks” (Newell, 2004).

The natural environment of Primorskiy krai is very unique. “The main part of the Primorski Krai is occupied by the Sikhote Alin Mountains, a biospheric reserve. . . . The upper alpine belt is covered with tundra and dwarf Siberian pine and low bushes. Below this, creeping cedar, being substituted in the south by Microbiota and then changing into the belt of hard birch forest. Below this the forest vegetation begins, which in the north is Ayan fir and white spruce, and in the south black fir and cedar broad-leaved forest. . . . There are 340 bird species, the most common of which are the nuthatch, the nutcracker, the jay, the

rarest Mandarin duck, fish duck and the Siberian spruce grouse” (Web site as above). The charm of the forests in Sikhote Alin mountains became worldly well known through the writings of V. K. Arseniev, a Russian ethnographer (Arseniev, 1996).

In order to secure protection and preservation of their unique nature, a whole system of protected territories was formed in the krai. It includes six reserves (zapovedniks), five national parks, twelve zakazniks (territories of limited nature use) and 300 nature memorials (Web site as above). Among them the following two are particularly unique to the krai. One is the Lake Khanka zapovednik. It is unique in the sense that Lake Khanka is an international lake with its northern part belonging to Russia and southern part to China. Another one is the Far Eastern State Marine zapovednik. In this sea of whole variety of sea lives, tropical fish can be seen due to the oceanographic condition that the warm Tsushima Current comes up there.

The large population of the krai ; 2,258,000 slightly dropped to 2,124,700 in 2001. The capital city of the krai is Vladivostok (population 594,900 in 2001). Ussuriysk (155,700) and Nakhotka (153,800) are another big cities. Arsenev (72,000), Spassk-Dalniy (61,000), and Vostochiniy (15,000) follow them in terms of population.

1.9 Sakha Republic (Yakutia) – Land of Harsh Climate with Sparkling Diamonds

Formerly known as Yakutia, Sakha Republic covers over 3,100,000 km² of the northwestern part of the RFE. This means that it covers about 20% of Russian Federation in area.

This republic faces the Arctic Ocean (Laptev and Eastern Siberian Seas) and includes the Henrietta Islands in the far north. “These waters, the coldest and iciest of all seas in the northern hemisphere, are covered by ice for 9 to 10 months of the year. The Stanovoy Ridge borders Yakutia in the south, the upper reaches of the Olenyok River form the western border, and Chukotka forms the eastern border” (Web site : Sakha Republic).

About 40% of its total area fall within the Arctic Circle. Hence, the republic’s climatic zones are the arctic desert, the tundra and the taiga from the north to the south. The entire area of the republic is covered by permafrost. As the name of the republic implies, some 33% of the total population of one million are Sakhans (Yakuts).

Richmond, et al. (2003, p. 592) characterizes such an amazing contrast existing in this oblast as : “Small communities of Evenki and Chukchi still hunt for a living on the Arctic coast, while in the regional capital Yakutsk, modern buildings rise out of the permafrost, symbols of the republic’s vast wealth (99% of Russia’s diamonds are mined here).”

The Lena River, which originates in the mountains west of Lake Baikal, flows through

Sakha republic into the Arctic. “It is navigable for five months of the year, but during other months, it is frozen to a depth of 5 m, serving as an icy route for conventional wheeled traffic” (Richmond et al., p. 592).

Sakha can be divided into three major vegetation belts. The area which belongs to the Arctic Circle is covered by eternally frozen ground ; permafrost. The existence of this area greatly influences the oblast’s ecology and “limits forests in the southern region. Arctic and subarctic tundra define the middle region, where lichen and moss grow as great green carpets and are favorite pastures for reindeer. In the southern part of the tundra belt, scattered stands of dwarf Siberian pine and larch grow along the rivers. Below the tundra is the vast taiga forest region. Larch trees dominate in the north and, in the south, stands of fir and pine begin to appear. Taiga forests cover about 47% of Yakutia and almost 90% of this cover is larch” (Web site as above). The Verkhoyansk Range rises from the north to the south along the eastern side of the Lena River. “The Cherkyi Range which runs east of the Verkhoyansk, has the highest peak in Yakutia, Peak Pobeda (5,147 m). Even further east are the gold-rich Kolyma Mountains, which stretch all the way to Chukotka” (Web site as above).

According to Newell (2004), main resources of Yakutia are “diamonds, 4.4 billion tons of coal, phosphate deposits, 13 trillion m³ of natural gas, oil, tin, gold, and furs. There are 9 billion m³ of timber.” With regard to the main industries, “diamond, gold, tin, and coal mining make up 63% of Yakutia’s total industrial production. The region also produces 1.5 billion m³ of natural gas and 3 million m³ of wood annually” (Newell, 2004). Some native people are engaged in hunting, fishing and reindeer herding today as a long time ago.

The republic’s population has decreased but only slightly from 1,081,000 in 1989 to 982,900 in 2001. The population of Yakutsk, the capital city, is 200,800 in 2001. The second biggest city in the republic is Neryungri (population 73,900 in 2001), which has one of the world’s largest open pit coal mines. Mirny is the center of Yakutia’s diamond industry. Its population is some 40,000. Lensk (31,200) is one of the major ports of the Lena River waterway. Aldan (27,400) is a town of gold mining.

There has been a plan to connect Neryungri with Yakutsk by a railroad. It is called the Amuro-Yakutskaya Magistral (or AyaM Railway). If it is completed, Yakutsk will be directly connected with Moscow by rail via Tynda, the BAM town of in Amur oblast.

1. 10 Sakhalin Oblast — Islands of Rich Natural Resources Diversity

Sakhalin Oblast includes Sakhalin Island and the chain of the Kuril Islands. The oblast’s

area is 87,100 km². Sakhalin Island is 948 km long in the north-south direction. The volcanic chain of the Kurils, forming the southern border of the Sea of Okhotsk, stretches from Kamchatka Peninsula to Hokkaido, Japan. Possession of the southern Kuril islands has been disputed with Japan since the World War II.

Natural condition of the oblast ranges from tundra in the north to deciduous forests in the south with its cold and humid oceanic monsoon climate. Sakhalin belongs to a very active seismic zone. Severe earthquake in May 1994 attacked the northern Sakhalin. Neftegorsk, used to be the town of oil industry's workers, was completely destroyed with many being killed and abandoned.

“Sakhalin Island consists of three parallel chains of mountains, Primrose, Rush and Porchelsky. The Rush range in the west of the island is the longest. On the east is the Susnaisky Range with a peak (1045 m) named after Anton Chekov. This peak is very popular among the locals for climbing and skiing. The highest mountain of Sakhalin is Lopatine (1609 m)” (Web site : Ecology/Environment of Sakhalin).

Sakhalin is quite wild in the sense that “43% of all bird species, 17% of all mammal species and 94% of all whale species in the former Soviet Union originate in the region” (Web site as above).

Kril'on Peninsula and Moneron Island are ideal places for ecotourism with a wealth of wilderness : “Kril'on Peninsula which typifies Sakhalin flora and fauna has some elements of eastern Asiatic flora, and is the only place on Sakhalin with a high concentration of broad-leaved trees. These are important nesting grounds for rare birds. The rivers are important for salmon spawning and large numbers of bears inhabit the forest” (Web site as above). Moreron Island, 50 km west of the Kril'on Peninsula in the Mamiya/Tartar Strait, “has a mountainous relief with beautiful cliffs and waterfalls. There are 448 species of plants, including six Red Book species. The coastal waters support rich marine life, including sea lions, gray whales and rare sea urchins” (Web site as above).

Unlike Kamchatka and Hokkaido, Sakhalin does not have any volcanoes. However, “six hectares field of volcanic mud appeared in the midst of the forest, some 30 km north of Yuzhno-Sakhalinsk near the village of Klyuchi, in 1959. Another big eruption of mud occurred in 2002, following an earthquake in the region, and the ground here still bubbles with small fumaroles. It is a striking spot.” (Richmond, et al., 2003, p. 611)

Main industries of the southern part of the oblast are fishing, lumber, and coal mining. In the north, the exploitation of oil fields has been important since the 1920s. Entirely new is the offshore oil and gas fields development with enormous amount of foreign invest-

ments. It is now taking place in the northeastern coast of the island facing the Sea of Okhotsk.

Despite of such a new wave, the population of the oblast ; 710,000 in 1989 dropped to 584,700 in 2001. The capital city of the oblast is Yuzhno-Sakhalinsk. Its population is 175,900 as of 2001.

References :

- Arseniev, V. K. (1996), *Dersu the Trapper* (Field Observations Made in 1906), translated from Russian by M. Burr, Reprint Edition, Kingston, New York : McPherson and Co. (A Japanese translation also available.)
- Bilingual Guide Book (2001), *Far Eastern Federal Okrug : Stepping into 21st Century*, Khabarovsk : Publishing House<Priamurskie Vedomosti>. (Russian and English)
- Burns, K. G. (2002), "Security Implications of Defence Conversion in the Russian Far East," in Thornton and Zigler (2002), pp. 267–290.
- Davis, S. (2003), *The Russian Far East : The Last Frontier?*, London and New York : Routledge.
- Globe Trotter Guide Book (2003), *Siberia, Trans-Siberian Railway, and Sakhalin*, Tokyo : Diamond Publishers. (in Japanese)
- Newell, J. (2004), "Primorskiy Region : Overview of the Region," available at : www.shonan-inet.or.jp/~gef20/gef/report/taiga.e2-6.PDF.
- Newell, J. (2004), "Republic of Sakha (Yakutia) : Overview of the Region," available at : www.shonan-inet.or.jp/~gef20/gef/report/taiga.e2-6.PDF.
- Richmond, S., and M. Vorhees (2002), *Trans-Siberian Railway : A Classical Overland Route*, Melbourne : Lonely Planet Publications.
- Richmond, S., and six others (2003), *Russia and Belarus*, Melbourne : Lonely Planet Publications.
- Thiel, E. (1957), *The Soviet Far East : A Survey of its Physical and Economic Geography*, translated from German by A. and R. Rookwood, London : Methuen and Co.
- Thornton, J., and C. E. Ziegler, eds. (2002), *Russia's Far East : A Region at Risk*, Seattle : University of Washington Press.

Web sites :

- * History of Far East
<http://reference.allrefer.com/encyclopedia/R/RussFarE-history.html>
- * Pacific Fleet
<http://www.nti.org/db/nisprofs/russia/naval/nucflt/pacflt/pacflovr.htm>
- * Ecology/Environment of Amur Oblast
<http://www.traveleastrussia.com/amur.html>
- * CAO
<http://www.chukotka-ethnography.org/chukfact.htm>
- * CAO Now
<http://www.chukotka.uaa.alaska.edu/Chukotka/chukokta.htm>
- * CAO Overview
<http://www.users.qwest.net/~kryopak/ChukotkaHomePage.htm>
- * Kamchatka Oblast
http://en2.wikipedia.org/wiki/Kamchatka_Oblast
- * Rybachiy Nuclear Submarine Base
<http://www.nti.org/db/nisprofs/russia/naval/nucflt/pacflt/rybachiy.htm>
- * KAO
<http://www.hf.uib.no/Andre/Vesti/koryak.htm>

- * Khabarovsk Krai 1
http://www.geocities.com/Tokyo/2673/2_29.htm
- * Khabarovsk Krai 2
http://www.geocities.com/Tokyo/2673/2_30.htm
- * Magadan 1
<http://archive.tol.cz/Elections/Russia/Regions/About/Magadan.html#History>
- * Magadan 2
<http://www.traveleastrussia.com/magadan.html>
- * Primorskiy Krai
<http://www.traveleastrussia.com/primorski.html>
- * Sakha Republic
http://en.wikipedia.org/wiki/Sakha_Republic
- * Ecology/Environment of Sakhalin
<http://www.traveleastrussia.com/sakhalin.html>

Chapter 2

Sakhalin : Gateways to Pacific Rim and Eurasian Continent

This report is jointly written by a Russian and a Japanese. In this sense, we think it appropriate that our report firstly focus on Sakhalin oblast which is very close to Japan. We visited Sakhalin island twice, in August 2001 and August 2002. In what follows, we present firstly a brief history of Sakhalin and secondly a shortened version of our travel diaries there. Because of sensitive political tensions between Russia and Japan on “the four Kuril Islands” question, however, we declined to visit Kuril archipelago so that the mention of Kuril Islands is a bare minimum in this chapter.

2. 1 A Brief History of Sakhalin

Main dwellers of Sakhalin Island in the olden times were Nivkhi, Orochi, and Ainu peoples. Mongolians wanted to prevail their influence over this island in the period of the late 13th to the early 14th centuries. But their efforts of sending soldiers to the island did not last long. Emperors of the Ming dynasty of China must have known the existence of this island. But they had been satisfied with the situation that native peoples of the Lower Amur under the influence of the Ming dynasty had trade relationships with the Sakhalin natives across the present day Tartar Strait (the Mamiya Strait from the contemporary Japanese view).

The Ainu people were living in many groups. Some were in the southern Sakhalin and some others were in Kuril Islands and in the present day Hokkaido. The Hokkaido Ainus had a strong trade tie with the Japanese merchants. The Japanese were interested in the marine products which the Ainu people could provide abundantly.

As soon as the Manchurians established their own empire ; the Qing dynasty in 1616 and finally ousted the Ming dynasty in China in 1644, they strengthened the tribute trade relationships with the native peoples of the Lower Amur, who were tradesmen having close trade ties with the native peoples of the northern Sakhalin. The latter too had close ties with the Ainu people in the southern Sakhalin. The Sakhalin Ainus were close relatives of the Hokkaido Ainus who had a close trade relationship with the Japanese merchants mostly of the Kansai area. Such merchants were protected by the feudal lord of Matsumae country ; one of the countries under the rule of the Tokugawa shogunate government (1603–1867) in Japan.

While the most of the Japanese merchants were satisfied with the barter exchange of

marine products of the Ainu people for the Japanese products, some adventurous Japanese wanted to know a northern land beyond the present day Hokkaido. The first Japanese investigation team visited Sakhalin in 1635. Japanese fishermen and merchants began to penetrate the south Sakhalin since the late 17th century. The Japanese explorer Mogami Tokunai (最上徳内) investigated the southwestern coast of Sakhalin in 1786. He visited there again in 1792. The Japanese trade posts began to appear in the southern ends of Sakhalin in the 1790s. The trade post called Shiranushi(白主), located at the present day Krilion Cape, became the largest trade center in Sakhalin. It was the meeting spot of Ainus, Nivkhis, and the Lower Amur merchants who got engaged in the tribute trade with the Manchurians under the Qing dynasty and wanted to make commercial trade with the Japanese merchants.

It was in these times that the Russians began to visit Sakhalin. Needless to mention, their original interest in the present day Russian Far East was furs of mammals, especially sable furs. As a byproduct of their adventure for fur confiscation and trade in the North-eastern Asia, they started to learn the existence of Sakhalin in the 1740s. It was in 1742 that the boat ; “Nadezhda” visited southeastern coast of Sakhalin.

The early time of the 19th century was the time of first military conflict between Russia and Japan over the hegemony on Sakhalin. To know more about Sakhalin, the Tokugawa government of Japan sent the expedition team of Denjuro Matsuda (松田伝十郎) and Rinzo Mamiya (間宮林蔵) to Sakhalin. Arriving at Shiranushi in 1808, they closely explored both eastern and western coasts of the island. Mamiya stayed there over the winter and went up, under the guidance of native tradesmen, far north of the western coast of the island. He then crossed, by a small boat, a narrow strait to the coast of the continent, and continued his journey to the present day Lake Bolshiye Kizi, the mainstream of Amur River, and the trade station, then called Deren on the right bank of that big river in 1809. On the way back to Sakhalin, he took another route. Namely, he asked his guides to descend the mainstream of Amur River down to its mouth, and then to cross the strait. In that way he established the fact that Sakhalin certainly is an independent island, but not a north-eastern outcrop of the Chinese Continent.

This fact had been known among the native peoples of the north and some Chinese people since the olden times. But the Japanese, the Russians and other European people were not sure about it until Mamiya’s journey. The narratives of his expedition were first written in Japanese. Soon after that, a copy of his Japanese book was brought abroad, namely to the Netherlands, via Nagasaki. It was translated into the Dutch and some other

European languages so that the Russians too came to know that Sakhalin is an island.

The Russian expedition team led by G. I. Nevelskoy thoroughly investigated the Lower Amur and Sakhalin during the period of 1849 to 1855. The Russians wanted Japan to abandon its national seclusion policy called “sakoku.” The squadron led by the admiral E. V. Putyatin headed for the Far East in 1852 and reached a Japanese coast in the next year. This was the starting point of the Russian-Japanese diplomacy in the modern time. Though talks over northern islands took a long time between the two countries, the first Russian-Japanese treaty was signed in Shimoda, southwest of Tokyo in 1855. It was agreed that the border between Russia and Japan was to be between Urup and Iturup islands. Sakhalin, however, was left undecided at that stage.

Because of this undecided situation, some Russians began to build military posts in various places in Sakhalin Island. This annoyed Japan. Diplomatic talks then started between the two countries. The Petersburg agreement signed in April 25, 1875 solved this question in such a way that Japan gave in to Russia all of the rights for Sakhalin in exchange for all Kuril Islands which were going to belong to Japan. Before this agreement, Sakhalin was already determined as a place of exile and penal servitude by the Russian government. Once the sovereignty over the island was decided, more and more criminals were sent to the island from the mainland of Russia. The military development was focused on the northern part of the island at the beginning. As agriculture became an important part of livings for those who were set free after the terms of imprisonment, the focus of development was shifted toward the south. The town of Vladimirovka emerged in the Susunay River basin in the south.

The Russian-Japanese War in 1904–1905, however, changed the situation. Japan as the winner of the War obtained the southern part of Sakhalin from Russia. The border was drawn at the 50 °N parallel. This was the starting point of the Japanese era in Sakhalin. The Japanese government set up the Government of Karafuto as of the governing body of the Southern Sakhalin, where Karafuto (樺太) was a Japanese name of Sakhalin. Vladimirovka was chosen as the capital city of Karafuto and it was renamed as Toyohara (豊原) in 1908.

The Japanese government attempted a colonial development of the Southern Sakhalin. The construction of railways and roads was then the priority of development. The railways such as (1) Otomari (大泊 now Korsakov) – Toyohara (now Yuzhno-Sakhalinsk) – Sikuka (敷香 now Poronaysk) – Koton (古屯 now Pobedino), (2) Honto (本斗 now Nevelsk) – Mauka (真岡 now Khormsk) – Kusiunai (久春内 now Il inskii), (3) Toyohara

— Mauka, and others were constructed with the Japanese narrow gauge rails of 1067 mm (Murota and Kishi, 2003, p. 74).

Forestry became one of the major industries in the Japanese era. It was said that one third of all timber in the Japanese market was the one of the Southern Sakhalin. The pulp and paper companies were the main consumer of such timber. Their products were mostly for export to the mainland Japan. Fisheries were also important, though unstable. The development of coal mines at the industrial level began in 1909.

Since this was the development of a colonial type, resettlers from Japan and forced settlers from Korea supplied the core of the labor force for such industries.

The Japanese era lasted half a century, and abruptly stopped in 1945 due to the Japanese defeat of the Second World War. Following the surrender of Japan to the Allied countries, the troops of the Soviet Union put the entire part of the Southern Sakhalin under their control. In February 2, 1946, the South Sakhalin was declared to belong to the ownership of the Soviet States under the decree of the Supreme Soviet of the U. S. S. R.

Then, the following problem remained. “The entire Japanese population of southern Sakhalin and Kuril Islands was repatriated in 1946–1948. The Sakhalin and Kuril Ainu were also banished from their lands and sent to Hokkaido at this time, and a part of Nivkhi and Uilta population with them. However, the overwhelming majority of Korean transported to southern Sakhalin in 1920–45 were never allowed to return home because the USSR had no diplomatic relations whatsoever with South Korea until the late 1980s” (Vysockov, 1996, p. 79).

2. 2 Travel Diary in Southern Sakhalin in August 2001

To find how the Russian Far East (RFE) is changing or not changing in the post-Soviet era, we decided to visit Sakhalin first under the consideration that it is the gateways to the Pacific Rim and the Eurasian Continent not only from historical but from economic viewpoints. We made our research trips there twice. In this subsection 2. 2, we present the travel diary of the first trip. The diary of the second trip will be presented in the next subsection 2. 3.

Thursday, August 9, Day of Get-together in Vladivostok

Tamara Khantashkeeva (simply Tamara, hereafter) flew from Moscow and arrived at Vladivostok in the early afternoon. After collecting information on various research institutions under Vladivostok Branch of Russian Academy of Sciences (RAS) and making appoint-

ments to meet some scientists of RAS in the city center, she went back to the airport to get together with Takeshi Murota (Takeshi, hereafter) and Haruna Murota (Haruna, hereafter) who flew from Niigata, Japan. Haruna, who was then a student of International Christian University, Tokyo, participated in this trip as our assistant in charge of photo documentation.

The arrival time of the Niigata flight was 19:00. We decided to stay at Venice Hotel, which locates just across the square in front of the airport. The new hotel built by Italian investment was very clean and amazingly fashionable, with the price being expensive accordingly. For us it was the only choice because the time of our get-together was in the evening and the city center was awfully far from the airport.

Friday, August 10, Day of Unfortunate Happenings

After breakfast in a bistro nearby the hotel, we wanted to go downtown by bus. But the buses coming one after another were all fully packed so that we took a taxi to visit the Vladivostok Branch of RAS. In an economics-related institute of the academy, we collected documents on Russian-Japanese economic relationship of recent times. After that we found a downtown hotel in a convenient location with reasonable price. It was Hotel Primore not far from the central railway station of Vladivostok. Tamara made an appointment with a scientist of RAS.

During our city walk, Takeshi was some ten minutes behind Tamara and Haruna at the stairway from the hilltop down to the beach area along Amursky Gulf. While he was taking pictures of scenic view of the coastal zone by digital video camera, two police-looking men approached him and examined his passport, bag and so on. After some time they let him free and quickly disappeared. Hastily catching up with Tamara and Haruna, he checked the inside of the bag to find some 5,000 roubles of cash having been stolen. We then went to a nearby police office and explained what had happened. Police officers there did what they were supposed to do in such a case of robbery, including the on-site examination. They promised us to do their best to find robbers, though we could not hear a good news from them during the following days of our stay in Vladivostok.

When one thing goes wrong, a next thing to come is also wrong. This seems to be a universal lesson all over the world. On the way back to the hotel from the police office, Tamara tumbled down on the dark, downhill road and twisted her left ankle. Her pain was extreme. But we somehow managed to reach the hotel by a taxi.

Saturday, August 11, City Walk in Vladivostok

This was a fine, pleasant day, except that Tamara's pain in her ankle continued. While she was resting at the hotel, Takeshi and Haruna enjoyed a city walk under the guidance of Masha, who is a daughter of Dr. Peter Ya. Baklavov, Director of Pacific Geographical Institute, RAS. Vladivostok is really picturesque city of cliffs and bays. The view of Golden Horse Bay was fantastic from a hilltop in the southern part of the city. We encountered many Chinese travelers in groups. We also visited the Vladivostok Fortress Museum.

There was an academic meeting of Dr. Baklavov with his research colleagues from Moscow and other places in his apartment. Tamara managed to visit there from the hotel. After the meeting, he kindly invited us to join their social gathering.

Sunday, August 12, Arrival at Yuzhno-Sakhalinsk

Since Tamara had flight ticket from Moscow different from the ones of Takeshi and Haruna, she left the Vladivostok airport earlier than the two Japanese. Arriving at the Yuzhino-Sakhalinsk airport, she went to the already reserved Tourist Hotel near the Gagarin Memorial Park. Arriving at the airport in Sakhalin, Takeshi and Haruna took a bus to the city center of Yuzhino-Sakhalinsk with some uneasy minds because they could not speak Russian. With only two or three mistakes on the direction to the hotel, however, they somehow managed to find it and got together with Tamara. Takeshi and Haruna then made a little bit of city walk to let themselves be familiar with the city of the first visit in their lives.

Monday, August 13, Huge, Open Sky Market near the Railway Station

Tamara attempted to make appointments of interviews with Sakhalin scientists by making many phone calls from the hotel. Takeshi and Haruna collected travel information at the railway station and bookstores and so on. Since Tamara's ankle was getting a little bit better, we enjoyed browsing at the central market. It is a huge open sky market of almost countless many small shops.

We found there many Korean people, mostly ladies, were selling kimuchi and other kinds of Korean cuisines.

We had tasteful dinner at the restaurant called Gosser, which was in a walking distance from the hotel near the crossroad of Sakhalinskaya and Komosomolskaya Streets.

Tuesday, August 14, Preparation for Short Tours in Southern Sakhalin

In the morning we took a public bus to the northern suburb of the city to visit the Institute of Marine Geology and Geophysics, Far East Branch RAS. We made interviews with Dr. V. E. Kononov and Dr. Oleg Veselov one after another. From Dr. Kononov, we obtained general information of oil and natural gas in Sakhalin. Dr. Veselov gave us new information of subbottom occurrences of gas hydrate in the Sea of Okhotsk. The areas of its occurrences are much wider than the ones which was described in Murota (1996), which had been written based on the old information till the middle of the 1990s.

In the afternoon, Takeshi and Haruna visited the Art Museum (admission 10 roubles). Its building was constructed as the one of Takushoku Bank in the Japanese era. Tamara collected statistics in the government, and got information on travel guide. She made an agreement with a businessman called Valera that we pay US\$100 for one-day driving and guide.

Wednesday, August 15, Aniva Bay, Fish Factory, and Salmon Rivers

Valera came to the hotel to pick us up at 10 : 00 in his car. We then headed for the western coast of Aniva Bay (亜庭湾 in the Japanese era). He first guided us to the mouth of Taranaï River. It is a salmon river. Though he told us that a large number of pink salmon were coming to that river, they had been caught and transported somewhere for the day so that we only saw a few in the net in the river. He then brought us to a fish processing plant. The president of that fisheries company is a friend of Valera. Though he was not present at the plant, other people were so kind that we were allowed to enter the plant, talk to the working people and to freely take pictures.

Many young people were working. It is their part time job in summer. While this company uses some 30 people as regular, year-round employees, it employs some 100 people as part timers in busy seasons. The time we visited there was the very peak season of pink salmon's upstream migration. Young students are quickly taking out ikra from female bodies. Small containers are filled with such fresh ikra one after another. The rest of the bodies and male bodies are put into a machine, which is a big freezer. In a few seconds, live salmon get frozen hard.

The company stores such frozen salmon in industrial refrigerating units and sells a little by little considering on market conditions. The workers told us that canning is of course possible from technical point of view but that it is too costly. According to them, sockeye salmon come first every year, pink salmon the next, and finally chum salmon in the Ta-

ranai area.

It was a beautifully fine day. After the fisheries plant, Valera took us to a sandy beach along Aniva Bay. We found many swimmers there. Knowing that the water was not too cold, we also enjoyed swimming. We saw a natural gas well nearby, though it was not used. According to Valera, there are many such gas wells in this coastal area along the western side of Aniva Bay.

Since we understood that Valera has a good, wide knowledge of Sakhalin, we decided to continue hiring him for the next two days.

Thursday, August 16, Korsakov, Prigorodnoye, and Lake Tunaycha

We first headed south for Korsakov, which is 35 km away from Yuzhno-Sakhalinsk. From the city on top of a hill, we had a wide view of the eastern part of Aniva Bay. The coast is a fairly big shipping port. Korsakov which used to be called Odomari under the Japanese reign has the regular passenger/cargo service to Wakkanai, Hokkaido, Japan.

Next Varela told us that he would like to show us one important place east of Korsakov. The place he guided us was Prigorodnoye about 13 km east from the city center. It was just vast, poor grassland facing the northern part of Aniva Bay. According to him, that land was already assigned to be the site for an entirely new oil processing plant. At that time we did not have an integrated knowledge of Sakhalin II oil and gas development project while we knew it in fragmentary ways. Because of such a state of mind, we could not recognize the significance of such an almost barren land with neither traces of cultivation nor growth of big trees. Only after we ended our first Sakhalin trip, we started understanding that Prigorodnoye has been chosen as the site of an important plant for liquefying natural gas from Sakhalin II gas field into LNG, the details of which we will describe in Chapter 4 of this report.

On the way of going back to north, we enjoyed a short rest at Penguin Bar, which serves boiled shrimp and beer to customers. It is a fashionable, popular place. We then made a right turn toward the direction to the Sea of Okhotsk. Passing the village of Okhotskoe, Valera made a stop near the beach. We went down there to feel the seawater. While it was also a nice clear day as the previous day, the water temperature was extremely low. No body in our group wanted to swim. But one Russian man dared to swim for a minute or so. It was a kind of his demonstration for us.

We then drove back a little to the lagoon area facing the sea to find Lake Tunaycha. Reaching its beach, we touched the water. It was very warm. The minimum distance be-

tween the lake and the Sea of Okhotsk appeared to be less than 1 km. But the lake is another water body separated from the cold Sea of Okhotsk. As many people were swimming in the warm lake, we also went into the water and enjoyed very comfortable swimming. Scenery around the lake was also beautiful.

Valera then guided us to Ochebukha River. At the mouth of the river, people operate a crane car and haul many number of pink salmon caught in a big net onto a big track from the pool in the river where salmon were caught. One net contains 100–200 salmon. Such a unit of fish was put onto the track one after another almost every ten minutes. This was the business of a private company with official permission. The construction of weir was such that some salmon go up the river without being guided into the pool. People here seemed to intentionally allow certain number of escapements. If it is the case, it is very good from environmental point of view (Murota, 2003).

Appreciating the great job of guidance of the day, we invited Valera to a dinner at the restaurant called “Saigon” along the Karla Marksa Street, downtown Yuzhno-Sakhalinsk. We enjoyed Russian cuisines in the atmosphere imitating Vietnam there.

Friday, August 17, Kholmsk, Terpensky Bay and Another Salmon River

As the first place to visit this morning, Valera chose the Sakhalin Michinoku Forestry Company in the suburb of Yuzhno-Sakhalinsk. Though it was a sudden visit, the president of the company, Mr. Kasai, who is a Japanese, welcomed our interview. According to him, this Aomori-based company used to be a Russian-Japanese joint venture, but now it is 100% Japanese company. Employing Russian workers, its business is to fell Yezo spruce trees in the northern part of Sakhalin Island, to transport them south, and to process them into board in the factory which we visited. Yezo spruce (*Picea ajanensis*) is the type of tree which the people of Hokkaido, highly appreciate. Though Hokkaido does have its own growth of Yezo spruce, it is not enough to meet the demand. Then his company exports the Yezo spruce of Sakhalin to Hokkaido. He told us that the old growth of Yezo spruce in the southern Sakhalin had been almost exhausted during the era of the Japanese reign so that the company is now felling it in the north.

After this interview, Valera asked our permission to go to Sinegorsk because he has a previous engagement with his friends there. Sinegorsk is the town of hot spa sanatorium. It was called Kawakami Hot Spring (川上温泉) in the Japanese era. Since we had wanted to see it, we agreed with his proposal right away. Arriving at Sinegorsk, we found a rather huge building with many rooms and people for sanatorium treatment. It is quite different

from hot spring resorts for leisure in Japan. As in other hot springs in Russia, the building with hot spa being inside looked like a big hospital. Valera's appointment was to take two friends who had stayed in Sinegorsk to the railway station of Yuzhno-Sakhalinsk.

After the railway station, we headed for Kholmsk some 40 km west of Yuzhno-Sakhalinsk. The city stretches from north to south in two rows. In other words, the city has two parts ; the lower city locates along the coast and the upper city on the hill. It is a big city in terms of area. But we found many abandoned buildings.

Dolinsk was our next destination. Arriving there, we encountered a huge factory complex. It was the site of the Japanese-built paper and pulp company (Oji Seishi). It had been succeeded by Russians after the World War II and operating until a few years ago. But it stopped. Maintenance of minimum level is being done so that we saw at least a few people inside the fence. According to Valera's information, it is waiting for possible investment from Irkutsk.

We further went up north. We found that the western coast of Terepensky Bay has a fantastically scenic shoreline. Wetland on the left and blue sea on the right. Lagoons sometimes stretch over between the road and the sea. We encountered a salmon river. This river also had a run of great number of pink salmon. Workers activities were seen. We asked them how their business is financed. They answered that the investment in this business comes from the state and private sector half and half. Going further north, we found another group of people working with net. The temperature was 24°C. "In such a warm day, not many salmon make upstream migration from the Sea of Okhotsk," fishermen told us. According to them, free upstream migration is allowed between 23 : 00 at night to 9 : 00 in the next morning. Takeshi asked fishermen how much they think of the escapements. "The numbers of catches and escapements are almost equal," they said. From an ecological point of view, this practice is much better than the one of Japanese salmon fisheries, which catches all salmon without considering the importance of escapements.

In the evening before our departure day, we were invited to a very well maintained dacha of Valera's family for outdoor dinner. Very tasteful soup made of pink salmon and other good foods were offered to us.

Saturday, August 18, Regional Museum and Gagarin Park

In the morning, we visited the Regional Museum. Then we headed for the Yuzhno-Sakhalinsk airport to fly back to Vladivostok. This was the end of our first Sakhalin trip.

2.3 Diary of the Trip up north to Okha and Piltun Lagoon in August 2002

We made the second trip to Sakhalin in the period of July 29 through August 8, 2002. The main purpose of the second visit was to see the northern Sakhalin. In what follows, we present our travel diary of this second trip. This Sakhalin trip was a part of our long journey from Sakhalin to Irkutsk mostly by train.

July 29, Day of Arrival from Moscow and Hakodate

Tamara took a direct flight from Moscow, and Takeshi came from Itami (Osaka) via Hakodate, Hokkaido to get together at the Yuzhno-Sakhalinsk airport. Tamara purchased the round trip tickets from Yuzhno-Sakhalinsk to Nogliki and back at the railway station.

July 30, Day of Information Collection and Train Trip

Whole day we walked around the city and collected information on Sakhalin and other part of Russian Far East.

At night, we got on a night train to Nogliki. A beautiful sunset was seen from the window soon after the departure. But we did not know when our train passed the northern latitude of 50, which had once the borderline between Russia and Japan. This train trip took some 15 hours. It was slow but comfortable enough.

July 31, Bus Trip from Nogliki to Okha

About 11:20 in the morning our train arrived at Nogliki station which is the terminal of the railway. A public bus was waiting for the arriving passengers who may want to go to Okha. It was just about to run so we got on it without enough time of rest. The bus crosses the bridge over Tyumi River. After the bridge the road is not paved. An old fashioned bus fully packed with local travelers goes north on very bumpy road. It took five hours with one toilet stop to reach Okha, which is 250 km north of Nogliki.

Approaching the city of Okha, we saw many oil wells working slowly. Getting in the city, we found no sign indicating a hotel or inn. A young man on the bus seemed to have some idea. Getting off at the bus terminal, he guided us to a building. It was not a hotel open to sudden visitors but for some specific kind of people. The lady at the reception desk made a long phone call to somewhere. After almost half an hour, she finally gave us permission to stay.

We went out to the central district of the city for dinner.

August 1, City Walk in Okha

During our city walk, we came across the parking lot of SakhalinMorneftegas Company to find a man in front of its building. It is an affiliate of Rosneft. We thought that it is the right place to make an interview. Tamara then negotiated with a man about such a possibility. She was quite successful. He promised us to let us make an interview with company person in charge if we come to the company in the next morning at 10 : 00.

We walked around the city to find a very new church. The golden dome on top of it was shining under purely blue sky. (After our trip, we came to know that it is for the commemoration of the victims of Neftegorsk earthquake in 1994).

August 2, Journey to the Pilton Oil Field and the Onshore Facility of Odoptu Oil and Gas Field

We visited the SakhalinMorneftegas Company at 10 : 00 sharp. The man whom we had talked to on the previous day was waiting for us to guide us inside the company building. Specialists of the company unrolled many geological maps on a wide desk to explain Sakhalin offshore oil and gas projects. Not only that, they said that they had already prepared for us a guided tour to the Odoptu oil and gas field by a car with a young engineer of the company as a guide.

The engineer first guided us to the Okha oil fields, a part of which we had seen on the day of arrival at Okha from bus windows. Many oil wells of classical style are standing closely to each other. We felt that we were really in the center of oil base. It is only a few kilometers south of the city center. According to the engineer, the number of wells are 600 and the oil production is 5000 barrels per day.

Near the oil field we saw a rather new power station. The engineer explained us that it is natural gas fired plant so that the air of Okha is very clean compared with other cities in Russia. After the visit to the inland oil field, the driver kept going south about one hour. He then made a left turn to a local road.

The road became uphill, and reached the peak. Then the scenery in front of us changed from the one of sandy hill to the one of vastly stretching lagoon area, beyond of which was the blue water of the Sea of Okhotsk. It is the area called Piltun lagoon. In this lagoon area too, we saw many oil well of classical type working slowly but steadily. It is the onshore Piltun oil field. Though we forgot to ask the engineer how many oil wells were operating in this oil field, we saw at least 20 or 30 wells from the car window. Running in between such oil wells, we reached a factory-like work site with a giant tower. It was the

onshore facility of offshore Odoptu oil and gas field, which has been developed as a part of Sakhalin I Project. The tower-like structure is the onshore oil rig (or derrick) for horizontal drilling.

A business information tells : “The Odoptu oil and gas field is located on the northeastern Sakhalin shelf on the Piltun Bay latitude, 6 to 10 km off the Sea of Okhotsk shore line. The Odoptu onshore facilities are located on two sites — Northern and Southern. The sites are located on the eastern side of the Piltun Spit on the elevated portion of the coastal benches ending on the east with a fall to the sand beaches of the Sea of Okhotsk. The distance between the sites is approximately 10 km” (Web site : Sakhalin I Locations). The onshore facility, which we visited, is the northern site of these two. Administratively it belongs to the Okha District of Sakhalin oblast. It is 61.6 km southeast of the city center of Okha.

On the horizon of the Sea of Okhotsk, we saw only the beautifully blue sky without any trace of anthropogenic structure. Yet, oil is pumped up from the offshore field to this northern facility. This is because this oil field has been developed by horizontal drilling. With this technology, one can extract the oil under sea bottom from an onshore drilling base. The place we visited was the showcase of such an advanced technology.

The young engineer had some repair work to do in this onshore facility so that only the driver was going to send us back to the city. On the same way back to Okha, we asked the driver what the purpose of the primitive railway between Nogliki and Okha is and who owns it. He told us that it is the fully private railway of the Sakhalin Morneftegas Company and that trains carry all kinds of cargo and people whatever and whomever the company needs. The train runs very slowly. The driver laughed by saying that it is listed in the Guinness Book as “the slowest running train in the world.”

Before entering the city center we asked the driver to let us have a close look at the forest-like standing oil wells of Okha oil fields. He was so kind that he slowly drove the car all over the fields.

August 3, Visit to a Local Museum in Okha

While Tamara was attempting to purchase return tickets from Okha to Nogliki, Takeshi walked to the regional museum. Displays are divided into natural history, culture and oil industry branches. To know the early history of Sakhalin oil industry since the 19th century, this museum is worth visiting.

For travelers to visit Okha, an English guidebook tells : “One possible reason for

heading this way is to visit the village of Nekrasovka, 28 km west of Okha. Home to around 1200 Nivkhi, of whom there are said to be less than 2000 left on the whole island, Nekrasovka was created in the 1970s as a state fish farm — the Nivkhi are traditionally fisherfolk” (Richmond et al., 2003, p. 612). But we did not have time to visit Nekrasovka.

August 4, Back to Nogliki and Night Train Again

We woke up early in the morning to get on a taxi to go back to Nogliki. Four hours on the same road as before.

Upon arrival at the square in front of the Nogliki railway station, we got to know that there is a museum of ethnology. We then took a bus from the railway station to downtown. Passing through the central part of the town, the driver stopped the bus in front of an old building. It was the museum. Small but well organized. We then walked back to downtown area. There was a new building which looked like an office building of an oil company. But it was still under construction, and there was nobody inside so that we could not make an interview. We then went back to the railway station again by bus. We found that we had some more time before the train departure and asked the hotel lady to let us use a toilet. She said that we could use not only toilet but a kitchen as well in the second floor. We boiled water there and enjoyed lunch snack by making instant coffee. It was a very relaxed moment with almost no cost. It was an old, beautifully wooden building.

Only after the entire trip, we started knowing that a new wind was blowing into Nogliki because of the progress of Sakhalin II Project. According to Gas Energy News (2003), Nogliki already has natural gas fired thermal power station. It has 4 gas turbines with their total capacity being 48,000 kW. This power plant is going to be enlarged to 120,000 kW with 10 gas turbines by the end of 2003 (Origuchi, 2003, p. 2). This is an impressive contrast to the situation of Yuzhno-Sakhalinsk where electricity is still supplied by the very old coal fired cogeneration plant.

August 5, Arrival of the Doshisha Group

We arrived at Yuzhno-Sakhalinsk around 7 : 00 in the morning. Takeshi found that there is the Wakkanai office near the Lenin Square. Mr. Masanori Nurusawa, the head of the office, told him that it was just opened in April 2002 to strengthen small and medium size business ties between Wakkanai City and Sakhalin. He then visited a Public Library. A librarian was very kind to Takeshi to help him to find English books on Sakhalin. When she has to close the library at 17 : 00, she handed him a book of Vyskov (1996). She was such a nice lady

that she gave it me as a free gift.

In the early evening, we went to the airport to welcome the Doshisha group. In what follows, the Doshisha group means the combination of three persons of Doshisha University, Kyoto and two students of International Christian University, Tokyo. The Doshisha people were Professor Motoshi Kishi (Economics major), Ms. Chihiro Sumitani (a librarian of the economics common research office) and Ms. Toshiko Takaoka (an office worker at the department of theology). The students were Haruna Murota and Ms. Naoko Tsurudome. Professor Kishi was a partial participant in our research trip. Other four persons participated in this trip as our research assistants.

It was a busy tourist season so that the newly formed group of total 7 people could not stay in a single hotel. We then decided to stay in two different hotels separately. The Doshisha people found the rooms in Tourist Hotel and the rest stayed in a hotel nearby the railway station this night and the next.

August 6, Guided Tour in and out of the City of Yuzhno-Sakhalinsk

Tamara and Takeshi visited Sakhalin only once before, namely in August 2001, and our knowledge on Sakhalin was not much. Furthermore, for the Doshisha group who arrived yesterday, it was their first visit to Sakhalin. We then decided to hire a guide to see Yuzhno-Sakhalinsk and its surroundings in an efficiently way. Since we could not find Valera of the last year, Tamara talked to a travel agency and found a young lady who was willing to be our guide with a car driver.

She was a girl of Korean descendants and could speak a little bit of Japanese because she learned it in a university. She first guided us to a fisheries factory in the suburb. We then went to a bank for money exchange of the Doshisha group. Next visit was to the cemetery under the expectation that we could probably find the individual tombs of the Japanese. But we could not, though we saw the memorial statute for the Japanese who had died in Sakhalin. We stopped at the war memorial park for a short time.

Though it was rainy, we decided to go to the village of Okhotskoe to see the Sea of Okhotsk. It was cold, rainy and windy. It was completely different from the previous year.

On the way back, our car passed the beach area of Lake Tunaycha. When we visited there in August 2001, it was a calm, warm lake. In sharp contrast to this, it is now gray with rough waves under the extremely violent wind and heavy rain.

This does not mean, however, that it is a bad place to visit, as our previous year's pleasant visit there tells. Lake Tonaycha is actually an archipelago of lagoon lakes, total



Photo 1. Railway Station of Yuzhno-Sakhalinsk, the Rail Being the Japanese Narrow Gauge, Sakhalin (Credit : H. M. 2002)

area of which is as large as 174 km². Some of such lagoon lakes are “only separated from the sea by narrow causeways a few meters wide. Many birds come here during the migrating seasons and the coastline is favoured by seals. Amber gets washed up on the beaches, and it’s a favourite place for locals to go crab-hunting and camping” (Richmond et al., 2003, p. 610). We quickly went back to the city and visited the Regional Museum. We also looked around the railway station.

August 7, Heading for Kholmsk

In the morning, Takeshi guided the group to the Gagarin memorial park because he wanted to take a ride of the Komsomol railway there. We got on its train operated by boys and girls of seemingly high school age. After that, we visited “Rynok” (open sky market), a department store, and so on. We then took a public bus to Kholmsk, which is 40 km west of Yuzhno-Sakhalinsk. Parallel to the highway, a railroad is seen from time to time. But we had known from our Sakhalin trip of the previous year that it is not used anymore.

After we reached Kholmsk, we found that there is a passenger service from there to Yuzhno-Sakhalinsk once in a day or so. The train makes a big detour. It goes first heading for north from Kholmsk to Ilinsk, and turns to east to reach Arsentievka, which is the sta-



Photo 2. Market (“Rynok”) in Yuzhno-Sakhalinsk, Sakhalin (Credit : H. M. 2002)

tion of the trunk line connecting the town of Nogliki in northern Sakhalin with Yuzhno-Sakhalinsk. Such railway transportation is important for cargo. Then it looks strange for us that the train does not directly go from Kholmsk to Yuzhno-Sakhalinsk. Only after we finished our whole trip, Professor Kishi found out that there were many narrow tunnels in the line directly connecting Kholmsk with Yuzhno-Sakhalinsk so that it is dangerous for cargo trains pass through such tunnels. Such old tunnels were built in the Japanese era. But there is not enough money in the present day Sakhalin to rebuild new wider tunnels. At the same time, however, the cargo transport between Kholmsk and Yuzhno-Sakhalinsk is important. That is why the big detour route has been being used until today (Kishi, 2003).

August 8, City Walk in Kholmsk

In the morning and afternoon we enjoyed city walks of Kholmsk. It is not crowded, rather quite city. In late afternoon, a large railway ferry named ‘Sakhalin 7’ from Vanino anchored in the port. Many cargo trains came out from this ship with commodities. In turn, a long chain of the same type of cargo trains slowly went into the ship, but without any commodity.

Such empty trains may mean that oil and natural gas are only commodities which Sakhalin supplies to the continent while all kinds of things move in to the island from the continent as far as the Russian domestic products are concerned. The shipment of oil and gas, however, is by under water pipe lines in the northern part of the island toward De Kastrî in the continent so that it has no relationship to the Kholmsk port.

We shopped quite a lot of food and drinks in preparation for our overnight ferry trip



Photo 3. Cargo Trains in Kholmsk, Sakhalin (Credit : H. M. 2002)

to the continent. At night we got on board of ‘Sakhalin 7’ heading for Vanino across the Mamiya/Tartar Strait.

After this, we started a long journey by the Baikal-Amur Railway from Vanino to Tyshet, via Komsomolsk-na-Amure, Tynda, and Severobaikalsk and by the Trans-Siberian Railway from Tayshet to Irkutsk. But that railway journey is already described, though in Japanese, by Murota and Kishi (2003) so that we omit to tell this trip in this research report.

References :

- Kishi, M. (2003), a personal communication with Takeshi Murota.
 - Richmond, S., M. Elliot and fine others (2003), *Russia and Belarus*, third Edition, Melbourne : Lonely Planet Publications.
 - Vysokov, A. (1996), *Brief History of Sakhalin, Yuzhno-Sakhalinsk*.
- With regard to other references not shown above, please see the references of Chapter 4 (pp. 97–98 of this report).

Chapter 3

Travel Diary in Lower Amur, Magadan and Southern Kamchatka

In August 2003, starting from Khabarovsk, we visited Nikolaevsk-na-Amure, Komsomolsk-na-Amure, Magadan, and Petropavrovsk-Kamchatskiy. This chapter is a day-to-day memorandum of this three-weeks journey into the heart of Russian Far East. Results of our interviews with the specialists in each area and our literature readings before and after the trip are presented here to demonstrate, if not fully but partly, the current situation of the post-Soviet economy, ecology and tourism in the areas we visited.

Friday, August 1, Day of Get-together from Moscow and Niigata

As a beginning of our field trip, three people headed for Khabarovsk in August 1, 2003. Three mean Tamara Khantashkeeva, Takeshi Murota, and Haruna Murota. Tamara flew from Moscow to Khabarovsk, and so did Takeshi and Haruna from Niigata, Japan.

Tamara's arrival there was 15 : 05. Immediately after the check-in at Tsentralinaya Hotel in the south of Lenin Square, she started investigating a convenient way to visit the Lower Amur, hopefully as far down to Nikolaevsk-na-Amure. It is easy to go to Komsomolsk-na-Amure from Khabarovsk because there are relatively frequent train and bus services between those cities. With the information of several travel agencies, Tamara found out that it is not so easy to reach Nikolaevsk-na-Amure within several days. She was informed, however, that there is a very fast service by some kind of boat as an only one possibility.

Obtaining that much of data, she went back to the Khabarovsk airport to meet Takeshi and Haruna who should arrive there at 19 : 25 by the Dalavia (Дальвиа) flight H 8-310, which departed Niigata at 15 : 30. It was cloudy and the ground temperature was 17°C.

Getting together at the airport, we took a trolley bus to the center of the city. The fare was 4 roubles per person. Takeshi and Haruna also checked in at Tsentralinaya Hotel. Round the dinner table, we discussed how to reach the Lower Amur and come back within a short period of time. One possible way may to go to Komsomolsk-na-Amure first by train or bus and then to find a bus connection from there to Nikolaevsk-na-Amure. Or we may use a fast-running hydrofoil boat all the way through from Khabarovsk to Nikolaevsk-na-Amure. Hydrofoil boat is called "raketa" (ракета) in Russian. That is the way Tamara was informed of.

Without a conclusion, we fell asleep this night.

Saturday, August 2, Construction Works Everywhere in Khabarovsk

It was cloudy as yesterday. This day became a day of city walks and information collection. We collected general information of Khabarovskiy krai and Magadan oblast as much as possible. Tamara made phone calls here and there as a continuation of her effort of finding a good way to visit the Lower Amur. Takeshi purchased several kinds of maps of Amur River Basin in the book store near Tsentralinaya Hotel.

A travel agency downtown told Tamara that reservation tickets of “raketa” for August 3 had been sold out and suggested to directly go to the River Station to find out a way to get on board without reservation. The agency also added that the arrangement of passenger seats of the boat are very tight like the ones of an airplane and that the fare is rather expensive.

To know the details of such a river boat trip, we went to the River Station (Речной Вокзал) on the beach of Amur River. There we were informed that there is such a boat

which daily connects Khabarovsk with Nikolaevsk-na-Amure. People near the station told us that it is possible to get on a boat if we just come to the side of the boat a half an hour or so before the departure time of 7 : 30. It will arrive at Nikolaevsk-na-Amure near midnight of the same day. Since an existence of such a regular bus connection between Komsomolsk-na-Amure and Nikolaevsk-na-Amure was not certain, we decided to use “raketa” however its seats are tightly arranged.

Then, the only thing we have to do was to come back to this station early in the next morning. Walking around the city, we noticed construction works going on everywhere.



Photo 4. Abundant Food Items in the Central Market in Khabarovsk (Credit : H. M. 2003)



Photo 5. Lenin Square Alive at Night Too, Khabarovsk (Credit : H. M. 2003)

Sunday, August 3, Hydrofoil Trip to Nikolaevsk-na-Amure

We woke up at 5 : 45 and took a taxi from the hotel at 6 : 10 to go to the River Station. By the time we reached there, many people were already waiting for the departure of a very flat river boat. We managed to quickly move into the crowd and got on board of the hydrofoil without any problem. After a while, Takeshi came to understand that “raketa” in Russian is equivalent to “rocket” in English.

The name of our boat was “Meteor.” In our understanding, this naming is meant to demonstrate that the boat runs as fast as a meteorite hit to the earth.

The one way fare from Khabarovsk to Nikolaevsk-na-Amure was 1,676 roubles per person. The water way distance between Khabarovsk and Nikolaevsk-na-Amure is more than 900 km. Total only 17 hours (from 07. 00 till 23. 45) are the time for the boat to cover such a long distance. It is an amazingly fast-going hydrofoil boat. Though it was a rainy day, we enjoyed the changing scenery on both sides of the boat. Vast view of the Sredne-Amurskaya plain was magnificent.

Sliding under a long bridge, the boat arrived at the River Station of Komsomolsk-na-Amure at 13 : 00. Stopping there only ten minutes or so, the boat moved downstream again. Within 15 minutes, it entered a small bay and stopped beside factory-like buildings. No passenger got off nor came on. After a while, we understood that it was a brief stop for refueling. The water way distance between Komsomolsk-na-Amure and Nikolaevsk-na-Amure is some 600 km.

After this refueling stop, the boat kept on going in a full speed until it reached Kise-

levka (Киселевка) at 18 : 10. After one minute stop, it departed. The next stop was at Tsimmermanovka (Циммермановка), and then at Sofiisk (Софийск). Sofiisk is a town near Lake Bolshiye Kizi (Большие Кизи). It stopped at Bogorodskoye (Богородское). Heavy rain was over by then. We occasionally had small drops of rain. It arrived at Susanino (Сусанино) at 21 : 25.

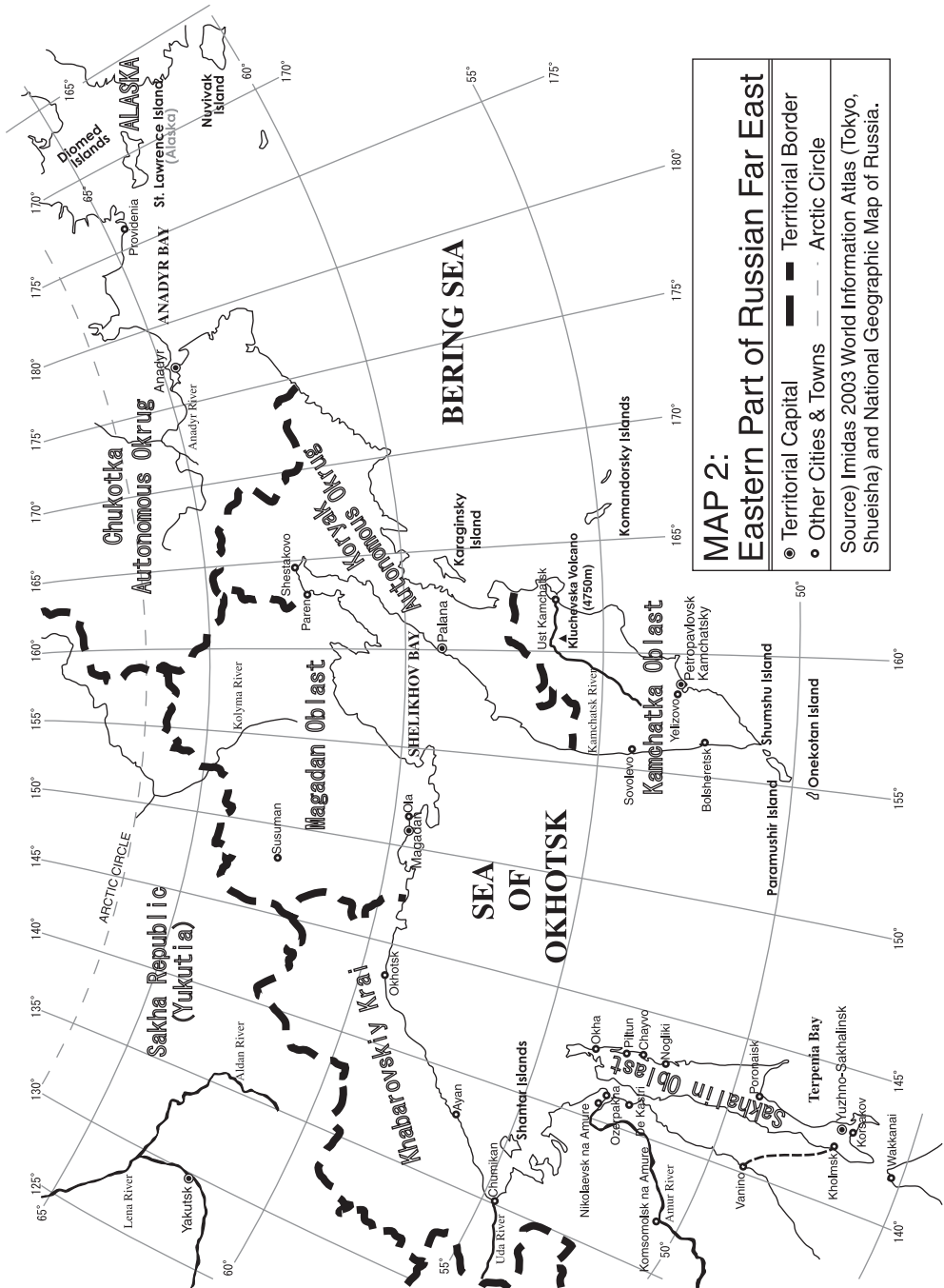
At 22 : 00, the boat reached Tyr (Тыр). It is getting dark. Several people got off there. Takeshi reminds that this was an important place in the medieval history of China. In the Ming dynasty in China, the Emperor Yongle (永樂帝 in Chinese) built a tall stone monument on top of the cliff facing the river in this town. By doing so, he wanted to demonstrate to the Mongolians and native peoples of the north that the influence of the Chinese Emperor was broad enough to cover the downstream area of Amur River (黒龍江, or Heilongjian in Chinese and Japanese). The Japanese explorer ; Rinzo Mamiya looked up that stone monument from afar, namely from a small boat, in his return trip to Sakhalin in 1809.

During the time Takeshi was contemplating such an oriental history, Tamara happened to talk to the captain of the boat and other crew members. They told her that the president of the company, which is operating ships and boats on Amur River, is on board of the very one of our trip.

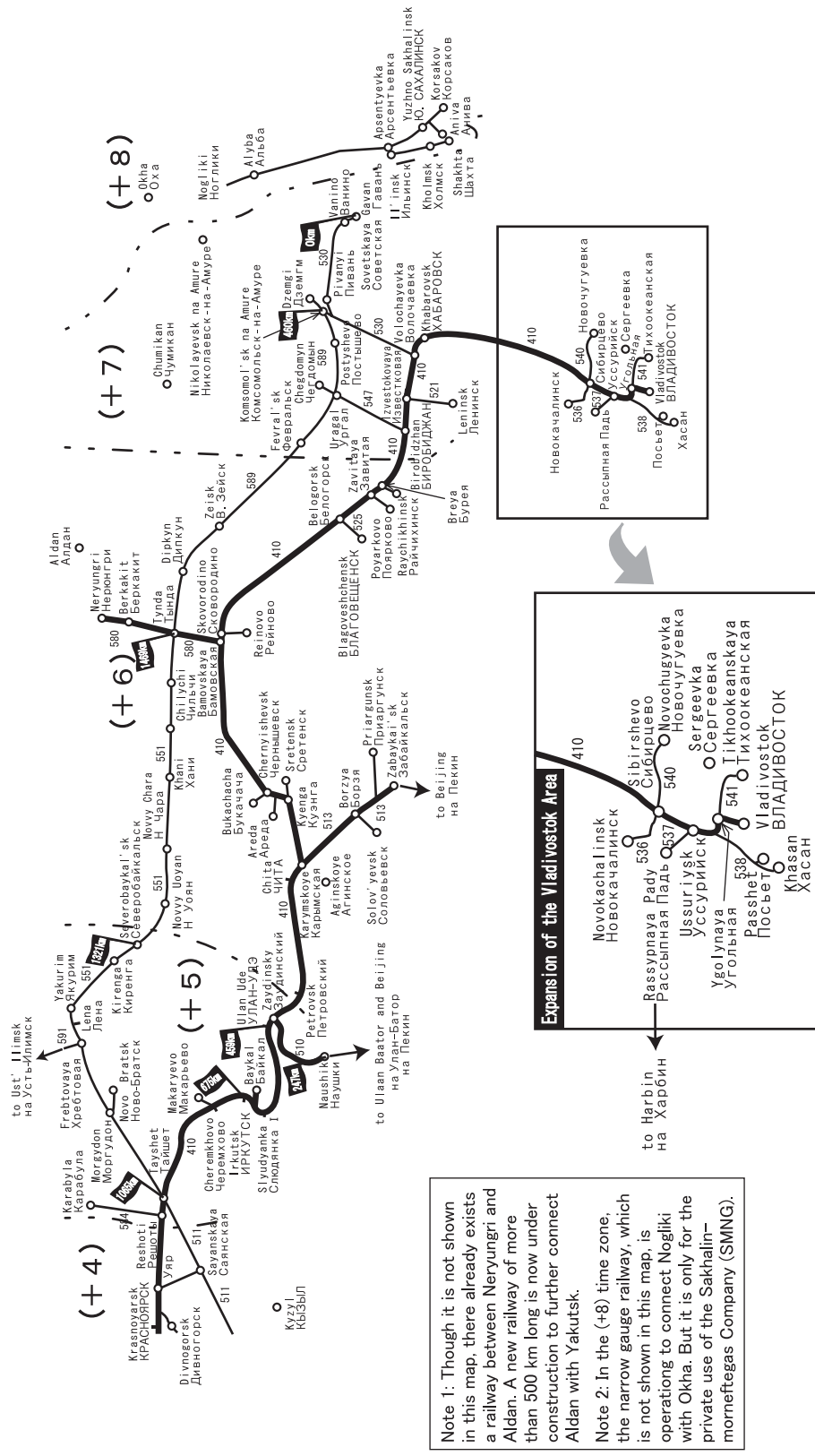
At 22 : 30, the boat stopped at Takhta (Тахта). By that time it became completely dark. Mago (Маго) used to be an important port for the timber export to Japan. Though we thought that our hydrofoil would make a stop there, it did not do so. In the meantime, Tamara met the president, and asked him if we could make an interview with him in Nikolaevsk-na-Amure the next day. He said that it was impossible due to his engagements there. But he told us that he could make some time to see us in Khabarovsk. The appointment was then made that we promised him to visit his office in Khabarovsk in the evening of August 7.

The boat arrived at the ship terminal of Nikolaevsk-na-Amure at 23 : 45 or so. When we landed on the shore, it was 24 : 00. Passengers who came down to the terminal seemed to be about 30–40 percents of the total number of people who had got on board in Khabarovsk.

The president of the company was so kind that he asked his company man to bring us by a car to a hotel in the city. The driver took us to Hotel Sever (Север). The reason why he chose that hotel for us was that its restaurant was supposed to be open until 3 : 00 am. We then enjoyed a very late dinner.



MAP 2



Note 1: Though it is not shown in this map, there already exists a railway between Neryungri and Aldan. A new railway of more than 500 km long is now under construction to further connect Aldan with Yakutsk.

Note 2: In the (+8) time zone, the narrow gauge railway, which is not shown in this map, is operating to connect Nogliki with Okha. But it is only for the private use of the Sakhalin-morneftegas Company (SMNG).

MAP 3. Railway Connections of Russian Far East with East Siberia, China, and Mongolia [Modification of the map in Murota and Kishi (2003)]

Monday, August 4, Short Trip to Ozerpakha

We chartered a car with the driver for a day by paying him 1300 roubles. The driver is a middle-aged man called Alexander. He first drove us around the city. We saw the anchor of the historical ship “Baikal,” the statue of Admiral Gennady Nevelskoy (built in 1913) and a cargo port. The ship named “Baikal” was the one which Anton Chekhov (1860–1904) was on board when he visited Sakhalin in 1890 from the continent. It is well known that he stayed in Nikolaevsk just one night before he got on board heading for Sakhalin.

We then decided to visit Ozerpakh (Озерпак) village 43 km east from the city since he seemed to know the area very well. The view of the river mouth was spectacular. Yellow water plant (grass or algae, we were not sure) is floating here and there on the enormously wide water surface.

Ozerpakh is a small village on top of the hill locating in the north of a bay which can not be distinguishable from the wide mouth of Amur River. We then noticed that steam vigorously coming out from two pool-like metal structures. One on top of the hill facing the bay, and another down at the beach of a more northern bay. Alexander informed us that the sources of such steam were the cooling systems of small thermal power generators which supplied electricity to the quick freezers of caught salmon. As such, Ozerpakh is a village of fisheries. Looking down at the bay which receives Amur River, Takeshi’s feeling was emotionally heightened by the historical fact that Rinzo Mamiya, a Japanese explorer under the Tokugawa shogunate government, passed that water course in a small boat under the guidance of aboriginal people in 1809 in his return journey to Northern Sakhalin after his adventurous trip to Deren via De Kastri Bay and Lake Bolshiye Kizi. Deren was a trade post between Chinese and native peoples of the north. It located at the right bank of Amur River, a little bit upstream of Sofiisk (Sasaki, 1996, p. 29).

Alexander told us his interesting observations of beluga (a small kind of whale). They come near the shore line and jet out water like fountains. From the hill of Ozerpakh village, people can easily see such a wonderful scenery. Middle of August is such a season. They not only wander near the shore but sometimes chase chum salmon upstream of Amur River as far as Takhta. When people cut their stomachs, they find many individuals of chum salmon neatly in row. Each beluga weighs some 3 tons and its length is about 3 meters.

A fisherman showed us an amazingly big head of fish called kaluga (калуга) which lied on the shore of a bay opposite to the river mouth. Kaluga (*Huso dauricus*) is sturgeon fish of Amur River and lakes of Russian Far East and listed in the Red Book of IUCN. He

also guided us to a wooden storage where its huge body was cut into several big chunks. He told us that some Chinese people buy the nose of this fish to make an ingredient of the oriental medicine out of it.

The present time, namely early August, is the spawning season of chum salmon (keta), while pink salmon (gorbuscha) spawn in July. Usually after the 20th of August, another group of chum salmon start spawning.

Tuesday, August 5, Hydrofoil under Blue Sky

The entire morning of this day was for the return trip by hydrofoil from Nikolayevsk-na-Amure to Komsomolsk-na-Amur. Departure had been at 23. 45 (August 4). Today (August 5) is a clear day, completely different from the rainy yesterday. The contrast between the vastly open blue sky and greens on both sides of the wide river is splendidly beautiful.

Arrival at River Station of Komsomolsk-na-Amur was at 12 : 45. We landed on the city at 12 : 50. Checked in at Hotel Amur, which is just two tram stations away from River Station. All of us were so tired and hungry that we did not have a power to investigate other hotels in the central part of the city.

We had a lunch in a very new restaurant inside the hotel. It was a Chinese restaurant. It became an expensive lunch, but the food was tasteful enough. We then went, by tram, to the railway station to purchase tickets for the night train to Khabrovsk tomorrow. One way ticket only costs 400 roubles per person.



Photo 6. Amur River so wide at Komsomolsk-na-Amure (Credit : H. M. 2003)



Photo 7. A Corner of Rosneft Oil Refinery Plant, Komsomolsk-na-Amure (Credit : H. M. 2003)



Photo 8. A Little Girl on the Railway Platform, Komsomolsk-na-Amur (Credit : H. M. 2003)

Wednesday, August 6, Day of Two Interviews in Komsomolsk-na-Amure

This day, we made two interviews, the first with the people of the Rosneft (Роснефть) Company and the second with the city official of Komsomolsk-na-Amur.

Using a bus, we went to the factory of Rosneft Company in the suburb of the city. Tamara was successful to make an appointment of interviewing a person of the publicity department of the company at 14:00. Since we had a plenty of time before that, we attempted to find a place to have lunch. Some people walking near the factory suggested us to go to a town in the northward direction. We then walked accordingly.

We saw, on the way to a town, pairs of enormously fast fighters taking off one after another into the blue sky with keen noises from behind the nearby forest. In the summer of 2002, we also had been in this area and heard keen noises. At that time, however, we had thought that it was the noise of some kind of engine tests on the ground (Murota and Kishi, 2003). We now understood that it came from real flights of fighters. We were near the vast site of factory complex of the Gagarin Aircraft Manufacturing Association.

Though we reached a town, there is neither restaurant nor café. We then bought a few kinds of food at a small shop and had a small lunch there. We asked some people what the



Photo 9. Vast Space of Railway Station, Komsomolsk-na-Amure (Credit : H. M. 2003)

name of this town was. They told us that there was not a particular town name and that it was only called “No. 6.” In the Soviet era, this area must have been strictly closed to the outside people. We then came back to the front of the Rosneft company.

Almost exactly at 14:00, a fashionably dressed lady came in a car, and greeted us there. She was the person with whom we were to interview. Her name is Elena A. Schcherbakova (Елена Анатольевна Щербакова). She is a free journalist and a publicity personal of Rosneft. She invited us into an office inside the factory and started kindly answering our questions.

On the history of the factory, its construction plan was made in 1938 to receive crude oil from Sakhalin and to refine it. The construction started in 1942 and continued until 1953 as far as its first staged was concerned.

The pipeline at the beginning stage of the factory was from Okha (Оха) to Sofiisk (Софийск). The capacity of oil refinery at the stage of 1952 was only 5,000 ton per year. It increased up to 1.5 million tons per year in 1970.

In 1998, a plan of reconstruction was made concrete. Main products are gasoline for automobiles and jet fuel at this moment.

Elena was so kind that she asked the company car to take us back to the city center. The car stopped at the entrance of the city hall and she arranged for us to make an interview with a young city official, Mr. Alexander Pilenko. From 16:30 we interviewed him. According to him, about 60% of the total amount of industrial products of Khabarovsk krai is made in Komsomolsk region. The leading sectors of such industry are aircraft manufac-

turing and ship building.

In terms of the relationship with Japan, Komsomolsk-na-Amure is a sister city of Kamo-shi, Niigata prefecture, Japan. Under the agreement between the two cities, a group of boys and girls at the ages 12 to 14 visits Komsomolsk in every two years from Kamo-shi. The current population of Kosomolsk-na-Amure is about 280,000.

The aircraft industry of this city occupies one of the leading positions in the entire Russian Federation. The military aircraft, Suhoi-27 (Cy-27) is especially popular in Asian countries and its sales amounts a lot. At present, the contract with China is the largest. With respect to civilian airplanes, large demand is from the United States. Majority of such demand is for the water plane : Be-103. Demand for the cargo plane : Suhoi-80 is also from the United States.

About 10,000 people are working in the aircraft company. Their average wage is 11,000 roubles per month. Aircraft engineers are often invited by China these days.

Though the oil industry is not the central part of the industry of Komsomolsk, it is active in many ways. It is ready for receiving the recognition of ISO 14000 series. It is also one among the several most active areas of industry which will make demonstrations in the Khabarovsk Fair in September 2003, together with aircraft, metal, metal-process machines, crane, and welding.

According to Mr. Pilenko, the city has an idea of promoting tourism industry. As an example of this, the city is going to participate in the Tourism Fair which will be held in Tokyo in October 2003. As a concrete plan, the construction of ski resort area is planned to invite both domestic and international tourists. Tours such as canoeing, which have some adventurous elements, seem to have high potentials of development. Until now, however, most of the tourists from overseas have been either for business or thanks to the invitation of the city. Rearrangement of hotels and other infrastructure is needed for the city to be truly attractive for tourism, we felt.

With respect to the international trade of Komsomolsk region, it exports timber and imports automobiles to and from Japan. The 68% of its total exports go to China. In this sense, the tie with China is very strong among others.

After this interview, we took a night train to Khabarovsk. Departure was at 23 : 10.

Thursday, August 7, Interview with the Director of Amur River Shipping Company

The arrival at Khabarovsk was about 6 : 54 as scheduled. The railway distance from Komsomolsk-na-Amure to Khabarovsk is 388 km. From the railway station we took a taxi

to Tsentralinaya Hotel and checked in there again. (The taxi fare was 100 roubles.) Since we did not have enough sleep in the train, we took a nap until 13 : 00, and then did washing clothes, unpacking repacking lugages, and so on.

One important interview was waiting this evening. When the hydrofoil arrived at Nikolaevsk-na-Amure in August 3, the president (general director) of the Amur River Shipping Company promised us that he should make some time to see us in Khabarovsk.

We then visited the headquarter of the company located at the western end of Muravyova-Amurskogo Street. Mr. Anatoly B. Galuzinkiy (Анатолий Борисович Галузинский), the General Director, was waiting for us at 18 : 00 in his office. We immediately started the interview with him. It enjoyably lasted until 20 : 00.

He lived in Nikolaevsk-na-Amure for 28 years. He then came to Khabarovsk in 1997. According to him, all of the river transportation had been taken care of by the former body of his company during the Soviet era. In other words, all of the ships were owned by his company. At present time, however, not all but 75% of ships belong to his company, and the remaining 25% belong to newly formed private companies.

During the Soviet era, the Amur Shipping Company handled 30 million tons of cargo per year. One of its major business was to ship the coal from Poyarkovo to Amursk and Komsomolsk. At the same time, the transportation of mineral resources including construction materials was very important. The company annually handles 18 million tons of such resources.

In the present time, there is no need to ship coal to Komsomolsk-na-Amure because the city is now using natural gas in stead.

We asked him how the transportation is going on Sungari River (р. Сунгари in Russian ; 松花江 in Chinese), which is a right hand tributary of Amur River. He answered us that 22 Russian cargo ships were engaged in transporting 250,000 tons of timber last year (2002). The final destination of such timber is mainly China and Japan. He also informed us that the Chinese ships now have connections with Khabarovsk. Their items of transportation are rice and soy bean, which amount 90,000 tons per year. As far as the transportation in Ussuri River (р. Уссури ; 烏蘇里江 in Chinese), which is a natural border between Russia and China, Russian ships distribute coal to small villages in such border areas. Though the Chinese ships did not utilize Amur River in the Soviet era, they recently started using it as a result of improvement of the Russian-Chinese cooperative relationship.

We then switched our questions to the level of passenger transportation on Amur River. According to him, 40 ships transported some 1,700,000 passengers last year. Some

of them are tourists visiting certain places between Blagoveshchensk and Nikolaevsk-na-Amure. But the majority of them are the short-distance travelers who go and come back to and from their dachas along Amur River and its tributaries. These days, many travelers are moving between Khabarovsk and Fuyuan (ФУЮАНЬ in Russian ; 撫運 in Chinese), which is a Chinese port in the south west of Khabarovsk.

About this short trip to Fuyuan, an English guidebook tells : “From mid-May to mid-October, every other day at around 8 a.m., a hydrofoil departs from the river station at Khabarovsk for Fuyuan (870 roubles, one hour and a half), a small town on the Chinese bank of the Amur River. To do this trip you will need a Chinese visa and a double/multiple entry Russian visa.” (Richmond, et al., 2003, p. 587)

Back to the issues of cargo transport, Mr. Goluzinskiy told us that 240–240 thousand tons of coal, other fuels, and non-fuel commodities are annually shipped to the towns and villages such as Okhotsk along the northwestern coast of the Sea of Okhotsk. The share of food stuffs among them is about 10%.

But Amur River freezes in winter. River transportation is possible only in 5 months. In the remaining 7 months, the commodities destined to the Sea of Okhotsk area are transported to Primorye krai. The day when ice melts enough and river transportation begins varies year to year. Speaking the average, Mr. Goluzinsky told us that it is May 1 in Khabarovsk. Such open days are May 25 in Nikolaevsk-na-Amure, and July 1 in Jamusi (ЦЗЯМСЫ in Russian ; 佳木斯 in Chinese), which is an industrial city along Syngari River in China.

We also discussed the water quality of Amur River. According to him, water is clean down to the confluence with Zeya River. After Blagoveshchensk, however, it starts being polluted. He thinks that the source of this problem may be the discharge from the rice paddy in Heilongjian Province of China. The water of Amur smells phenol in summer. Some kinds of phenol compounds may evaporate from water in the hot season, while they may concentrate within water column when the surface water of the river freezes so that they cannot evaporate into air.

This problem of Amur River pollution was also mentioned in some Japanese media before our trip. According to *Russian Far East Journal* (2003, p. 11), some citizens of Khabarovsk noticed a bad odor from the water from Amur River in May, 2003. The odor did not disappear after boiling such water, and became rather stronger. In addition, it was reported that water pollution of extremely high level was detected from the Amur River waters from several places near Khabarovsk in June, 2003. A hygienist of Khabarovsk krai

warned people in June not to swim in Amur River.

We then asked him if there is a close connection between ship and railway transportation. He told us that there is an agreement with the railway side to make the connection easier. The point of connection is Pokrovka: river port of the town called Tel'mana (ИМ. ТЕЛЬМАНА), which is the opposite side of Khabarovsk. Though there had been such a connection in the Soviet era, it ceased to exist for a while. But the connection became open again last year (2002).

With regard to the ship transportation to upstream area of Amur, some ships used to go up to Chita Oblast, though not often these days. The cargo ships of 600–800 tons class are navigable up to Chita city as of dragging barges. The maximum is 10 barges, each carrying 60 tons equivalent to one cargo of a train. Since Sungari River is deep, ships up to 1,200 tons class can go up to Jamusi. It may be worth noting that the river distance from Chita to Nikolaevsk-na-Amure is 3,613 km.

Mr. Goluzinskiy mentioned about the Bureya (Бурея) Dam, the construction of which started some 20 years ago. It was recently completed. “President Putin attended its completion ceremony,” he said. According to a Japanese source before our trip, first turbine operation in Bureya hydroelectric power station had been expected in June and it had been said that Putin was going to visit the station in July 9–10 (*Russian Far East Journal*, p. 15). This corresponds to the story of Mr. Goluzinskiy.

Distance between Bureya and Blagoveshchensk is 654 km. Distance from Blagoveshchensk to Khabarovsk is 993 km.

The total amount of cargo transportation in all Russian rivers was 50 million tons last year (2002), 1.5 million tons out of which was the transportation on the Amur. The Amur Shipping Company is now preparing for its 150 years anniversary which will come in 2004. While the size of its business has shrunk compared with the Soviet era, a new business is now expected. There is a small sea port terminal in De-Kastri at present. But the construction work of its enlargement is going on. This construction is under the Sakhalin I project, which we will describe in Chapter 4 of this report. A new business means the transportation of materials for this construction.

According to the statistics which Mr. Goluzinskiy showed us, the average salary of workers in Khabarovsk Krai is about 7,500 roubles per month. “The one of workers in the shipping industry is almost at this level, namely 7,400 roubles per month,” he said.

Toward the end of our long interview, we asked him the capacity of the hydrofoil, which we took in August 3. The answer was that its maximum number of passengers are

110 and the maximum speed is 65 km/h. Mr. Goluzinskiy offered us a little sips of wine and cognac. Our interview thus joyfully ended shortly before 21 : 00.

After we left his office, we had a dinner in a very new, fast-food type restaurant along the main street. It was very crowded. It seems to be a very popular restaurant. Its interior and outlook as well look fancy. This kind of shops may be symbolizing recent lives of developing Khabarovsk.

We stayed at Tshentralinaya Hotel this day, too.

Friday, August 8, Interviews at TINRO and Economic Research Institute

We made a morning interview with Mr. Herman V. Novomodniy (Герман Владимирович Новомодный) of TINRO (ТИНРО) from 10 : 00.

He told us that, in Khabarovskiy krai, the fish of economic importance are three kinds ; (1) salmon, (2) herring, and (3) crabs. To our question about sturgeon in Amur River, he answered that no license has been issued for sturgeon fishing in Russian Far East for the last two years because the fish recently became quite scarce. According to him, however, China is still catching sturgeon by 300–500 tons per year. He thinks that this much of catch is causing a bad influence on the Russian side.

Takeshi wanted to know about the upstream migration of chum salmon at the maximum. According to Smirnov (1976), the maximum spawning run of chum salmon in Amur River was known to be 2,000 km from the mouth. But it was the publication of more than a quarter century ago. What is the current situation? It was Takeshi's question. Mr. Novomodniy told us that there are some schools of chum which go as far as up to 2,000 km even now, though the number is less than in many years ago. More exactly, the area 2,000 km from the mouth of Amur is the confluence where Silka River and Arguni River merge in Chita Oblast to become Amur River, he said.

We asked a question if there is or are artificial hatcheries in the Amur River catchment area. He answered us that five hatcheries exist in the Amur River Basin. Two in Birobijan area and three others in Anyui River (р. АНЮЙ) area. (Birobijan belongs to the Jewish Autonomous Oblast. Anyui River is the right hand side tributary of Amur River a little bit downstream from Khabarovsk) Birobijan hatcheries are said to locate in the area 1500 km from the river mouth.

About biodiversity, Mr. Novomodniy thinks that there is not much anthropogenic influence in Khabarovsk Krai, but that problems may be in China. For example, it used to be that many salmon ascended Sungari River. But it is very less now. Reason seems to be that

it is very polluted by agricultural waste water contaminated with pesticides/herbicides and chemical fertilizers in Heilongjian Province in China. He added that the Ussuri River basin is more populated area.

He thinks that, in China, artificial fresh water fisheries are more popular.

Until 30 years ago, people could drink water of Amur River. But now, they do not dare to do so because they know that it is polluted.

Water is clean down to Blagoveshichensk. But the river is polluted after there.

In the afternoon, Takeshi and Haruna wanted to do money exchange and looked around several places downtown. The quotations at the foreign exchange office of Регио Банк inside the building of a downtown jewelry shop were :

Exchange (buying) rates :

\$1	30.14 roubles
1 Euro	33.87 roubles
100¥	23.50 roubles
10 Chinese Yuan	31.60 roubles

This was the highest exchange rate in the city as far as we checked. In other places, quotations of US dollar were 29.90, 30.06 and so on.

The afternoon interview of August 8 was made at the Economic Research Institute, Khabarovsk Branch, RAS. By using a bus, we visited the institute which locates a little bit far from the center of the city. We were able to make an interview with Dr. Alexander S. Sheingauz from 15 : 00. He is the Deputy Director of the institute. His research of the current economic situation of the Russian Far East is well known not only inside Russia but in an international academic scene as is shown in Sheigautz, et al. (2002).

He answered our questions both in English and Russian. His talks were as follows. Since the collapse of the Soviet Union, decrease in agricultural production has been seen. The mineral resources production has showed the same trend. Especially, the production of lead and tin became almost zero. Major mining products in Khavarovsk krai are gold and platinum.

With respect to agriculture, decrease in grain output has been seen. In contrast to this, however, increase in soy bean and potato production has been known. This is for exports to China, and partly to Siberia.

Decline in forestry in general is another issue of concern. While the output of round timber has increased, the one of lumber has decreased. Paper and pulp industry has de-

clined not only in Khabarovsk krai but in Sakhalin oblast. While there were 7 plants in Sakhalin, only one is now operating. There was a big one in Khabarovsk, but zero now.

Forestry-related activities show the shift to the harvest of raw materials instead of the manufacturing of processed items. From the common sense of economics, it should be the reverse. The reason why forestry is in a declining trend is that transportation is difficult, and fuels are expensive.

Forestry in Khabarovsk krai is about half of Far East and the third in Russia as a whole.

Forest industry exists in Amur oblast, Primorye krai and Sakhalin oblast in some extents. In other parts of Far East, forestry is not big. It is almost nil or just about to meet the local demand at the maximum.

Only one paper and pulp company remains in Sakhalin. It locates in Sinegorsk. But it is close to a bankruptcy. In the Soviet era, a plan had been made to establish a new paper and pulp company in Poronaysk, but it was not materialized.

With regard to the economic relationship between Russia and China, both countries have been short of hard currency. Until the middle of 1990s, the barter trade had been the major trend.

A certain amount of food is imported from China. It is a subject of personal consumption in Russia. To China, this area exports mainly timber and oil.

From the early stage of Perestroika, direct investment started being seen from foreign countries. China and Republic of Korea (South Korea) participated in such direct investment. Then Canada, Singapore and Taiwan began to participate. Diversification in items for investment and in countries of participation has recently been seen.

Direct investment in forestry by the Malaysian capital is known these days. The number of joint ventures is becoming less and less.

With regard to the relationship with China, it is noticeable that criminal aspects are seen in the trade in the sense that illegally cut or caught timber and wild animals in Russia are exported to China. A typical example of such animal is small musk deer called kabarga (кабарга). Porching and contraband are the matter of every day business.

We asked what the recent status of native peoples in the Russian Far East. He told us that it is not getting better, but that more freedom for them has been seen.

Freedom means both ways ; positive and negative. Positive side is seen in that authorities now attempt to recognize the traditional native resource use and to set up the territory of traditional native resource use. 40% of Khabarovsk krai is assigned as such a

territory. The emphasis is on the formation of their own communities based on traditional native resource use. Negative side is seen in that as some Russian become poorer than before, some native people become poorer too. According to the research work financed by Germany, even children drink alcohols.

To our question on the characteristics of forest in Khabarovsk krai, his answer was the followings: Larch consists of about 50% of the total forest area. Other trees are mostly spruce, fir and birch of many species. The tree which recently is considered important is cedar (Korean pine). Roughly, the southern part is the zone of mixed taiga with larch, spruce, fir, birch and aspen. In the north, in addition to larch, Kamchatka stone birch can be seen. If you go more north, then you find the land of tundra.

He then talked of forest fires. In 1998, the historically greatest fire occurred. As a result, 2 million hectares of forest mostly in Khabarovsk krai and Sakhalin oblast burned down. In average, 3 hundred thousand hectares/year are lost by wild fire. There occur catastrophic forest fires in every 10 years.

The cause of wild fire is divided into two. Natural ones account some 80%, while man-made ones 20%. Natural ones are especially due to dry weather and thunder.

Economic losses of forest resources by wild fires were estimated to be a half billion roubles in 1996 and six million roubles in 1998. Air patrol was relatively strict in the Soviet era. But it is not so much now because of financial problems.

We asked what the major causes of man-made fires are. He pointed out just a couple of examples. During the work of hay making, some people set fire at a time of rest and such a fire extends to nearby forest. Or, some people enter forest for wild grass picking or mushroom collection and make fires for cooking and so on. Such fires then become extinguishable.

On the problem of illegal cutting, he firstly quoted the figure that the annual amount of legal felling is 20 million m³. In his opinion, the amount equivalent to 40–50% of this much can be considered to be illegally cut annually. In Sakhalin oblast and Sakha Republic, illegal cutting is mostly for the satisfaction of local demand. On the other hand, the one in Primorye and Khabarovsk krais is for export.

Illegal fellings pose serious social, economic dangers. He told us, however, that, they are selective fellings so that there is no serious problem from an ecological point of view. This opinion was a little bit of surprise to us. The issue has to be studied more in detail.

We asked him if afforestation has ever been attempted in Russian Far East. His answer was “Yes.” It was certainly attempted in the 1950s after the Second World War. Planted

area was 55 thousand hectares. The seed-seedlings system was established at that time.

Afforestation has been made mainly in Sakhalin, Khabrovsk, and Primorye. The type of trees planted was European pine at the beginning and Siberian pine and Kuril pine afterward. Birch and aspen were also planted.

Today, the afforestation of 10 thousand hectares/year is carried out. It is mainly in Khabarovsk krai. The area of afforested land is 0.3% of total forest in Russian Far East. He told us his observation that, without planting, natural growth of trees is very vigorous. He rather thinks that the problem lies in the exhaustible use of natural resources.

To our question on pollution, he said that the main cause of pollution is automobiles in cities. As to rivers, factories count a lot to contaminate water. Khanka Lake (Озеро Ханка — its northern part belongs to Russia and does its southern part to China) has a pollution problem due to the industrial and other economic activities around it.

Tin and lead mines in Primore Krai seem to be the sources of pollution. Such mines locate in Gornorechinsk (Горноречинск) and Dal'nerechensk (Дальнереченск).

“To consider the pollution problem in the Amur River catchment area, a demographic factor is also important. The populations in the Amur River catchment area are 5 million Russian people and 99 million China people,” he said. This certainly is a big issue.

Saturday, August 9, Arrival at Magadan and City Walk

To take a flight to Magadan, we woke up at 7:40, and left the hotel at 8:40 for the airport by the taxi which we had reserved last evening. Arriving there, we found that the domestic terminal was awfully crowded while the international one was nearly empty. The time of take-off was about 11:30.

We arrived at Magadan airport at 13:45. We then took a public bus which left the airport at 16:50. The road-way distance between the airport and the Magadan City bus terminal is about 50 km. Approaching the city, we found it covered by white layer of mist. It seemed to be a special kind of weather of the city facing the Sea of Okhotsk. The bus reached the terminal at about 17:40. Getting off the bus, we felt the air very cool. We checked in at the hotel called “Magadan Hotel” just opposite of the bus terminal across the street, without thinking much about price and location, because we have been tired a little bit.

The first thing we had to do in Magadan was to purchase our air tickets of August 14 to Petropavlovsk-Kamchatky. It had been our original plan. According to the travel information which Khantashkeeva had obtained in Moscow before she flew from Moscow to

Khabarovsk, we (three persons — Khantashkeeva, myself, and our assistant) were supposed to be able to fly to Petropavlovsk-Kamchatky directly from Magadan.

Tamara then made telephone calls to several places in Magadan. The result was the most undesirable one. They told Tamara that there is absolutely no flight from Magadan to anywhere in Kamchatka due to a very recent change in air regulation. There is a flight once a week or so to Anchorage, Alaska, USA. It stops at Petropavlovsk-Kamchatky only for refueling, without letting people get on or off there.

Knowing this entirely unexpected news, we were in a panic. We started thinking out of every possibility, seemingly realistic, only imaginary or whatever it is. We then thought of returning to Khabarovsk from Magadan, and of going from Khabarovsk to Kamchatka. But Tamara was informed that there were no tickets available for such a trip until the middle of September while we definitely did not have time and money to wait for so many days in Khabarovsk.

We had a dinner at a restaurant called “China Town.” The food was reasonable. But our minds were not so pleasant because of a thought that we could not visit Kamchatka at all.

Takeshi was annoyed by the big noise until early morning of August 10.

Sunday, August 10, Day of Salmon Watch in Ola River

The hotel people told Tamara that the noise came up from the discotheque in the first floor of the building and that Takeshi’s room was just above such a noisy spot of the city.

Surveying the map of Magadan oblast, we found a seemingly large lagoon area east of the town named Ola. We then decided to make a short trip to Ola by public bus. We took a bus of 14 : 20 to the town of Ola which is about 50 km east of the city center of Magadan. The one way fare was 31.75 roubles per person. We saw, on the way, the area of well managed dacha in the suburb of the city. Many kinds of vegetables were growing.

After one hour or so, the bus crossed a big bridge over a wide river, which is called Ola River. Many people are fishing on the shores. Shortly after the bridge, the bus arrived at the terminal. But we could not find any café or restaurant in the small town. Then we bought a few things at a kiosk-like shop, and had a lunch in a small park. Another thing we found was that it is very difficult to reach the lagoon area within a short period of time. We then walked back to the direction of Ola River.

There were astonishingly many carcasses of pink salmon at the bottom of water near the left bank of the river and on its shore as well. At the same time, however, very clean



Photo 10. Pink Salmon Carcasses along Ola River, Magadan (Credit : H. M. 2003)

water was running down toward the Sea of Okhotsk. Stink from the carcasses was quite strong all over the shore. It is said that such stink is the nature's signal to tell other animals that there is a large amount of good protein food here. The average line density of carcasses dispersion was some 50 individuals per five meters as for as Takeshi counted.

We can say that this river is a great course for ecotourism, which we accidentally encountered.

To return to the city, we took a bus departing at 18:50. We had dinner at the café called 'Fiesta' just across the street from Magadan Hotel. We stayed there this night too. It was less noisy than yesterday night. But it was still noisy.

Monday, August 11, Visit to the North East Research Institute

From the hotel we walked out to search where the building of the Magadan branch of RAS is. After asking many people where it is, we finally found, about 11:00, the building, which we understood to be the one of RAS. In the building we found a man called Yurii. He welcomed us at his office. He is Yurii Ivanovich (Юрий Юрьевич Иванов), the Scientific Secretary of North-East Interdisciplinary Research Institute, RAS and is a geomagnetism specialist.

Talking to him, we understood that Magadan has the North-East Scientific Center of the Russian Academy of Sciences, Far East Branch, and that the center is divided into two institutes; the one is the North East Interdisciplinary Research Institute and another is the institute specialized in biological research. The latter locates not too far from the building we walked in first.

According to him, there are 17 laboratories in his interdisciplinary scientific research institute. At present, German and Italian geologists are visiting Magadan for research.

We also talked to Dr. Sedov, a geophysicist. He is a very friendly person.

In the afternoon, we decided to move out from Magadan Hotel to Okean Hotel, which is very close to Nagaeva Bay. The view from Takeshi's room is very nice. This was a good compensation for the noisy two nights at Magadan Hotel.

We had dinner together with Yurii at a kebab (ШАШЛЫК) restaurant. The manager is a cheerful Azerbaijan man.

Tuesday, August 12, Interviews, Geology Museum, and Mask of Sorrow

We woke up at 9:00 and hurried to the institute of yesterday. From 10:00, we made an interview with the Deputy Director of the North-East Interdisciplinary Scientific Research Institute, i.e., Dr. Nikolai A. Goryachev (Николай Анатольевич Горячев). He is also the Head of Laboratory of Geology of Ore Lode Deposit. He was so kind to spend some time with us, though he looked very busy. He has many experiences of visits to Japan. He told us that he is going to be invited to Nagoya, Japan in September 2003.

According to him, there are more than 300 mining enterprises in Magadan Oblast. Gold mines are mostly 300–600 km away from the city area of Magadan. In the central part of the oblast, there is also a coal mine district. He told us that the problem of old mines was that they were still using inefficient old technology.

80–90 million years ago, volcanic belt was active in the Magadan region. Its activities stopped 60 million years ago.

Mining town called Hasyn (Хасын) has a refinery factory. Treating the ores from Magadan, Eastern Yakutia, Chukotka, Kamchatka, and some from Sakhakin. 31 tons/year.

3,000 metric tons of gold have been extracted since 1914 (i.e., in the past 90 years). In terms of history, a single proprietor paid attention on the gold potential in 1914. It was the beginning. In 1929, Soyuzzoloto (СЮЮЗЗОЛОТО) started serious development. In 1931, Dalstroy (Дальстрой) Trust started transporting the ore to Europe. Only from 5 years ago, refinery within the oblast started.

Research areas of the institute are : 1) geology 80%, 2) history and archeology, 3) economics of nature use. The institute has 25 doctors, 35 doctoral candidates, and 40 non-degree scientists. Their areas of speciality are stratigraphy, tectonics, magnatism, geophysics, paleomagnetism, seismology, petrochemistry, geochemistry, geology of oil and gas, GIS, X-ray analysis, and so on.

From 14:00 we made another interview with Dr. Natalia Goltseva (Наталья Васильевна Гольцева). She is the Head of the Laboratory of Economics, Northeast Interdisciplinary Science Research Institute, Far Eastern Branch RAS. She explained that the major topics of research in her laboratory are (1) sustainable development of gold mining industry in Magadan oblast, (2) fisheries, (3) power industry. It is also doing researches on the government sector and social geography (immigration and qualified labor).

The free economic zone exists in Magadan since 1999. It means that enterprises registered in this zone are free of taxes or enjoy reduced level of taxes.

Magadan is endowed with large potential of hydropower utilization. The first hydroelectric power station already exists in Sinegorye (Синегорье) region. The energy authority of the oblast is now finishing the construction of the second hydroelectric power station in Ust'-Srednekansk (Усть-Среднеканская) region. "Its completion will be within this year (2003)," she said.

We asked how much capacity they have. She did not know, but she said that its annual rate of generation is 2.5 billion kWh/year while the total consumption of electricity in Magadan Oblast is 2.7 billion kWh/year.

According to her, not only raw materials extraction and transportation but their processing is lately emphasized. In the Soviet time, gold ore sent to Central Russia. Refining of gold and silver ores is now carried out within the Oblast. The same trend (namely, more emphasis on processing) is also seen in fisheries industry. But there is a problem that illegal fishing is popular.

Permission (license) requires money so that fishermen in Magadan cannot buy much permission. Fisheries counts only 0.8–1.5% of the oblast's GDP. The number of permission issues used to be divided into regions as quota until 2000. Then auction system was introduced. Under this system, poor fishermen cannot obtain many number of permission. This kind of problem may be one of the reasons why people tend to do illegal fishing.

She told us that deposit of coal is of large amount in Magadan. But there is a problem how to use it after the completion of the second hydroelectric power station.

Placer gold mining is decreasing, while lode gold mining is increasing. Placer gold deposit of high grade has been depleted. But in some areas, its mining is still developing to support local employment. Gold mining in Magadan Oblast is now undertaken all by private enterprises. They have been calling for investment both from domestic and international sources. There are some Canadian participations. But the majority is Russian investment.

We asked who purchases gold. “Banks,” she answered. They do so in their hope of expected rise in international gold price. But there is no direct export of gold from here. Banks buys gold first, and they export it.

Per capita GDP of Magadan is about the average of Russian Far East. A dramatic decrease in population is seen in that 30% of total population of emigrated from Magadan after the Soviet collapse. Many qualified people have left Magadan because they have high potentials to get jobs outside. But emigration is not the only way of demographic movement. Seasonal jobs with high salaries in Magadan also attract people from Russia and Ukraine.

In the Soviet time, retired people did not stay in Magadan. There are, however, such retired people here now.

In terms of higher education, there are one university and 8 branches of other universities in Magadan. There is one Japanese department. There are exchange programs of students with Alaska State University.

After the interview, we met Yurii. He then guided us to the museum of geology which locates at the second floor of his institute. It is very well organized and informative. The displays of rocks and photos about Lake El’gytkhyn (озеро ЭЛЬГЫТХЫН) are interesting. The lake with such a native name in Chukuchi autonomous oblast is considered to be a meteor-made lake. And a lot of research seem to be going on about its history among northeast scientists.

Haruna tells us her first impression of Magadan that Magadan looks close to the United States much more than the case of Khabarovsk. There are many English signs in the streets of downtown Magadan. Magadan may be receiving relatively many Americans from Anchorage, Alaska.

Our activities did not end at the museum. We furthermore wanted to see the monument called the Mask of Sorrow “маска скорби”. A taxi driver says the fare is 240 roubles for an hour. It is not too bad. So we took the taxi and visited the hill of MASK with Yurii being our guide. The mask is a huge, concrete statue with staircase and visible far from the city center.

The names of concentration camps in the greater Magadan area are inscribed in the stones on the down slope of Mask. They are :

МАЛЬДЯК

КИНЖАЛ

ЖЕНЕКАНДЖ



Photo 11. Mask of Sorrow Tells the Dark Age, Magadan (Credit : H. M. 2003)

KAHEOH

and two or three other place names, where the camps existed.

An English guide book of Russia tells about Magadan : “Once known as the ‘gateway to hell’, Magadan’s awful origins spring from the great terrors of the Stalin era. In 1932 gold was discovered in the Kolyma region. A new administration, Dalstroy, was brought into being, under the auspices of the NKVD, to excavate the gold and other precious metals. The same year, the first prisoner-laden ships arrived at a bare, swampy site on Nagaeva Bay, on the inhospitable northern shore of the Sea of Okhotsk. The prisoners built docks and piers for the following ships, administrative blocks for their overseers and barracks for their guards. Eventually — though not before winter had come and thousands had died from working knee-deep in deathly cold waters and mud — they built their own flimsy accommodations.” (Richmond, et al., 2003, p. 613)

It was ‘Auschwitz of Soviet Union.’ The same book further writes : “If Kolyma isn’t a name as chillingly recognizable as Auschwitz, Belsen or Dachau, it is not because the horrors there were less awful, but because they were perpetrated by a secretive government on its own citizens and because they took place in an isolated, ice-locked region, 9000 km from Moscow. . . . From Magadan’s harbour the already wasted prisoners, little more than living skeletons, were marched along the infamous ‘road of bones’ to one of the region’s 100 or more camps.” (ibid., p. 614)

The Mask of Sorrow was built in the Yeltsin era in memory of those who had perished in such camps.

From the beginning of our trip, we often have been surrounded by the wild grass with purple-colored flowers. It was as if the entire land of Russian Far East is covered by those purple flowers. We saw the same flowers in the Mask area too. We asked Yurii what the name of that grass is. He said that it called “ИВАН-ЧАЙ” in Russian. But it sounded for us that it may be a local name, perhaps with another more common name. He then said that its nationally common name is “кипрей”. According to a Russian-English dictionary, which Takeshi looked at after our trip, is rosebay, or willow-herb in English.

We had dinner with Yurii in a downtown restaurant. Round the dinner table, we enjoyed conversations with him very much. We asked him what kind of fish people can catch in Nagayeva Bay. He then listed all names of fish which he knew in his boy hood. The following is his list with our English translation :

- | | |
|----------------|--|
| 1. навага | navaga |
| 2. корюшка | smelt |
| 3. мойва (уёк) | capelin |
| 4. треска | cod |
| 5. палтус | halibut |
| 6. горбуша | pink salmon |
| 7. кета | chum salmon |
| 8. кунжа | East Siberian char (<i>Salvelinus leucomaenis</i>) |
| 9. налим | burbot |
| 10. окунь | perch |
| 11. ёрш | ruff |
| 12. камбала | flounder |
| 13. сельдь | herring |
| 14. зубатка | walffish |

Wednesday, August 13, Interview, Market Survey, Art Gallery and Museum

We visited the Magadan NIRO at 11 : 00. The person who accepted our proposal of interview was Mr. Vladimir V. Volobuev (Владимир Волобуев), the Deputy Director of the Magadan Research Institute of Fisheries and Oceanography. The institute is under the Federal State Unitary Enterprise of the State Committee for Fisheries of the Russian Federation. The short name of this institute is the Magadan NIRO. We asked him the general situation of fish and fisheries in Magadan oblast and the current status of salmon in particu-

lar. His answer was that there are 65 salmonid rivers in the oblast and that salmon fisheries is the area of highest economic importance. Beside salmon, polluck, herring, capling, halibut, snow crab, and other kinds of crabs are also important.

To our question on the number of spawning runs of each salmon in Magadan oblast this year, his answer was that 8.5 million individuals of pink salmon were counted this year until now and that the expected number of total run for this year would be 10 millions. The number of chum salmon is 300,000 thus far. The one of coho salmon is 6,000 thus far. The one of sockeye salmon is depressed this year. This, however, does not mean that sockeye salmon do not make upstream migration in rivers of Magadan oblast. For example, 10,000 sockeye salmon were recorded in 1998. According to Mr. Volobuev, upstream migration of chum salmon from the Arctic Ocean is seen in Lena and Kolyma Rivers, but the number is very small.

We asked him if there are some negative impacts of economic activities on the river environment. He said that it is large where the mines of placer gold locate near rivers and that one cannot ignore the case of felling trees in watersheds.

To our question on the maximum distance which salmon ascend rivers in Magadan oblast and Chukotka autonomous oblast, he answered that they ascend 520 km in Uda River and 468 km in Akhata River in Magadan. Chum salmon in Anadyr River ascend as long as 1,150 km in Chukotka. We were also told that there are four salmon hatcheries in Magadan oblast. The first one started operation in 1983. In each hatchery, 120 million fries are released into a river at the maximum. But the release of 40–50 millions is usual, he said. The highest rates of their return were 30% in the case of coho salmon and 0.1–0.5% in the case of chum salmon.

After the interview, we walked to the market to find the prices of fish. Prices of salted ikra in Khabarovsk Central Market were in the range of 800~



Photo 12. Big Church under Construction, Magadan (Credit : H. M. 2003)

1200 roubles/kg. In contrast to them, it was 400 roubles/kg in Nikolaevsk-na-Amure. In Magadan Market, we looked at the prices of different types of salmon. As of fresh (raw) salmon per piece (individual fish), we found the prices : keta (large) 130 roubles, gorbusha (small) 20~50 roubles. For the case of smoked salmon (a half of an individual), we found : gorbuscha 30 roubles, keta 50~60 roubles, nerka 130 roubles, and so on.

After the market survey, Yurii suggested us to see an art gallery. There were many oil paintings and very special pictures entirely made of stones. Oil paintings closely resemble to the pictures of the Group of Seven in Ontario, Canada. Both Haruna and Takeshi immediately noticed it. Northern countries may produce similar things even in the field of fine arts.

Further, we went to see the Museum of Magadan Oblast. There were many interesting things. Among others, however, the layout of concentration camps was heart-moving.

This was the day of a very intensive interview and city walks. We had dinner at a café along the street connecting to the Lenin Avenue. It was very tasteful but cheap. We stayed at Okean Hotel this night again.

Thursday, August 14, Day to a Bay Area and Invited Dinner

This was a very restful and enjoyable day. Tamara went to government office to collect statistics in the morning. Takeshi first went to the library of the institute then to a hair dresser (парикмахерская — in Russian) in the morning. It cost him only 110 roubles for simple haircut. In the afternoon, Yurii's friend named Sergei took us and Yurii to the beach



Photo 13. Vegetable Garden of Sergei's Dacha with the Sea of Okhotsk Behind, Magadan (Credit : H. M. 2003)



Photo 14. Boys Fishing at Sunset in the Sea of Okhotsk, Magadan (Credit : H. M. 2003)

area by a car. Enormous number of small shellfish (mussels) on the rock beach. This black shellfish is called midia (мидия) in Russian.

Sergei's dacha located on a foothill of a cliff facing Gertonera Bay, with Rock of Three Brothers being in much south. This part of the Sea of Okhotsk usually starts freezing in December and the ice melts in May. It is definite that people can walk on ice in January, February, and March. Sometimes in December too.

On the way back to the car, we found the beginning of wild fire. Cigarettes scattered. Those seemed to be the cause. Peat, or peat-like soil, very soft and fluffy easy to catch fire. Yurii repeatedly went down to a small valley to bring water in a small container up to the path where smoke is coming up. Finally extinguished. Takeshi had never seen such a real site of wild fire.

Yurii invited us to a dinner at his apartment. His wife and a dog welcomed us. We came back to the hotel at 23 : 30.

Friday, August 15, Back again to Khabarovsk from Magadan

Woke up at 8 : 00. It was a clear day. By a taxi, we went to the air station (Аэро Вокзал) in the outskirt of the city. Yurii came to send us off. He is such a nice guy. We then got on the bus to the airport. Departure of our flight was at 11 : 30 for Khabarovsk. The air fare was 4,040 roubles per person.

Back to Khabarovsk, we checked in Dalavia Hotel near the international terminal of the airport considering the next day's schedule that the departure to Kamchatka was going to be in the morning.

With Haruna, Takeshi visited downtown area by trolley bus. We got together in the Lenin Square at 19:00, and decided to have a dinner in the café called “Utyos” (Утёс). Standing on the cliff, it is a beautiful café overlooking the Amur River. The dish of halibut was excellent. It is an expensive place, but we thought that it is worth visiting if we consider its magnificent location. We satisfactorily came back to the hotel at 23:00.

Saturday, August 16, Flight to Kamchatka

This was the day of moving from Khabarovsk to Kamchatka. The one way air fare was 4,550 roubles. After the take-off, the ground view of Amur River from the sky was really gorgeous.

Over the peninsula, looking down the taiga forest. Volcanoes. Taxi fare was 400 roubles from the airport to the hotel. Following the recommendation of the taxi driver from the airport, we checked in Edelweiss Hotel. Convenient location near small “rinok” and super market, but the view is bad.

After a simple supper at the café of the hotel, we went by bus to the Lenin Square. The bus fare is 6 roubles. Mt. Koryakskaya (an active volcano) was beautifully seen from the city. It slowly ejects steam from the peak. We found the beach area near the square very lively. We reserved Hotel Avacha from the next day.

This night, however, we stayed in Edelweiss Hotel.

Sunday, August 17, Paratunka River and Hot Spring Pool

In order to see how the public transportation system works in Petropavlovsk-Elizovo area, we decided to visit Paratunka zone by bus. From the Avacha Hotel to the bus terminal (north), it cost us 20 roubles per person. Change the bus from there to Elizovo. It cost 30 roubles. We then change the bus again for the Paratunka resort zone. It was 25 roubles.

Passing the town of Paratunka, we went to the village of Terpug (Терпуг) where we found the resort hotel called Bassein “Geolog” (бассейн «Геолог»), which Tamara already had reserved by telephone yesterday.

We first went down to the shore of Paratunka River. Many carcasses of chum (keta) salmon were either sinking at the bottom of the river or scattered ashore. A boy was fishing. He frankly told us that, if it is female, he can sell its ikra 350 roubles per kilogram. It would constitute a part of “shadow income” for his family in the sense of Mikheeva (2002, pp. 99–100).

We then enjoyed swimming in a hot spring pool in Bassein Geolog. One can stay



Photo 15. A Boy Catches Chum Salmon in Paratunka River, Kamchatka (Credit : H. M. 2003)

overnight there if one wants to. But we just visited there to be in the hot spring. In such a case, it costs only 60 roubles for adult and 30 for child.

We came back to the city center of Petropavlovsk by buses again. Our finding about public transportation is that it is not so good in the daytime in the sense of infrequency, though it is cheap.

It was a fine day. We could see not only Mt. Koryakskaya but Mt. Avachinskaya this day from almost everywhere. It is no doubt that this is the charm of the city.

In Avacha Hotel, Tamara negotiated with the helicopter company for an air trip because we understood that helicopter is the only means to visit truly

interesting places within a short period of time.

Monday, August 18, Day of Information Collection and City Walk

In the morning, we went to the business district for money exchange. The Sber Bank (Сбербанк) was the right place to do so. We then did shopping for the food stuffs for lunch in the hotel. The young man came to our hotel rooms collect money for the helicopter trip tomorrow. Given that they are going to take us to the Valley of Geysers, we paid him 8,000 roubles per person.

Since the plan of helicopter tour is fixed, Takeshi made a city walk to the harbor area where we had visited on Saturday. He saw the sail ship "Pallada". A man told him that it came from Vladivostok. The beautiful sail ship with many young men on board looks like a ship for training young people who want to be sailors. But Takeshi could not make it sure because of his limited ability of Russian language. There are open sky café bars near the beach. This area is pleasant and lively.

Tuesday, August 19, Helicopter Trip to the Valley of Geysers

We left the hotel at 8 : 55 by a taxi heading for the private airport of the Krechet Company. We arrived at the airport near the Elizovo bus terminal at 9 : 30. The taxi fare was 300 roubles. The helicopter of the seat number being 24 was waiting. Getting on inside, we found that it is almost full of passengers. About a half are the people of group tour from Australia and the rest are Russians and two Japanese (i.e., Takeshi and Haruna).

The engine of the machine started running at 10 : 10, and it took off into the sky at 10 : 15. The first scene below was the Avacha River basin. It then changed to the wide grassland, perhaps for fodder. Shortly after that, the world is the one of complete wilderness. Light green forest of broad-leave trees. Then, rocks of mountains.

When our helicopter approached to Mt. Karymskaya, its peak started jetting up fluffy masses of gray ash highly into the sky. It happened so luckily that we closely encountered the scene of eruption. Volcanic eruption is just beside the windows of our helicopter. All of the tourists including ourselves are deeply fascinated to gaze it or hurriedly hold cameras to take pictures.

A book on Kamchatka tells : “This (Karymsky Volcano) is a relatively short (1,486 m) and young (6,100 years old) volcano, the most active one in Kamchatka. . . . The eruptions of Karymsky are accompanied with bursts and throw-outs of ash and bombs going out from the central crater, with lava effusing. As a rule, the lavas of Karymsky are so glutinous that the flaming torrents do not always reach the foot of the volcano” (Nechaev, 2001, p. 82) We did not see the lava flowing out from the crater. But the ascending ash itself was spectacular.

Leaving the scene of eruption, helicopter soon came above a caldera lake. It is sharply encircled by seemingly almost vertical continuation of cliffs made of brown layers with horizontal stripes of different colors. The color of the lake water is pure emerald. The contrast of such water and surrounding layers of dark brown rocks is astoundingly beautiful.

This lake is in the crater of Troitski, which belongs to Maly Semyachek Volcano. According to the same book, “it is a volcanic mountain range 3 km long with 3 craters on its crest. In its southern crater (the crater of Troitski), there is an unusual acid lake in the depth of 170 m. The temperature of this opaque, sometimes turquoise sometimes green lake, ranges from 27°C to 42°C while the level of mineralization is equal to an average concentration of sulphate and hydrochloric acids. The size of the lake amazes : it is about half kilometer wide and is 140 m deep. It is assumed that the acid lake developed quite recently. The hypothesis says that it was the result of eruption unnoticeable for people. Any-

way, today Maly Semyachek is one of Kamchatka's natural wonders." (ibid., p. 88)

After slowly flied in a circular fashion above this wonderful lake, our air vehicle turned to north again, and landed on a small flat place in a valley. It was the entrance to the Valley of Geysers. There are a couple of large cabins made of wood associated with the helicopter port. From that place, several wooden walkways are going down to various spots in the Valley of Geysers. We were very astonished by the diversity of geysers. Some of them violently splash hot water in every few minutes, some others in every 20–30 minutes, and so on. The volumes of hot water they wildly jet up into the sky are all different.

Geysers are not the only attractions there. There are many small mud volcanoes and



Photo 16. Lava Field of Karymsky Volcano, Kamchatka (Credit : H. M. 2003)



Photo 17. Karymsky Volcano Starts Erupting, Kamchatka (Credit : H. M. 2003)



Photo 18. Caldera Lake of Maly Semyachek Volcano, Kamchatka (Credit : H. M. 2003)

mud cauldrons. Sticky clay boils in a mud cauldron. Red clay incessantly splashes in a mud volcano. Almost all slopes and flat places in the widely open valley are spotted by such geysers, mud volcanoes, and mud cauldrons.

A young, Russian lady was the guide to our helicopter group. She explains the characteristics of each geyser both in Russian and English. According to her, the existence of this Valley of Geysers became known to the people rather recently in the long history of Kamchatka. A Russian lady scientist and her guide discovered it in 1941. It means that it was only some 60 years ago.

More exact context of its discovery was as follows : “The Valley was discovered not long ago — in April, 1941 when a hydrologist of the Kronotsky Zapovednik, Tatiana Ustinova and her Illeman guide named Anisfor Krupenin went up along the river-bed of the Shumnaya (‘Noisy’), and, entering a narrow passageway between the rocks, stopped not far from the mouth of an unknown tributary. There is still snow everywhere in April. Somehow making comfortable on a steep snow-covered slope, exhausted travelers decided to have a snack. There was a thawed patch on the opposite shore with a light stream over it, and suddenly a spurt of hot water bursted straight towards them! The scared people started off — time to save the souls! — but soon realized that the boiling water could not reach them, and the rain of cooled splashes was not dangerous. The gush stopped as abruptly as it started, so Ustinova realized that she saw an authentic geyser, the first one in Kamchatka ever seen. She named it ‘Pervenets’ (‘The First Born’)” (ibid., pp. 108–110).

After we watched many geysers and mud volcanoes, gorgeous lunch was served to all of the helicopter tourists in a wooden cabin. According to our guide, some scientists of the



Photo 19. Hot Steams Everywhere in Valley of Geysers, Kamchatka (Credit : H. M. 2003)



Photo 20. A Mud Volcano in Valley of Geysers, Kamchatka (Credit : H. M. 2003)

Institute of Volcanology, RAS always stay there in the summer time to constantly observe volcanic activities in the area.

On the way back, our helicopter made one stop on a small basin-like wetland. All of the Australian tourists got off there. Our guide told us that they are going to stay in cabins in the area for a few days to walk around in the midst of wilderness of Kamchatka.

We then safely came back to the Krechet airport. According to the Krechet people, helicopter tour to the Valley of Geysers is ready to be organized according tourists' demand even in winter season, if the conditions of weather and volcanic activities are judged to be safe enough for the flight. In other words, it is an all- year-round business.

From the Krechet airport, we took a taxi to the Elizovo bus terminal by 40 roubles, and there got on a bus to the Petropavlovsk bus terminal (south) by 20 roubles, which was very close to our Avacha Hotel.

The bus terminal is also near the market. So we looked around the shops there and checked the price levels of different kinds of fish. First we checked open-sky shops. Halibut 300 roubles/kg. It is extremely tasteful, the market people say. Pink salmon 70 roubles, keta 150 roubles, king salmon 230 roubles. Koryushka (probably from the Sea of Okhotsk) 200 roubles. Another type of halibut 230 roubles. There were also dried fish. Kambala malosol (a kind of flounder), 150 roubles.

Next we walked into the inside the building. Fresh beef was 95–110 roubles per kilogram. Pork 72–75 roubles, chicken 50–70 roubles, cheap pork 20 roubles and so on, all per kilogram.

Back to the hotel, Tamara looked at the TV and heard the news that a helicopter is missing in Kamchatka. Igor Farkutdinov, the Governor of Sakhalin oblast is on board of that helicopter. It is only after we would have finished our entire trip that we got to know that the helicopter was found crashed in a mountain area of southern part of Kamchatka with all people in it being dead in August 23.

Wednesday, August 20, The Day of Three Interviews in Petropavlovsk-Kamchatky

In the morning we visited the KamchatNIRO for an interview. We were so lucky that Mr. Eugeny G. Pogodayev welcomed us. He is the Deputy Director, Kamchatka Research Institute of Fisheries and Oceanography. KamchatNIRO is the abbreviation of his institute.

Salmon data in Kamchatka given in the hearing were as follows :

catches of pink salmon has been 60 thousand tons (50 million individuals) up to now. There have been 45 million escapements up to now. This means that nearly half of pink salmon (*gorbuscha*) has made upstream migration without being caught by human hands. About sockeye salmon (*nerka*), the catch has been 10 thousand tons up to now. And additional 5 thousand tons are expected this year. The catches of chum salmon (*keta*) have been 6 thousand tons until now.

The catches of coho salmon (*kitsutch*), king salmon (*tshawytscha*), and cherry salmon have been much less.

There exist six hatcheries in Kamchatka. Their rearing capacity is 20 million eggs/hatchery. The target fish are mainly chum salmon and sockeye salmon. According to the KamchantNIRO people, there is a technical difference between Russia and Japan. The Rus-

sian way is to put smolts back in rivers while their body size is smaller than in the case of Japan.

We asked about sturgeon. The answer was that there is no upstream migration of sturgeon in Kamchatka rivers.

Takeshi was curious if they know the name of Evgeny Krokhin. He was one of the worldly pioneers in the research of nutrients uploading by anadromous salmon (Krokhin, 1959 and 1968). They know his name very well. He lived on the shore of Lake Dalneye with his wife, F. V. Krogus for forty years and collected data of salmon with close on-site observations. His accumulation of data was for 40 years with respect to Lake Dalneye, for 40 years with respect to Lake Krilskaya and 30 years with respect to one more lake. He started his serious research on the phosphorus budget when he became 70 years old.

Knowing Takeshi's strong interest in the life of Krokhin, the KamchatNIRO people generously gave him a calendar of a few years old, in which the color photograph of Krokhin and Krogus is shown.

As soon as we finished our interview in the KamchatNIRO, we hurried to another building nearby to make another interview, from 12 : 00, on tourism in Kamchatka with the people of the Tourist Division in Department of Foreign Economic Relations and Tourism under the Kamchatka Oblast Government.

Ms. Tamara I. Tutushkina (Тамара Ивановна Тутушкина) is the head of that department but she was so busy in other appointments that Ms. Elena Valerievna Lokteva (Елена Валерьевна Локтева) of the head of the tourist division hosted us and answered our questions.

According to her, tourism was not well organized in Kamchatka in the Soviet era. Only Russians often came there. Despite of poor infrastructure, 30 thousands of Russian tourists visited Kamchatka per year. But no foreigner could visit there. In 1992, however, Kamchatka became open to foreigners. Since then the number of foreign tourists has been increasing. 6,000 people visited Kamchatka from foreign countries in 2000, and 7,000 in 2001.

In 2002, the number of foreign tourists increased to 8,000. The top was the people from the United States (about 3,000), and the next was from Japan (about 2,000). The third was Germany. After that, the peoples from France, Norway, China, and so on followed. With regard to the tourists from inside Russia, 20 thousand people visited Kamchatka in 2002. Among them, 10 thousands were from Kamchatka.

Ms. Lokteva told us that poor infrastructure is now a headache for Kamchatka. But

airport was reconstructed in 2002, and 23 millions roubles were invested in tourist industry in the same year. Petropavlovsk-Kamchatky and Elizovo areas have 8 hotels. In the Paratunka zone, there are 12 resort hotels with hot spring water pool.

Kamchat Tour Ltd. organized chartered flights from Kushiro and Niigata in 1997.

Kamchatska Peninsula has the population of 371 thousand people out of which 200 thousands live in Petropavlovsk.

Last year (2002), a special program for 2002–2010 was adopted to promote tourism in Kamchatka. The program includes a plan to establish a new local law of such a nature. Financial support from the oblast government is proposed to be given to this program. Not only government, but also firms are expected to participate in the process of making such a law by 2004.

Main points of this program are :

1. Development of ecotourism
2. Joint cruise programs with foreign countries, particularly with USA and Japan, (As a matter of fact, 9 cruises came this year.)
3. Organization of coordinate committee of Far East and Trans-Baikalia for tourism

As far as a helicopter tour is concerned, there are now 3 companies with helicopters. Among them, the Krechet Company is leading.

At present, 90 tourist firms are operating for foreign and domestic tourists. 90% of these are the firms for incoming tourists.

Major tourism season is only limited in June to October. In January there no tourist. Fisheries and tourism seasons almost coincide. This is one of the difficulties for the development of tourism in Kamchatka.

Government asks this institute to do research along with the line of rational use of natural resources. This institute has some connection with the CRC institute, Sapporo, Hokkaido.

After this second interview, we had a relaxing lunch in a restaurant inside the government building to prepare for the third interview of the day. It was from 16 : 00. We visited the Kamchanka Branch of the Pacific Geographical Institute, RAS and made an interview with Dr. Robert Savelyevich Moiseev (Роберт Савельевич Моисеев), who is the director of the branch.

We asked him what the major task of the institute is. He then answered that its expected research fields are the study on the function of marine and terrestrial ecosystems and the investigation of evolution of mechanism of nature resource use. In other words, non-

rational use of marine resource prevailed. There are 1,300 enterprises in Kamchatka. But there are only 6 persons who are engaged in the control work. This situation should be compared with Alaska, where 130 persons are employed in the control work. From this kind of poor management, illegal fishing became popular, he said.

In Kamchatka, 60% of GDP is derived from fisheries and fisheries-related industries. Illegal fisheries may account the same amount as legal one. Therefore, there is a strong need to renew the manner of management to minimize such illegal catches. He added that the same situation prevails for forestry industry in Khabarovsk Krai. As an example of abnormally lucky event, he pointed out that fishermen got 2.5 million tons of taimen catches in a year in the 1990s. The catch, however, has decreased to the one tenth of such unusually big amount. He thinks that the similar situation can be pointed out for the field of gold mining in Magadan.

He told us that the foreign economic relationship of Kamchatka is strong with South Korea, Japan, USA, and China in this order. Export items are mostly marine products, raw marine fish, and timber. 80% of whole export is marine products. Among them, salmon is the most important. Import items are mostly ships.

Kamchatka is rich in mineral resources such as gold, silver, nickel, cobalt, platinum, and construction materials. But coal comes from other of oblasts. They predict that mining industry is going to be one the most important industries in Kamchatka.

Ship repairs are the important part of the industry. But ship building is of small scale. Though the construction industry was very active in the Soviet era, it is not so much now. Forestries has shrunk to the size of one third of the level in the Soviet era and agriculture is 20% of the Soviet time level.

In contrast to this declining trend of industry, human capital is abundant in Kamchatka. That means that economic development is possible. For this, he thinks that a new legal mechanism is needed to make things easier to invite investments not only from the inside of Russia but from overseas. He thinks that such a reform of legal system must be made at federal as well as local levels. Authorities in Kamchatka are now preparing for the negotiations with potential investors in Germany, the United States and Japan. At present, some German firm is investigating a possible benefit from investment in the fisheries. The reason is that Germany is the country which cannot satisfy their own demand for protein food within Europe. As a symbolic figure of present situation, Dr. Moiseev pointed out that only 6% of total capacity of cannery is currently used!

The abundance in gold, platinum, palladium, and so on is evident. Until recently, how-

ever, the government sold such information to foreign firms but did not allow scientists to describe it in the atlases of research institutions. Without wide spread of such information, it is difficult to raise international interests in such resources. The gold production is only 1.5 tons per year now, much less than the capacity.

4,000–6,000 people have been emigrating to other parts of Russia from Kamchatka each year.

Toward the end of interview, we asked Dr. Moiseev to clarify the natural gas potential in Kamchatka. He told us that there already exist four natural gas fields there. The reserve of the biggest field among them is estimated to be 10 billion m³. Those gas fields locate in inner part of south-western Kamchatka. The short gas pipelines connect them with such towns as Krytogorovsky (Крутогоровский), Sobolevo (Соболево), and Usti-Bolisheretsk (Усть-Вольшерецк) on the coastal area at present. Longer pipeline is now under construction to connect them with Petropavlovsk-Kamchatsky.

Taking a taxi, we headed for Paratunka. The fare was 500 roubles. We then lodged at Hotel “Sunny” (Солнечная). We enjoyed hot spring pool until around midnight.

Thursday, August 21, Back to Khabarovsk

Tamara went to Elizovo for shopping of salted ikra, Takeshi and Haruna walked around the forest near the hotel in the morning. Tamara had difficult time to go to and come back from Elizovo. But she somehow managed to be back to the hotel. We then called a taxi to go to the airport. Flight from Petropavlovsk-Kamchatky to Khabarovsk is very short. Back to Khabarovsk, we went to Tsentralinaya Hotel. But it was full. Two Russian ladies suggested us to go to the Sun Rise Hotel in between Lenin Square and airport. It looked like that Korean people are operating the hotel. It was lucky that they had vacancies of two rooms. We comfortably stayed in that Sun Rise Hotel.

August 22, Back to Niigata and Moscow

Takeshi and Haruna took a taxi from the hotel to the international departure gate. Sado Island in the Sea of Japan was clearly seen from the sky. Tamara did some shopping downtown Khabarovsk before taking off for Moscow. Our research trip of almost three weeks thus ended with a lot of purchased maps/books and gifted books/papers.

References :

“Kamchatka” (1996), An English Booklet by Department of Tourism Administration of Kamchatka Region,

Petropavlovsk-Kamchatky.

- Krokhin, E. M. (1959), "Sources of Enrichment of Spawning Lakes in Biogenic Elements," *Fisheries Research Board of Canada, Translation Series No. 207*. (Translated from the Russian paper of 1957 by R. E. Foerster)
- Krokhin, E. M. (1968), "Effect of Size of Escapement of Sockeye Salmon Spawners on the Phosphate Content to a Nursery Lake," *Fisheries Research Board of Canada, Translation Series No. 1186*. (Translated from the Russian paper of 1967 by R. E. Foerster)
- Mikheeva, N. (2002), "Social and Economic Differentiation in the Russian Far East," in Thornton and Ziegler (2002), pp. 85–115.
- Murota, T., and M. Kishi (2003), "From Sakhalin to Mongolia : August 2002—Focusing on the Baikal-Amur Railway, Part 1," *World Wide Business Review* (Doshisha University), Vol. 5, No. 1, pp. 70–103. (in Japanese)
- Nechaev, A. (2001), *Miracles of Kamchatka Land, Petropavlovsk-Kamchatkiy* : Novaya Kniga (Both in Russian and English)
- Russian Far East Journal* (2003), Serial No. 39, July, Niigata : Japan Sea Network Ltd. (in Japanese)
- Sasaki, S. (1996), *Tradesmen from the North — Silk, Fur, and Santan People*, Tokyo : NHK Books. (in Japanese)
- Scheigautz, A. S., V. D. Kalashnikov, N. V. Lomakina, and G. I. Sukhomirov (2002), "The Russian Far East's Position in Northeast Asian Market," in Thornton and Ziegler (2002), pp. 117–135.
- Smirnov, A. I. (1976), "Chum salmon," in *The Great Soviet Encyclopedia : Volume 7*, New York : Macmillan, p. 87.
- Richmond, S., M. Elliot, and five others (2003), *Russia and Belarus, 3rd Edition*, Melbourne : Lonely Planet Publications.
- Thiel, E. (1957), *The Soviet Far East : A Survey of its Physical and Economic Geography*, London : Methuen and Co.
- Thornton, J., and C. E. Ziegler, eds. (2002), *Russia's Far East : A Region at Risk*, Seattle : University of Washington Press.

Chapter 4

International and Environmental Aspects of Energy Sector Development

The Russian Far East (RFE) and East Siberia are endowed with enormous amounts of energy sources such as coal, oil and natural gas in addition to hydropower and firewood. Among such energy sources, oil and natural gas have been calling keen, international attention in recent years.

As far as RFE is concerned, its annual outputs of oil and natural gas in the 1990s are seen in Tables 4–1 and 4–2. These numbers may jump up to much higher levels as the international development projects called Sakhalin I and II make progress toward 2010 and

Table 4–1. Trend of Oil Production in Russian Far East

(unit : 1,000 ton)

	1991	1992	1993	1994	1995	1996	1997	1998	1999
RFE total	1,965	1,809	1,696	1,770	1,908	1,873	1,950	n. a.	n. a.
Sakha	119	132	135	143	185	211	230	n. a.	n. a.
Sakhalin	1,846	1,677	1,561	1,627	1,723	1,662	1,720	1,700	1,800

Source) Murakami (2000).

Table 4–2. Trend of Natural Gas Production in Russian Far East

t (unit : 1,000,000 m³)

	1991	1992	1993	1994	1995	1996	1997	1998	1999
RFE total	3,416	3,268	3,205	3,115	3,303	3,406	3,413	3,382	3,400
Sakha	1,528	1,538	1,586	1,634	1,666	1,624	1,577	1,600	1,600
Sakhalin	1,888	1,730	1,619	1,481	1,637	1,782	1,836	1,782	1,800

Source) Murakami (2000).

Table 4–3. The Shares of Russian Far East and East Siberia in the Proved Reserves of Energy Resources of Russian Federation

Macro Region	Energy Resources	The Share in the Proved Reserves of Russia (%)
Far East	Oil+Condensate	2.3
	Natural Gas	3.6
	Coal	10.2
East Siberia	Oil+Condensate	2.1
	Natural Gas	2.2
	Coal	33.7
	Uranium	94.5

Source) Natural Resources and Environment of Russia (Analytical Report) (2001), Dumanov, A. D., N. G. Rybalsky, E. D. Samothsov, and others. Moscow : NIA-Priroda, REFIA (in Russian). This English table was produced by Tamara Khantashkeeva.

beyond. Similar prospect exists with regard to East Siberian oil. Table 4-3 shows their proved reserves.

In this chapter, we present the current state of energy sources development both in RFE and East Siberia and raise some environmental issues associated with such development.

4.1 Two Features of Energy Sources Development in Eastern Russia

Under the condition that economic activities in RFE are not buoyant, demand for energy sources is stagnant within there. In China and Japan, however, demands for energy sources cleaner than coal have been continuously growing. Both countries have been watching RFE and East Siberia because they are rich in oil and natural gas reserves. Sakhalin, the only island okrug in RFE is enormously rich in offshore oil and natural gas reserves in addition to the massive coal bed on land. Irkutsk oblast in East Siberia also has large reserves of oil, especially in the area west of Lake Baikal.

Given such an economic geography of the eastern part of Russia in relation to the neighboring countries, we describe, in what follows, two specific aspects of energy sources development including their long distance transportation in RFE ; (1) direct feature of energy sources (oil and natural gas) extraction and their transportation in Sakhalin and (2) potential impact of oil transportation from East Siberia to China and Japan on the economy and ecology in RFE.

The aspect (1) is already a reality of life in RFE as we will see in the next subsections 4. 2, 4. 3 and 4. 4. On the other hand, the aspect (2) is not the direct issue of the energy sector of RFE. If such a transportation plan would become a real one, however, it would affect RFE which lies in between East Siberia and China / Japan. In that sense, the aspect (2) is an indirect issue for RFE, which we will discuss subsection 4. 5. The last subsection 4. 6 will be devoted to examine environmental problems associated with energy sources extraction and transportation in RFE.

4.2 From Onshore to Offshore Discoveries of Oil and Natural Gas in Sakhalin

The existence of oil in the Okha region seems to have been known among the native people in northern Sakhalin since the olden times. “When native people told of a ‘black lake of death,’ Russian surveyors in the 1890s found surface deposits of oil on northern Sakhalin” (Thornton, 2002, p. 169). Then, what happened was : “Oil exploration began in northern Sakhalin at the end of the 19th century with the arrival of business magnate Grigorii Zotov

from St. Petersburg, who at the same time set up a series of fishing artels based on the north-west coast” (Wilson, 1999). It is recorded that the first oil well was drilled in 1911.

But the systematic development of oil fields in Sakhalin only began in the 1920s. “The first oil field with twenty derricks was established in 1928 at Okha, which was soon connected to the coast by railroad and pipeline” (Thornton, p. 169). Vysokov (1996) tells the history of Sakhalin oil field development in relation to Japan as follows. “The Soviet government founded the Sakhalinneft Trust in 1928 for exploitation of the Soviet half of the oil fields. The Trust extracted only 296 tons of oil in 1928. After that there was a sharp growth in output : 188,900 tons in 1932, 505,000 in 1940, and 695,100 in 1945. In total, from 1928 to 1945 Sakhalinneft Trust produced almost 6 million tons of oil. Almost all the Sakhalin oil was exported beyond the borders of north Sakhalin. Part of it went to the mainland (primarily Khabarovsk Krai), and part in exports to Japan. In all, from 1929 to 1937, 740,000 tons of Sakhalin oil was purchased and shipped to Japan. Oil exports to Japan were curtailed in 1937. Up until 1942, Sakhalin oil was exported from the island only during the navigation period for tankers. Using the forced-labor of prisoners from camps on the lower Amur, an oil pipeline was laid from Okha to Sofiyskoye-na-Amure in 1941–42, via which oil flowed to the mainland for only one year” (Vysokov, 1996, p. 70).

Another source tells the oil field discovery in this period and after as follows. “Six onshore fields were discovered from 1923 to 1935 in the North Sakhalin trough (northeastern part of the island) including the Okha, Katangli, and Ekhabi complexes, which are among the top twenty fields of the province in terms of recoverable reserves. A more regular annual pattern of onshore drilling, with resulting discoveries, began in 1947. Numbers of annual onshore-field discoveries peaked in the 1960s, and most onshore development has been conducted by Sakhalinmorneftegaz, a Russian state-run enterprises” (Lindquist, 1999).

The second stage came in the 1970s, this time fully equipped with a completely modern technology of offshore drillings.

In the early 1970s, a new prospect arose among energy specialists in the then Soviet Union and Japan that the Sea of Okhotsk may have enormous reserves of commercially recoverable oil and natural gas under its bottom off northeastern coast of Sakhalin island. One source of information describes this new stage as follows : “Originally, the Soviet government proposed the Sakhalin Project at the fifth Japan-Soviet Union Economic Joint Conference in 1972. The Soviet Union needed to develop the far east area and Japan needed to diversify energy resources shared a mutual interest. Therefore, the joint venture invested by Japanese companies and Soviet Union companies began exploration” (Web

site : Russia-Japan Natural Gas Trade).

More precisely, the Soviet-Japan offshore oil and natural gas development project started in 1975. Under this project, test drillings of total 5,836 m long was carried out in eight years from 1975 till 1983. The Odoptu field was then discovered in 1977, followed by the discovery of the Chayvo field in 1979. This was the time of world oil price hike.

The middle of the 1980s, however, was the time of oil price decline after two peak times of dramatic nature in 1973/74 and 1979/80. Under such a condition of world economy, eagerness of offshore development in Sakhalin cooled down at least at the Japanese side. The Soviet exploration, however, continued to discover the Lunskeye field in 1984, the Piltun field in 1986, and the Arktun Dagi field in 1989. In the meantime, American and European energy enterprises got interested in oil and natural gas potentials in Sakhalin.

Mining blocks started being marked on the map of the Sea of Okhotsk by the Soviet and later Russian government. The name Sakhalin I was given to the block containing Odoptu, Chayvo, and Arktun/Dagi fields because it was explored the earliest. The block containing Lunskeye and Piltun/Astokhskeye fields was named Sakhalin II. In such a way, offshore blocks have been numbered up to Sakhalin IX until today. Among them, the development under Sakhalin I and II projects has been running the fastest.

Japanese companies such as ITOCHU Corporation and Marubeni Corporation got seriously interested in the offshore oil and gas in Sakhalin again in 1991. Sakhalin Oil and Gas Development Company (SODECO) was thus established under the leadership of the state-owned Japan National Oil Corporation (JNOC). The SODECO decided to form a team with Exxon Mobil and won the international tender for Sakhalin I, though it lost the rights to develop Lunskeye and Piltun-Astokhskeye oil and gas fields, which were known as Sakhalin II. The two companies agreed that each side would cover 30 percent of the estimated cost of the project. The project expanded with the addition of the Arktun-Dagi oil and gas field in 1993. In 1995 two Russian companies Rosneft-Sakhalinmorneftegas (SMNG) and SMNG-Shelf joined the consortium, agreeing to assume 17 percent and 23 percent of the total cost, respectively. A production sharing agreement (PSA), which we will explain later, was signed for Sakhalin I in 1995. The SODECO of Japan was reorganized as Sakhalin Oil and Gas Development in March 28, 1995 with the abbreviated name of the new company remaining SODECO as before.

“The exploration for oil and gas in Sakhalin II began in 1984. In 1986, Mitsui Corporation (Japan) and McDermott (U. S.) formed a consortium, each side assuming 25 percent of the project cost. In 1991, Marathon Oil (U. S.) joined the consortium with a 37.5 percent

share of the cost. In 1992, when the group acquired the rights to develop the fields, two more companies joined the project: Mitsubishi with a 12.5 percent share of the cost and Royal Dutch Shell at 25 percent. In April 1994, Sakhalin Energy Investment Company was formed to operate the project and to enter into a production sharing agreement with the Russian government. Officially, the project's implementation commenced in April 1996. By that time McDermott had left the consortium" (Akaha and Vassilieva, 2000).

In January 1996 the Russian Federation enacted a law on production-sharing agreement (PSA) to attract investment and advanced technology from foreign countries for oil and gas development. Profits will be used first to recover the cost of initial investment and royalty payments (6–8 percent of the cost of the product), and after that first step will a profit sharing mechanism come in.

The Sakhalin I consortium was thus organized by Sakhalin Morneftegaz (SMNG, Russia, 23 percent), Rosneft (Russia, 17 percent), Sakhalin Oil and Gas Development (SODECO, Japan, 30 percent), and Exxon (U. S., 30 percent). After a while, Rosneft and SMNG had disposed of their half equity to an Indian enterprise; Oil and Natural Gas Corporation (ONGC, India) in 2000.

Sakhalin II project is different from Sakhalin I in that only foreign investment is involved there with no direct Russian participation. In 1991, the Russian government opened the right to develop these two areas for international competitive bidding in 1991. Then, Marathon (U. S.), McDermott (U. S.) and Mitsui Corporation (Japan) bided off. Afterwards, these three companies with Royal-Dutch/Shell (Netherlands) and Mitsubishi Corporation (Japan) had made the production sharing agreement (PSA) with the Russian government and the Sakhalin regional administration on 22 June 1994. The first oil from Sakhalin II has already been exported to South Korea in 1997 (Web site: Russia-Japan Natural Gas Trade).

The Sakhalin II is undertaken by Sakhalin Energy Investment Company (SEIC), which is a multinational consortium of the Royal Dutch/Shell Group (55%), Mitsui & Co. Ltd. (25%) and Mitsubishi Corporation (20%).

As we have already mentioned, the Sakhalin offshore projects adopt the system of the Production Sharing Agreement (PSA), which was developed on the basis of experience in Third World countries. But it is problematical in that it does not guarantee adequate benefits to local communities (Wilson, 2000). "According to this agreement, all the production goes first of all to SEIC until the company has covered its investment costs. Only after the project has then started to make 17.5% profit will the Russian side start to receive its own

share of the profits, which will be about 60% (split between the Federation and Sakhalin region).”

“According the PSAs, the Sakhalin projects have been freed from their federal tax obligations, apart from the royalty (6%) and profit tax (32%). The projects have likewise been freed from their regional taxes. The decision to free the companies from local taxes has not yet been taken by the Nogliki district assembly. Yuzhno-Sakhalinsk municipal government has refused to free the companies from local taxes. While the money saved from local and regional taxes will increase the total profit of the projects and thus increase the amount of profit tax collected, (a) this money will go to the regional and federal budgets, not directly to local district budgets, and (b) the estimated loss to the region as a whole will be \$4,160 million US for Sakhalin I and \$954 million US for Sakhalin II.”

“In theory, the lack of direct benefits from the projects is compensated by the payment of “bonuses” at strategic points in project development (total \$45 million US), and through distribution of finances from the Sakhalin Development Fund (total \$100 million US). The distribution of payments is decided by the regional administration and the region assembly (duma). The only bonus payments that Noglikskii district has so far received have been towards the controversial gas-fired power station built close to Nogliki to feed the south. This power station caused protest from local activists, due its location close to local dachas and the political significance of the project. The power station is fed by an old gas pipeline that recently exploded under the extra pressure needed to transport the necessary volume of gas (Wilson, 2000).”

Furthermore, there is a problem coming from the fact that offshore fields are in the federal water, not in the Nogliki district. Wilson points out that “as the oil and gas reserves are located in federal waters, Noglikskii district has no claim to any payments for use of resources, though the reserves are located close enough to devastate the local fishing economy in the event of an oil spill.”

4.3 Current Status of Sakhalin I Project

The Sakhalin-1 Project is an oil and gas development on the northeast shelf of Sakhalin island. According to the project overview of Exxon Mobil, total recoverable reserves are estimated to be 2.3 billion barrels of oil (307 million tons) and 485 billion m³ of natural gas.

Capital investment in the Sakhalin-1 Project could reach US \$12 billion, making it the largest foreign direct investment in Russia. The project will be executed in phase by phase. The initial phase encompasses development of the Chayvo field with production start up

targeted for late 2005. The next phase will be the development of the Odoptu and Arkutun Dagi fields to maintain the production plateau.

The Production Sharing Agreement (PSA) for the Sakhalin-1 Project became effective in June 1996. In September, 2000, the Sakhalin-1 Project completed drilling and testing of the Chayvo 6 well. This was the last well of a 5-year exploration period. The Exploration Period included drilling of 7 appraisal wells and acquisition of more than 1,200 square kilometers of three-dimensional seismic data. It was declared commercial in October, 2001.

The Russian Federation approved the declaration in December 3, 2001. This approval formally ended the Exploration Period and commenced the 20 year Development Period under the PSA.

Given this prehistory, the recent state of Sakhalin I is as follows. The operator for the multinational Sakhalin-1 Consortium is Exxon Neftegas Limited, an affiliate of Exxon-Mobil (interest 30%). “Co-venturers include the Japanese consortium SODECO (30%); affiliates of Rosneft, the Russian state-owned oil company, RN-Astra (8.5%) and Sakhalinmorneftegas-Shelf (11.5%); and the Indian state-owned oil company ONGC Videsh Ltd. (20%)” (Home Page : Sakhalin I Fact Sheet).

The recent composition of SODECO is Japan National Oil Corporation (JNOC, 50.00%), Japan Petroleum Exploration Co. Ltd. (JAPEX, 14.12%), ITOCHU Corporation (14.12%), Marubeni Corporation (11.41%), INPEX (4.21%), ITOCHU Oil Exploration Co. Ltd. (3.57%), Teikoku Oil Co. Ltd. (1.44%), and Cosmo Oil Co. Ltd. (1.13%).

“Oil production on the Chayvo field is to start at the end of 2003 with the expected production level of 250,000 barrels per day” (Web site : Construction Makers).

Sakhalin I has already been producing a certain amount of oil to be transported by a pipeline to Komсомolisk-na-Amure across the Mamiya/Neveliskoy Strait. In Chapter 3 of this booklet, we described our visit to the land base of Odopto offshore oil field, the base on the beach south-west of Okha in August 2003.

According to Gas Energy News (November 5, 2003, p. 2), the new oil pipeline is now under construction in such a way that : “The pipeline starts from Odoptu, going to Chayvo, then crossing the Mamiya Strait, land on De-Kastri, finally to Komsomolsk. It is already decided that the Shin-Nihon Steel Company, the largest steel maker in Japan is going to do most of its construction works. The pipeline has to cross as many as 130 rivers within Sakhalin oblast.”

One of the onshore facilities of Sakhalin I is called ‘Yakovlev,’ from which a horizontal drilling started in July 2003. This drilling by Exxon Mobil is heading for the Chayvo

field, some 10 km off from the coast (Origuchi, 2003, October 29). The target of this drilling at this Chayvo Bay is to start oil production at the end of 2005.

Sakhalin I also plans to make natural gas supply which is scheduled to start in 2008 by pipeline. A suggested pipeline may go down to south expecting the demand of Japan. But it could go to Khabarovsk heading for China (Origuchi, 2003, November 5).

According to the Kyodo News, September 23, 2003, "Russia is expected to decide within the next two years whether to build a gas pipeline linking Sakhalin gas fields to Tokyo or to China, a senior Sakhalin oil official said Tuesday (September 23, 2003).

A Sakhalin-to-Japan gas pipeline would involve building an underwater pipeline linking Sakhalin and Hokkaido and an overland pipeline to Tokyo, while a pipeline to China would involve building a shorter underwater pipeline between Sakhalin and the Russian mainland before shipping the gas to China."

"The project presupposes transporting natural gas to Japan through a pipeline, which is expected to be the first of this kind for Japan."

"Michael Allen, public affairs manager of Exxon Neftegas, said the consortium considers the Japan route as its top priority and the position of the Chinese route is an alternative option. Russia is expected to decide within the next two years whether to build a gas pipeline linking Sakhalin gas fields to Tokyo or to China, a senior Sakhalin oil official said Tuesday.

A Sakhalin-to-Japan gas pipeline would involve building a underwater pipeline linking Sakhalin and Hokkaido and an overland pipeline to Tokyo, while a pipeline to China would involve building a shorter underwater pipeline between Sakhalin and the Russian mainland before shipping the gas to China."

"Speaking to a press conference, Galina Pavlova, director of the Department of Oil and Gas Complex of the Sakhalin Region, said she believes an international consortium involved in developing the Sakhalin oil and gas project is expected to make a decision in a year or two.

Citing hurdles facing the Japan route, Pavlova said the cost of purchasing land and compensating for fishermen can be a big issue. Pavlova also said the Japanese government appears less enthusiastic about the project compared with gas and oil companies in Japan" (Web site : Gas Pipeline to Japan or China).

4.4 Current Status of Sakhalin II Project

Sakhalin II will first drain the Piltun Astokhskoye field. Piltun Astokhskoye lies 16 km offshore Sakhalin Island's north-east shore, and in 30 m of water.

The Japanese energy industry is now seriously interested in the natural gas of Sakhalin II, which is close to Nogliki. The plan is such that gas is transported by an inland pipeline to Prigorodnoye, east of Korsakov, Southern Sakhalin. (In Chapter 2 of this research report, we already described our visit to Prigorodnoye in August 2001.) It is going to be liquefied into LNG (liquefied natural gas) there. The LNG is then going to be shipped to some port in Japan by special container ships. The construction of the LNG plant already started in 2003. Capacity is 4.8 million tons/year times 2, which equals to 9.6 million tons/year.

Sakhalin II already started producing crude oil from 1999 before the production of natural gas. Its oil transportation has been made by tankers. The Sea of Okhotsk freezes in winter so that such transportation has been limited to the period from middle of May to beginning of December each year. The production of 9.7 million barrels is expected in 2003 (Origuchi, 2003, p. 2). Sakhalin II plans to start LNG supply in 2007.

On May 12, 2003, Tokyo Gas Company reached a basic agreement on the purchase of LNG from Sakhalin II. On May 19, 2003, Tokyo Electric Power Company (TEPCO) and Sakhalin Energy Investment Co. (SEIC) made a contact that the former will purchase LNG for 22 years from April 2007 from the latter. Basic quantity is 1.2 million ton/year.

About the LNG plant in Prigorodnoye, Chiyoda Corporation and Toyo Engineering Corporation, both leading engineering companies in Japan made such an announcement that, "in June 2, 2003, they were jointly with their Russian partner companies, the KhimEnergo Consortium and NIPIgaspererabotka, awarded by Sakhalin Energy Investment Company Ltd. (SEIC) an EPC contract for the grass-roots Sakhalin Liquefied Natural Gas plant for the Sakhalin II Project. The signing ceremony of the EPC contract was carried out at the World Gas Conference held in Tokyo on that day."

The announcement continues: "The planned 9.6 million tonnes per year of LNG plant will be constructed at Prigorodnoye in the southern part of Sakhalin Island, Russian Federation. This plant consists of two LNG trains, each with a production capacity of 4.8 million tonnes per year, the largest ever in the world. The plant is planned to be operational in 2007. Shell's liquefaction process named DMR (Dual Mixed Refrigerant) process will be adopted in this project, for the first time in a base-load LNG plant. The LNG plant consists of two 100,000 cubic meter LNG tanks and an LNG loading jetty."

“This project, being the first LNG project in Russia, where there is the world’s largest reserves of natural gas, will be the major cornerstone of future gas related projects in the country.”

4.5 Potential Impacts of Irkutsk Oil and Gas Development on Russian Far East

The Chinese economy used to heavily depend on its own domestic coal. Environmental concerns, however, are now pushing China toward the increase in oil and natural gas consumption with relative decrease in the share of coal in the energy total. As far as the rapidly growing coastal area is concerned, the demand for natural gas in Shanghai and Guandzu is expected to be met by the one produced in the western parts of China to be transported through a long-distance gas pipeline.

In contrast to this, the continental part of North-eastern China lacks a momentum to develop its economy with clean sources of energy. The coal reserves in the area are enormous. It is evident, however, that further consumption of coal in the area is environmentally disastrous. At the same time, the once celebrated Daqing oil fields in Heilongjian Province have been producing less and less oil toward exhaustion. This gloomy situation has led Chinese energy policy makers to turn their eyes on the oil in Irkutsk oblast in East Siberia. If China purchases a large amount of Irkutsk oil, it is not a bad deal for Russia. There is at least one problem, however. A long distance oil pipeline, if construction started, would pass through some part of RFE. Is it possible for both Russian and Chinese sides to construct such an international pipeline without causing environmental destruction of taiga forest ecology in the area? The area in this case means a narrow band, but it is quite lengthy area starting from Angarsk, Irkutsk oblast to Daqing, Heilongjian Province.

The energy industry of South Korea too is strongly interested in oil and natural gas in Russia. This interest led the Korean Gas Corporation (KOGAS) to examine a possibility of bringing natural gas of Kovyktinsk gas condensate field in Irkutsk oblast to South Korea by a pipeline. This field is relatively new. “Kovyktinsk gas-condensate field, discovered in 1987 in Zhigalovskii raion, 350 km northeast of Irkutsk, contains an estimated 870 billion cubic meters of natural gas and 400 million barrels of gas condensate.” (Joo, 2002, p. 454).

This field is expected to primarily serve the gasification project in East Siberia based on the Kovyktinsk gas condensate field, in which TNK-BP and Russia’s Sberbank are intending to invest \$676.4 million in during the period of 2004–2034. “TNK-BP will provide 30% of the funds, the remaining 70% will be raised as Sberbank’s loan. Overall capital costs (with VAT) are estimated as follows : project costs — \$12 million ; gas, gas conden-

sate production — \$151 million ; construction of Kovykta-Sayansk pipeline — \$226.4 million ; construction of Sayansk-Angarsk pipeline — \$115 million ; gas distribution and ethane pyrolysis — \$165 million, condensate processing — \$7 million” (Web site : Kovyktinsk Gas). South Korea seems to attempt to take advantage of such a process of gas and gas condensate development inside East Siberia. But a pipeline cannot be short if it is connected to South Korea from the Irkutsk area. Its environmental impact may prevail on some part of the Russian Far East.

Potentially more serious problem can be pointed out with regard to the plan of Japan. Some Japanese policy makers want to diversify the countries from where Japan can import large amounts of oil. West Asian oil producing countries are politically unstable without a need of mentioning the Iraq problem. From such a reason, Japanese business people are interested in constructing an oil pipeline from Angarsk to Nakhodka, Primore krai. Their idea is to ship the Irkutsk oil from Nakhodka to some port in Japan by tankers. An oil pipeline may pass the northern shore of Lake Baikal and the forest-rich Tynda area before reaching Khabarovskiy krai.

According to a news source in Russia (Web site : Angarsk-Nakhodka Pipeline), Primorskiy Governor Darkin visited Japan in August 2003 and met Mr. Takeo Hiranuma, the Minister of Economy and Industry of Japan, Ms. Yoriko Kawaguchi, the Minister of Foreign Affairs of Japan, and Japanese oil companies to discuss the future of the Angarsk-Nakhodka pipeline project. Japan is interested in having the pipeline built on the route from Angarsk to Nakhodka. Japan is ready to invest \$5 billion into pipeline construction and geological prospecting and \$7 billion in construction of an oil refinery processing up to 10 million tons of oil in Primorsky Krai. Besides, Japan will provide \$2 billion for social projects in the Russian Far East.

The same source informs that : “The major concerns of the Japanese side are the reserves of oil in Eastern Siberia (if there’s enough oil for the pipeline) and guarantees to investors. Another question is the format in which Japan will participate in the project. Worried that the negotiations between Japan and Russia about the project became complicated due to the arrest of YUKOS top managers, Governor Darkin went to Japan to encourage Japanese side to proceed with the project. Construction of the pipeline to Nakhodka by 2008 may make Primorskiy Krai profitable. The federal budget may save \$1.2 billion for 5 years on subsidies to Primorsky Krai. The Far Eastern Technical University started enrollment of student to the Master’s degree program in oil pipeline engineering believing that the project will be realized and anticipating tremendous shortage of professionals in pipe-

line engineering. It is expected that the feasibility study will be completed by the two countries in December 2003” (Web site : Angarsk-Nakhodka Pipeline).

More recently, the Interfax news tells that the Russian government is now thinking to construct a stem pipeline from Angarsk to Nakhodka with its branch extending to Daqing, China. This is different from previous discussion of choosing either one of Angarsk-Nakhodka line or Angarsk-Daqing line. The Interfax news from Moscow in December 15, 2003 says the following. A decision on building an oil pipeline from Angarsk to Nakhodka with a branch running to China’s Daqing must be made taking into account the need to explore East Siberian oil fields and invest in their development.

“Speaking to Interfax in the run-up to Prime Minister Mikhail Kasyanov’s visit to Japan scheduled for December 15–17, the source said certain estimations have given grounds to assume that East Siberia could be at least as rich in subsurface resources as West Siberia. ‘Russia is interested in not only building a pipeline but also in examining the resources and investing in the exploration and development of the fields first,’ he said.”

“The source said this approach is especially important bearing in mind the time when West Siberian oil reserves begin to expire and ”not only pipelines running east but also those running west will have to be filled with oil from East Siberia” (Web site : New Proposal of Oil Pipeline).

According to the Interfax report from Tokyo in December 15, 2003, “Russian Prime Minister Mikhail Kasyanov said after a meeting with Japan’s Foreign Minister Yoriko Kawaguchi that a project to build an oil pipeline to export oil from Eastern Siberia to the Pacific region is a priority for Russia. He said that the Angarsk-Nakhodka is not an alternative or a competitor to the Angarsk-Daqing (China) project. His idea is such that ‘The Angarsk-Daqing project is a local project connected with resources that oil companies already have.’

Furthermore, he said that ‘The Angarsk-Nakhodka project is connected with the development of new resources in Eastern Siberia and this pipeline is not an alternative or a replacement for the Angarsk-Daqing pipeline.’ If it will be possible and economically justified, then these two pipelines may be united into one project — Angarsk-Nakhodka, with a branch to Daqing. If it is not economically viable to do this, then Russia will carry out the two projects separately, Kasyanov said.

Kasyanov said that supplies of oil through the Angarsk-Daqing pipeline to China will be relatively small, while the construction of an oil pipeline to Nakhodka is connected with the development of new large oilfields and its aim will be to ensure large exports of oil”

(Web site : Kasyanov's Idea of Oil Pipeline).

This is a completely new idea which one has not heard before.

4.6 Rising Concerns with Possibilities of Environmental Disruption

The Sea of Okhotsk is rich in marine biological resources. If it is contaminated by oil spills and other happenings during the process of oil and gas development, it would not only cause serious damages on fisheries activities but endanger the marine ecosystem there. Migratory birds which feed on fish of the Sea of Okhotsk would also be badly affected.

Sakhalin II already caused a small accident of oil spill in September 28, 1999.

Some NGO people both in Russia and Japan have been anxious of potential problems of pollution of the Sea of Okhotsk. The Wildlife Preservation Bureau of Hokkaido Corporation and some specialists of Moscow State University are among such concerned people. They openly make the statement : “Every summer since 2000, the Wildlife Preservation Bureau of Hokkaido Corporation in partnership with Moscow State University, has conducted on-the-spot surveys of the breeding situation and behavior of Steller's Sea Eagles (*Haliaeetus pelagicus*) in northeastern Sakhalin. This year (2003), from 16 July to 6 August, we conducted the fourth survey. As a result of these surveys, we have recognized that development (Sakhalin I and Sakhalin II Projects) may have serious impacts on the survival of Steller's Sea Eagles in this area. We also believe that these acts of development violate the Japan-Russia Migratory Birds Act, whose aim is to protect endangered species such as Steller's Sea Eagles.” (Web site : Steller's Sea Eagles)

The sea under the development projects is also known as the habitat of gray whale, which was listed as “critically threatened” by the International Red Book of Endangered Species in 2000. Seismic survey may scare gray whales. For example, the following is known : “Research has shown that, in the course of a seismic testing in 1997 (near the Molikpak oil platform there at Sakhalin), many notable changes were observed in the behaviour of various underwater species — even though the latter were located some 30 kilometers from where the seismic explosions were set off. This illustrated how, even at some significant distances, geological testing of this sort can be harmful to species of gray whale” (Web site : Gray Whales and Exxon). Having been criticized by environmentalists in Russia and USA, Exxon halted the seismic tests in 2001.

Warnings are also found in the paper of Emma Wilson presented to the Slavic Research Center, Hokkaido University : “The off-shore oil and gas developments clearly pose a threat to the marine resources of the Sakhalin shelf, to the coastal waters, the bays, wet-

lands, reindeer pastures and salmon spawning grounds that make up the delicate human and natural ecosystem of the north-eastern coastal region. An oil slick will be catastrophic both for the natural environment and the humans that depend on it. The Native minorities are both hopeful and suspicious of the oil developments, hoping for new job opportunities, yet fearing the final destruction of their environment — the last fishing grounds and reindeer pastures — and the disappearance of their culture and livelihoods” (Wilson, 1999).

She further points out : “Molikpaq has taken on mythical significance in the eyes of local people. It has become the symbol of some indeterminate cataclysmic change that is gradually occurring in the natural environment. Reindeer herders herd their deer on the pastures close to Piltun’skii and Astokhskii bays. Molikpaq can be seen from the shore when the mists rise. Since seismic testing began in that region, reindeer herders claim that the local environmental conditions began noticeably to change. There are fewer seals in the sea. One herder claims to have seen three dead seals along one stretch of coastline where usually no dead seals are washed up. Another notes that some of the marine birds they hunt are starting to eat land-based insects instead of plankton from the sea (evidenced by the stomach contents). Local (indigenous and non-indigenous) people who fish also report increasing numbers of poisoned fish being washed up on the shore. Fish sometimes smells of oil or phenols when it is caught, but it is still eaten out of necessity. Recently a huge number of dead herring were washed up on the shores of Piltun bay, reportedly poisoned by DDT.

While this is clearly not related solely to the appearance of Molikpaq, the platform remains a folk-symbol of accelerating environmental degradation. There are other factors, including the huge forest fires of 1989 and 1998 ; a reported phenol leak into the Amur River last year ; leaks from waste dumps along the shoreline. The phenomena could also relate to global climate change. The problem is that no-one really knows the damage caused so far by the exploratory drilling, seismic testing, erection of Molikpaq and its subsequent work. There are no independent monitoring programmes, and control of environmental conditions relating to Sakhalin I and II is out of the hands of both local regulatory organs and the local populations. Local people cannot afford to attract specialists to carry out independent scientific assessments, which are urgently needed, especially if people are to continue eating contaminated fish” (Wilson, 1999).

Oil pipeline from Irkutsk oblast to the east also has potentially a serious problem. It is worldly well known how difficult the construction of the Baikal-Amur Railway was. Some part of this railway belongs to a notoriously serious seismic zone. Considering this experi-

ence, an oil pipeline construction between Angarsk and Nakhodka cannot be an easy job both from environmental and geological viewpoints. Measures for environmental protection in RFE have to fully be adopted by policy makers and engineers both in Russia, Japan and USA.

References :

- Akaha, T., and A. Vassilieva (2000), "Environmental Consciousness in Sakhalin : Background and Views on the Sakhalin Offshore Oil-Gas Development," SRC Occasional Papers, No. 71, The Slavic Research Center, Hokkaido University, Sapporo, Japan, pp. 13–46. (Available from <http://src-h.slav.hokudai.ac.jp/sakhalin/eng/71/>)
- Joo, S. H. (2002), "Economic Relations between South Korea and Russia," in Thornton and Ziegler (2002), pp. 441–469.
- Lindquist, S. J. (1999), "The North Sakhalin Neogene Total Petroleum System of Eastern Russia," Open File Report 99–50–O, The United States Geological Survey (USGS), Department of Interior. (Available from <http://geology.cr.usgs.gov/energy/WorldEnergy/OF99-50O>)
- Murakami, T. (2000), "Offshore Oil and Natural Gas Development and Associated Environmental Issues in Northeastern Sakhalin," Research Report Series No. 69, 133, The Slavic Research Center, Hokkaido University, Sapporo, Japan. (in Japanese)
- Origuchi, K. (2003), "Visiting the Natural Gas Development Sites in Sakhalin," *Gas Energy News*, Part 1 : October 29, p. 2 and Part 2 : November 5, p. 2. (in Japanese)
- Richmond, S., and M. Vorkes (2002), *Trans-Siberian Railway : A Classical Overland Rout*, Melbourne : Lonely Planet Publications.
- Richmond, S., and six others (2003), *Russia and Belarus*, Melbourne : Lonely Planet Publications.
- Steiner, R. (1999), "Oil Spills : Lessons from Alaska to Sakhalin," SRC Occasional Papers, No. 71, The Slavic Research Center, Hokkaido University, Sapporo, Japan, pp. 131–150. (Available from <http://src-h.slav.hokudai.ac.jp/sakhalin/eng/71/>)
- Thornton, J. (2002), "Sakhalin Energy : Problems and Prospects," in Thornton and Ziegler (2002), pp. 165–191.
- Thornton, J., and C. E. Ziegler, eds. (2002), *Russia's Far East : A Region at Risk*, Seattle : University of Washington Press.
- Wilson, E. (1999), "Conflict or Compromise? : Traditional Natural Resource Use and Oil Exploitation in Northeastern Sakhalin/Nogliki District," SRC Occasional Papers, No. 71, The Slavic Research Center, Hokkaido University, Sapporo, Japan, pp. 69–96. (Available from <http://src-h.slav.hokudai.ac.jp/sakhalin/eng/71/>)

Web sites :

- * Sakhalin I Locations
http://www.sakhalin1.ru/en/project/location/images/im_location3_eng.gif
- * Gray Whales and Exxon
<http://www.dickrussell.org/news/sakhalin.htm>
- * Gas Pipeline to Japan or China
http://www.rigzone.com/news/article.asp?a_id=8549
- * Chayvo-6 Oil Well
http://www.exxonmobil.com/Corporate/Newsroom/Newsreleases/Corp_xom_nr_280900.asp
- * Two Phases of Sakhalin II Project
http://www.sakhalinenergy.com/project/prj_phase1.asp
- * LNG Plant
http://www.sakhalinenergy.com/project/prj_phase2_lng.asp
- * Sakhalin I Fact Sheet

- http://www.sakhalin1.ru/en/project/factsheet/mn_factsheet.html
- * History of Sakhalin I Project
http://www.sakhalin1.ru/en/project/history/mn_history.html
- * Angarsk-Nakhodka Pipeline
http://www.bisnis.doc.gov/bisnis/bisdoc/0308_newsrfc.htm
- * Sakhalin Energy and Gray Whale
<http://www.sakhalinenergy.com/>
- * Construction Makers
<http://www.eng.mineral.ru/Chapters/News/7924.html>
- * Russia-Japan Natural Gas Trade
<http://www.american.edu/TED/gas-russia-japan.htm>
- * New Proposal of Oil Pipeline
<http://www.interfax.com/com?item=Rus&pg=0&id=5676214&req=>
- * Kasyanov's Idea of Oil Pipeline
<http://www.interfax.com/com?item=Rus&pg=0&id=5676317&req=>
- * Kovyktinsk Gas
http://www.akm.ru/eng/news/2003/december/08/ns_1128818.htm
- * Steller's Sea Eagles
<http://www.marimo.or.jp/~wpb/sakhalinSSE.htm>

Chapter 5

Wood Industrial Sector of Far Eastern Region under Transition

5.1 Introduction

Huge natural resources of the Far East region of the Russian Federation are well known. Without any doubt, forests resources are among the main valuable natural resources of the region. In spite of natural-resource potential of the Far East, considerable results were not achieved in resources-utilizing branches of economy in general in the post-Soviet period. Nevertheless, further economic growth, expected in the nearest decade in the region in the whole as well as different subjects of Federation, will be determined mainly by the successful development of these particularly resource-utilizing branches. Within these general reconstructing tendencies it is interesting to examine changes in the wood industrial sector (WIS, hereafter) of the region, happened in the 1990s. It is important to clear up how transformation of the WIS took place during the last decade of the 20th century, i.e., in the period of transformation from the social to the market economy and which benefit from it can be used. It is especially valuable to underline those moments, which stand in the way of successful development of wood industry, and to propose well-grounded recommendations promoting dynamic development of the wood industrial sector.

The goal within the framework of this study is to reveal the problems of the WIS transition in the Russian Far East in post-Soviet time in such basic forest territories as Khabarovskiy krai, Primorskiy krai, and Sakhalin oblast.

The study was carried out by use of statistical data and application of comparative-geographical approach. The materials for this survey consist of various kinds of statistics about wood industry in Russian Federation and its certain territories presented in statistical publications listed in references section at the end of this chapter. Also research results, submitted in some papers (Baklanov, 2001 ; Forest sector of Khabarovskiy krai, 2001) were used. The majority of information was gained from our direct visits to wood industry enterprises and interviews with experts held during field trips to the Far East in 2000–2003.

5.2 Characteristics of Wood Resources of Studied Territories

Table 5–1 contains the main statistical data about wood resources of studied territories that were extracted and then rearranged from “Forest Fund of Russia” (1998).

Table 5-1 Characteristics of wood resources of studied territories

Krai, oblast'	Forested area, thousand ha	Wood stock, million m ³	Wood stock according to main species, million m ³		Evaluation of age composition in forests of Federal land	The share of forested area to total area (%)	Annual wood increment, million m ³	Evaluation of fires influence in forests of Federal land
			Broad-leaves	Conifers				
Khabarovskiy krai	53745	5377			Mature and over mature forests -47%, middle age -23%, young age -20%. Forests age composition is coming to optimum.	68.2	<u>37.0</u>	Class of fire danger is below middle, burnt forest - 2.5%, forests burning is heightened, fires damage is significant.
Total Federal land	52504	5265	524	4466				
Primorskiy krai	12536	1935			Mature and over mature forests -43%, middle age -35%, young age -6%. Forests age composition needs optimization.	76.1	<u>14.5</u>	Class of fire danger is middle, burnt forest - 0.4%, influence of fires is not significant.
Total Federal land	11335	1771	585	1182				
Sakhalin oblast	5641	634			Mature and over mature forests -39%, middle age -27%, young age -24%. Forests age composition is close to optimum.	64.8	<u>8.1</u>	Class of fire danger is above middle, burnt forest -2.1%, fires damage is significant (young age trees perish)
Total Federal land	5467	617	82	517				

Source : *Forest Fund of Russia* (1999) VNIITSlesresurs, Moscow (in Russian).

Khabarovskiy krai is significantly different from two others in comparing total wood stock. The ratio of conifers to broadleaves is varied from 8 : 1 in Khabarovskiy krai to 2 : 1 in Primorskiy krai. The proportion of territory covered by forests is more than 60% in studied territories. More optimal age composition (evaluated by ratio of mature and over-mature forests to middle-age and young-age forests) is observed in forests of Khabarovskiy krai and Sakhalin oblast ; there are more mature and over mature forests in Primorskiy krai. The annual wood increment (potential volume of wood harvested annually) strongly depends on total wood stock, and the highest value reaches in Khabarovskiy krai. The fire damage on forests varies significantly from territory to territory and from year to year, but on average its affect seems to be higher for Khabarovskiy krai and Sakhalin oblast', while the common burned area does not increase beyond 2.5% of the whole forested territory.

Integrated data in Table 5-1 clearly indicates the significant forest resources in studied Far Eastern territories.

5.3 Dynamics of Forest Resources Utilization in Studied Territories

There are data of timber and saw-timber productions in relation to annual wood increment in studied territories for the last 5 years as compared with 1990 (Tables 5-2 and 5-3).

These data clearly show the utilization of potential forest productivity. At the beginning of the 1990s wood harvest in studied regions reached up to 33%. In some areas there was surplus of wood (more than annual wood increment limit) because of the prevailed

Table 5-2 Timber production in relation to annual wood increment (%)

Krai, oblast'	1990	1995	1996	1997	1998	1999	2000
Khabarovskiy krai	26	9	9	10	7	11	16
Primorskiy krai	26	8	7	6.7	8	11	13
Sakhalin oblast	33	14	13	10	7	5	9

Source : *Forest Fund of Russia* (1999) VNIITSlesresurs, Moscow (in Russian).

Regions of Russia in 1999 (2000) Moscow, Russian Federation (in Russian).

Russian Statistics Yearbook, 2000 (2001) Moscow, Russian Federation (in Russian).

Table 5-3 Saw-timber production in relation to annual wood increment (%)

Krai, oblast'	1990	1995	1996	1997	1998	1999	2000
Khabarovskiy krai	4	0.8	0.68	0.55	0.39	0.42	0.55
Primorskiy krai	7	0.9	0.6	0.47	0.47	1.11	1.29
Sakhalin oblast	5	1.29	1.0	0.67	0.89	0.59	0.73

Source : *Forest Fund of Russia* (1999) VNIITSlesresurs, Moscow (in Russian).

Regions of Russia in 1999 (2000) Moscow, Russian Federation (in Russian).

Russian Statistics Yearbook, 2000 (2001) Moscow, Russian Federation (in Russian).

logging of conifers. Data show a sharp decline of timber as well as saw-timber production since 1996. For instance, in Sakhalin oblast in 1999–2000 manufacture of timber came down in 4 times, while in 2 times in other Far Eastern territories. One can see the weak tendency of increase in the manufacture of timber during 1996–2000 in Khabarovskiy krai and Primorskiy krai. Nevertheless, in 2000 the manufacture of timber did not exceed 9–16% from potential productivities that is significantly less than in Soviet era.

The manufacture of saw-timber in studied regions has decreased in 5–7 times in comparison with that in 1990. There seems to be a significant growth of manufacture in 1999–2000 in Primorskiy krai, but the divergence between 1990 and 2000 exceeds 5.5 times. An integral data of the Far Eastern territories show that in 1990 the manufacture of saw-timber in relation to the potential annual increment was 5,3. This relation between 1999 and 2000 look significantly different –0,77.

There are several obvious consequences : 1) in all studied regions the significant shift to produce the wood products at the lowest cost has occurred ; 2) the deepest decline in saw-timber production is in Far Eastern territories at the beginning of the 1990s ; 3) in common, there is no positive dynamics in increase of production in all WIS of studied regions.

The data shown in Table 5-4 and 5-5 help to reveal and understand the tendency of WIS in the studied region.

The saw-timber industry may indicate the first stage of the increase of cost of wood

Table 5-4 Dynamics of saw-timber production in relation to timber production (%)

Krai, oblast'	1990	1996	1998	1999	2000	1999-2000/1990
Khabarovskiy krai	16.2	7.4	5.3	3.7	3.4	22
Primorskiy krai	28.1	8.2	6.1	9.7	9.9	35
Sakhalin oblast	16.0	9.8	9.8	6.5	7.8	44

Source : *Regions of Russia in 1999* (2000) Moscow, Russian Federation (in Russian).
Russian Statistics Yearbook, 2000 (2001) Moscow, Russian Federation (in Russian).

Table 5-5 Dynamics of cardboard production in relation to timber production (%)

Krai, oblast'	1990	1996	1998	1999	2000	2000/1990
Khabarovskiykrai	1.64	0.12	0.14	0.10	0.10	6
Primorskiykrai	—	—	—	—	—	—
Sakhalinoblast	3.18	0.38	0.60	1.33	1.45	45

Source : *Regions of Russia in 1999* (2000) Moscow, Russian Federation (in Russian).
Russian Statistics Yearbook, 2000 (2001) Moscow, Russian Federation (in Russian).

products, and the cardboard production may indicate the high-cost wood products. All Far Eastern territories significantly decreased this ratio of saw-timber production to total timber production. One can see even more difference by analyzing the cardboard production. Parallel to decrease of total wood production, the ratio of cardboard production to timber production decreases even more in Far Eastern territories. Summarizing the data of Table 5-4 and 5-5 we can conclude : 1) in a considerable fall of total wood production in Far Eastern region there is no positive tendency to produce high-cost wood products ; 2) in Far Eastern region the industry so far is oriented to the production of low-cost wood products and no positive tendency in deep wood manufacture occurs.

5.4 Effectiveness of Foreign Investments

The evaluation of relationship between the amount of foreign investments in WIS and the degree of wood manufacture helps to examine the effectiveness of foreign investments in WIS of studied territories.

The study shows that there is an inverse relationship between the amount of foreign investments in WIS and the degree of wood manufacture. It indicates that WIS owners invest capitals mainly to the intense logging of raw material and the transportation of low cost wood products. It means that owners have no long-term strategy in increasing of Russian WIS income. There are no mechanisms of influence from regional and federal authorities on WIS owners in spite of that deep degree of wood manufacture is defined as an important strategic task in increasing of WIS profitableness in Russia.

5.5 Wood Products Export and Domestic Market

Analysis of statistical materials, published papers concerning this topic (Baklanov, 2001 ; Forest sector of Khabarovskiy krai, 2001) as well as expertise and presented in table 5–6 data reveal the following :

1. During the 1990s in spite of the increase of transport tariffs and drop down of an average export prices on WIS products, the Far Eastern territories sharply increased the wood export. In conditions that the internal market was considerably destroyed and the demand on WIS products sharply declined the export of wood products was the only way for wood enterprises to survive and keep the former infrastructure.
2. Obvious orientation of Far Eastern region to export of low cost wood products is confirmed ; moreover, the share of export in timber production increased up to 82% at the end of the 1990s.
3. As a whole, there is an excessive orientation to the export and strong dependence of WIS on Far Eastern territories from foreign market. It is determined, on one hand, by the long distance of these territories from main former customers (like European Russia, Baltic, and Middle Asian Republics), on the other hand by increasing demand on low- cost wood products from neighboring Asian countries. The transport of wood products from the Far Eastern region to another regions of Russia almost stopped at the end of the 1990s (for example, the transport of timber from Sakhalin oblast' and Primorskiy krai) or fell down on many times (for example, the transport of saw-timber from Khabarovskiy krai fell to 16 times).

Table 5–6 Export and transporting of WIS production in studied territories in 1999

Krai, oblast'	Volume of WIS production, million rubles	Export of WIS production, million dollars	Transporting of WIS products (timber and saw-timber) to other Russian regions, thousand cubic meters
Khabarovskiy krai	2696.8	218	77.3
Primorskiy krai	2120.2	171	1.7
Sakhalin oblast	685.6	38.2	0

Source : *Foreign Economic Activities of Enterprises and Organizations in Khabarovskiy Krai in 1999. Statistical Yearbook* (2000) Khabarovsk, Russian Federation (in Russian).

Foreign Economic Activities in Primorskiy Krai. Statistical Yearbook (2001) Vladivostok, Russian Federation (in Russian).

Foreign Economic Activities in Sakhalin Oblast' in 2000. Statistical Yearbook (2001) Yuzhno-Sakhalinsk, Russian Federation (in Russian).

Regions of Russia in 1999 (2000) Moscow, Russian Federation (in Russian).

Russian Statistics Yearbook, 1999 (2000) Moscow, Russian Federation (in Russian).

5.6 Export of Wood Products and Foreign Investments

In 1990s foreign investments to WIS of studied territories were only supporting the mechanism for development because of the lack of state investments in WIS, crisis of financial system that led to high rate of bank credits, and so on.

The data of Table 5-7 show that foreign investors preferably invested WIS of Far Eastern territories that were completely oriented to export of low-cost wood products. WIS of Siberian region was less attractive for the same foreign investors because it is mainly oriented to the domestic market and the export of higher-cost wood products related to geographical location of this region. The foreign investments in WIS of Far Eastern territories were many times more than in Siberian ones. For example, the foreign investments in WIS of Krasnoyarskiy krai (Siberian region) were about 1/3 of those to Primorskiy krai (the export income of these two kraises is approximately equal) and about 1/10 of those to Khabarovskiy krai. Thus, through investments the foreign companies and their participation in joint enterprises secured the orientation of WIS of Far Eastern regions to the export of raw wood materials.

5.7 Weakness of State Control of Forest Resources Utilization

At the end of the 1990s the negative economical tendencies in WIS of Russian Federation were caused by the weakness of federal control of forest resources that was related to the lower status of Russian Forest Service in the government structure. The obvious consequences were the sharp increase in illegal logging and illegal export of wood products. These problems were noted by officials (Interview with Vitaliy Artukhov, the Minister of Nature Resources of Russian Federation, 2002) as well as in newspapers and by TV.

Table 5-7

Krai, region	Export of WIS production, million dollars	Foreign investments in WIS, thousand dollars
Krasnoyarskiy krai, Siberian region	425	365
Khabarovskiy krai, Far Eastern region	625.2	35,100
Primorskiy krai, Far Eastern region	471.2	13,726

Source: *Foreign Economic Activities in Krasnoyarskiy Krai in 1999. Statistical Yearbook* (2000) Krasnoyarsk, Russian Federation (in Russian).

Foreign Economic Activities of Enterprises and Organizations in Khabarovskiy Krai in 1999. Statistical Yearbook (2000) Khabarovsk, Russian Federation (in Russian).

Foreign Economic Activities in Primorskiy Krai. Statistical Yearbook (2001) Vladivostok, Russian Federation (in Russian).

Expert examination, made in Khabarovskiy krai, Primorskiy krai, and Sakhalin oblast in 2001–2003 during the field studies testify mentioned above. All experts without exception testify the growth in the 1990s the “shady” business and corruption in the wood industry of the Far East region. According to the data of Dr. Alexander S. Sheingauz, vice-director of the Economic Research Institute, Far Eastern Branch, Russian Academy of Sciences, illegal import of the timber forms 50–60% from the legal. Another experts, WWF experts including, point out that illegal business volume in the wood industry of the Far East are equal to the legal. According to the specialists’ view Russian-China business in the Far East becomes more criminal, wood industry including. Studies of the scientists of the Far East region revealed the existence of concrete prices for illegal timber transportation through the Russia-China boundary without the custom control, issuing of forged documents and other types of criminal surveys. Scientific community is highly anxious of the increase of illegal export of valuable biological resources from the Far East region for their further utilization in Chinese medicine.

So, absence of strict state control for utilization of the forest resources hampers the reformation of wood industry in the Far East region and leads to considerable losses of budget at all levels, as well as prejudice of the unique biological resources of the region.

5. 8 Conclusions

1. In the 1990s the development of WIS in the Far Eastern region with high wood productivity potential was against the strategy of Russian Federation, which declared the increase of WIS profitable by deeper manufacture of raw wood materials and development of domestic market.
2. There are : 1) absence of clear federal policy in WIS of Far Eastern region ; 2) the enormous distance of these regions from main customers for wood products in inner parts of Russia ; 3) the absence of own finance ; 4) increase of transport tariffs ; 5) the demand of neighboring countries on low-cost wood products and raw wood materials. All these indicators allow foreign investors to finance low- cost wood production and lead WIS of Far Eastern region to provide raw materials for Asia-Pacific countries. Production of Far Eastern WIS has not been claimed in Russia, and the real WIS owners who defined the strategy and tactics development became foreign companies (directly or indirectly).
3. There is a strong orientation of WIS of Far Eastern region to foreign market. It means that WIS of Eastern region of Russia as other nature-resource sectors of national economy (Privalovskaya and Volkova, 2001, p. 68) was transformed from integral factor of Russian

economics in the former Soviet times to the factor of disintegration at the end of the 1990s. So, the current development of WIS in Eastern part of Russia involves its portion into the disintegration of whole country economy.

4. Our study leads to the conclusion, that in the 1990s the state in fact lost the control over their natural-resources potential. Absence of concrete control over the utilization of the forest resources of the Far East in the 1990s lead to that negative events as illegal cutting and export of forest resources, corruption and crimes in woods industry.

5.9 Recommendations

1. Russia has to formulate clear federal policy of WIS development in Far Eastern region based on geopolitical, ecological and social-economical federal and regional interests. Government has to be the key lever to avert the movement of the Far Eastern region to provide raw materials for neighboring Asian countries.

2. Strategic task of Far Eastern WIS has to be a federal support of increasing industrial power on the deep manufacture of wood materials. This must be also supported by special economic and legislation rules directed to attraction of investments in manufacture of high-cost wood products.

3. This study of WIS in Far Eastern territories confirms the previous results and recommendations made for all the Russian natural resources use (Privalovskaya and Volkova, 2001). The main outcome of this is that the export of natural resources has to be an addition to improving the domestic market. WIS export has to be accomplished with the modernization of manufacture and the development of high technologies, but it is not a method to solve the current economical problems of local enterprises or large wood companies.

4. At the aim of economic and ecological security for Russian Far East it is necessary to strengthen in general the state control for the forest resources of the region.

References

- Baklanov, P. Ya. (2001), *The Far Eastern Region of Russia : Problems and Preconditions of Sustainable Development*. Vladivostok : Dalnauka (in Russian).
- Foreign Economic Activities in Krasnoyarskiy Krai in 1999. Statistical Yearbook* (2000) Krasnoyarsk, Russian Federation (in Russian).
- Foreign Economic Activities in Primorskiy Krai. Statistical Yearbook* (2001), Vladivostok, Russian Federation (in Russian).
- Foreign Economic Activities in Sakhalin Oblast' in 2000. Statistical Yearbook* (2001), Yuzhno-Sakhalinsk, Russian Federation (in Russian).
- Foreign Economic Activities of Enterprises and Organizations in Khabarovskiy Krai in 1999. Statistical Yearbook* (2000) Khabarovsk, Russian Federation (in Russian).

- Forest Fund of Russia* (1999) VNIITSlesresurs, Moscow (in Russian).
- Forest Sector of Khabarovskiy Krai : Prrincipal Orientation of Development* (2001), Ed. Alexander S. Sheingauz. Khabarovsk, Publishing House «RIOTIP».
- Interview with Vitaliy Artukhov, the Minister of Nature Resources of Russian Federation (2002), *Zeleniy Mir*, No. 1–2 (375–376) (in Russian).
- Privalovskaya G. (2002), “Natural resources use in modern economic пространстве of Russia,” *Izvestiya of Russian Academy of Sciences, Geography*, No. 2, pp. 5–14 (in Russian).
- Privalovskaya G., Volkova I. (2001), “Dynamics of natural resources use and analysis of its influence on environment in Russia in 1985–1997,” *Izvestiya of Russian Academy of Sciences, Geography*, No. 4, pp. 66–72 (in Russian).
- Primorskiy Krai in 1997. Statistical Yearbook* (1998) Vladivostok, Russian Federation (in Russian).
- Problem Regions of Resource Type : Programmes, Projects and Transport Corridors* (2000), Siberian Branch of the Russian Academy of Sciences, Institute of Economics and Organization of Industrial Production, Novosibirsk (in Russian).
- Regions of Russia in 1999* (2000), Moscow, Russian Federation (in Russian).
- Russian Statistics Yearbook, 1999* (2000), Moscow, Russian Federation (in Russian).
- Russian Statistics Yearbook, 2000* (2001), Moscow, Russian Federation (in Russian).
- Sakhalin Oblast in Figures. Statistical Yearbook* (1999), Yuzhno-Sakhalinsk, Russian Federation (in Russian).

Chapter 6

Ecotourism in Asian Russia with Emphasis on Kamchatka and Baikal Region

6.1 Introduction

There has been a consensus of opinions supported by numerous studies that tourism has grave impacts on nature and the environment where it occurs in a massive form or where it uses particularly sensitive ecosystems (Biodiversity and Tourism, 1997). Ecological tourism, which is more responsible for the conservation of natural and cultural heritage of the territory, represents an alternative to such mass tourism.

There still are a lot of discussions on the question what ecotourism is. There are many publications on this theme (Duff, 1993 ; Ecotourism as a Conservation Instrument, 1996 ; Wallace and Pierce, 1996 ; Vorobyev et al., 1996 ; Biodiversity and Tourism, 1997 ; Fennell, 1999 ; Ryashchenko, 2000). Nevertheless, majority of researchers agree that during the last decades there is a growth of interest in ecotourism in the world as a whole, especially in the ecotourism in lowly developed and sparsely populated territories. There is a feeling among some researchers that ecotourism is expanding even faster than tourism industry as a whole (Linberg, 1991 ; McIntosh, 1992).

Currently Russia occupies the first place in the world with regard to the area of undisturbed (by economic activity) and insignificantly disturbed lands — no less than 800 million hectares, i.e., a half of the country's territory (Environmental conditions. . . , 1994). It testifies that the country has a good potential for development of ecotourism side by side with Canada, USA, Brazil, Australia and other countries. Mainly remote and low dense populated areas of Asian Russia have higher potential for development of ecotourism in comparison with more developed territories of European Russia (Encyclopedia of Tourism, 2000). In spite of the increase of interest in ecotourism and presence of natural and ethnic-cultural pre-conditions for its satisfaction on the Asian part of Russia the annual ecotourist flow is accounted about several decades of thousand people. It indicates that the existing potential of Asian part of Russia for ecotourism is used weakly.

The main purpose of this chapter is to estimate the pre-conditions for ecotourism in two territories ; Kamchatka (within the Kamchatka oblast) and the Baikal region (within the Republic of Buryatia and Irkutsk oblast), both included in the List of World Natural Heritage Sites and to reveal the problems of ecotourism development in post-Soviet period

as well as to present some recommendations in order for one to develop ecotourism more successfully in these unique territories of Russia.

The study for this chapter is mainly conducted by statistical, comparative-geographical and sociological methods. The materials for this survey consist of various kinds of information gained from interviews with local experts and people, which were held in the Baikal region in 1995–2002 and Kamchatka in August, 2003.

6.2 Defining Ecotourism and Principles of Ecotourism

Before discussing the main theme of this chapter, we need to determine the notion of ‘ecotourism’ first of all. As it was mentioned above, till now, there has been some confusion surrounding the etymology or origin of the term ‘ecotourism’, as evident in the tremendous volume of literatures on the topic.

In our study we use the definition of David A. Fennell: *Ecotourism is sustainable form of natural resource-based tourism that focuses primarily on experiencing and learning about nature, and which ethically managed to be lo-impact, non-consumptive, and locally oriented (control, benefits, and scale). It typically occurs in natural areas, and should contribute to the conservation or preservation of such areas* (Fennell, 1999 : p. 43).

According to some papers (Wallace and Pierce, 1996 ; Ecotourism as a Conservation Instrument, 1996) tourism may be a true ecotourism if it addresses such main principles as :

1. It minimizes negative impacts to the environment and socio-cultural changes.
2. It contributes to the conservation and management of legally protected and other natural areas.
3. It maximizes the early and long-term participation of local people in the decision-making process that determines the kind and amount of tourism that should occur.
4. It directs economic and other benefits to local people.

Following these principles is highly important for the successful development of ecotourism in the Asian part of Russia and for conservation of natural and resource potential of these territories for the future generation.

6.3 Pre-conditions for Ecotourism Development

Bailal region

Ecotourists are strongly attracted by the Lake Baikal. This fact is attested by the materials of sociological survey. It is the most ancient lake on the planet, about 30 million years old ;

it is the deepest with maximum depth of 1637 m and one of the largest ; it contains 20% of the world's reserve of the purest sweet water ; it is inhabited by more than 2000 species of living organisms, the two thirds of them are not found elsewhere ; the Baikal bottom sediments with a layer thickness up to 10 km hold valuable information about the paleoclimate of Central Asia over millions of years (The present and future state, 1996).

Interrogations of experts in tourist business at an international tourist fair reveal that few people know about the Republic of Buryatia as a subject of the Russian Federation but everybody knows the name of Lake Baikal and is interested in it. The analysis of recreational zones on the coasts of large lakes in the former Soviet Union and all over the world shows that the majorities of lakes are used more intensely and have a better service infrastructure than Lake Baikal. At present the Lake Baikal stands out among other lakes due to a low tourism development of the coast and in this respect has a greater value for that category of foreign tourists who are interested in underdeveloped areas. 60% of foreign ecotourists prefer Baikal cruises, which give possibilities to become familiar with biodiversity of the unique Baikal lake ecosystem, to delight by picturesque landscapes and to enjoy by bathing in coastal hot springs.

Protected areas are very attractive for ecotourists. In the Republic of Buryatia there are 3 nature reserves : Barguzinskiy, Baykalskiy, Dzherginskiy, 2 national parks : Zabaykalskiy and Tunkinskiy ; more than 20 wildlife refuges ; about 300 landmarks, where nature protected activities can be combined with ecotourism. In Irkutsk part of the Baikal region ecotourists visit Baikal-Lena nature reserve, Pribaikalskiy national parks, as well as a number of wildlife refuges, botanical gardens, dendrological parks, and landmarks. One of the most attractive for ecotourists is Zabaykalskiy national park with a lot of tourists routes, Chivirkuy Gulf beaches, cruises around Svyatoy Nos peninsula and a number of unique sites such as Ushkany islands with Baikal seal-rookeries and Zmeyinaya hot spring.

The Baikal region possesses a certain pre-conditions for trekking, hiking, canoeing, boating, ski and cycling. The most preferable for such tours are the least assimilated territories such as : Baikal lake and its surroundings ; south-west part, comprising Khamar-Daban rang and mountain systems of Tunka valley ; north and north-east part of Severo-Baykalsk district ; south part — territory for water trips in the Selenga River and its tributaries.

The Baikal region also has comparatively high potentialities for development of ornithological ecotourism, which can be explained by the fact that ornitofauna of the region comprise 47% of the one of former Soviet Union. In this case the Selenga River delta —

the biggest reservation of water and near water birds, which gather here during spring and summer arrivals, moulting and nesting, presents the considerable interest.

Ecotourists are attracted by flora of the region which has developed at the junction of several biogeographical regions of Northern and Central Asia and characterized by a unique diversity and contrasting combination of plant communities of different types — from mountainous tundra and Alpine meadows to dry steppes and deserts. About 10% of the total flora composition is endemic.

There are 66 mineral springs with debit equal or more than 1 liter per 1 second. For abundance of mineral springs and their properties the Baikal Region ranks with other famous resort areas of Russia. The most popular among ecotourists are the Shumak mineral springs in Vostochniye Sayani mountains ; Arshan, Hongorula, Nilova Pustin', Zhemchug in Tunka valley ; Kuchiger, Alla, Garga in Barguzin valley ; Gorachinsk, Hakusy near the Baikal lake.

For swimming rivers are estimated as little favorable, only in the Selenga River with its tributaries and the Barguzin river in flat spots the swimming period is about 2 months — July and August. More favourable for swimming are flat lakes such as Kotokel, Schuchye, Gusinoye, and others. The Lake Baikal has limited possibilities for swimming, which is possible in shallow bays where the water temperature in July and August is about 15–17°C, in some days — up to 20–24°C.

There are possibilities for ecotourists to enjoy fishing, including exotic under-ice fishing in winter time, in small and big lakes and rivers. In this aspect especially should be mentioned : the Baikal, Yeravna, Orangatuy and Gusinoye Lakes. Ecotourists enjoy themselves by picking mushrooms, berries and nuts in forests.

Many ecotourists visit outdoor ethnographical museum of peoples of Zabaykalya in Ulan-Ude, Kyakta folk museum, and Ivolginsk Datsan (the center of buddism in Russian Federation), especially during the religious and national holidays.

Detailed studies undertaken of the tourist potential of Republic of Buryatia (Khantaskееva, 1996) permits to say that the areas of maximal and high potential for organizing of ecotourism constitute about 45.6% of the whole territory of the Republic.

Kamchatka

Kamchatka has all its unique characteristics due to volcanoes. There are over 300 of them on the peninsula, among which 29 are still active (Nechayev, 2001). The three volcanoes can be good candidates to symbolize volcanic Kamchatka due to their total asset — Klu-

chevskoy (the absolute height is 4,750 m, the greatest Eurasian volcano), Koryaksky (3,456 m) and Kronotsky (3,528 m). One of the most attractive for ecotourists is Karymskiy volcano. It is relatively short (1,486 m), young, and the most active one in Kamchatka. Many ecotourists visit Maly Semyachek. It is a volcanic mountain range 3 km long with 3 craters on its crest. In its southern crater, there is an unusual acid lake in the depth of 170 m with temperature from 27°C to 42°C.

Two nature reserves of Kamchatka — Kronotskiy and Komandorskiy zapovedniks, natural parks “Nalychevsky” and “Yuzhno-Kamchatsky” are very popular among ecotourists. A lot of wonderful sites are preserved in Kronotsky zapovednik, but non of them is comparable with the uniqueness of the Valley of Geysers. There are over 20 big geysers in the Valley. Velikan (Giant), Zhemchuzhny (Pearly), Maly (Small), Bolshoy (Big) — are some of them. There are geysers that gush forth every 10–12 minutes, while others may erupt once in 4–5 hours. The wreathes of steam, fountains of boiling water, incredible colors of slopes, hot water streaming along them and profuse greenery of grasses and trees create an enchanting spectacles for ecotourists. The Valley of Geysers give the opportunities for ecotourists to be familiar also with such little miracles as mud cauldrons and small mud volcanoes.

Kamchatka is the largest cradle of salmon in the world. About 10 types of salmonid fish are born and spawn here including king salmon. The area of Kamchatka salmon spawning reached 50,000 hectares (Kamchatka, 1996). Every summer ecotourists may enjoy tremendous and mysterious world of salmon spawning rivers.

There are opportunities for mountain climbing, ski, and sports rafting on the rivers. There are possibilities to organize licensed fishing on every river in Kamchatka. Fishing is possible from the shores of the ocean and on the sea. Kamchatka is also offers opportunities of winter fishing for loach and smelt.

One of the great assets in the Elizovo area, which is easily accessible from the international airport is deposits of thermal and mineral waters. The most famous of them are Paratunskiy, Khodutkinskiy, Mutnovskiy, Malkinskiy. A couple of dozens of health resorts are located in the Paratunka Valley, where on weekends thousands of Elizovo and Petropavlovsk residents come to relax and to swim in the warm waters of an open swimming pools.

6.4 Ethnic Diversity Both in the Baikal Region and Kamchatka

The reserved ethnic-cultural traditions of native population (Evens, Koryaks, Aleuts, and

Itel'mens in Kamchatka and Buryat and Evenki people in Baikal region) are very important pre-condition of organization of ecotours besides mentioned above.

6.5 Natural Peculiarities of the Regions, Limiting the Development of Ecotourism

Studies permit to reveal specific peculiarities of the Baikal region and Kamchatka, which limiting the development of ecotourism :

1. Sever climate conditions in winter (4–5 months) restricting the development of ecotourism and recreational use of some territories during this period ; highly uncomfortable anthropoecological conditions of high mountain areas required careful selection of ecotourism's type with taking into consideration age of ecotourists and duration of their stay.
2. Low stability of the landscapes, especially in tundra and mountain-taiga to recreational and engineering and technical pressure required the necessity of more moderate forms of ecotourism and limiting the flow of ecotourists.
3. Distribution of natural areas of man's illnesses, first of all, ticks encephalitis in spring-summer period in the Baikal region.
4. Frequent natural catastrophes : floods, droughts, dry winds limiting the development of all branches of economy, ecotourism including ; mudflows, taluses, rock falls, snow avalanches in mountains also restricting the development of ecotourism.

Natural peculiarities of the Baikal region and Kamchatka, which limiting the development of ecotourism should be taken into account by the organizers.

6.6 Infrastructure for Development of Ecotourism

Transport

Transport accessibility of the Baikal region is estimated as more favorable in comparison with Kamchatka. There are two big airports in Irkutsk and Ulan-Ude, connecting the region with Moscow, Novosibirsk, and other large cities of Russia and some countries of Asia-Pacific regions by regular flights. There are considerable numbers of local flights. The major transport advantage of the region is Trans-Siberia and Baikal-Amur railways. The most attractive areas for ecotourism are connected with Irkutsk and Ulan-Ude by comparatively good auto roads. In summer period regular voyages along the Lake Baikal, connecting Irkutsk with Ust-Barguzin and Severobaikalsk are highly attractive. Besides, many private companies suggest short trips to some beautiful places along the lake.

For Kamchatka ecotourists the only means of transport is airlines. The major flow of tourists from Europe is going via Moscow, further to Petropavlovsk-Kamchatskiy (airport

Elizovo), and from Asia-Pacific region — via international airport Khabarovsk and further up to Petropavlovsk-Kamchatskiy. There is a regular flight from Elizovo up to Anchorage (USA). Besides Moscow, Kamchatka is connected with St-Petersburg, Novosibirsk, Ekaterinburg, Vladivostok and other Russian cities by air routs. There are some local air flights and bus routes, too.

One can reach most attractive places for ecotourists only by helicopters. There are 3 tourist companies, who organize such helicopter tours. They completely satisfy solvent demand for such type of trips. The most famous is firm “Krechet”, proposing about 20 different helicopter tours with duration from 5–6 hours to the Valley of Geysers up to 3 days to Komandorskiye islands.

Undertaken expedition studies reveal the following problems of transport supplement of these regions :

1. Though airports in Irkutsk, Ulan-Ude and Elizovo have the status of international airports there are only 1–2 international flights mainly in summer and changes form year to year.
2. It is practically impossible to reserve in advance tickets from other regions of Russia and abroad for local railway, bus routs and local air flights, which make free transportation in peak-season (July-August) for ecotourists highly difficult.
3. Expensive price for the helicopter tour (from 250\$ up to 3000\$), especially in Kamchatka, which connected with expensive price for energy make such type of ecotours inaccessible for the majority of Russian people.
4. In peak-season the transport infrastructure of these regions doesn't satisfy the requirements of tourists.

Accommodations

In the Baikal region the accommodation system now completely satisfies the requirements of the tourists. Besides the hotels, tourists are placed in private houses in peak-season. Settlement Ust-Barguzin within Zabaikalskiy National Park and Listvyanka in Pribaikalskiy National Park are good examples of such accomodation in private houses practicing from the beginning of the 1990s.

There are difficulties with accommodation of the tourists in Petropavlovsk-Kamchatskiy and Elizovo area, where 8 hotels do not satisfy the requirements, especially in the peak-season. There is no practice of accommodation of ecotourists in private houses. This is the most serious problem, which will limit the development of ecotourism in Kam-

chatka.

Our experience shows, that mainly in all hotels there are overestimated prices for the hotel services, especially for the foreigners.

Our studies reveal, that except big cities, on the major part of Kamchatka and the Baikal region such important elements of the tourist infrastructure as transport, communication, public catering and entertainment are not properly developed yet.

6.7 Use of Tourist Potential in USSR Period

In the Soviet time, the Baikal region (except Irkutsk part) as well as Kamchatka were closed for visitors from foreign countries, while it was a popular regions for the domestic tourism. Up to 1990, there was a tendency for steady growth of tourist flow of the USSR citizens, mainly from its European part, to Baikal Region and Kamchatka. According to the data of Ms. Elena Valerievna Lokteva, the Tourist Division in the Department of Foreign Economic Relations and Tourism under the Kamchatka Oblast Government, the annual tourist flow to Kamchatka was about 30,000 people. The tourist flow to the Republic of Butyatia was about 140,000 people per year (Khantashkeeva 1996, 2000). The tendency was associated with a growth of cash income of the population, steady and relatively affordable prices of the tourist services and an increase in their amount. Considerable bulks of expenses on tourism were covered by public consumption funds. Growth of free time and educational level of the population of the USSR as well as an increase of interest to these unique territories were of great importance. The majority of population of Kamchatka and the Baikal region traveled to European part and spent vacations in such well-known USSR center of tourism and recreation as Crimea, Caucasus, and Baltic Republics.

6.8 Ecotourism in the 1990s

Collapse of the USSR and associated political, economical and social changes influences on the development of tourism. Starting from 1991 rapid decrease in the tourist flow was fixed on studied regions as well as in the whole country. For example, the tourist flow to the Republic of Buryatia decreased 7 times from 1990 till 1994 (Khantashkeeva 1996, 2000). It was caused by a sharp rise in prices of tourist services whereas their assortment and quality remain the same, suspended subsidies, unstable political and economic situation in the country. Remoteness of Kamchatka and the Baikal region from the comparatively densely populated territories and increase of transport rates made these territories practically inaccessible for the population inhabited other Russian and CIS regions. On the other hand, there is an

increase of interest of the population of Kamchatka and the Baikal region to these territories, as they cannot travel to other regions of Russia due to economic reasons. After the sharp decrease in demand for tourism at the beginning of the 1990s, the comparative stabilization at the second part of the 1990s was mainly due to the local population.

As a whole, in the 1990s tourism industry was in highly difficult condition. According to our studies made in the Baikal region the annual average utilization of the material resources of tourism constituted 30% of the whole amount, about 80% of material resources needed a major repair, updating or functional reconstruction. There was a lack of legal mechanisms, assisting the successful development of ecotourism in new conditions of market economy.

Opening for the foreign tourists these territories was a positive moment for development of ecotourism. The Republic of Buryatia became open from 1989, and Kamchatka — from 1992. Along with the general decline in tourism arrivals beginning from 1990, there is an increase in the number of foreign tourists (for example, from 1745 in 1990 up to 4000 in 1997 in the Republic of Buryatia).

Among the Government, representatives of tourist business, scientific community and local population a distinct understanding of ecotourism as a perspective branch of economic development of these territories appeared in the 1990s. During that period the important documents, supporting further development of ecotourism were worked out: “The complex evaluation of Tunkinskiy National Park” (1993–1995), sponsored by the Ministry of Natural Resources of the RF; “The concept of ecotourism development in the zone of Lake Baikal (The Republic of Buryatia)” (1996–1997) sponsored by Volkswagen foundation; “Nature resources management in the Baikal Lake region” (1995) sponsored by the Global Ecological Fund; “Ecotourism master plan in the Baikal Lake region” (1995) sponsored by the World Bank. The Republic of Buryatia became the second subject of FR adopted its law on tourism in 1999.

Involving of local population in organization of ecotourism becomes an important moment in development of ecotourism in post-Soviet period. Ecotourism really starts to bring economic and other benefit to the local people. Local people provide ecotourists with accommodations, ecologically clear food, handicrafts, transport and guide service. The most active are population in the settlements around the Lake Baikal and in Tunkinskiy National Park.

6.9 Up-to-Date Condition of Ecotourism Development

Stabilization of political and economical situation during the last years positively reflected on the tourism development in Russia as well as on ecotourism in the studied territories. Since 2000 there is a considerable increase in the flow of foreign ecotourists to Kamchatka and the Baikal region. According to the data of the Tourist Division in Department of Foreign Economic Relations and Tourism under the Kamchatka Oblast Government, the flow of foreign ecotourists increased from 6000 in 2000 up to 8000 in 2002. The majority of ecotourists are from West Europe and Asia-Pacific region, especially from USA, Japan, Germany, Great Britain, France. There is an increasing interest from China and South Korea.

The situation changes very slowly in domestic ecotourism. Remote location of the Baikal region and Kamchatka from the European Russia makes such trip very expensive and inaccessible for the majority of population.

Still continuing efforts of the subjects of RFE, starting in the 1990s on forming the policy of tourism and ecotourism in these region and mechanism of their realization. In 2002 the following important documents has been adopted : Program of Tourism Development in the Republic of Buryatia, Conception of Tourism Development in Irkutsk Oblast, Program of Tourism Development in Kamchatka Oblast. In all these programs, ecotourism is considered as primary direction of tourism. At present, in Kamchatka oblast a working group on elaboration of law on tourism has been created.

On Federal level the following documents have been adopted : Law on Protection of the Environment (2002) and Law about Baikal Lake (1999), which stimulate the development of ecotourism. Though well substantiated laws and programs on Federal and RF subjects' levels have been approved, their realization faces big financial difficulties.

Though tourism has been determined as primary branch in all subjects of examined regions, the industry of tourism constitutes less than 1% of the gross domestic product and less than 1% of the changeable services offered to population.

During the first years of the 21th century ecotourism in the Baikal region and Kamchatka remain attractive to the international society. International projects (ecotourism development included) such as "The Russian Federation biodiversity project" sponsored by the Global Ecological Fund ; WWF projects in Kamchatka, Russian-German landscape planning project in the Baikal region proves that.

It is also worth to mention about the growth of ecotourism studies in post-soviet time

made by scientists of the Baikal region (Tulohkonov, Khantashkeeva, 1994 ; The present and future state, 1996 ; Vorobyev et al., 1996 ; Tulohkonov, 1996 ; Ryashchenko, 2000 ; Khantashkeeva, 2000 : Natural Resource of the Irkutsk Region, 2002), as well as scientists from Far East region (Prelovskiy et al., 1993 ; Prelovskiy, 1995, 1998 ; Kamchatka, 1996 ; Nechayev, 2001).

6. 10 Problems to Be Solved for the Development of Ecotourism

Undertaken studies permit to underline the following problems of ecotourism development :

1. In spite of great number of publications, seminars and conferences, it is not still clear to the local organizers what is ecotourism and how ecotours should be organized.
2. Dynamic development of ecotourism on the Asian part of Russia is limited by some natural-climatic and anthropoecological factors. Comparatively low stability of natural complexes to the recreational pressure dictates the necessity of limitation of the flow of ecotourists in some areas, especially in the future.
3. Existing number of protected areas occupying only about 2% of studied regions will not satisfy an increasing number of ecotourists.
4. Unsatisfactorily developed social infrastructure, and low level of engineering organization of the territories prevent the dynamic development of ecotourism. Besides, ecotourism needs ecologically safe infrastructure, garbage and waste utilization, and use of ecologically clean energy sources and building materials. All these require considerable investments, which RF subjects have not and still there are no conditions, stimulating inflow of national or foreign investments to ecotourism business.
5. Limited number of qualified employee service staffs and comparatively low service culture. Insufficient level of ecological education of the population.
6. Opposition to the foreign tourism from some local people. Up to 31.3% of examined local people in some settlements near Lake Baikal negatively attitude to the visitation of foreigners. According to their view, foreign tourism can lead to the destruction of natural and cultural heritage of their places, youth corruptness.
7. Comparatively high prices for ecotours in comparison with low quality of service as a result of low competition in ecotourism market as well as comparatively high prices for power-carrier. This problem is very pressing for such remote territory as Kamchatka.
8. Lack of complex measures for promoting ecotourist product for the World and National market. Traditional methods (participation in the tourist fairs, acquainting tours) as well as new technology, particularly Internet, are not completely used.

6. 11 Conclusions and Recommendations

Lowly assimilated Asian part of Russia has good pre-conditions for development of ecotourism. Unique territories of Kamchatka and the Baikal region possess high potential for organization of ecotourism. For these regions ecotourism is prospective branch for economic activity, meeting the requirements of sustainable development. In spite of this, we should concern with restraint to speed up resource utilization of these regions for purposes of ecotourism taking into account natural-climatic and anthroecological conditions.

This study allows us to make some recommendations. Promotion of more successful development of ecotourism is possible if these recommendations are taken into account.

1. It is necessary to continue forming of policy of ecotourism by the Subjects of Russian Federation, located on the territory of Kamchatka and the Baikal region. An important part of such policy should be : regulation of ecotourism by intergovernmental, governmental and regional ecological legislation ; quotation of the flow of ecotourists in some areas, and control over its observance by local authorities ; ecological monitoring of ecotourism areas ; gradual transition of tourism establishments to utilization of alternative energy sources and ecologically-clean construction materials ; obligatory governmental ecological expert examination of projects for tourism objects. Elaboration of mechanisms of realization of ecotourism policy is of great value on this stage.
2. Governments of Kamchatka oblast, the Republic of Buryatia, and Irkutsk oblast should adopt measures, stimulating ecotourism business and investments to this sphere. It will promote the increase in the number of participating subjects of ecotourism business, lowering prices and steady growth of the flow of ecotourists.
3. Widening the number of protected natural and historical-cultural areas where conservation activity can be integrally combined with ecotourism. Ecotourism has to make contribution to funding such areas.
4. Due to the lack of proper tourist infrastructure on the major part of the regions the priority should be given to ecotours which do not require high standards of service. Cruise programs with visiting Kamchatka for 1–2 days can be one of the most perspective alternative.
5. The organization of seminars and trainings with participation of scientists and international experts is required for organizers of ecotours.
6. It is necessary to promote ecotouristic ability of the regions to the tourist markets by the common efforts of the Government and organizers of ecotourism.

References

- Biodiversity and Tourism : Conflicts on the World's Seacoasts and Strategies for Their Solution* (1997), German Federal Agency for Nature Conservation (Ed.).- Berlin : Springer.
- Duff, L. (1993), "Ecotourism in national parks," *National Parks Journal*, 37(3) : 18-20.
- Ecotourism as a Conservation Instrument : Making Conservation Projects More Attractive* (1996), German Federal Ministry of Economic Cooperation and Development, Bonn.
- Encyclopedia of Tourism* (2000), Edited by Jafar Jafari. London and New York : Routledge.
- Environmental Conditions and Nature Preservation Activity on the Territory of the Former USSR- from Stockholm to Rio* (1994), Moscow : VNIIPrirody Minprirody RF (in Russian).
- Fennel, D. A. (1999), *Ecotourism : an Introduction*, London and New York : Routledge.
- Kamchatka* (1996), Department of Tourism Administration of Kamchatka Region. Anchorage : Art & International Productions LLC, USA.
- Khantashkeeva T. V. (1996), *Recreational Potential of the Republic of Buryatia and Perspectives for its Utilization*. Irkutsk. -19 p. (in Russian).
- Khantachkeeva, T. V. (2000), "Tourism and recreation in the Republic of Buryatia (Russian Federation) : present condition and approaches to sustainable development," *Ecofrontier* 5 : 34-40. (in Japanese).
- Linberg, K. (1991), *Principles for Maximizing Nature Tourism's Ecological and Economic Benefits*, Washington, DC : World Resources Institute.
- McIntosh, C. (1992), "Ecotourism shows promise for the north," *Northern Ontario Business* 12(1) : 9.
- Natural Resources of the Irkutsk Region and Their Utilization* (2002), Irkutsk : Publishers of the Institute of geography SB RAS. -156 p.
- Nechayev, A. (2001), *Miracles of Kamchatka Land*. Moscow : Logota, Petropavlovsk-Kamchatskiy : Novaya Kniga. -160 p.
- Prelovskiy, V. I. (1995), *Estimation of Forest Landscapes Possibilities for Recreation*. Vladivostok, Publishing House of Far East Branch RAS. -140 p. (in Russian).
- Prelovskiy, V. I. (1998), "Geographical characteristic of natural conditions of Russian Far East for purpose of recreation," *Landscape Investigations in Far East and Siberia*. Vol. 3, Vladivostok, 191-216. (in Russian).
- Prelovskiy, V. I., Dobrinin, A. P., Turkenya, V. G., Vstovskaya, E. V. (1993), Estimation of natural conditions for recreation and resort treatment in Far East. *Landscape Investigations in Far East and Siberia*. Vladivostok, 121-131. (in Russian).
- Ryashchenko, S. V. (2000), *Regional Anthropeocology of Siberia*. Novosibirsk, Publishing House of SB RAS. - 191 p. (in Russian).
- The Present and Future State of the Lake Baikal Region* (1996), Russian Academy of Sciences, Siberian Branch, Novosibirsk : Studio Design INFOLIO.
- Tulokhonov, A. K. (1996), *Baikal Region : Problems of Sustainable Development*. Novosibirsk, Publishing House of SB RAS. (in Russian).
- Tulokhonov, A. K. and Khantachkeeva, T. V. (1994), "The estimation of conditions and possibilities for development of recreational activities in Baikal lake region." *Geography and Natural Resources* 1 : 72-76. (in Russian)
- Vorobyev, V. V., Belov, A. V., Grachev, M. A., Ryashchenko, S. V., Sutorin, A. N. (1993) The concept of international ecological tourism development in Baikal region. *Geography and Natural Resources* 3 : 42-47. (in Russian).
- Wallace, G. N. and Pierce, S. M. (1996), "An evaluation of ecotourism in Amazonas, Brazil," *Annals of Tourism Research* 23(4) : 843-873.

Summary and Conclusion

Since the Soviet collapse in 1991, the economic relationship of the Russian Far East with the European Russia has been considerably weakening. In parallel to this trend, a new economic process has been arising. It is the increasing demand of China (People's Republic of China) for natural resources and advanced technologies accumulated in the Russian Far East. A tie with Japan also weakened after the Soviet collapse. But recent energy sources development may again strengthen the tie.

Total length of the national borderline between Russia and China is astoundingly so long as 4,200 km. The Amur River marks most of such a world-longest national borderline between two countries. If one just crosses this river, he/she is in the vast space of another country.

Great amount of timber moves from the heartland of the Russian Far East into China. Some of such timber are illegally cut in Russia, and exported illegally as well. Many military aircrafts are exported from Komsomolsk-na-Amure to China, legally in this case. Not only aircrafts themselves but Russian aircraft engineers are highly appreciated in China.

If one looks at the opposite direction, one finds that fresh vegetables and light industry products are flushing into the Russian Far East. At the same time, many Chinese leisurely tourists are walking, chatting, and shopping in the downtown areas of Khabarovsk and Vladivostok. Behind such relatively rich Chinese people, there also are many Chinese workers who illegally have crossed the border.

The economic and cultural relationships of the Russian Far East with Japan and other countries beside China look very uncertain. A great amount of marine products such as crabs and ikra (salmon eggs) from the Sea of Okhotsk flow southward to satisfy the stomachs of the Japanese. But some of the catches are illegally caught and sold. From Japan, used cars and parts are still flushing into the Russian Far East. But the total amount of trade between Russia and Japan has declined compared with the Soviet era. Instead, the economic tie with South Korea (Republic of Korea) becomes rather strong.

When one looks at energy sector of the Russian Far East, an entirely new prospect is now open. Sakhalin is in its forefront. Owing to the Euro/American and Japanese investments, offshore oil/gas fields of Sakhalin I and II have been developed. Between Russia and foreign countries, however, there was no agreement on a concrete plan of how to use and share the fruits of such development.

But the decision was made inside the Russian government in 2003 to let the past development step into a new stage. It means two things ; one is the construction of natural gas pipeline starting from Nogliki and reaching the Korsakov area, another is the construction of liquefied natural gas (LNG) manufacturing plant in Prigorodnoe in the suburb of Korsakov. The LNG will then be shipped to Japan, or some part may go to South Korea and China. This is the story of Sakhalin II. Sakhalin I is also kicked off toward a new era.

People are moving out from small towns and villages and attempting to settle in big cities as Khabarovsk or in the European Russia, or in foreign countries.

We did not have enough time to make direct interviews with native peoples. According to the results of our interviews with Russian scientists and literature readings, however, native peoples' condition seems to be not worse, but not better compared with the Soviet time.

Environment is relatively well preserved in the Russian Far East. Serious problems, however, lie in many areas. Water pollution of Amur River is alarming. Man-made forest fires have been so extensive and frequent. Possibilities of overfishing in the Sea of Okhotsk should be cautioned. Radioactive pollution can happen in the sea of Vladivostok area if abandoned nuclear reactors are not properly managed. Nuclear facilities in other parts of the Russian Far East have similar problems. The growing economy of China is a grave environmental threat on the Amur River.

Tourism has a great potential in the Russian Far East. Amur River is so great. Where else in the world does such a possibility exist that one can make a river boat trip of over 900 km in 17 hours?! Not only such a hydrofoil trip, boat trips of many other kinds can be developed in the future. A group of Kamchatka volcanoes were already designated as a World Natural Heritage of UNESCO. Active volcanoes, geysers, caldera lakes, lava fields, hot springs and many more are the fantastic attractions of wild nature for people from all over the world. But problems remain. For foreigners, tourism in the Russian Far East is not so easy. Visa and hotel regulations are still tight. It is different from Mongolia and China. For those countries tourism is now an important industry, while it is not considered that way in the Russian Far East.

As a whole, the Russian Far East is dynamically moving and slowly becoming open under the influence of the world politics and economy. Is such a change goes to a direction of happiness of the people who live there or of destruction of their lives? The answer to this question is yet to be seen.

Finally, people in the Russian Far East have been generally open minded and kind to our research activities. Considering the history that many areas had been closed to foreigners' visits until 1991, we always have felt enormously vast space of the Russian Far East are becoming open, if slowly. We do hope that this wind shall not blow in the reverse direction in the future.

The trend of less and less exploitation of gold and other metal resources may be good from an environmental viewpoint. Salmon hatchery businesses are not so intense as in the Japanese past and present. A considerable number of Pacific salmon freely go up many rivers in the RFE. But one cannot be optimistic about the river ecology there. Severe pollution already has been hitting the middle- and down-streams of the Amur River. Environmental friendship may be mandatory between the RFE and Northeast China.

Statistical Appendix

Table A-1. Economic Characteristics of the Russian Far East, 2001

Krai, okrug, oblast'	Gross Regional Product, million rubles	Share of each industry in Gross Regional Product (%)	Industrial production, million rubles	Basic industry, its share in gross industrial production (%)	Agricultural production, million rubles
<i>RFE Total</i>	319,334.6		276,033	Non-ferrous metallurgy – 29.6	33,276
<i>Amur Oblast</i>	26,953.6	Industry – 16.5, agriculture – 15.7, construction – 5.3, transport – 24.0, trade and commerce – 14.9.	11,704	Electric energy industry – 33.3	7,940
<i>Chukotka Autonomous Okrug</i>	4,128.6	Industry – 36.7, construction – 7.2, transport – 9.3, trade and commerce – 8.7.	2,929	Non-ferrous metallurgy – 56.3	108
<i>Jewish Autonomous Oblast</i>	3,823.7	Industry – 14.6, agriculture – 9.9, construction – 4.9, transport – 28.0, trade and commerce – 16.1.	1,269	Construction materials industry – 31.7.	1,232
<i>Kamchatka Oblast'</i>	15,711.0	Industry – 46.3, agriculture – 5.5, construction – 6.2, transport – 3.8, trade and commerce – 9.5.	15,823	Food (fishing) industry – 61.9.	1,655
<i>Khabarovskiy Krai</i>	68,683.6	Industry – 45.9, agriculture – 3.6, construction – 5.6, transport – 13.2, trade and commerce – 8.6.	69,444	Machinery industry – 47.2.	5,167
<i>Koryak Autonomous Okrug</i>	2,637.2	Industry – 64.8, agriculture – 1.2, construction – 0.7, transport – 1.5, trade and commerce – 3.8.	4,155	Food (fishing) industry – 52.1.	69
<i>Magadan Oblast</i>	12,760.4	Industry – 52.5, agriculture – 1.2, construction – 6.1, transport – 4.9, trade and commerce – 11.2.	12,334	Non-ferrous metallurgy – 57.1.	419
<i>Primorskiy Krai</i>	66,341.9	Industry – 29.6, agriculture – 4.6, construction – 4.1, transport – 18.7, trade and commerce – 15.4.	44,889	Food (fishing) industry – 40.6.	6,752
<i>Sakha Republic (Yakutia)</i>	81,918.9	Industry – 49.7, agriculture – 2.7, construction – 7.1, transport – 3.4, trade and commerce – 9.4.	80,594	Non-ferrous metallurgy – 74.0.	7,044
<i>Sakhalin Oblast</i>	36,375.8	Industry – 49.9, agriculture – 2.8, construction – 12.4, transport – 5.7, trade and commerce – 7.5.	32,892	Fuel industry – 54.2.	2,890

Source : *Regions of Russia : main Characteristics of Subjects of Russian Federation* (2002), State Committee for Statistics, Russian Federation, Moscow (in Russian).

Table A-2. Energy Resources Output in the Russian Far East, 2001

Krai, okrug, oblast'	Oil output, thousand tons	Gas output, million cubic meters	Coal output, thousand tons
<i>RFE Total</i>	4,203	3,526	28,179
<i>Amur Oblast</i>	—	—	2,708
<i>Chukotka Autonomous Okrug</i>	—	—	403
<i>Jewish Autonomous Oblast</i>	—	—	57
<i>Kamchatka Oblast</i>	—	8	44
<i>Khabarovskiy Krai</i>	—	—	2,295
<i>Koryak Autonomous Okrug</i>	—	—	—
<i>Magadan Oblast</i>	—	—	637
<i>Primorskiy Krai</i>	—	—	9,034
<i>Sakha Republic (Yakutia)</i>	436	1,623	9,721
<i>Sakhalin Oblast</i>	3,767	1,895	3,280

Source : *Regions of Russia : main characteristics of subjects of Russian Federation* (2002), State Committee for Statistics, Russian Federation, Moscow (in Russian).

Table A-3. Forest Resources of the Russian Far East

Krai, okrug, oblast'	Forested area, thousand ha	The share in forested area to total area (%)	Wood stock, million m ³
<i>RFE Total</i>	27,7834	45.9	20,362
<i>Amur Oblast</i>	22,460	63.9	1,992
<i>Chukotka Autonomous Okrug</i>	5,064	7.1	86
<i>Jewish Autonomous Oblast</i>	1,530	45.1	166
<i>Kamchatka Oblast</i>	8,945	56.4	1,192
<i>Khabarovskiy Krai</i>	52,504	68.2	5,265
<i>Koryak Autonomous Okrug</i>	10,234	35.0	572
<i>Magadan Oblast</i>	17,070	38.4	430
<i>Primorskiy Krai</i>	11,335	76.1	1,771
<i>Sakha Republic (Yakutia)</i>	143,227	46.7	8,844
<i>Sakhalin Oblast</i>	5,467	64.8	617

Source : *Regions of Russia : Main Characteristics of Subjects of Russian Federation* (2002), State Committee for Statistics, Russian Federation, Moscow (in Russian).

Table A-4. Foreign Trade and Foreign Investments in the Russian Far East, 2001

Krai, okrug, oblast'	Foreign trade, million dollars	Export, million dollars	Foreign investments, thousand dollars
<i>RFE Total</i>	6,341.4	5,399.0	766,842
<i>Amur Oblast</i>	118.1	96.5	203
<i>Chukotka Autonomous Okrug</i>	2.3	0.1	—
<i>Jewish Autonomous Oblast</i>	20.7	16.7	9
<i>Kamchatka Oblast</i>	202.1	155.4	74,090
<i>Khabarovskiy Krai</i>	2,498.0	2,352.1	19,893
<i>Koryak Autonomous Okrug</i>	—	—	4,286
<i>Magadan Oblast</i>	58.2	2.8	26,425
<i>Primorskiy Krai</i>	1,612.1	1,146.1	108,552
<i>Sakha Republic (Yakutia)</i>	1,330.1	1,298.3	144,475
<i>Sakhalin Oblast</i>	4,99.9	331.1	388,909

Source : *Regions of Russia : Main Characteristics of subjects of Russian Federation* (2002), State Committee for Statistics, Russian Federation, Moscow (in Russian).

Table A-5. Population and Ethnicity in the Russian Far East, 2001

Krai, okrug, oblast'	Territory, thousand square kilometers	Population, thousand people	Density of population, people per 1 square kilometer	Ethnic breakdown (%)
<i>RFE Total</i>	6,215.9	7,038.1	1.1	
<i>Amur Oblast</i>	3,63.7	982.2	2.7	86.8 – Russian, 6.7 – Ukrainian, 6.5 – other.
<i>Chukotka Autonomous Okrug</i>	737.7	73.8	0.1	66.1 – Russian, 16.8 – Ukrainian, 7.3 – Chukchi, 9.8 – other.
<i>Jewish Autonomous Oblast</i>	36.0	194.6	5.4	83.2 – Russian, 7.4 – Ukrainian, 4.2 – Jews, 5.2 – other.
<i>Kamchatka Oblast</i>	170.8	351.7	2.05	81.0 – Russian, 9.1 – Ukrainian, 1.5 – Koryak, 8.4 – other.
<i>Khabarovskiy Krai</i>	788.6	1,485.8	1.9	86.4 – Russian, 6.1 – Ukrainian, 7.5 – other.
<i>Koryak Autonomous Okrug</i>	301.5	28.5	0.1	62.0 – Russian, 16.4 – Koryak, 7.2 – Ukrainian, 3.6 – Chukchi, 3.0 – Itel'men, 1.8 – Evens, 6.0 – other.
<i>Magadan Oblast</i>	461.4	229.2	0.5	75.2 – Russian, 14.9 – Ukrainian, 9.9 – other.
<i>Primorskiy Krai</i>	165.9	2,124.7	12.8	86.9 – Russian, 8.2 – Ukrainian, 4.9 – other.
<i>Sakha Republic (Yakutia)</i>	3,103.2	982.9	0.3	50.3 – Russian, 33.4 – Sakhan, 7.0 – Ukrainian, 9.3 – other.
<i>Sakhalin Oblast</i>	87.1	584.7	6.7	81.6 – Russian, 6.5 – Ukrainian, 5.0 – Korean, 6.9 – other.

Source : *Regions of Russia : Main Characteristics of Subjects of Russian Federation* (2002), State Committee for Statistics, Russian Federation, Moscow (in Russian).

Table A-6. Dynamics of Population of the Russian Far East

Krai, okrug, oblast'	Population (1989)	Population (1998)	Population (2001)
<i>RFE Total</i>	7,941,000	7,367,000	7,038,100
<i>Amur Oblast</i>	1,058,000	1,023,000	982,200
<i>Chukotka Autonomous Okrug</i>	157,000	81,000	73,800
<i>Jewish Autonomous Oblast</i>	216,000	205,000	194,600
<i>Kamchatka Oblast</i>	466,000	396,000	351,700
<i>Khabarovsk Krai</i>	1,609,000	1,546,000	1,485,800
<i>Koryak Autonomous Okrug</i>	39,000	31,000	28,500
<i>Magadan Oblast</i>	386,000	246,000	229,200
<i>Primorskii Krai</i>	2,258,000	2,216,000	2,124,700
<i>Sakha Republic (Yakutia)</i>	1,081,000	1,003,000	982,900
<i>Sakhalin Oblast</i>	710,000	620,000	584,700

Sources : *Regions of Russia : Main Characteristics of subjects of Russian Federation* (2002), State Committee for Statistics, Russian Federation, Moscow (in Russian).

Demographical Yearbook of Russia (1996), State Committee for Statistics, Russian Federation, Moscow (in Russian).

Russian Federation in 1998. Statistical Yearbook (1996), State Committee for Statistics, Russian Federation, Moscow (in Russian).

Table A-7. Population of the Biggest Cities in the Russian Far East, 2001

Krai, okrug, oblast'	Capital city	Distance from capital city to Moscow, km	Population of the biggest cities, thousand people
<i>Amur Oblast'</i>	Blagoveshchensk	7,985	Blagoveshchensk – 220.1 Belogorsk – 73.7 Svobodnyy – 68.8
<i>Chukotka Autonomous Okrug</i>	Anadyr	8,635	Anadyr – 12.0
<i>Jewish Autonomous Oblast</i>	Birobidzhan	8,361	Birobidzhan – 78.0
<i>Kamchatka Oblast</i>	Petropavlovsk-Kamchatskiy	11,876	Petropavlovsk-Kamchatskiy – 194.0 Elizovo – 36.4 Viluchinsk – 33.2
<i>Khabarovskiy Krai</i>	Khabarovsk	8,533	Khabarovsk – 600.5 Komsomolsk-na-Amure – 286.7 Amursk – 52.3
<i>Koryak Autonomous Okrug</i>	Palana	12,866	Palana – 4.1
<i>Magadan Oblast</i>	Magadan	7,110	Magadan – 120.4
<i>Primorskii Krai</i>	Vladivostok	9,302	Vladivostok – 594.9 Ussuriysk – 155.7 Nakhodka – 153.8
<i>Sakha Republic (Yakutia)</i>	Yakutsk	8,468	Yakutsk – 200.8 Neryungri – 73.9 Mirnyy – 37.1
<i>Sakhalin Oblast</i>	Yuzhno-Sakhalinsk	10,417	Yuzhno-Sakhalinsk – 175.9 Holmsk – 38.6 Korsakovo – 37.6

Source : *Regions of Russia : Main Characteristics of Subjects of Russian Federation* (2002), State Committee for Statistics, Russian Federation, Moscow (in Russian).