

《Proceedings of the Japanese Russian Seminar》**Sponsored by the Research Center for World Wide Business (RCWOB)****Doshisha University, Kyoto, Japan March 29, 2008****Natural Resource Business, Population and Environment
in Eastern Russia : Their Present and Future in Relation to Japan**

Edited by

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Preface by the editors

This is the proceedings of the Japanese Russian seminar held at Doshisha University, Kyoto, Japan on March 29, 2008. The theme of the seminar was “Natural Resource Businesses, Population and Environment in Eastern Russia : Their Present and Future in Relation to Japan,” and it was sponsored by the Research Center for World Wide Business (RCWOB) of Doshisha University.

We, Takeshi Murota and Tamara Litvinenko, both the members of RCWOB since its foundation year 1998, have been undertaking a joint research on the natural resources utilization and environmental problems associated with it in East Siberia and Far East of Russian Federation in the post-Soviet era.

We started field research trips in those two vast regions of Russia from 2001. An early outcome of our joint research was the English report in the form of the special issue of World Wide Business Review in 2004, and its title was “Post-Soviet Transition of Russian Far East : Its Economic/Environmental Diversity in International Perspectives”. But it was only primitive of preparatory stage as an academically meaningful result. And our analysis was limited to Far East without including East Siberia in our spatial scope of research.

We definitely need new ideas and information of other researchers both in Russia and Japan for us to develop our joint research to a more mature level in such a way that it can be academically deep and practically useful for policy making toward environmental conservation and improvement of human welfare not only in Far East but East Siberia. From a Japanese point of view, the environmental conservation in East Siberia and Far East of Russia is crucially important because the northeastern part of Japan faces the Sea of Okhotsk, where the Amur River empties its massive amount of water flowing down from those two eastern regions of Russia.

This is the reason why we organized this seminar by inviting specialists both from Russia and Japan. We greatly appreciate the participation of Dr. Petr Ya. Baklanov, the Academician from Vladivostok and Dr. Sergey Artobolevskiy, the head of the Department of Economic and Social Geography of the Institute of Geography from Moscow. We also are very grateful for the participation of Dr. Irina Volkova and Dr. Mikhail P. Krylov from Moscow, Dr. Takayuki Shiraiwa and Professor Norio Horie from Japan. The rich contents of their presentations in the seminar are all documented in this proceedings. Deep thanks are also due to Professor Sadayoshi Ohtsu of Osaka Sangyo University who partially attended the seminar as a commentator on the Dr. Artobolevskiy presentation, and Dr. Ekaterina Motrich (Institute of Economic Investigation, Far Eastern Branch of Russian Academy of Sciences) from Khabarovsk who kindly gave the seminar audience valuable information of the population change in our studied regions in the post-Soviet era.

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A Brief Overview of Eastern Russia : From Tuva to Chukotka and the Sea of Okhotsk

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Abstract

This note is a summary report of my own and co-authored writings on Eastern Russia (East Siberia and Far East combined) in the post-Soviet era. Method of my study has been the extensive field research trips to the places there as many as possible. Such a study has been supported by Research Center for World Wide Business (RCWOB), Doshisha University. Not all but many field trips became possible as joint trips with my co-researcher of RCWOB ; Tamara Litvinenko during the time period of 2001 through 2007. Description starts from the one of Tuva Republic, goes to east via the Lake Baikal, up Chukotka Autonomous Okrug, and ends in the areas facing the Sea of Okhotsk.

Key words : The post-Soviet era, East Siberia, Far East, field research trips, Research Center for World Wide Business

1. Introduction : Field Research of East Siberia and Far East

The theme of my research in the Research Center for World Wide Business (RCWOB) has been the natural resources utilization and environmental problems associated with it in East Siberia and Far East of Russian Federation. Together with my co-researcher, Tamara Litvinenko (formerly Khantahsikeeva) and sometimes with others, I have made extensive, and sometimes intensive field research trips to many parts of East Siberia and Far East (See Map of East Siberia and Far East). In this report, I would like to show the vastness and richness of East Siberia and Far East and to list my own and co-authored writings of the studied regions.

One of the strong reasons why I have been interested in East Siberia and Far East is in that the Baikal rift zone and the western fringe of the Sea of Japan seems to form the outerboundary of the same plate ; the Amur Plate as a sub plate of the larger Eurasia Plate (Murota 2000). There are several similarities between these zones :

(1) Naturally occurring methane hydrates have been detected in the subbottoms of the southern and

central basins of Lake Baikal in the 1990s. In Japan too, subbottom methane hydrates have been known offshore in the north western part of Japan. Their occurrences also have been established offshore in the north eastern coast of Sakhalin Island. All of such places belong to the outboundary of the Amur Plate (Murota 1998 ; 2004 Chapter 10).

(2) Both zones are in well known seismic belts. Earthquakes are frequent.

(3) Both zones have chains of hot springs, although there is a difference in that the Baikal rift zone does not have active volcanoes while Japanese Archipelago has many active ones.

Noticing these similarities between Eastern Russia and northwestern Japan, I have been visiting many places in East Siberia and Far East since 1997. At the beginning, my trips there were mainly based on curiosity. But my interest gradually turned to research activities supported by RCWOB. In what follows, I briefly describe the regions there based on my field research trips.

2. From the Inner Asia to the Arctic Ocean : Regions of East Siberia

Republic of Tuva locates at the south western corner of East Siberia. Its capital city is Kyzyl, which is the geographical center of Asia. Asia is tremendously large, from Istanbul of Turkey and the Urals to the Bering Strait and Japanese archipelago in the west-east direction, and from the Arctic



Map of East Siberia and Far East

Ocean to East Timol in the north-south direction. Because it is too vast, some people may wonder where its center is. The answer is that Kyzyl is the center of Asia.

While the major part of Republic of Tuva belongs to the Yenisei River catchment area, some portion of its southern part belongs to Inner Asia, where the precipitation on it never flows down to any ocean, but disappears in some desert. In January 2005, I, together with Tamara Litvinenko, visited not only Kyzyl but Samagaltai, a village of Inner Asia. The scenery of a Lama temple was very impressive in Samagaltai near the Mongolian border. The majority of population in this republic are Tuvians.

In the north of Tuva, one finds Republic of Khakasia, which boasts its highly developed industries ; aluminum, molybdenum, and hydro electric power. We visited Abakan (the capital of the republic), Sorsk, and Sayanogorsk at the time of our trip to Tuva. We were deeply impressed the magnitude of Sayano-Shushenskaya hydroelectric power station whose generation capacity is among the ten largest hydroelectric power plants in the world.

Krasnoyarsk Krai is now very large including the former Evenk Autonomous Oblast and Taimyr Autonomous Oblast. This krai occupies the major part of the Yenisei River catchment area, and is very rich in wild nature, but at the same time, it is worldly notorious of air pollution and heavy metal contamination of soil due to the mining activities in Norlisk. It also has oil/gas fields.

Irkutsk Oblast locates in the west of the Lake Baikal and stretches north beyond the latitude 60 N. It is also the headwater area the Lena River. Though wilderness prevails in most of this oblast, industrial cities such as Irkutsk, Angarsk, Chermkhovo and others occupy the area along the Angara River which is the only one outflow from the world deepest Lake Baikal. The capital of this oblast is Irkutsk, which enjoys cheap electricity from the hydroelectric power station built in the city by damming the Angara River. In the north west of this oblast, large oil/gas fields have been developed. The hydroelectric power station under the Bratsk dam also supplies huge amount of electricity to the industry of this oblast.

Republic of Buryatia occupies the northern, eastern, and southern shores of Lake Baikal, and becomes sharply mountainous once leaving the shores. Like Japan, it has many hot springs. They are Arshan, Goryachinsk, Alla, Kucheger, Zmeinaya Bay, Hakusy, Zhilinda, and others (Murota and Nakayama 2007). The northern shore of Lake Baikal is very seismic. Although the Russians still are the majority of population of this republic, there are many Buryats who believe in Lama Buddhism. The capital of the republic is a lively city of Ulan-Ude, where the Uda River merges with the main stream of the Selenga River flowing down from Mongolia. The Selenga River empties into the Lake Baikal.

Zabaikalskiy Krai (formerly Chita Oblast) is the headwater area of the tributaries of the worldly

longest rivers ; the Selenga-Yenisei River, the Lena River and the Amur River. The newly created Alkhanai National Park belongs to this oblast (Murota 2006 a ; Murota and Nakayama 2007, pp. 36–38). Lama Buddhism is also popular in this krai. Its capital city is Chita, where many people gather at the large Chinese market. The international trains from Beijing of China and Pyongyang of North Korea stop at Zabaikalsk in the national border area and Chita, and move ahead for Moscow.

The above regions up to Zabaikalsky Krai comprise East Siberia.

3. Catchment Areas of the Lena, Amur and Amuguema Rivers : Regions of Far East

Among the regions of Far East, Republic of Sakha (Yakutia) has the largest area. It is now worldly famous because of the development of diamond industry. It is also worldly known as the region which has “the Pole of Cold.” The AYaM railway as an extension of the Baikal Amur Magistral is completed up to Tommot, and will reach Yakutsk soon. Murota (2006 b) is a detailed description of the entire aspect of this newly developing republic.

Amur Oblast, taiga in the north and plain in the south, locates north of the Amur River. Its capital city; Blagoveshchensk has frequent ferry services to the quickly developing Chinese city of Heihe across the Amur River (Heilong Jiang, in Chinese). A large Chinese market at the center of the city attracts many people (Murota and Nakayama 2007). Flowing down from the northern areas of the oblast, the Zeya River merges with the main stream of Amur River in Blagoveshchensk.

Jewish Autonomous Oblast is largely agricultural. Though its Jewish population is now less than 3% of the total, it still maintains some aspects of Jewish culture. It is affected by the monsoon climate.

Khabarovskiy Krai, which lies in the Lower Amur River catchment area, has two major centers ; Khabarovsk and Komsomolsk-na-Amure. Khabarovsk almost has completed its urban renewal process and is a very modern city. Komsomolsk-na-Amure receives great amounts of oil and natural gas from Sakhalin through pipelines, and has highly developed industries of oil refinery and aircraft manufacturing (Murota and Kishi 2003, pp. 97–100). Rapid river boat service connects Khabarovsk with Nikolaevsk-na-Amure within 18 hours one way (some 2,000 km).

Magadan Oblast has economic difficulties due to the closures of many gold mines along the Kolyma Highway. Kamchatka is a large territory including the former Koryak Autonomous Oblast. Many active volcanoes attract not only domestic but also international tourists. “Valley of Geysers” half disappeared as a result of the earthquake in 2007.

Chukotka faces the Bering Strait as narrow as 50 km, and beyond that, a part of Alaska, the 50 th state of the United States can be seen. The Anadyr Bay is a good habitat for seals, beluga, and others.

Salmon fishery is important there. In the north, Chukchi people are active in reindeer husbandry, walrus and whale huntings. I, together with Litvinenko, visited Chuotka in summer 2007 and realized that almost everybody in Chukotka knows the name of its governor; Roman Abramovich (Murota and Litvinenko 2008). The Anadyr and Amuguema Rivers cut through the vast land of tundra, and the former empties into the Bering Sea and the latter into the Chukuchi Sea of the Arctic Ocean.

Primorye Krai is very diverse in natural conditions and human livelihood. While deep forests still remain in the Sikhote-Alin mountain in the direction of the Sea of Japan, Vladivostok and Nakhodka are the busy centers of international trade by ocean-going ships.

Sakhalin Oblast now is one of the very important points of international business because of the well developed offshore oil and natural gas fields in the depths of the Sea of Okhotsk (Khantashkeeva and Murota 2004, pp. 24–37). Potential danger of marine pollution due to oil spills and so on has been pointed out not only inside Japan and Russia but wider international community of environmentally concerned people.

4. The Baikal-Amur Magistral and the AYaM to Yakutsk

To touch the full depth of the history in general and economic geography in particular of East Siberia and Far East, a simple way would be to make a train trip using the Baikal-Amur Magistral (BAM in brief). This railway runs farther north of and roughly parallel to the Trans-Siberian Magistral, which connects Moscow with Vladivostok. In between Moscow and Vladivostok, there is a station; Tyshet, a town near the western margin of Irkutsk Oblast. The trains of the BAM start from Tyshet, and run through such cities as Bratsk and Severobaikalsk. Passing the northern shore of the Lake Baikal, they reach Tynda, the forestry town in the northern part of Amur Oblast. From Tynda the trains go to Komsomolsk-na-Amure and cross the Lower Amur River. Running through mountainous areas, they reach Vanino, the port town facing the Mamiya Strait (the Tartar Strait in Russia). Some 30 km south of Vanino, the trains find its terminal; Sovetskaya Gavani. Many Japanese taken hostage by the Soviet troops after the Second World War contributed a lot to the construction of some segments of this 4,300 km long railway.

The railway ferry connects Vanino with Kholmok, the city in the south western coast of Sakhalin Oblast. If one wishes to continue a train trip, the trains on narrow gauge rails take one farther north up to Nogliki, the town in the eastern side of Sakhalin Island facing the Sea of Okhotsk (Murota and Kishi 2002, pp. 72–97).

In relation to the BAM, the Amur-Yakutsk Magistral (AYaM in brief) has been planned to connect Tynda with Yakutsk, the capital of Republic of Sakha (Yakutia). The section of AYaM between

Tynda and Neryungri was completed a few decades ago due to the importance of cargo transportation of Neryungri coal and others. Then the service was extended farther north to Aldan. Entering the 21st century, the section from Aldan to Tommot was completed. When I visited Republic of Sakha in summer 2005, I found that the construction works were underway for the section from Tommot to Yakutsk. The railway bridge over the Aldan River (one of the very long tributaries of the Lena River) was already completed at that time (Murota 2006 b). It is quite possible that the AYaM would be completed by now.

The so called “A Little BAM” has been crucially important as of connecting the AYaM with the Trans-Siberian Magistral. More exactly, the Little BAM runs between Tynda and Bamovskaya ; a station of the Trans-Siberian Magistral. If the AYaM is completed, people and cargo from Yakutsk can directly go either to Moscow or Khabarovsk via Tynda and Bamovskaya.

5. Concluding Remarks

Economies of East Siberia and Far East became chaotic after the Soviet collapse in 1991 and went into extreme difficulties before and after the rouble crisis in 1998. The flow of investment money from Moscow decreased. Many mines were closed and many enterprises were liquidated. Mass exodus occurred in many, remote towns and villages. Care for ecology and environment was not the issue of people’s concern. Entering the 21st century, however, the situation has been slowly changing, at least in terms of economic activities. Urban renewal has been underway in such places as Khabarovsk, Yakutsk, Mirny and Anadyr. New oil/gas businesses are developing in Irkutsk and Sakhalin Oblasts for exports. Since such development can be environmentally destructive, more care has been taken than in the Soviet time. As far as I have seen in many places where I visited for field research, East Siberia and Far East already have passed the stage of utter confusion, and are moving toward something new.

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Nature Management and Ecological Concerns in Strategy of Development of the Far Eastern Region of Russia

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Abstract

Now a Strategy of the Development of the Far East till 2025 is being developed under the guidance of the Governmental Commission of the Russian Federation. The following activities are defined as prior in long-term perspective :

- marine economic complex, including fishery and processing, development of marine culture, shipbuilding and ship repair, ocean studying, construction of robots and devices ;
- a forest economic complex, including extraction and deep processing of various forest resources and reforestation ;
- transport-logistical structures, including railway-sea transit ;
- oil and gas complex, including extraction of oil and gas, their transportation and processing ;
- mining complex, including extraction and processing of non-ferrous, rare and precious metals and polymetals ;
- electric power industry, including water-power engineering and atomic engineering ;
- tourist complex, including various kinds of ecological tourism.

All these activities will be realized in conformable territorial structures closely connected with nature use. In many cases it is possible that environmental problems will arise. To cover and evaluate all the components of nature use and problems in certain areas, we developed matrix models. The comprehensive matrix model of regional nature use reflects interrelations between economy, natural resources and environment components. Such models can be constructed in order to estimate actually developed interrelations between territorial structures of economy, natural resources and environment components, and also to predict their changes, including their interrelations in perspective or in different variants.

With this purpose we are developing the approach to estimate the contribution of separate investment projects to the economic, social and ecological qualities of regional development. In this case the best, standard indexes are defined and estimated indexes are compared with them. To estimate the ecological quality, standard indexes of maximum permissible pollution, technogenic emissions can also be used. It is necessary to obtain estimated indexes not only for functioning of the investment project under normal conditions, but also in case of possible emergencies.

Thus, it is possible to identify and estimate in good time various prognosis variants of nature use and environmental problems in the region and to choose the best ones.

1. Introduction

In 2008 the Russian Far East (region is considered within the boundaries of the Far Eastern Federal District) seems to enter a qualitatively new stage of the social-economical development. It is caused by a number of important governmental decision-makings adopted in the late 2006 and in 2007, i.e. formation of the State Commission for the social-economic development of the Far East and Transbaikalia, updating of the Program up to 2013, working out of the Strategy of the Development of the Far Eastern region up to 2025 and a Long-term Strategy of the Development of Primorsky Krai, including Vladivostok. It is explained by the fact that the APEC Meeting will be held there in 2012. Long-term programs are also being developed for other districts of the Far East.

However, in a number of activities out concerning the long-term strategy of the development of the region many kinds of activities related to nature management are of a minor importance though the branches of the region directly related to nature management produce over 30% of the gross regional product.

Our researches show that most of the present-day economic centers of the region arose historically as those of extraction industry. Only the large cities – the centers of the far eastern subjects of the Russian Federation such as Blagoveshchensk, Vladivostok, Khabarovsk, Yakutsk, Magadan, Birobidzhan, Petropavlovsk-Kamchatsky and the cities of Nakhodka, Ussuriisk, Komsomolsk-on-Amure, Arsenyev, Amursk and others were formed to perform other functions (first of all, – transport). A number of the centers along the Trans-Siberian Railway, for example Svobodny, Zavitsinsk, Sibirtsevo, Ruzhino and others were also constructed as transport knots. At present economy of the majority of municipal districts of the Far East is based on the extractive or agricultural industries with processing of these raw materials. The kinds of activity related to nature management make up from 20% to 85% and more – this holds practically in all municipal formations of the region.

2. Priorities in the Long-term Development

In the development conducted on strategy of the Far Eastern region, including our works (Baklanov, 2001, 2006 ; Romanov, 2004 ; Moshkov, 2005, Ishayev, 2005 ; Minaker, 2006 etc.), the following priorities in the long-term development of the region are distinguished :

1. Marine economic complex, including catch of fish and sea food and their processing, marine culture, sea transport, shipbuilding and ship repair ; ocean studying, creation of special robots and de-

vices

2. Forest economic complex, including deep processing of wood and non- wood resources, low-grade wood, and reforestation
3. A mining complex, including extraction and processing of nonferrous metals and polymetals, gold mining, platinum, silver, and diamonds
4. Development of oil-gas extraction, transportation of oil and gas, oil refining and petroleum chemistry
5. Power development, including the hydroelectric power station and the atomic power station
6. The development of contact trans-boundary structures and functions, including trans-boundary oil and gas pipelines, power nets, etc.
7. Development of large scientific-educative-innovative centers
8. Development of various kinds of tourism, including ecological tourism
9. A market infrastructure, including international logistical centers, insurance companies, banks, exhibition centers, etc.

During the recent years the regional development is characterized by sustainable increase by 6–7% in a total regional product. Taking into account the tendencies of dynamics for the last years and outlined priorities, we obtained predictive estimates for the leading marine economic complex in the region (Table 1) as well as for an important forest complex (Table 2).

The obtained estimates show that in ten years a share of industries directly related to nature management in the region can make up over 50% in the whole economy of the Far East.

Table 1 Generalized present-day and predictive estimates of the state of marine economic complex of the Far Eastern region.

Components of marine economic complex	Present state (for 2005)		Predictive estimates (for 10 years)	
	Number of employed, thousand people	Volume of GRP, mil. rbl.	Number of employed, thousand people	Volume of GRP, mil. rbl.
1. Fish industry (fishery and processing),	75	38.840	145.0	76.404
including : extraction of sea resources (catch of fish and seafood)	64.0	33.014	104	53.800
2. Sea transport and sea commercial ports	257.4	22.260	420	36.260
3. Shipbuilding and ship repair	36	2.361	64.4	4.230
4. Recreational sphere	2.8	390	5.4	760
5. Scientific sphere	24.3	
Total	459.5	96.475	759.2	171.454

Table 2 Generalized present-day and predictive estimates of the state of a forestry complex of the Far Eastern region.

Components of a forestry complex	Present state (for 2005)		Predictive estimates (for 10 years)	
	Number of employed, thousand people	Volume of GRP, million rbl.	Number of employed, thousand people	Volume of GRP, million rbl.
Timber industry complex	78.5	30.390	99.7	39.205
Including : 1) forest harvest activity	62.6	23.720	70.4	29.240
2) woodworking and production of wood goods	12.6	5.350	25.0	8.025
3) pulp-and-paper production	3.3	1.320	4.3	1.940
Related branches including :				
4) domestic tourism (related to the forest, local nature), including ecological – total, including in reserves	1.4	420	4.8	2.655
	0.7	148	2.7	1.600
5) commercial hunting	1.9	285	2.1	475
Total	82.5	31.110	104.3	40.355

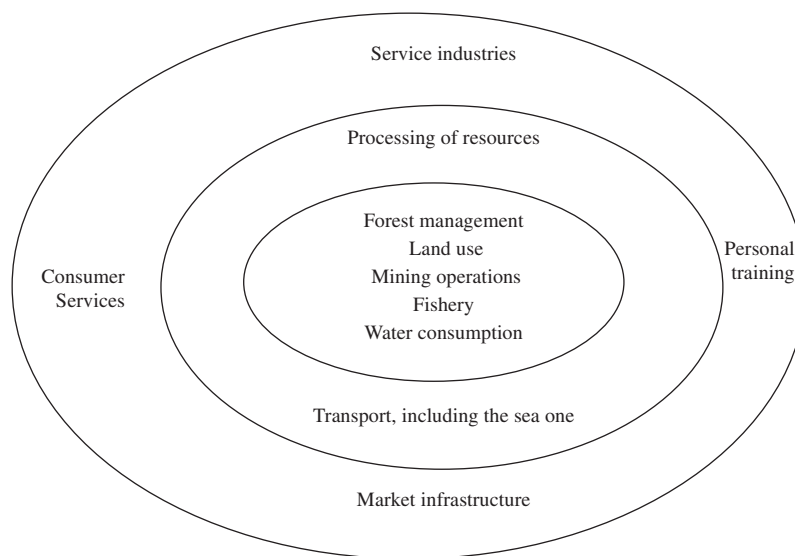


Figure 1 Core and con-centers of nature management in the Far Eastern region

If one represents the nature management branches as a core of the regional nature management and identifies the kinds of activity related to them as the 1st and 2nd con-centers (Fig. 1), then the totality of these branches already at present makes up about 50% of economy of the region. As for the territorial distribution, their enterprises, companies, and branches are placed almost along the whole sea coast as well as practically on all the territory of the region forming a sustainable economic basis

for people who live there.

Our researches show that the territorial structures of economy formed by the enterprises and the companies working in the sphere of nature management are characterized by the coverage of the large territories and considerable stability and inertia. A similar situation will remain in perspective.

It is also important that nature management of the Far Eastern region is based in many respects on renewable natural resources that is the most important condition for the sustainable development (Baklanov, 2006).

3. A Matrix Model of Natural Resource Potential

To achieve a sustainable development of the region, which is based on sustainable nature management, in our opinion it is necessary to make predictive estimates of dynamics of the whole system of the regional nature management. It is proposed to make such estimates on the basis of matrix models of regional nature management developed by us (Baklanov, 2000, 2006). The general scheme of such a complete model is given in Table 3.

Table 3 Structure of matrix model of regional nature management

	Population and kinds of activity in the region 1 2 3 ... n	Natural resources of the region 1 2 3 ... m	Components of environment 1 2 3 ... k
Population and kinds of activity in the region (enterprises, companies, branches) 1 2 3 . . . n	Relation between population and individual kinds of activity in the region	Change of natural resources by wastes of kinds of activity (reversed resources consumption)	Changes of components of environment caused by technogenic effects of separate kinds of activity
Natural resources of the region 1 2 3 . . . m	Use of natural resources in individual kinds of activity (direct resources consumption)	Inter-resource relations in the region	Relations between natural resources and environmental components
Environmental components 1 2 3 . . . k	Change of environmental components in using natural resources (direct resources consumption)	Change of environmental components (reversed resources consumption)	Relations between components in environment of the region

Table 4 The basic environmental concerns in the Russian Far East

No. п / п	Environmental concerns in the region	Pollution, disturbance of environmental components, including :					Negative influences on natural resources, including :			
		Soils	Vegetation	Air	Water	The sea environment	Land	Forest	Water	Marine biological
1.	Pollution of the air environment in cities and suburbs	++	++	+++	+	+	-	+	++	-
2.	Forest loggings above permitted standard, pollution by wastes	+	+++	-	+	-	+	+++	+	-
3.	Run-off of polluted drains into land reservoirs	-	-	+	+++	++	-	-	++	++
4.	Territory pollution by solid wastes	++	+	+	+	+	++	+	+	+
5.	Pollution of the sea environment by liquid and solid wastes	-	-	+	-	++	-	-	-	+++
6.	Disturbance of environments of rare species of animals and plants	+	+	-	+	-	+	+	+	+

A note :
 +++ Large disturbances, changes ;
 ++ Considerable disturbances ;
 + Insignificant disturbances ;
 - No disturbances

Table 5 A basic scheme of matrix model of nature-resource potential of the territory (a territorial nature-resource system)

Natural resources	R ₁	R ₂	R ₃	R ₄	R ₅	Reserves (estimate) on t ₀	Estimates of dynamics of natural resources					Reserves (estimate) on t ₁
							D ₁	D ₂	D ₃	D ₄	D ₅	
R ₁		C ₁₂										
R ₂			C ₂₃									
R ₃				C ₃₄								
R ₄					C ₄₅							
R ₅	C ₅₁											
Certain generalized (total) characteristics												

Basic parameters of the model :
 R₁, R₂, R₃, R₄, R₅ – separate natural resources of the system, for example, land, water, forest, coal, metal –ore etc.
 C₁₂, C₂₃, C₃₄, C₄₅, C₅₁ – coefficients of inter– resource relations reflecting the change of a unity of natural resources : R₁, R₂, R₃, R₄, R₅ in changing by a unity of resources R₂, R₃, R₄, R₅, R₁, respectively. For example, C₁₂ =0, 1 means that in changing(decrease) of the resource R₂ by one(unity), one unity of resource R₁ changes by 0,1. That is C₁₂ reflects the effect of R₂ dynamics on R₁ etc.
 D₁, D₂, D₃, D₄, D₅ are separate components of dynamics of natural resources ; including changes : D₁ – at the expense of natural estimates, D₂ – at the expense of extraction, D₃ – at the expense of technogenic influences, D₄ – at the expense of inter–resource relations, D₅ – at the expense of new methods of estimates.
 t₀–some initial time of estimates.
 t₁–some future time with an estimate of dynamics of natural–resource potential for the period(t₁–t₀).
 Σ– some generalizations or total characteristics

In this model three types of relations making regional nature management are covered and reflected: economy – natural resources, economy – environment components, natural resources – environmental components. Relations in nature management generating environmental concerns are covered here. For example, essential changes of environmental components and natural resources. Generalized estimates of the basic environmental concerns of the region are given in Table 4.

A matrix model of natural-resource potential of the territory, the scheme of which is given in Table 5, is the most important part of the model of the regional nature management (Baklanov, 2000).

It makes sense to carry out similar calculations for partial natural-resource areas in a conformable system of zoning. As a result, more accurate and complete estimates of dynamics of natural-resource potential of the territory or water area can be obtained. It is necessary to make periodically such estimates in order to develop regional programs of sustainable nature management and for the develop-

Table 6 The role of nature management in the development of priority directions of economy in the Russian Far East

No.	Priority directions	Use of natural resources, including		Interaction with environment (env.)		Possible environmental problems
		direct	reversed	Use of ecosystems. services	Technical effects on env.	
1.	Marine economic complex, including : –fishery, –fish processing, –sea transport, –shipbuilding and ship repair	+++ + –	++ ++ +	+++ – +	+ + +	++ + ++
2.	Timber industry complex, including : –forest harvesting activity, –processing, –reforestation	+ +++ + –	+ ++ + –	– +++ – +++	+ ++ + –	+ ++ + –
3.	Mining complex, including : –extraction, –processing	+++ +	+ +	+ –	++ +	++ +
4.	Oil and gas complex, including : –extraction, –transportation, –processing	+++ + +	++ + +	+ + –	++ ++ +++	++ ++ ++
5.	Power development, including hydroelectric power stations and atomic power stations	++	+	+	++	++
6.	Transport-transit functions	+	+	+	+	+
7.	Recreational functions	++	+	++	+	+
	Total estimates	+++	++	+++	++	++

Significance of separate components of nature management :

- +++ Great significance
- ++ Considerable
- + Little, but essential
- No significance

ment as a whole.

4. Territorial Structure of Investment Projects

Within the framework the analysis of various variants of regional strategy, in our opinion, it is necessary to calculate and estimate contribution of large investment projects to economic, social and ecological qualities of the regional development. For example, in 2006 construction of the largest main oil pipeline has been started : the Eastern Siberia – the south of Primorski Krai. As a result, many new large investment projects on oil refining, petroleum chemistry, electric power industry and others appeared.

The approach that we are developing assumes that it is necessary to identify corresponding links of the territorial structure for each investment project and to calculate contribution of each link to ecological, social and economic qualities of the regional development (Baklanov, 2007). Generalized estimates of changes in the regional nature management related to the development of priority kinds of activity are given in Table 6.

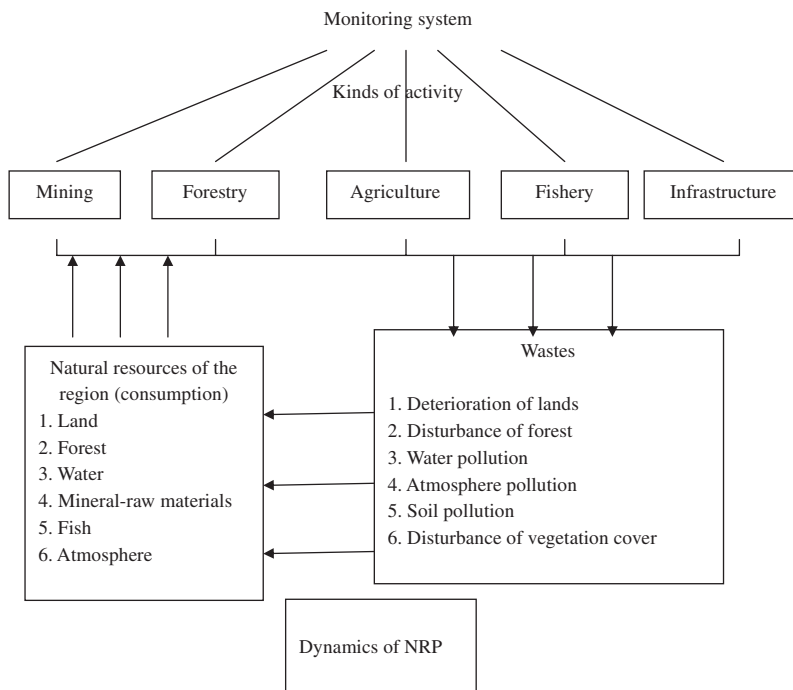


Figure 2 Scheme of regional nature management monitoring

Conclusion

It seems to be necessary to organize the system of monitoring of regional nature management in order to achieve and maintain sustainable nature management in the region (Figure. 2)

In a monitoring system all links of nature management should be covered : extraction, direct use of natural resources, influence of wastes of various kinds of activity on natural resources, and the environmental concerns caused by this activity. Finally the characteristics of models of natural-resource potential of territories within the limits of partial nature-resource zoning can be calculated. Based on such models, one can more strictly and completely estimate dynamics of natural-resource potential (NRP) of territories and water areas as the most important precondition of sustainable development of the territory taking into account various variants of strategy.

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Resources and Limitations of Socioeconomic Development in Russian Far East and Baikal Region

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Abstract

1. Due to its remoteness from main national centers and regions, dependence on transport subsidies, structure of economy, etc. transition period was painful for the region mentioned in title and its major centers. Practically all socio-economic indicators were constantly worse than national average. Only in recent years, after long period of “ignorance”, Russian Far East becoming the core stone of Center regional activities.
2. Help of State is the most important resource of region development. Among other – areas where high quality of life is potentially achieved, vast natural resources, proximity to countries with developed economy, which are interesting in these resources.
3. As for restrictions, it is necessary to mention fragmentation of the territory, disintegration inside the region and in its subjects of Federation, depopulation and crisis of settlements structure. Acceleration of agglomerations development can increase areas of fast depopulation, create social and political problems. Role of Vladivostok as “local capital” is not evident. Khabarovsk could be more efficient in this role.
4. Federal authorities still use so called Regional federal aim programs as main tool of is regional policy, paying special attention to transport infrastructure. This tool has poor records in the region – Kuril islands 20 years experience is good example. Far East development needs and non-market measures, but in general more diversified regional policy tools.
5. Far East will continue to work mainly for adjacent countries markets (European markets are too far). Labor force from China and other neighboring countries is only one available for future rapid development. But this does not decrease RF political unity.
6. Region will be resource oriented for a long period, but can greatly increase its value added by deeper processing of timber, ores, fish . . . These activities would be concentrated in boundary south and east-south areas.
7. Prosperous Far East is the shortest way to its growing integration with the rest of Russia. This corresponds with Japan interests. May be both our countries will once be clever enough to find solution of Islands problem.

1. Introduction

A few words about the subject of study. In accordance with the official stand, the subject of study

under consideration is a region, comprising the Russian Far East (within the boundaries of the Federal district) and Baikal Region (2 constituent entities of the Federation, adjoining Baikal Lake, and Chitinskaya Oblast).¹ However, Baikal Region does not gravitate towards its eastern neighbor at all. This amalgamation is artificial, made under an incoherently formulated policy of upsizing territorial units of varying class. Actually, special emphasis will be laid on the Far East proper.

The detachment of the Far East from the country's major centers and regions, dependence on artificially maintained low transport tariffs and high wages, resource economy and other factors were conducive to the crisis in the region during the period of transition. The region's orientation to raw materials was enhanced, the relations with the country's other regions and within the Far East diminished. The region re-oriented itself to foreign economic relations with its neighbors. The region learned how to survive. The question on the agenda today is about prospects of regional development.

2. Resources for Development

Support from the Center.

After years of "oblivion", the Russian Far East has turned a major territorial unit, pinning the attention of the Center. During the 80s–90s of last century, the federal center actually displayed interest, albeit occasionally, for that matter, towards the fate of Kuril Islands. Over the last 2–3 years, the Center has been earnestly concerned about socioeconomic development of the region. The reasons for such a turnaround lie in the political sphere. The Center is not at all satisfied with the current state of the region. Thus, the first resource of socioeconomic development of the Far East is the special attention of the federal Center. Under the conditions of Russia, this is a crucial factor, but nobody can guarantee its constancy. At the same time, this is the only factor that can be enabled on line.

Federal purpose-oriented programs (FPP) used to be and still are the main tools of Center's regional policy in respect of the Far East. The content of these programs has changed lately, yet, thus far, they have failed to prove their efficiency. Complaints of the constituent entities that resources allocated are insufficient (and that even the promises are not kept) are quite justified, yet the above tool has inherent drawbacks, too. First, FPP used not only state money, but also private sector resources. The latter occurs on paper only, because the level of assistance proposed by the state is usually insufficient to attract private capital (see Fig. 1).²

Second, until now there is prevalence of programs with clearly defined facilities, i.e. closed-type programs. This restricts the investors' pool, leads to public funds overrun, reduces the regional multiplier effect. The competitive mechanism does not work.

The region's peculiar uniqueness should be noted. There are two FPP running in the region. One

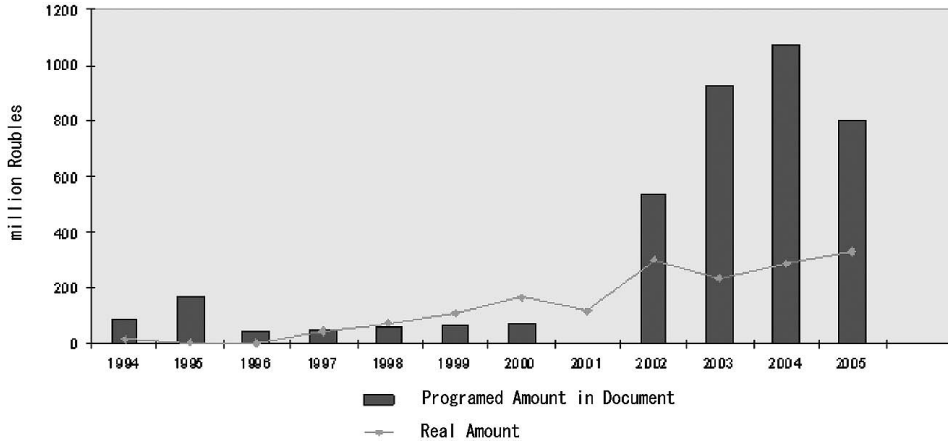


Figure 1 Kuril Islands : Federal Programs Investments

encompasses both the entire Far East and Baikal Region, and contemplates capital investment in the amount of Rbls. 430 bn (until the year 2013, for 6 years), the other (nearly Rbls. 18 bn – 2007–2015, for 9 years) covers Kuril Islands only. Kuril Islands have, for the last 20 years, had their own FPP (see Fig. 1), but the islands have failed to score any remarkable achievements in socioeconomic development (lagging behind the principal part of their constituent entity – Sakhalin Island). Until now, Kuril Islands do not have any stable socioeconomic ties not only with the mainland, but with one another. Incidentally, for this reason the islands are divided into 3 municipalities. These facts enable one to put in doubt once again the effectiveness of FPP as the main tool of regional policy pursued on a country-wide scale.

In one of his last public appearances, the president of the RF appealed, with good reason, to apply other than market measures to encourage the development of the Far East. Any regional policy should include non-market measures, because, in the long run, it is aimed at elimination of the adverse effects of market performance. In one form or another, the state is to recompense business for all negative aspects of being located in the region. As far as the Far East is concerned, the level of such compensation has not been determined, yet.

But has the RF resources of its own that will enable it to “develop” the Far East anew, make provisions for its innovation-based development? And, at least, move to a different level of “home” processing of raw materials, thereby increasing added value.

The enormous role of transport in developing the Far East, its internal and external integration (within Russia) was already noted. The policy of the Center is aimed at expanding the railway system, turning the railways to the North, improvement of the region’s transit capacity. Development of other modes of transport is also envisaged, yet the development of transportation is generally confined to the southern part of the region. Promoting relations between the region’s South and North as well

as between the Far East as a whole with the rest of the country calls, within the framework of regional policy, not only for building its own transport routes, but provisions for their affordability to business and population (through regulation of transport tariffs).

Wealth of natural resources.

The prospects of the Far East (and Baikal Region) development are associated with development of natural resources and supply of these to the markets of contiguous countries. No special hopes should be pinned on the use of the Far East transit position, development of high-tech industries, etc. The high road of Far East development is by directing the population and economy to its southern parts, where resources of the region including those that are currently in its northern areas, will be subject to finer processing than at present.

Access to receptive markets.

As far as economy is concerned, the Far East is oriented, to a maximum degree possible, to its neighbors and, above all, to China and Japan (see Fig. 2). Statistics fails to take a full account of these relations as the data on “black” sector of economy (particularly significant in fisheries and forest management) are unavailable. However, there are no special grounds for the Center to fear that the Far East will break away or will be peacefully occupied. The unity of the country is ensured not by flows of goods, but by humanitarian values. Nor are there any parties willing to seize Russian territory.

Approval by the People’s Republic of China State Council of the Plan to revive the North-East of China and the adoption by the Russian Government of the purpose-oriented program “Socioeconomic Development of the Far East and Transbaikalia until the Year 2013” will not only enhance the openness of the two countries, but will augment each other.

It is in the interests of Russia and Japan to have an economically-advanced Far East. Both as a source of raw materials, and a region providing for Japan’s foreign relations (up to Western Europe), improving its relatively isolated geographical position. In future, after the term of our professional activity expires, the goods from Japan are likely to be carried to Canada and the USA by rail.

The aforesaid rosy prospects depend, in large measure, on how the politicians will succeed in resolving the problem of Kuril Islands. For this, it must cease to be a global political problem and become a geographic-economic one.

3. Development limitations

Mounting intra-regional disproportions.

An obvious fragmentation of territory is going on in this vast region at all territorial levels, including the local level. Socioeconomic disproportions are mounting at the level of the region as a whole, in its constituents RF entities along the North-South axis, in the constituent entities and even in some municipalities – between the center and periphery. Occasionally, these trends are superimposed on one another. So much so, that we can talk not about the Far East, but about Far Easts. Shrinkage of the Ecumene such as this also restricts regional growth. Extensive growth, at any rate.

Restructuring of the settlement system.

Nor can we talk about the indivisible region from the standpoint of comfort provided by nature for residence in the region. Vladivostok and Anadyr should hardly be compared by this criterion. One is tempted to seek the boundaries of a permanently inhabited/developed zone, outside which the rotational team method should prevail. Naturally, “forced” resettlement is out of the question, rather, we are talking about considering the aforesaid factors in the process of ongoing restructuring of the resettlement system. It is quite likely that in the distant future villages and mono-specialized settlements will give way to rotational teams as the lowest tier of the settlement system. The network of the lowest tier settlements losing population and specialization industries will be reduced everywhere. It is obvious that the inadequacy of the settlement system to the needs of society and economy compli-

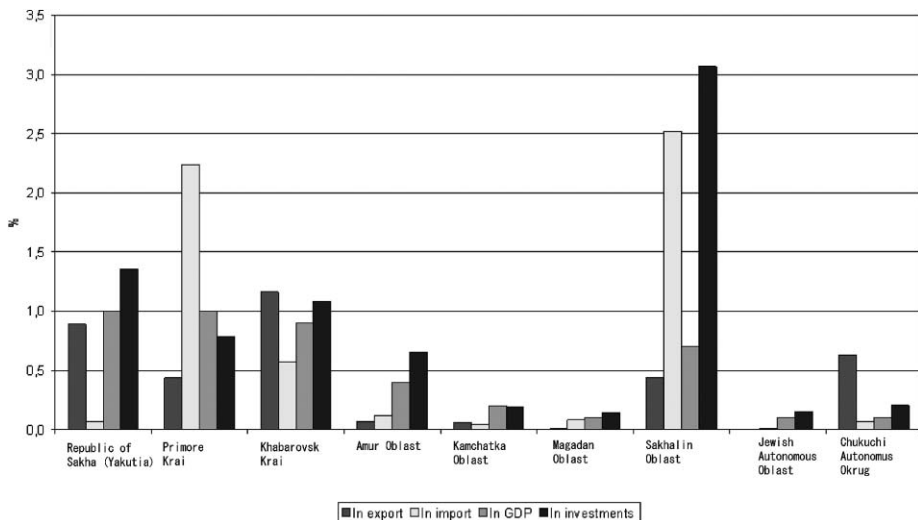


Figure 2 Share of regions(2005)

cates socioeconomic growth of the region.

Desintegration.

Earlier, too, the analyzed region used to be rather poorly integrated intrinsically (even without the Baikal “accretion”). The region’s Russian constituent entities are almost devoid of any material or transport ties and exhibit rather limited information flows. During the 1990s, the process of disintegration was intensified. This pertains even to two cities that are in relative vicinity and claim to bear an informal title of the Far East capital : Khabarovsk and Vladivostok.

Depopulation and manpower shortage.

The drafted plans of regional development envisage the attainment of a country-average level. These plans of Far East growth may simply lack human resources required for implementation. Nearly all RF constituent entities and its areas (see Fig. 3) making up the region are being subject to depopulation, due to both natural population decline and migration outflow. The current attempts to control the process have proved of little value. Return to a large family model (at least, 3 children) appears unrealistic, and so does elimination of the gap in the quality of life between a far-eastern village and a timber-processing settlement, Khabarovsk or Vladivostok, two capitals and Krasnodar Territory.

The only visible alternative are Chinese migrants. Their distinctive feature is “high efficiency” (2–3 times that of the indigenous population). Chinese émigrés fill job vacancies that fail to attract the local workforce. They do not present any special sociopolitical problems. However, because this source

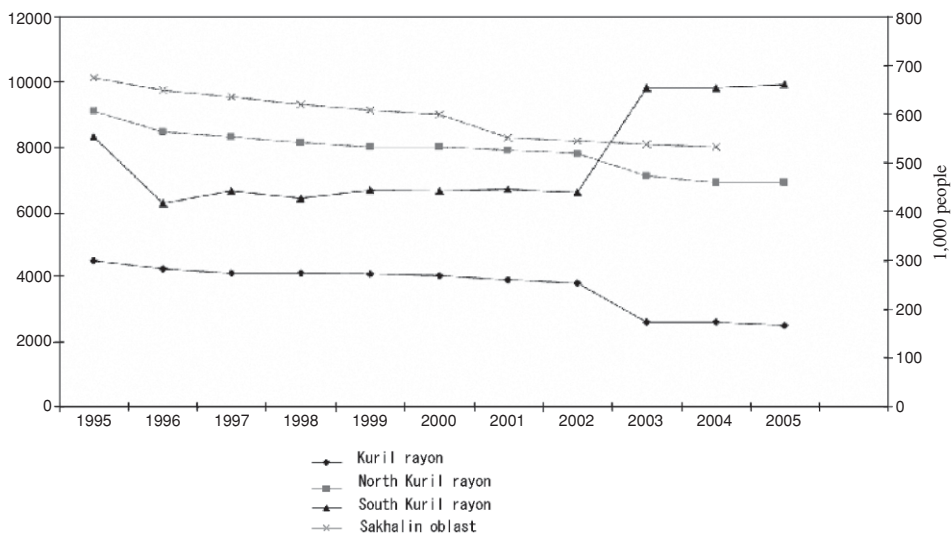


Figure 3 Kuril Islands Population

of manpower may soon be depleted, it should be given some consideration. According to some forecasts, the existing income gradient that provides for the arrival of Chinese to the Russian near-border areas is likely to come to an end. From the standpoint of long-term interests of the Far-Eastern region, assimilation of Chinese migrants would be beneficial. Yet, the level of society tolerance in the “host” regions is insufficient for the pursuance of such policy.

Excess territory.

Another limitation on Far East development is its vast territory with a poor transport infrastructure. Many resources of the Far East are untapped exactly because their development would require too heavy an expenditure for transport facilities, which would render the products noncompetitive. For years, the vast territory of the Far East was regarded as a development resource. Nowadays, it impedes development of the region.

Agglomerations.

Agglomerations certainly are capable of offering a higher life quality compared with the space outside the agglomerations, of attracting new investments, raising the “competitiveness” of the region, but it should be remembered that rapid growth of agglomerations will result in the depopulation of the areas outside the agglomerations. Besides, a possible establishment of institutes to manage the agglomerations will lead to a conflict of regional authorities with those of a capital city, thereby creating parallel bodies of power. The latter will inevitably break the law, thereby trenching upon the sphere of responsibility of local government.

While encouraging the growth of the agglomeration, the federal authorities (and sometimes regional, too) fail to see how limited their capacity is, or the substance of the agglomeration processes. Hence, the idea of establishing the Khabarovsk-Vladivostok agglomeration (despite the inappropriate references to the Japanese and American experience of growing supercities). An agglomeration cannot be man-made : it is the result of “natural” processes, of a certain set of conditions.

Existence of 3 capitals.

The choice of Vladivostok as an informal capital city of the Far East is not very logical, either. Khabarovsk that performed such functions for years is more appropriate for the purpose. A one-time event (an APEC summit meeting) is no good reason for changing the “capital city”. The location of Khabarovsk, its accumulated experience makes the city most suitable for performing the functions of a capital city. As for Irkutsk, so far it is incapable of attending to the needs of its own region.

4. Conclusions :

1. The region is virtually unable to grow without the Center's financial resources. This makes the region dependent on the development of the country's economy, on the revenue side of the budget.
2. The southern and south-eastern near-border/maritime areas, capable of creating relatively high quality of life and of raising the added value abruptly as a result of processing the resources of the "north", have the best prospects.
3. In general region will be resource oriented in foreseeable future. Main investment projects are : extraction of coal, oil and gas (and partial processing), construction of pipelines and oil terminal.
4. Due to depopulation, the strategy of territory development will have to be reconsidered, the region will have to learn how to perform in the conditions of a thinned network of permanent settlements.
5. Contiguous countries constitute a crucial resource of regional development, which does not pose any threat to the unity of the Russian Federation.
6. The settlement of the Kuril problem and unification of Korea is a potential source of positive impulses for the development of the region.
7. The growth poles theory is applicable at a reduced level to the region in view of its vast territory that has become a constraint on its development.
8. The time has come "to pay" for miscalculations made largely by the Center in the past.

Note

- 1 Within the framework of the process of amalgamation of RF constituent entities, the super region in question lost 3 autonomous districts that merged with Kamchatka, Chitinskaya and Irkutskaya Oblasts, having converted these into territories.
- 2 All figures are from official government reports or constructed by author on the base of official statistics.

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Types of Spatial Transformation of Natural Resources Utilization and Their Socioecological Consequences : A Field Study on the Regions of Eastern Russia

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Abstract

Despite of significant population decline since the early 1990s, East Siberia and Far East of Russia remain to be rich in tremendous amounts of precious natural resources. Based on many field research trips to these two eastern regions in the period of 2001–2007, this paper is to investigate socioecological problems of such rich, but sparsely populated regions. I delineate the following six types of spatial transformation of natural resources utilization at micro and meso levels during the post-Soviet period : (1) total disappearance of production units as components of territorial and organizational structure of natural resources utilization, (2) downsizing of production units, (3) emergence of new production units, (4) pulling of production units to more plentiful natural resources, (5) enlarging of production units and increasing the number of production units, (6) insignificant changes compared with the Soviet period.

I then point out the social and ecological consequences of each type of transformation of natural resources utilization. In general, the socioecological consequences of natural resources utilization in these regions portray the situation in the whole of Russia. Nonetheless, such types of transformation as total disappearance of production units and downsizing of production units have more profound and longer-term effects in the studied regions compared with the western regions of Russia. This is mainly due to harsher climatic conditions of these regions, their remoteness from Moscow, and their socioeconomically peripheral position. Many socioecological problems associated with the closedown of resource enterprises in the 1990s remain unsettled and call for a joint decision of federal, regional and local authorities as well as of international environmental foundations. To conclude the paper, we assert that new mechanisms have to be elaborated and implemented to mitigate socioecological consequences dangers and to promote well-being of local people.

1. Introduction

The problems of spatial transformation of Russian economy in the post-Soviet period, including the

Table 1 Trend of Regional Population of East Siberia and Far East macro regions in comparison with Russian Federation, 1990–2006, %

Territory	1990–1998	1999–2006	1990–2006
<i>Russian Federation</i>	–0.5	–0.19	–0.69
<i>East Siberia</i>	–3.79	–3.99	–8.98
<i>Far East</i>	–11.5	–5.29	–18.81
East Siberia and the Far East	–7.39	–4.56	–13.57

Sources [15–19].

changing pattern of natural resources development in eastern regions, have been analyzed in many studies by Russian scientists [1, 2, 4–7, 11]. To deepen the research results in such preceding studies, I made field research trips in many local places to investigate the live reality of natural resources development in the eastern regions of Russia from social and ecological viewpoints.

I choose East Siberia and Far East with harsh climates, small, diminishing populations [see Table 1] and abundant natural resources as our study area. The reason to do so lies in that they are next or close to such East Asian countries as China, North and South Korea, Mongolia and Japan, and also next to the United States (i.e., Alaska). Because of their proximity to such countries, natural resources development and its environmental consequences in East Siberia and Far East may have direct impacts on economy and ecology of those countries.

2. Types of spatial transformation of natural resources utilization at micro and meso levels

With regard to Russian Federation as a whole, the official statistics data show a sharp decline in the amounts of production of almost all energy resources and raw material products during the period of 1990–1997, and gradual recovery after the ruble crisis in 1998.

The situation in natural resources development in East Siberia and the Far East in the post Soviet period differed from all-Russian situation [see Table 2]. In Russia, oil output went down in 1990–2006, while in studied eastern macro regions the growth of oil production took place. Growth of natural gas output was higher there, than in Russia as a whole. With regard to the higher cost raw materials production, the situation is opposite. The manufacture of higher cost metal products (steel and rolled ferrous metals) has decreased more in East Siberia and Far East than in Russia as a whole. A similar situation is seen for utilization of biological resources. Sharper decline in production of unprocessed timber, catch of fishes and seafoods output was seen in Russia as a whole in comparison with the one of East Siberia and Far East together.

The fall in saw-timber and other products as the results of deep processing of wood was more sig-

Table 2 Trend of growth (or decline) of natural resources production in East Siberia and Far East macro regions in comparison with Russian Federation : 1990–2006 (%)

<i>Product Type</i>	1990–1998	1999–2006	1990–2006
<i>Utilization of mineral resources</i>			
Oil output (with condensate)			
<i>Russian Federation</i>	–41	+34	–7
<i>East Siberia and the Far East</i>	–3.3	226.5	235
Natural gas output			
<i>Russian Federation</i>	–8	+10	+2
<i>East Siberia and the Far East</i>	+19.9	+34.9	+51.7
Coal output			
<i>Russian Federation</i>	–41	+15	–22
<i>East Siberia and the Far East</i>	–36.1	+3.4	–28
Steel production			
<i>Russian Federation</i>	–51	+22	–21
<i>East Siberia and the Far East</i>	–96.1	7.4	–88.6
Production of rolled ferrous metals			
<i>Russian Federation</i>	–45	+27	–9
<i>East Siberia and the Far East</i>	–84.5	32.5	–51.7
<i>Utilization of biological resources</i>			
Timber unprocessed			
<i>Russian Federation</i>	–75	31.7	–61.7
<i>East Siberia and the Far East</i>	–78	17.7	–55
Saw-timber production			
<i>Russian Federation</i>	–77	+7.4	–71.1
<i>East Siberia and the Far East</i>	–80.4	8.9	–72.2
Plywood production			
<i>Russian Federation</i>	–31	+81	+64
<i>East Siberia and the Far East</i>	–68	30.4	–32.5
Cardboard production			
<i>Russian Federation</i>	–63	+59	+10
<i>East Siberia and the Far East</i>	–75.1	24.2	–39.5
Catch of fish and seafood output			
<i>Russian Federation</i>	–48	–9.6	–58.6
<i>East Siberia and the Far East</i>	–43.3*	–13.5	–56.8

*Note : data of 1990–1999 are presented.

Sources [9, 10, 12–19].

nificant in eastern regions than in Russia as a whole. Thus, the statistics shows the shift in the post-Soviet period to the east of extraction of mineral resources and not deep processing of raw production.

Given this much of information available from official statistics, the main goal of our research trips was to find out what types of transformation happened in the post Soviet time in space at local levels associated with the above-stated changes in volumes of natural resources production.

As a result of my expeditionary research, it was established the following six types of spatial transformation of natural resources utilization at micro and meso levels during the post-Soviet period :

1. Total disappearance of production units as components of territorial and organizational structure of natural resources utilization.
2. Downsizing of production units with the following sub-types :
 2. 1 downsizing of production units and reduction of the number of production units ;
 2. 2 downsizing of production units, while increasing their number ;
 2. 3 downsizing of production units, with prevalent export orientation or attraction of foreigners ;
 2. 4 downsizing of production units with subsequent stabilization.
3. Emergence of new production units of territorial and organizational structure of natural resources utilization with the following sub-types :
 3. 1 emergences of new production units, mostly export oriented or aimed at attraction of foreigners ;
 3. 2 emergences of new production units that are mostly domestic market oriented.
4. Pulling of production units to more plentiful natural resources.
5. Enlarging of production units and increasing the number of production units with the following sub-types :
 5. 1 enlarging of production units and increasing the number of production units, with prevalent orientation to exports or aimed at attraction of foreigners ;
 5. 2 enlarging of production units and increasing the number of production units mostly domestic market- oriented.
6. Insignificant changes compared with the Soviet period.

Total disappearance of production units in the territorial-and-organizational structure of natural resources utilization.

This type of spatial transformation was most typical of the 1990–1997 period. It was during those years that many enterprises based on natural resources utilization were closed down. The main reasons for closing down the enterprises were : (1) unprofitability in the new conditions of market economy, in the majority of cases due to the falling demand for natural-resource products on the domestic market, and (2) high prime cost of production due to the disadvantaged transport-and-geographical position of enterprises. Expeditionary research made it possible to find out that the following enterprises for the mining of non-ferrous metal ores and production of concentrate had been closed down : cobalt works (Tuvacobalt) at Khovu-Aksy Settlement, Republic of Tyva, and Iultinsky Ore Mining and Dressing Plant that dealt with tin and tungsten mining in Chukotka Autonomous Okrug in 1994, Jidinsky Tungsten-Molybdenum Works at Zakamensk Town, Republic of Buriatia, in 1997. In the 1990s, gold mines in Magadan Oblast and Chukotka Autonomous Okrug were closed down on a

mass scale ; in the north-east of Sakha Republic and partly in Oimyakon Settlement and Aldan District, gold mines were eliminated. Large-scale studies conducted in Aldan District of Yakutia in 2005 revealed that the following enterprises had been closed down during the post-Soviet period : Lebedinsky Gold-Extraction Factory at Lebedinyi Settlement, “Aldanslyuda” (‘Aldan- Mica’) Plant and 8 mica mines, plus enterprises for the building of uranium ore mines near to Zarechnyi Settlement.

Downsizing resource utilization production units of the territorial-and-organizational structure.

This was common to all resource-utilization industries in the 1990s.

Downsizing of production units and reduction of the number of production units. Downsizing of production units means decreased physical volumes of production at enterprises utilizing mineral and biological resources or reduced number of holiday-makers who were offered tourist and recreation amenities. Most production units based on resource utilization in East Siberia and the Far East cut physical volumes of production in 1990–1998. Reduced number of production units means a reduction in the number of enterprises, firms and companies in a particular territory. For example, the data of the administration of Nizhneilimskii District, Irkutsk Oblast, indicate that the number of wood enterprises in the district dropped from 26 that existed during the Soviet period to 1 in 2004.

Downsizing of production units, while increasing their number. This sub-type means decreasing physical volumes of natural resources production or recreation flow at large holiday-maker facilities, along with the emergence of smaller production units and facilities in the same areas. Take, for example, recreation areas of Baikal Lake, where during the first half of the 1990s one could see a decreased number of holiday-makers visiting many relatively large recreation facilities, when there emerged new small facilities operating in the area of holiday-making and tourism at the same locations. At a local level, the recreation site “Baikalskii Priboi” in Kabansk District of Buriatia is a good example. Early in the 1990s, the number of visitors at the tourist camp “Baikalskii Priboi” that used to be frequented during the Soviet period, declined considerably. Apparently, because the camp gave way to quite a few new departmental and private holiday-making and recreational facilities.

Downsizing of production units, with preferred orientation to exports or attraction of foreigners. In conditions, when there is no domestic effective demand for natural resources products, many enterprises, having cut down physical volumes of production, re-oriented themselves to export activity. To many wood enterprises of the macroregions surveyed, export was the only way to survive. Studies of the forestry complex of the East-Siberian and Far-Eastern macroregions indicate that at the end of the 1990s, against the backdrop of the overall decline of production of all types of forestry product, the percentage of export in production of unprocessed timber rose to 82%, saw-timber – 58.3% (Krasnoyarskii Krai), wood pulp – 61.4% (Irkutsk Oblast). Export of forest products from the Far-Eastern

region to other regions of the Russian Federation either ceased altogether or dropped more than 10 times [21]. Spatially, at a local level, this was as good as reduction of production physical volumes at wood enterprises, with prevalent export orientation of their products.

Downsizing of production units, with subsequent stabilization. After the period of considerable curtailment of production, which occurred mainly during the 1990s, some enterprises managed to attain stability and almost achieve the pre-perestroika time results. An example of this is Korshunovsky Mining and Dressing Plant (MDP) in Irkutsk Oblast, the largest iron-ore works in Asian Russia, at present part of the “Mechel” Steel Group. Despite a series of re-organizations, change of the owner, bankruptcy period, the enterprise succeeded in stabilizing itself, and already in 2004, it approached the level of the 1980s in producing the iron-ore concentrate.

Emergence of new production units of the territorial-and-organizational structure of natural resources utilization.

This took place early in the 1990s. After the years 1997–1998, when there followed a pause in the process of enterprises closure, the emergence of new production units was statistically portrayed in the burgeoning volumes of natural resources production (Table 2) and increased flow of tourists and holiday-makers.

Emergence of new production units, with their prevalent orientation to exports or attraction of foreigners. One of the best-known examples of the emergence of new production units based on the utilization of natural resources with prevalent orientation to exports is the development of fuel-and-energy resources of the Sea of Okhotsk shelf near Sakhalin Island [22]. Most new diamond-extraction enterprises that came into being during the post-Soviet period are also mainly export-oriented. The 2005 expeditionary research in Yakutia discovered new placer diamonds mining units (LLC “Nizhnelensky”, LLC “Anabara Diamonds”) at Anabar, Bulun and Olenek Districts and ore-diamond mining units (Nyurbinsk MDP, JSC “ALROSA”) at Nyurbinskii District.

According to the Sakha Republic Ministry for Entrepreneurial Affairs, Tourism Development and Employment, many travel and holiday-making facilities were mainly foreigners-oriented. These are facilities, arranging hunting safaris in Zyryanka Area, tours to the “Pole of Cold” at Oimyakon and Verkhoyansk Districts, informative tours to the world-famous “Mir” kimberlite pipe (after open-cut mining of diamonds was over in 2001).

Emergence of new production unit, with preferred orientation to domestic market. Among the natural-resources industries, developing dynamically in East Siberia and the Far East since 1997 and oriented primarily to domestic market, gold-mining should be especially noted. Many gold-mining enterprises in Magadan Oblast, most such enterprises in Chukotka Autonomous Okrug and nearly all in

the north of the Sakha Republic (Yakutia) were closed down, whereas in the second half of the 1990s, new gold-mining enterprises were opened in the south of the studied areas : in Tyva Republic, Buriatia, Irkutsk Oblast, Aldan District of Yakutia. Official statistics made available by the Governments of these constituent entities of Russian Federation also register the growing volumes of the gold mined. The 2005 large-scale surveys in Alan District of Yakutia revealed new gold-mining sites, among these “Samolazovsky” gold-mines, “Garbuzovsky” gold-mine, “Mezhsoopovsky” of prospectors’ crew “Selegdar”.

According to the Ministry of Industry of Sakha Republic, the post-Soviet period projects are : development of Srednebotuobinskoe and Tas-Yuryakhskoe oil-gas condensate fields in Mirninsky District ; Talakhan Oil Field and Chayandinskoe Gas Field in Lensky Settlement. Fourteen new natural resources utilization sites of the Republic were put up to auction in 2005.

Pulling of production units to the most plentiful natural resources.

This may be seen in the eastern regions in forestry industry and in recreation industry. As for the forestry industry, a good example here is the pulling of forestry industry production units to the richest forest resources in Irkutsk Oblast. Studies of spatial transformation of recreational resources utilization revealed that tourist-and-recreational facility and, consequently, the flow of tourists are pulled to local areas endowed with recreational resources. For example, in Buriatia Republic, the tourist-recreational facilities during the post-Soviet period are focused largely in 7 areas of intensive development of tourist-recreational activity : Arshan Resort, Kultushnaya-Baikalskii Prior, Enkheluk-Sukhaya, Goryachinsk Resort, Maksimikha, Zabaikalsii National Park and Khakusy [20].

Enlarging of production units and increasing the number of production units.

This type of transformation is correlated with the growing physical production volumes at enterprises utilizing mineral and biological resources or with the increasing flow of tourists attended to and of holiday-makers using the tourist and recreation facilities. This transformation is typical of both facilities that emerged during the post-Soviet period and facilities existing since the USSR time.

Enlarging of production units and increasing their number, with prevalent orientation to exports or aimed at attraction of foreigners. The most glaring example has been the increased volume of nickel, copper, cobalt and platinum metals production at the ore mining and smelting plant “Norilsk Nickel” around Norilsk Industrial area since 1997 : while the plant’s product sales on the domestic market go down, they keep increasing on the foreign market.

Enlarging of production units and increasing the number of production units mostly domestic market-oriented. Gold-mining enterprises, mostly domestic-market oriented, that emerged during the

post-Soviet period stepped up physical production volumes as best they could. Gold-mining at the LLC “Zakamensk” that emerged in Zaramensk District of Buriatia in the second half of the 1990s, grew more than fourfold (from 80 kg to 350 kg) from 1996 to 2004, according to the 2004 interviews with company representatives. The August 2005 interview with director of prospectors’ crew “Selegdar”, one of the most successful gold-mining undertakings operating in Aldan District of Yakutia, revealed a spectacular increase of physical volumes of mined gold at the gold-mines “Samolazovsky” and “Mezhsoepochny” that had come into being in the 1990s.

Insignificant changes compared with the Soviet period.

According to the administration of Shelikhovsky District, Irkutsk Oblast (2004), physical volumes of aluminum production at the Irkutsk Aluminum Smelter, currently owned by the “Sual-Holding”, have changed insignificantly compared with the Soviet time. Representatives of the municipality “Sayanogorsk Town”, Khakasia Republic, say that the physical volumes of aluminum smelting at the smelter set up at Sayanogorsk in 1985 have not changed significantly: early in the 1990s – the volumes amounted to 350 tons, while in 2004 – around 400 tones per annum. Thus, aluminum smelters proved rather resistant to the socioeconomic transformations in society thanks to profitability of production and stable demand for smelter products on the world market.

3. Social and ecological consequences of specific types of transformation of the territorial and organizational structure of natural resources utilization.

In the course of my expeditionary research conducted in the eastern regions, I studied social and ecological consequences of various types of transformation. In this paper, socioecological implications of two types will be analyzed: total disappearance of the production units in the territorial-and-organizational structure of natural resources utilization, and emergence of new production units, mostly export-oriented or aimed at attraction of foreigners.

Total disappearance of production units in the territorial-and-organizational structure of natural resources utilization: socioecological consequences. Studies indicate that, following the closing down of enterprises, events developed in accordance with 2 major scenarios: (1) closing down of enterprises without relocation of the local population, whereby local residents were to adapt to new conditions; (2) closing down of enterprises – relocation of the local population – demolition of human settlements. Events followed the first scenario after enterprises were closed down at Khovu-Aksy, Tyva Republic, and at Zakamensk Town, Republic of Buriatia. Initially, there were the following adverse phenomena: mass exodus of skilled labor, depopulation of human settlements, absence of alter-

native options of economic development, poverty, illegal business as a form of self-adaptation. Three years later, new resource-utilization enterprises emerged : at Zakamensk Town – gold-mining and wood firms, at Khovu-Aksy Settlement – hunting-and-fishing activity and wood firms.

Demolition of human settlements, after enterprises were closed down, (Scenario 2) took place, when gold-mining enterprises were closed down in Magadan Oblast as well as at Oimyakon District and in the settlements of the north-eastern part of Sakha Republic. Quite a few demolished, abandoned and untenanted human settlements can be seen on Chukchi Peninsula, following mass closing down of gold- tungsten- and tin-mining enterprises in the 1990s. A large-scale analysis of resettlement that took place in Iultinsky District of the Chukotka Autonomous Okrug showed that during the post-Soviet period due to the closing down of the Iultinsky MDP and gold-mines, Iultin Township and the settlements Otrozhny, Stadukhino, Vesennii, Vostochny, and Svetly were demolished. Large-scale studies carried out in Aldan District, Republic of Sakha (Yakutia), resulted in finding the cases of abandonment of settlements : Snezhniy, Kankunskiy, Katalah, and Bezimyaniy after closure of “Aldanslyuda” (‘Aldan Mica’) company. Zarechniy was also abandoned after suspension of construction of uranium ores shafts.

The closure of most enterprises in the 1990s was not accompanied by measures to rehabilitate the environment. Above all, this was due to the legal and institutional mess and collective irresponsibility so typical of that time. Besides, the 1991 law “On Environmental Protection” said nothing about the responsibility of an enterprise for environmental rehabilitation at the post-operational stage. In view of the foregoing, the local population at present is faced with grave ecological problems in places where there used to operate the closed down enterprises. Of particular hazard are the wastes of Jidinsky Tungsten-Molybdenim Plant – “radioactive sands” located in close proximity to the town. Together with rainfall, radioactive elements find their way to the soil and ground water, where their concentrations considerably exceed maximum permissible values. At Khovu-Aksy, the problem of storage of poisonous wastes of the closed down cobalt plant is extremely acute. The poisonous cobalt wastes trickle from the storage into the rivers, where they (arsenic, in particular) are by several orders of magnitude higher than maximum permissible concentrations.

The closedown of gold-mining enterprises in the eastern regions in the 1990s in most cases was not followed by measures to rehabilitate the environment. Of great concern to the dwellers and the administration of Aldan District of Yakutia are cyanides contained in the wastes of the closed down Lebedinsk gold-extracting factory. “Moon” landscapes, i.e. waste and non-recultivated gold-mining land areas can be seen in Magadan Region and in Aldan district of Sakha Republic.

Who is answerable for ecological aftermath of the enterprise closed down in the 1990s? For years, the administration of Zakamensk District has been trying to get money from the federal budget to im-

plement the program of ecological rehabilitation of Zakamensk municipal area. The administration of Aldan District, Sakha Republic, has been trying, without success, to force the “Aldanzoloto” Company finance measures to prevent ingress of cyanides into surface waters. The little money from the federal budget allocated for these purposes in 2004 is insufficient to resolve this problem. The Republic of Tyva intends to get from the federal budget resources to reinforce the existing repository of poisonous cobalt wastes. In general, the sad experience of the 1990s is a good lesson to learn how to bear collective responsibility for long-term environmental consequences of closing down enterprises that utilize natural resources.

Shifts for the better of the last few years should also be noted. Pursuant to Article 39 of the new federal law “On Environmental Protection” (2002), measures towards environment enhancement should be developed with full observance of the Russian ecological legislation.

Socioecological consequences of the emergence of new production units of the territorial-and-organizational structure of natural resources utilization that are mostly export-oriented or are aimed at attraction of foreigners. Projects aimed at the development of energy resources of Sakhalin are some of the most successful ones of the post-Soviet Russia in financial and economic terms. Despite considerable revenue that the federal budget receives from the development of energy resources in the offshore area of Sakhalin Island, the emergence of new highly-paid jobs, the development of regional and local infrastructure, there also arise grave socioecological problems. Sakhalin projects threaten fishing industry and endanger the marine ecosystem of the Sea of Okhotsk. Local populations (especially the indigenous minorities) of Nogliki District look to oil recovery with both hope and incredulously, hoping for new employment opportunities ; at the same time, they fear the environment may be destroyed : habitual fishing sites, deer ranges and traditional culture [22, 23]. Moreover, social problems arise, because the Sakhalin offshore resources are in federal ownership, not in regional, let alone the ownership of Nogliki District. Nogliki District receives no taxes or payments from the use of the offshore oil-and-gas resources, although the oil and gas fields are in close proximity to the district area, and utilization of these resources is likely to put an end to local fishing industry.

4. Concluding Remarks

Generalizing the results of studies of the socioecological consequences of various types of transformation of the territorial-and-organizational structure of natural resources utilization in the eastern regions, the following conclusions may be drawn. When production units of the territorial-and-organizational structure of natural resources utilization are downsized or disappear altogether, there are no or reduced proceeds to the regional and municipal budgets, plus unemployment, poverty, devi-

ant behavior, illegal business as a self-adaptation of the population. Such type of transformation is accompanied by migration outflow of working-age population, changing the age pattern in favor of the elderly, depopulation and demolition of human settlements. Anthropogenic landscapes gradually turn to natural ones, environmental situation is improved. At the same time, ecological problems persist due to enterprises being closed down without any measures being taken to rehabilitate the environment.

Various types of transformation of the territorial-and-organizational structure of natural resources utilization (downsizing, emergence of new production units, enlarging of production units), with preferred orientation to exports or aimed at attraction of foreigners, involve the emergence of highly-paid jobs, inflow of skilled labor, rising prices for goods and services, increasing gap between the rich and the poor, aggravation of the problem of inequality. Local population is likely to express indignation over the use of national wealth to cater to the needs of the foreigners ; besides, utilization of natural resources may affect the traditional culture of indigenous peoples.

As new production units emerge, enlarge, get pulled together towards more plentiful natural resources, the following phenomena take place : proceeds to budgets of different levels increase, employment increases and standards of living of the population rise, labor migrations ; setting up of temporary workers' settlements. Alongside this, ecological situation deteriorates ; there is likelihood of socioecological conflicts and conflicts between utilization of natural resources and traditional nature management.

Thus, each type of transformation has both positive and negative socioecological consequences. And each type necessitates attenuation of implications. However, the results of interviewing officers of the local authorities, economic agents and local population indicate that at present the mechanisms of mitigation of socioecological consequences of natural resources utilization transformation are either very weak or are non-existent. The existing legal mechanisms are insufficient to encourage socioecological development of resource territories. Russia and its regions has to borrow the experiences of other developed countries, which already have made attempts of establishing special funds and other mechanisms for mitigation of negative socioecological consequences of natural resources development.

N. N. Klyuev noted that it would be more appropriate to refer to the present-day Russia as a ecologically steadily degrading country [3]. In many respects, we agree with this opinion, taking into account the results of expeditionary research into environmental implications of natural resources utilization transformation. At the same time, we encountered positive examples of dealing with ecological problems. For example, take recultivation of lands currently conducted by the prospectors' crew "Selegdar" after gold mining is over, receipt by the Sayanogorsk Aluminum Smelter of the se-

ries ISO 14000 environmental certificate, measures towards environment enhancement taken by the gas-producing company at Kobyaisk Settlement of Yakutia, following company closure due to depletion of the Ust-Viluy Field.

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New Problems of Natural Resources Use Related to the Change of Legislation and New Nation-wide Projects

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Abstract

In this report the analysis of a modern situation in natural resources use in Russia is given from the point of view of the newest tendencies connected to the last changes of Legislation of Natural Resources Use and to acceptance and realization of four New Nation-wide Projects.

The system of environmental protection existing in the Russia the time being, inferior to the system of industrialized countries virtually in all respects and, above all, as far as efficiency is concerned. Officially, it is admitted that there are quite a few pressing problems in the environmental sphere because for the last 15 years the sphere has been on the sideline of state policy. However, from this year on, the handling of environmental problems again becomes one of Russia's development priorities.

The legal base of natural resources use in Russia is still far from being consonant with the problems that exist in our society, yet attempts to improve the legal base are made all the time. Among these is, for example, the adoption of the new crucial codes, the Water Code and the Forest Code ; both became effective from January 1, 2007.

Both laws had been prepared for several years and evoked heated discussions of the scientific community and the general public concerned. For all the diversity of the drafts that had been prepared by both Russia's Ministry of Natural Resources and Ministry of Economic Development, it was possible to trace the main trend towards consistent consideration of private sector interests and reduced state administration in these areas of nature management.

The problem that has emerged in recent years is the supervision of compliance with legislation in the sphere of town-planning with a view to ruling out in the future of possible squandering of budgetary resources, preventing criminal redistribution of land resources, allowing no loss of human lives as a result of construction catastrophes.

At one of the last meeting of Russia's Security Council in 2008, the agenda included this item : "On measures to provide for environmental security".

In the opinion of the president, the primary task of Russia's environmental policy is to set up an effective system of environmental security in the face of the growing technogenic load on natural ecological systems. Also began discussion about necessity of development of next very urgent nation-wide project concerning environmental problems in the country.

However, at more detailed analysis of occurring changes in sphere of management and in

legislative sphere of the natural resources use certain lacks attitude come to light on the part of the state to problems in this field.

Following the example of advanced countries, it is proposed to identify industrial, recreational and specially-protected areas with varying admissibility of the level of impact on environment and to establish, within these areas, the requirement criteria on the basis of process standards.

Thus, situation, developing now in Russia, in the area of natural resources use consist in development of two opposite directed tendencies :

1. The strengthening attention of the state and community to the problems Natural Resources Use and protection of environment ;

2. In fact, the easing the control of the state in the field of the decision of urgent problems Natural Resources Use and protection of environment and, as a consequence, increase of cases and sizes illegal plunder and negligent manipulation with natural resources and environment.

It is not clear yet, which of them can become dominant and will appear as winner in the future.

1. Introduction

The system of environmental protection existing in the Russian Federation is, for the time being, inferior to the system of industrialized countries virtually in all respects and, above all, as far as efficiency is concerned.

Officially, it is admitted that there are quite a few pressing problems in the ecological sphere because for the last 15 years the sphere has been on the sideline of state policy. However, from this year on, the handling of environmental problems again becomes one of Russia's development priorities. Besides, the growing economic resources make it possible to deal with environmental problems on a much larger scale than over the last few years. Thus, according to ecologists, during the period from 1999 to 2006, emissions of industrial enterprises and other stationary sources increased by more than 10%, while automotive pollution grew by 30%. At the same time, the rate of industrial pollution growth exceeds the rate of industrial development. The rate of toxic waste production reaches 15–16%, beating the rate of GDP growth.¹

On January 30, 2008 meeting of Russia's Security Council, the agenda included this item : "On measures to provide for environmental security".

It was pointed out that ecology only seems to be something secondary in the life of the country. As a matter of fact, the problems of environmental protection and the state of ecology have a direct impact not only on the demographic setting, but also on the economic potential of any state. Meaning that unless we take care of the habitat, we are unable to struggle effectively for the goals that we

have been attending to over the last few years : increasing the age of human life, improvement of the birth ratio, reduction of mortality and incidence of disease, i.e. indices by which we are far behind the most advanced countries today. Therefore, the quality of environment should be reflected in legislation as a mandatory component of the country's social standards.

In the opinion of the president, the primary task of Russia's environmental policy is to set up an effective system of environmental security in the face of the growing technogenic load on natural ecological systems. He suggested that a federal purpose-oriented program on chemical and biological safety for 2009–2013 should be adopted as early as possible and that necessary prerequisites for further economic growth based on high environmental standards should be developed. Besides, it was noted that it is impossible to deal with environmental problems today without the participation of business community.

“Implementation of major investment projects has commenced in a number of regions, exhibiting vast expanses, stretching miles and miles that used to be part of the wilderness, – the president reminded. – The adverse consequences of vigorous economic activity in these areas must be minimized”. These projects include the “North Flow”, “East Siberia – the Pacific” pipelines as well as development of the offshore areas of the Barents, Kara, Okhotsk Seas and of the Urals.

Following the example of advanced countries, it is proposed to identify industrial, recreational and specially-protected areas with varying admissibility of the level of impact on environment and to establish, within these areas, the requirement criteria on the basis of process standards. Besides, the need for the following was emphasized : use of fossils fuels with maximum efficiency ; development of renewable energy sources ; a fuller use of Siberia's water resources potential ; finding new uses of coal based on innovative and “clean” processes. All these measures will be conducive to “ecological modernization” of industrial enterprises in general, to innovative upgrading of Russian economy. The appropriate amendments may be introduced in the environmental protection legislation and in the laws on raising the efficiency of energy use during the year 2008.

2. The new aspects of environmental legislation and problems of the use of natural resources

The legal base of nature-conservation activity in Russia is still far from being consonant with the problems that exist in society, yet attempts to improve the legal base are made all the time. Among these is, for example, the adoption of the new crucial codes, the Water Code and the Forest Code^{2,3} ; both became effective from January 1, 2007.

Both laws had been prepared for several years and evoked heated discussions of the scientific com-

Table 1

The Laws in the field of Natural Recourses Use	The Date of adoption of the new (the latest) variant	The Date of adoption of the previous variant
The Water Code of Russian Federation	from 03.06.2006 N 74-FL (Is accepted 12.04.2006) (Wording from 19.06.2007)	from 16.11.1995 N 167-Ф3 (Is accepted 18.10.1995) (Wording from 31.12.2005)
The Wood Code of Russian Federation	From 04.12.2006 N 200-FL (Is accepted 08.11.2006)	from 29.01.1997 N 22-Ф3 (Is accepted 22.01.1997) (Wording from 24.07.2007)
The Land Code of Russian Federation»	From 25.10.2001 N 136-FL (Is accepted 28.09.2001) (Wording from 08.11.2007) (With changes and additions, entering valid with 01.01.2008).	Is accepted in RSFSR 25.04.1991 N 1103-1) (Wording from 24.12.1993)
The Town- planning Code of Russian Federation	From 29.12.2004 No.190-Ф3 (Wording from 24.07.2007).	From 07.05.1998 N 73-Ф3 (Is accepted 08.04.1998) (Wording from 31.12.2005)
Federal Law «About Environmental Examination»	From 23.11.1995 N 174-FL (in Wording from 18.12.2006).	-----
Federal Law «About Entails»	From 21.02.1992 N 2395-1 (Wording from 01.12.2007) (is under new Project)	-----

Source) The Table was prepared based on the Russian Reference- Law System «Consultant+».

munity and the general public concerned. For all the diversity of the drafts that had been prepared by both Russia's Ministry of Natural Resources and Ministry of Economic Development, it was possible to trace the main trend towards consistent consideration of private sector interests and reduced state administration in these areas of nature management.

For example, the new RF Water Code (i.e., Russia's Federal Water Code), in compliance with the RF Land Code,⁴ allows private, state and municipal forms of ownership. It is common knowledge that the interests of the state as the owner and the interests of other owners may not necessarily coincide and may, at times, be in conflict with one another. Over the last few years, this has been manifest in unauthorized development of riparian areas of rivers and water storages, especially in Moscow Region, which areas are classified as lands of the water resources inventory. However, it proved rather difficult to settle these problems on a legal level, because pursuant to Article 9 of the RF Water Code surface water bodies comprise surface waters proper, the bottom and banks; hence, the problem delineating the boundaries of the land plot that is a component part of the water body, and of the land areas adjoining it. Yet, neither the water and land legislation, nor civil legislation of the RF contain clear criteria of delineating the lands that are part of a water body and other lands.

Besides, the Russian water legislation, including the RF Water Code, says nothing about the area of the so-called banks that are part of a water body. Pursuant to Article 102 of the RF Land Code, lands of the water resources inventory include the so-called water-protection zones. In terms of Article 111 of the RF Water Code such zones are understood as a territory adjoining the river space or water stor-

age space governed by special conditions of water resources use and protection and of conducting other economic activity. At the same time, even though a bank is part of a water-protection zone of a specific water body, it can hardly be argued that the boundaries of a particular bank are equivalent to its water-protection zone. A water-protection zone is one of the types of ecological zones set up to forestall harmful impact of economic activity : within a water-protection zone any activity, impacting the state of water bodies, the fish stock, aquatic animals and plants, is prohibited. A special protection regime is arranged for riverside shelterbelts, too. The sizes of water-protection zones indicated in the Water Code are determined by the size and length of a water body. For example, in the case of rivers, such figures range from 50 m to 500 m. All this, however, makes it impossible to delineate finally the interests of water body owners and users or protect public water bodies against pollution by private developers.

Another novelty is water bodies that may be in private ownership. According to the Water Code, these (Article 8) may include “ponds and inundated quarries” on privately-owned land plots. However, the RF Water Code fails to provide a definition of such water bodies, which may lead to unfair appropriation of small lakes or water storages. Besides, many natural water bodies give way to man-made ones. A small lake converted into a man-made water body is likely to be privately-owned. True, pursuant to Article 42 of the 2006 RF Water Code, all works toward modification and development of a natural water body or water course shall be conducted, providing the natural origin of water bodies is conserved (presumably, this applies to natural hydrological regime, too). These provisions are called upon to put an end to uncontrolled damming of small rivers and streams, which was a common practice after the commencement of “cottage boom” and usually culminated in appropriation of water bodies by private individuals. Whatever the broad and unfair interpretations of the notions of “ponds” and “inundated quarries”, the legislator definitely chose to leave most of the water resources inventory in state ownership, attracting private investments based on the use under contract. As for private ownership, it is to cover the water bodies surrounded by private land plots : the state simply “does not get around to” these water bodies.

When the new RF Water Code was prepared, the pressing problem of payments in the water management area was also considered. The ‘user pays’ approach was retained as one of the fundamental principles, albeit in two quite different forms : water tax and payment under a water-use contract. Some experts suggested that a purpose-oriented nature of other-than-tax payments should be better reflected. According to them, expenditure to finance measures towards rehabilitation and protection of water bodies should be planned in the budget in the amount not lower than the sum total of the federal fiscal revenue generated by payments for water use. In addition to this, it was proposed to envisage provisions that specify the expenditure items to be covered by the “water money”. At the same

time, it was stressed that money generated by payments for water use may also be spent for protection against harmful impact of waters. Many of these proposals were included in the draft RF Water Code elaborated by the RF Ministry of Natural Resources, yet they disappeared from the final wording of the RF Water Code. This notwithstanding, the legal basis of payments within the framework of water use contracts enables the state to invest this money in water protection measures.

By and large, the 2006 RF Water Code recreated conditions for reestablishing payments within the framework of water use contracts. This was practiced earlier in the form of purpose-oriented budgetary funds for rehabilitation and protection of water bodies, which played a positive role in environmental protection.

Legal innovations of the 2006 RF Water Code are also crucial in connection with concession legislation currently emerging in the RF, which encompasses some aspects of legal water relations. Concession aspects of water use were studied closely abroad as far back as the turn of the 20th century. For example, in the United States, Switzerland, Norway and Italy it was concessional procedure of water use that came into being in hydraulic engineering and in hydropower plants construction. It is particularly important for Russian water management that concessional agreements enable the private investor to remodel old and used hydraulic works whose blowout may entail natural disasters on a country-wide scale. This way, the basis is laid for the state and private business to set up jointly the country's economic infrastructure (above all, in the areas of transport and energy). They also relate this with a possibility of upgrading the long-neglected water economy in the country. On the other hand, the water concession agreements should not be confused with the forest concession (RF Forest Code) and with production-sharing agreements.

The numerous problems of distinguishing between the forms of land and water resources inventory ownership are generated by the on-going process of distinguishing between the ownership of the federal government, RF constituent entities and municipalities. Practice has proved that the RF constituent entities and municipalities either failed to obtain what they wanted, or, having obtained beneficially owned property, were unable to manage it effectively. As a result of this, some property items turned out to be under the threat of being lost.⁵ This is especially topical in respect of natural resources. It is regrettable that a similar situation emerges in case of injudicious transfer of natural resources into private ownership, because in pursuit of here-and-now profit the private owner often forgets about special features of such item as natural resources and about public interest in conserving the resources as the basis of vital activity of the current and future generations. Therefore, one can hardly agree with the popular in the RF statement that “a state, by definition, is less effective owner than private individuals”.⁶

The new RF Forest Code takes into consideration the socioeconomic conditions of forest sector

functioning in market economy. Thus, the question of property right to forests is the core issue in the new Forest Code: it stipulates that forest ranges as part of the forest fund are in federal ownership (Part I, Article 8). A forest range is defined as a land plot whose boundaries are determined by the Forest Code rules (Article 7). The Forest Code does not say that forests growing on the lands of the forest fund may be privatized. Part 2 Article 8 of the Forest Code stipulate that the forms of ownership of forest ranges that are part of lands of other categories are determined by land legislation. Thus, it may be noted that the new Forest Code introduced diverse forms of forest ownership and federal ownership ceased to be the sole form of property to forests. For example, Clause 3, Part 3, Article 23 say that forests maybe on the lands of specially protected natural territories, which was not mentioned in the previous Forest Code. Besides, pursuant to Clause 2, Article 95 of the Land Code, within the lands of the said category there may be land plots of private owners. This provision is a matter of serious concern for ecologists. Furthermore, defining the item of the right of ownership to forests using the notion of a land plot as well as exclusion from the Code of the definition of a forest and of the notion of forest fund may lead to emasculation of ecological subject-matter of the land plots, on which forests grow as forest ecosystems that perform useful functions in the interests of exercising by each and every individual his right to a favorable environment.

The forest complex of Russia, following the adoption of the new Code and a number of regulations acts, is in a state of reorganization, one of the main tasks of which is the division of forest economy functions into management, production and control-and-supervision. The Code stipulated new relations between the federal Center and regions, the management of forests and forest economy is decentralized. In this connection, at the end of 2006 forest enterprises were transferred under the purview of the RF constituent entities. Besides, the following important changes in forest husbandry will be made. The licensing principle of operations in the forest shall give way to a declaratory one. The issue of forest land usage permits will be canceled in the near future. This means that each forest land user will have to submit a declaration, whereby he assumes not only forest land plot usage obligations, but the entire responsibility for the state of affairs in the forest ranges of the forest fund for which he holds a lease. Some forest utilization problems not only still exist, they have aggravated. For example, under the new Forest Code, forest enterprises will be reorganized, while up to 50% of officers engaged in forest economy will have to be fired. All functions of forest enterprises pertaining to reproduction and forest care will be transferred to forest land plot leaseholders, and the remaining personnel of forest farms will only monitor the state of affairs in these areas of forest utilization. However, it is still not clear how to retaliate against the forest user in new conditions. The procedure of imposing penalties, should these be found appropriate, has not been developed yet, whereas the amount of penalties for offences in forest land plot usage will go to the federal budget in full al-

though other schemes worked, too : all penalties remained at the disposal of forest enterprises or were divided fifty-fifty. For this reason, ecologists fear that the newly-established retaliatory measures against slack-in duty leaseholders of forest land plots are not adequate to the impacts that are likely to arrive as a result of “improper” forest utilization.

3. Effects of implementing priority nation-wide projects on the use of natural resources and environmental protection

The following 4 priority nation-wide projects are adopted for implementation and financing in Russia at present : affordable and comfortable housing (Habitation), quality education, advanced agriculture and affordable medical care (Health). The state has classified them as top-priority so as really to improve the life of the Russians. The financing of these projects is carried out in common from means of the federal budget (Fig. 1) and means of regions. For example, total amount of the charges within the framework of the nation-wide projects “Habitation” is estimated in 640 billion Rubles. At the first stage (2006–2007) will be spent 212, 9 billion of rubles, from them 86,1 billion – direct charges of the federal budget, and rest – charges of regions.

In frameworks nation-wide projects “Habitation” are four subroutines work : “Maintenance of the ground areas by a municipal infrastructure”, “Modernization of objects of a municipal infrastructure”, “Maintenance by habitation of young families, young experts on a village”, and also “Performance of the state obligations on maintenance by habitation of separate categories of the citizens”, supposing granting of habitation to the employees of power departments, refugees and migrants from Far North. Is planned, that in a result by 2010 the rates of housing construction will increase twice – with 41 billions square meters per one year up to 80 billions.

During the visit of D. A. Medvedev to Chelyabinsk Region in February of 2008, the Governor Peter Sumin said that “the struggle for environmental protection could be next nation-wide project”. However, D. A. Medvedev objected by saying that “Ecology, natural environment is where we live,

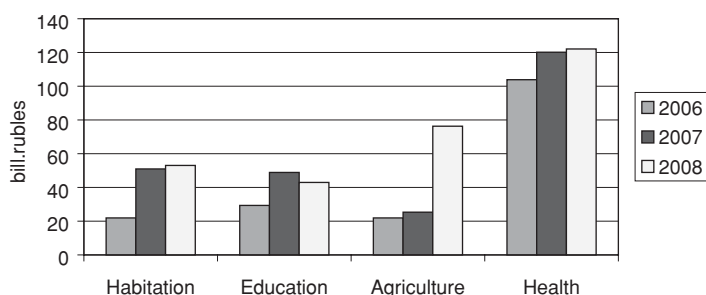


Fig. 1 Nationwide Projects in Russia

[http : //www.rost.ru/faq/2007/06/060000_9509.shtml](http://www.rost.ru/faq/2007/06/060000_9509.shtml)

so we cannot make this a nation-wide project. After all, nationwide projects are crucial elements of our economic programs where we have invested certain amounts of money and on which we have focused our attention. Unlike these, ecology and environment are everywhere⁷. In other words, it was admitted that ecology pervades all spheres of public life, and as such cannot be singled out, taken out of the context of other problems. Although this may be argued, we shall presently dwell on particular issues associated with the encountered and anticipated problems in nature management and environmental protection brought about by the implementation of the aforesaid nation-wide projects.

The quality of potable water remains one of the crucial and thus far unresolved problems in Russia. Today 35 to 60% of potable water in some regions of the country fails to meet sanitary norms. In European Russia, where over 80% of the RF population lives, it is still impossible to stop pollution of river basins. The problems of water treatment are particularly pressing in the housing sector, where for more than 20 years virtually nothing has been done towards modernizing or building new water supply and sewerage systems. This aspect becomes extremely important in connection with the commenced implementation of the “Affordable and Comfortable Housing” nation-wide project, because the construction of new housing is held back by and comes into conflict with the sanitary infrastructure capability. Drawing up a federal purpose-oriented program is regarded as one of the possible ways of resolving this, essentially ecological problem; such a program would envisage a joint (equity) financing of public infrastructure development from the state and municipal budgets because not all municipalities can afford this.

Another problem that has emerged in recent years is the supervision of compliance with legislation in the sphere of town-planning with a view to ruling out in the future of possible squandering of budgetary resources, preventing criminal redistribution of land resources, allowing no loss of human lives as a result of construction catastrophes. Thus, the RF General Prosecutor in his Order dated January 19, 2007 No 11 “On Organizing Procurator’s Supervision over the Compliance with Legislation, while Implementing Priority Nation-wide Projects” demanded that special attention be drawn to the following four questions in the housing sphere⁹:

1. Federal legislation stipulates that local governments must adopt certain normative legal acts in the town-planning sphere (“Rules of Land-use and Development) and that in conformity with the RF Town-planning Code, as from January 1, 2010 in the absence of such legal acts no land plots out of the land listed in state or municipal ownership will be allocated;

2. Compliance with the legislation requirements, when allocating land plots, and preclusion of unauthorized trapping of lands for subsequent development;

3. Assuring the quality of newly-built housing because at present supervision and expertise bodies are being set up to make state expertise (including ecological) of design documentation and results of

engineering surveys in construction ;

4. Strict compliance with the procedure and time-limits of making state expert assessments and permit-issuing procedures.¹¹

Thus, the abrupt increase of the scope of housing construction in the country should not result in reduction of its quality or deterioration of environmental indices.

On the other hand, increased use of nonmetallic materials in the RF as a whole amounted to 22, 9% in 2006.⁸ At the same time, experts note shortage of rock debris in summer and an annual increase of prices that tells on the prime cost of construction and feasibility of implementing the nation-wide project “Affordable and Comfortable Housing for the Citizens of Russia”. This is accompanied by an abrupt increase in the number of building materials quarries being worked, which, in many places, leads to stinging conflicts between the use of subsoil and use of the same landscapes for the benefit of ecology, recreation and other options of natural resources exploitation. Most such conflicts are noted in the vicinity of major cities and along the main express ways.

Thus, situation, developing now in Russia, in the area of the natural resources use consist in development of two opposite directed tendencies :

1. The strengthening attention of the state and community to the problems of natural resources use and protection of environment ;
2. In fact, the easing the control of the state in the field of the decision of urgent problems of natural resources use and protection of environment and, as a consequence, increase of cases and sizes illegal plunder and negligent manipulation with natural resources and environment.

It is not clear yet, which of them can become dominant and will appear as winner in the future.

Acknowledgement

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The Amur-Okhotsk Project : How We Protect the “Giant Fish-Breeding Forest”?

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Abstract

Recent oceanographic studies have revealed that marine primary productivity in the northern North Pacific was limited by iron availability. Because iron can hardly be dissolved in water, phytoplankton largely relies on the iron supply from land via atmosphere and/or rivers. In contrast to the central region of the northern North Pacific, the phytoplankton productivity is very high in the Sea of Okhotsk and the Oyashio area, probably due to the sufficient iron supply from the Amur River. Riverine iron, however, cannot remain dissolved in the seawater without being a complex with humic substances created in forest and wetland. Therefore, it is suggested that changes in land uses on the Amur River basin such as deforestation, forest fire, cultivation, urbanization and reduction of wetland could result in reduction of primary productivity in the northern North Pacific.

In this research project, we will address the following questions ; 1) How large is the discharged flux of materials such as iron from the Amur River, how far the iron is transported offshore and the degree to which the riverine iron flux could contribute to the primary production in the Sea of Okhotsk and the Oyashio area ; 2) What are the factors controlling the release of materials from the forests to the Amur River in the natural and/or anthropogenic land-surface conditions in the Amur basin ; 3) To what extent the economic and social systems around Northeast China and Far Eastern Russia change the land uses in the Amur basin in the past, present and future ; 4) How we can conserve the system, now entitled “Kyodai Uotsukirin (Giant Fish-Breeding Forest)” that includes both natural and anthropogenic processes. The project will explore the robustness of Giant Fish-Breeding Forest, and our approaches towards conservation of the system.

1. Introduction

In 13 November, 2005, an explosion at a petrochemical plant in China’s Jilin province dumped about 100 tons of benzene and nitrobenzene into the Songhua river, a tributary of the Amur River. Harbin temporarily shut down its water supply. Conflicting reports in the Russian city of Khabarovsk produced confusion and distress. High concentrations of benzene were measured at Khabarovsk on 22 December. Soon after that the Amur River froze over, making monitoring of the chemicals extremely difficult, and pushing a full assessment of the situation into 2006 after the spring thaw.

What observers in Japan were really anxious about was what kind of substances were released or in what quantity. They were worried that whatever flowed down the Amur River and into the Sea of Okhotsk would eventually pollute the waters lapping at the coasts of Hokkaido itself. The Sea of Okhotsk and the adjacent northwestern Pacific Ocean is famous as one of the most abundant fishing grounds in the entire world. Japan depends on the Sea of Okhotsk for 11 percent of all its aquatic resources, so pollution of the sea is a matter of the gravest concern. Extending from the mouth of the Amur river and passing along the eastern coast of Sakhalin is a major ocean current, equivalent to 20–30 percent of the Japan Current, that heads straight for the Shiretoko Peninsula, only last August designated a natural World Heritage property. It is no wonder that people in Japan began to have nightmares about a worst-case scenario taking shape in the region.

Later it was learned that the substances in question were mainly the volatile benzene and nitrobenzene, and would therefore readily evaporate or disperse, and the quantity around 100 tons, so that the pollution of the Okhotsk would not be so serious.

Looking only at the problems of pollution, there is ample reason for concern. With the Amur basin home to 50 million Chinese and China's economic growth still gathering pace, and just-under 5 million people living on the Russian side, one can easily imagine which side accounts for the greater human impact on the river. However, there is nothing to be accomplished by declaring that the problems are the result of one-sided Chinese pollution of the rivers and by casting Russia and Japan in the role of victims. As I will argue below, the only way to open up long-term and workable solutions to the problems is by the Amur River/Okhotsk sea/Shiretoko peninsula region as one vast biological system based on what we call the "Fish-Breeding Forest."

2. What Is the Fish-Breeding Forest?

Why is the Sea of Okhotsk a richer fisheries resource than other seas? High-latitude oceans are nutrient-rich due to the active vertical circulation of the ocean's waters ; and phytoplankton, the basis of the oceanic food chain, thrive on nutrients and sunlight. One critical element, iron, illustrates the connections between land, rivers, and oceans. Iron comes to the ecosystem of a productive sea either as particles through the air or dissolved in water via the rivers. But iron is an element that does not easily dissolve in water. Dissolved iron is produced primarily in anoxic (low-oxygen) environments, and when it combines with a substance called fulvic acid produced from the decomposition of forest humus, it can be carried long distances to the sea without oxidizing. Historically, the Amur basin, with its vast forests and wetlands, has been an environment well suited to produce this form of dissolved iron. Churned into the Sea of Okhotsk by the East Sakhalin current that conveniently passes

the mouth of the Amur, it is carried widely as far as the northwestern Pacific Ocean, contributing importantly to the biological productivity of this vast maritime region. Few oceans in the whole world benefit from such a superb mechanism.

In short, the source of the abundance of the Sea of Okhotsk lies in land-surface conditions on the continent, from which the dissolved iron that contributes to the maintenance of the ocean's biosystem—along with whatever pollutants humans discharge—is transported from the upper reaches of the rivers to the sea. The Amur River system, therefore, determines the fate of the Sea of Okhotsk, for both better and worse.

Unfortunately, during the last few decades, human activity along the river has begun to threaten nature's marvelous apparatus for creating and transporting dissolved iron from the land to the sea. There have been major land-use changes including conversion of wetlands into irrigated fields, deforestation, forest fires, and the construction of huge dams. With such changes, shrinking forestland area and lowering of the water table reduce the size and capacity of natural environments to produce dissolved iron. It is now believed that the upshot of these human-wrought land-use changes will ultimately be the reduction of the biological productivity of the Sea of Okhotsk and the northwestern Pacific.

The land and sea, therefore, are inextricably linked by the circulation of materials in the biosphere. The forests and wetlands of the continent sustain the biological life of the oceans, through the system that we call the "Giant Fish-Breeding Forest."

The land-use changes taking place in China and Russia are, of course, aimed at increasing food production, utilizing forest resources, and generating electricity and it is difficult to take issue with the public policies of two nations. However, there may be mutual benefits in finding a way to manage land-based resources that does not diminish the vitality and productivity of aquatic and oceanic resources.

3. The Objectives of the Trilateral Project

Since 2005, a joint research project among researchers from China, Japan, and Russia called the Amur-Okhotsk Project has been underway with hopes of finding such a way. The most difficult challenges in the protection of the Sea of Okhotsk are that most of its waters lie within the territory of Russia (with the exception of the open seas at its center), while no part of China, the source of activities that are having the greatest impact, borders on the Okhotsk. As a result, it has been hard to establish a relationship bound by shared interests. This inhibits implementation of the kind of joint protection measures adopted in the Baltic Sea, for example.

Regarding the Amur River, moreover, the national boundary line passes down the center of the

stream, and given the long history of border tensions between the two countries, various observations of the river and its environment are all conducted separately. Data-gathering methods, therefore, differ for measuring everything, even the quality of the water, and there is no smooth system for both sides to share the information they respectively compile.

In Japan, moreover, there are probably very few people who realize how greatly people's daily lives are indebted to the bounty of the Amur River basin and the Sea of Okhotsk. Even if the area constitutes one connected system from the viewpoint of natural science, the flow of anything other than natural substances is seriously obstructed by the boundaries between nations, and the substances themselves are not part of people's awareness.

In an effort to find a breakthrough to this unfortunate situation, our project focuses on a study of dissolved iron, working with research institutes in China and Russia to survey the entire Amur basin area and the Sea of Okhotsk using common standards of measure. Dissolved iron is fortunately a very common substance on land and not a pollutant about which tensions are likely to gather in either China or Russia.

One of the fascinating aspects of the "Giant Fish-Breeding Forest" concept is that there it involves endeavors that originate in the lower reaches of the system that can have an impact on its upper reaches. For example, it is possible that we may see a flow of things other than biological substances within this system. Likewise, we need to seek measures that would persuade China, even though its shores do not touch on the Sea of Okhotsk, to consider preservation of its environment in its own interests.

The vast majority of the marine resources from the Sea of Okhotsk are consumed by Russia and Japan, but in recent years Japan and Russia has begun to export varieties of salmon and other seafood to China. In addition to aquatic resources, this Far East region including Sakhalin with its rich energy resources will become a key region in considering the energy strategies of Northeast Asia. With the activation of economic interchange in the form of aquatic resources and energy, it is easy to imagine the connections among China, Japan, and Russia in this region in other dimensions such as culture and information becoming closer in the future as well. These are dimensions that we plan to actively address in our project as factors within the "Giant Fish-Breeding Forest" system.

4. In Pursuit of Solutions

How is Japan connected to the land-use changes in the Amur River basin? Japan was the largest export market for timber from the Far East for many years until construction slowed with its economic recession in the 1990s and the rise of China, and in 2000 exports to China rose over those to

Japan. Either way, economic conditions in Japan and China are among the decisive factors in the deforestation of the Far East. In addition, as part of the Chinese government's plan to increase food production, more than half of the entire 19,000 square kilometers of the wetlands that once covered the Sanjiang plain at the intersection of the Songhua and Amur rivers, or about 10,000 square kilometers, was converted to cultivation between 1980 and 2000. Conducted as part of Japan's overseas assistance program with the full cooperation of the public and private sectors, this project was very successful, but it may turn out that while raising the productivity of the land, the project has decreased the productivity of the seas.

Another project in which Japanese official development assistance is involved, that to develop water purification systems for factories, is starting to contribute to the cleanup of the Songhua river, and this too should serve to protect the ecosystem of the Okhotsk sea in the long term. Hopefully, Japan will find even more proactive ways to play a role in the preservation of the Amur-Okhotsk system.

Our project seeks to evaluate quantitatively the economic, social, and cultural dimensions of the system, and by reevaluating the different links within the system based on this study, we hope to create the theoretical framework upon which the three countries will be able to consider measures to take advantage of the future potential of the Giant Fish-Breeding Forest as a problem they all share.

Managing Russia's Water Supply and Sewage Systems

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Abstract

Even though Russia is a country with rich water resources, her people have suffered from poor drinking water and improperly treated wastewater. The country's water utility system has three agents : Users (Industries and households), Government, and Providers called Vodokanals. The property used directly in operations (networks, facilities, and process equipment) remains municipal or state property, but recent reforms in water resources and housing have encouraged private companies to join the management and operation of the Vodokanals by various contracts. These private companies are owned by powerful pro-government Russian oligarchs. Operators cannot own the water utility systems, but the possibility exists that the water utility systems will be privatized and given to the oligarchs. Such world communities as OECD have also encouraged private sector participation in the Vodokanals. At the same time OECD has also discussed the following : the possibility of a monopoly by private operators, guaranteeing the reliability and quality of water services, protecting the most vulnerable population segments, and the likelihood of staff reductions. We have to observe how government balances the needs of private sector participation and the protection of public property and the environment. To supervise the balance, public participation must be considered, but Russia lacks public participation. Private sector participation in water supply and sewage disposal must improve water quality. Russia must discuss the role of public participation in water resource management.

1. Water Supply and Sewage as Environmental Issues

Russia holds 20% of the world's freshwater resources. She has over 120,000 rivers with an overall length of 2.3 billion kilometers and about two million fresh- and salt-water lakes, and is one of the largest holders of water resources in the world. Despite such rich water resources, the Russian people have suffered from poor drinking water. In 1994, a report on drinking water in the Russian Federation pleaded for improved purification plants and estimated that half of the Russian population drinks poor quality water.

Wastewaters are not treated adequately. Official data show the trends by volume of discharged sewage (Figure 1). It is true that the volume of discharged sewage is decreasing year by year in re-

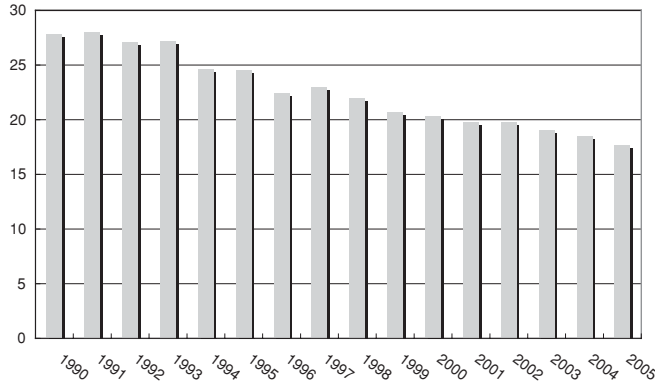


Figure 1 Volume of Discharged Polluted Sewage into Sea (Billion m³)

cent year, but still a huge amount of discharged sewage runs into the sea. This indicates the government’s inability to prevent sewage from being discharged into water resources. According to the other data resource (Porfiriev 1997), about 40 km³ of a total volume of 152 km³ of wastewaters (roughly 25%) in 1989 in the former Soviet Union was released into rivers, and more than 24 km³ or 40% was released into rivers in Russia in 1995. Russia’s sewage disposal remains insufficient.

Industries, state bodies, and households consume water. Industries used 40.5 km³ per year of fresh water in 2005,² accounting for 66% of all fresh water used in Russia. During the first decade of Russia’s transition to a market economy, industry experienced a severe depression and had no way to improve their wastewater treatment. The volume of water use by industry decreased until Russia’s financial crisis in 1998 (Figure 2). The same trend can be observed in agriculture use. The main consumers of drinking water, households, have suffered from poor drinking water, affecting their health. This situation is largely connected with poor improvements, insufficient construction of housing facilities, and the lack of an adequate legal basis and administrative capacity among public bodies.

Russia’s municipal sewage system received 15.1 billion m³ of effluent or 41.4 million m³ per day

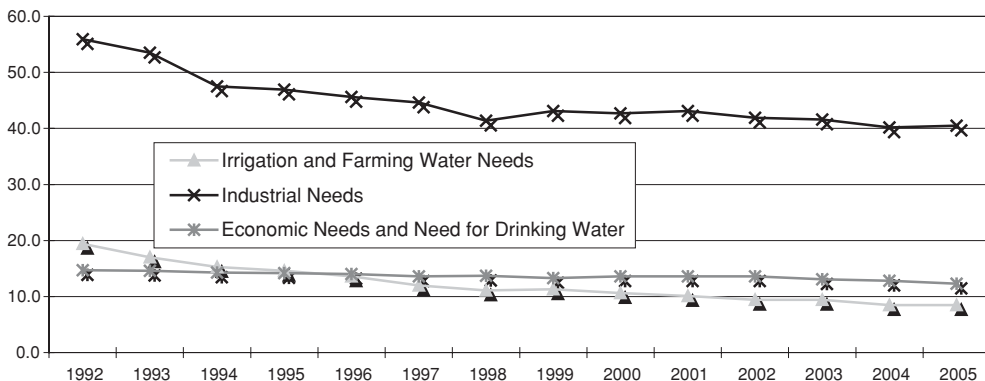


Figure 2 Demands of Fresh Water, km³

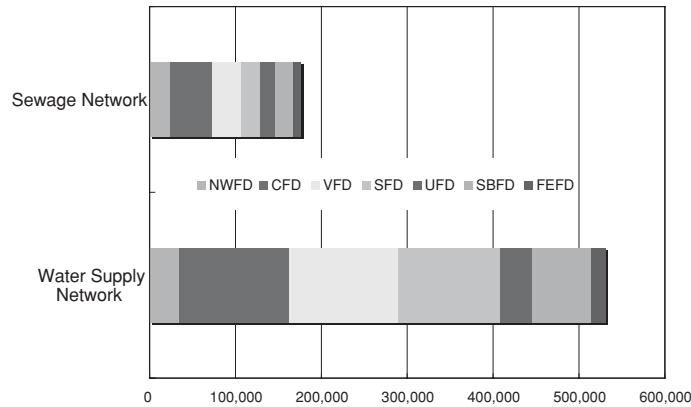


Figure 3 Network Length of Water Supply and Sewage at the Beginning of 2005 (km)

in 2004 (Ivanov et al. 2007). Russia's sewage system provides service to 55% of the population³ (DANCEE 2002). But the supply water and sewage networks in rural areas are insufficient. Russia's huge size limits the complete treatment of wastewater over her entire territory. In addition, the utilities of the sewage system must be replaced (Ivanov et al. 2007, pp. 26–27).

The network lengths of the water supply and sewage disposal are shown in Figure 3 by region: Northwest Federal District (NWFD), Central Federal District (CFD), Volga Federal District (VFD), Southern Federal District (SFD), Ural Federal District (UFD), Siberian Federal District (SBFD), and Far Eastern Federal District (FEFD). In the Russian Far East, since sewage is discharged without adequate treatment, water pollution is a serious issue in the bathing areas near Vladivostok. The installation of adequate treatment facilities is an urgent requirement.⁴ Russia's water utility system requires expansion and reconstruction.

2. Private Sector Participation in Water Supply and Sewage Management

“Decentralization” and “private sector participation” are the recent key words to describe Russia's water resource management. There are three agents in this water market: Users (Industries and households), Government bodies as regulators, and Providers called as Vodokanals. The property used directly in operations (networks, facilities, and process equipment) continues to belong to the municipal or state bodies, but recent water resource and housing reforms have encouraged private companies to join the management and operation of Vodokanals by leases, rents, and concessions.

1) Vodokanals

The break-up of the Soviet Union abolished the central planning of the urban water sector. The ownership of water utilities was given to local authorities. Most water utilities were transferred to mu-

municipal enterprises called Vodokanals (ABS Energy Research 2006), which became the first phase of the decentralization of the water supply and sewage system in Russia. Municipality administrations are responsible for the economic and technical regulations concerned with the Vodokanals, but the relationship between them remains unclear. General director is appointed by the city administration. Budget is constrained by budget approval of city administration (Ivanov et al. 2007). Vodokanals are not independent from the annual activities of municipal administration in terms of budget and human resource.

There is no direct contact with unsatisfied users. In many cases, payment collection is undertaken by the municipal service division as a mediator between the Vodokanals and the users.

2) Recent development of private companies' participation

The recent development involving private Russian companies to assume the management and operation of water utility systems and other infrastructure utilities is notable. Private companies cannot own the assets of the water supply or the sewage system. But they can manage and operate the water utility systems and other infrastructure utilities by leasing, renting, or running concession arrangements through contracts that last for 25–49 years (ABS Energy Research 2006).

Private operators are currently estimated to provide water supply and sewage service for 15 million people living in major cities, which is around 10% of the Russian population. In the future, private operators are expected by 2010 to serve water supply and sewage systems for 40 million people, which will be around 30% of Russia's population (Ivanov et al. 2007, p. 37).

The following are the main companies operating in the public water and sewage system :

- Russian Communal Systems (RKS)
- Russian Communal Investments (RKI)
- Novogor-Prikamye
- Rosvodokanal
- Eurasian Water Partnership (EWP)

Russian Communal Systems (RKS), which is the biggest and best known private provider of public services in Russia, was founded in May 2003 by Gazprom and RAO UES, the two largest Russian utility monopolies. RKS focuses on the regions of Altay and Amur as well as on the large cities of Archangel, Vladimir, Volgograd, Voronezh, Tambov, Kirov, Saratov, Ekaterinburg, Smolensk, Tver, and Tomsk. Russian Communal Investments (RKI), registered in 2004, is a subsidiary of the Basic Element investment firm (Bazoviy Element), solely owned by Oleg Deripaska, one of the most famous oligarchs. RKI focuses on regions that are not covered by RKS contracts, for example, Nizhniy Novgorod oblast, Krasnodarsky Kray Krasnoyarsky Kray, Buriatia, and Kaliningrad Oblast, and the

cities of Barnaul, Eisk, and Novosibirsk. The sole owner of Novogor-Prikamye is New Urban Infrastructure ZAO, a member of Interros Holdings, the major company controlled by Vladimir Potanin, one of the most powerful Russian oligarchs. Interros also owns 10% of RKS. Novogor-Prikamye controls the housing sector in Norilsk, manages the water utility of Permvodokanal in Perm, and plans to expand into the Volga-Kama basin, especially in Nizhniy Novgorod. The major shareholder of Rosvodokanal is Alpha-Eco, which is part of the Alfa Group controlled by Russian oligarch Michael Fridman. It focuses on the region where the Alfa Group's main enterprises (oil refineries and metal processing works) are located: Orenburg Oblast, Voronezhskay Oblast, and Krasnoyarsk Krai. Sergei Yashechkin is the co-owner and president of the Eurasian Water Partnership and the CEO of the Russian Communal Systems (RKS). By mid-2004 private Russian operators controlled about 50 large utilities, and many other municipalities were negotiating with other private financial groups.⁵ Operators cannot own the assets, but the possibility cannot be ignored that the water utility system might be privatized and given to the oligarchs.⁶

The world community including OECD also encourages new private sector participations in the management of the water supply and sewage disposal. At the same time, OECD discussed the possibility of a monopoly by the private operators, guaranteeing the reliability and quality of water services, protecting the most vulnerable segments of the population, and the likelihood of staff reductions (OECD 2001, p. 93).

3) Private participation vs. public participation

As part of water resource management, the water supply and sewage system is directly connected with housing issues. In the former Soviet Union, all apartments were owned by the state, and the residents were charged a mere pittance for water and other utilities.⁷ A tariff system for communal services was introduced in 1993 (Setoguchi 2003, p. 89). Russia's tariff on water use and sewage disposal for housing (including water supply, hot-water supply, and sewage) is increasing drastically year by year (Table 1), but this is not surprising because beneficiaries should pay for part of the costs of water and sewage disposal. The expense varies by Vodokanal. Russian houses have no individual meters to calculate water usage supply by household, so the Vodokanals charge a tariff based on the

Table 1 Tariff per person on Water Supply in month in St. Petersburg

Introduction period	01. 1	01. 8	02. 1	02. 8	03. 1	03. 8	05. 1	05~06	2007. 1
Centralized hot-water supply	38.59	47.61	59.83	68.32	78.06	105.85	105.85	121.78	137.85
Gas heating hot-water supply	38.59	47.61	59.83	85.69	97.90	132.76	132.76	152.74	—
Wood burning hot-water supply	19.62	24.21	30.42	34.74	39.69	53.82	53.82	61.92	—

Source; Vodkanal -St. Petersburg

number of persons in a household. The average monthly income per capita was 13,611 Rubles in 2006 (Petrostat 2007). In St. Petersburg water tariffs have reached about 1% of the average monthly income. Tariffs are severely regulated by municipal self-governments.

Federal Law No. 210-FZ on “the tariff regulatory framework of municipal housing enterprises” was enacted in 2004 and slightly liberalized tariff setting procedures. But tariff collection does not solely allow Vodokanals to make feasible plans to renew the water utility system. The water supply and sewage systems do not attract credit or long term loans to finance investments due to the severe regulation by forms of government, including municipal self-governments.⁸ Obviously, tariff collection does not and will never cover financing to improve the public water utility system.

The Russian government is seeking a way for large, private, pro-government companies to enter the management and the operation of the public water supply and sewage disposal without allowing them to own such municipal properties. The problem is that the recent private sector participation in the water supply and sewage systems does not automatically guarantee improvement in water quality. The concession, renting, and leasing of water utility systems, in the other words, de facto privatization, can easily become a game of monopoly by Russian oligarchs. We have to observe how government should balance the needs of privatization and the protection of public property. To supervise the balance, public participation must be considered, but it is public participation that Russia lacks. The participation of the private sector in water supply and sewage systems shows how to maintain utilities in cities and to penetrate the limitations of municipal efforts to finance utilities. But they still do not show how public participation can be realized in their schemes.

3. Conclusion

Water resource management in Russia has attracted the attention of the world community. The good performance of St. Petersburg’s Vodokanal is a good example. The world community helped improve St. Petersburg’s water supply and the sewage system, because the water discharged from that city affects the Gulf of Finland, and improving of water resources of St. Petersburg is vital for neighboring countries.

Private sector participation must provide greater opportunities to improve the water supply and sewage disposal. But private sector participation does not guarantee public participation. Therefore government and major private companies participating in the management of water supply and sewage systems should improve public access to the information on water environments and their management and encourage public participation in water environmental management. Private sector participation in the management and operation of the water supply and sewage systems is unavoidable.

However, users have struggled with the difficulties caused by public participation from the Soviet era. Russia must discuss the role of public participation in her water resource management.

Note

- 1 See <http://www.russianembassy.org/RUSSIA/GEOGRAF.HTM>. Ivanov et al. noted there are three billion lakes in Russia (Ivanov et al. 2007, p. 2).
- 2 According to UNESCO-WWAP, industry used 48.66 km³ of fresh water in 2000 (UNESCO-WWAP 2006). The data of the Federal Agency of Water Resources are different, however. Concerning the water supply accounting system, see Demin (2000).
- 3 Japan offers public sewage service to 67% of her whole population and Korea 78.8%, as of 2003 (OECD Environmental Data 2006).
- 4 http://www.npec.or.jp/northeast_asia/en/environmental/page_04.html
- 5 These facts are taken from a report of the ABS Energy Research (2006) and Ivanov et al. (2007).
- 6 The newspaper "Vedmosti" reported that in the future the federal government should let private investors take over the financing and maintenance of the sector. See the following site: <http://www.vedomosti.ru/newspaper/article.shtml?2006/03/20/104864>.
- 7 In the former Soviet era, expenses for communal services in housing amounted to just 8.81 Rubles, which included heat, water, sewage, hot water, electricity, antenna (monthly radio/tv antenna charge), and radio. See Michigami (2007, p. 73).
- 8 Institute of Urban Economics pointed out that tariffs were set without accounting for the true investment needs of enterprises, and the majority of municipalities lack formal tariff regulation procedures. Therefore tariff rates turn into an instrument for heads of local administrations or representatives to use for their political objectives. See Institute of Urban Economics (2003).
- 9 See Wernstedt (2002).

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How May Local Identities Contribute to the Environmental Orientation of Russia?*

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Abstract

The specific sociocultural and environmental characteristics of contemporary Russia and Russians were researched. It is proved and illustrated in the article that the local identity as one of the main human characteristics is not only sociocultural but environmental parameter as well. The most important environmental indices of local identity are the following : 1) the level of support of the local “green” movements given by the inhabitants of towns as a form of a local community and the environmental solidarity ; 2) the local patriotism development ; 3) the perception of the environment pollution as a specific measure of the degree of environmental degradation in towns. In the environmental context the development of local patriotism may be measured by the part of the inhabitants of town that do not want to abandon the town and prefer to live just their. The investigation is based on the official information about 96,300 inhabitants of towns in former USSR (1990), according by the State Statistic Committee of the USSR, other information (1996) and our own material (2002–2003, 3050 respondents).

Using the criterion of the ratio between proponents and opponents of “green” movements, we identified macroregions that may be interpreted as various civilizations : Western Christian civilization (Latvia, Lithuania, Estonia – the ratio 3 : 1) ; Slavic civilization (Russia, Belarus, Ukraine as well as Kazakhstan – the ratio 1 : 1) ; Islamic civilization (Azerbaijan, Tajikistan, Turkmenistan, Uzberistan – the ratio 1 : 10) as well as the limitrophe civilization zone : Armenia, Georgia, Kirghizia, Moldova – the ratio 1 : 3.

Superposition of the two directly proportional dependences that determine the level of support of the local “greens” (accompanied by the growing local patriotism and degradation of environment) accounts for the cyclical dependence that contains two “turning points”.

Initially, the level of support extended to “green” movements is rather high (relatively clean environment ; high level of local patriotism). However, as local patriotism dwindles, its role as the determinant of environmental activity declines visibly : it ceases to be the leading determinant of environmental activity and gives way to the factor of environmental degradation, in which case the level of support of “green” movements is abruptly accelerated (even though the factor of local patriotism, albeit reduced, remains as an important “background”). Yet, when environmental degradation reaches its maximum, there comes

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“environmental depression”, i.e. an abrupt drop, to zero, of the support given to “green movements” (“fear followed by apathy”).

The resultant curve is similar to the well-known A. J. Toinbee’s formula: “The most stimulating impact is one generated by a challenge of average force”; “excessive harshness of challenge determines delay of civilization growth, short of its death”.

Interestingly that the directly-proportional dependence between the level of environmental pollution and support of “green” movements, complying with the “European common sense” and economic logic, can be easily reproduced, if we add up the number of respondents supporting the “green” movements, and the number of their opponents (aggregate interest to the problem of environment”, which brings together those “not indifferent to the “greens” as distinct from “undecided” and “ignorant of the “greens” activity). However, in this case, too, we are faced with an insufficiently high (insufficiently modernized?) level of local identity. The data for 2002–2003 indicate that the level of ecocultural movements is higher by an order of magnitude, yet these movements do not have proper institutions.

The dependence of much greater support of local “green” movements in medium-size towns was shown. The specificity of the environmental reactions of Asian Russia population is similar to that of single-sidedly industrial towns population; while the environmental reactions of European Russia population is similar to that of polyfunctional towns population.

Introduction

Environmental consciousness of the social medium constitutes a crucial condition of its environmental orientation, within the framework of which nature-oriented regulation of economic activity is ultimately achieved. For example, a discussion has been going on for some time on the subject of whether or not Christianity should be held responsible for the current environmental crisis as well as a discussion on what civilizations and culture, technogenic or “cosmogenic”, civilizations and cultures of the West or civilizations and cultures of the East (in their “pure form” or in a certain combination) have been conducive to the crisis in question.

In modern society, ecological (“environmental”) consciousness of the social medium has an impact on both the environmental legislation, and its implementation as well as on regulation of production development and distribution of production facilities. Suffice it to quote the notorious example of the struggle for *preserving the purity of Baikal* and in this connection – for restricting and banning the promotion of industries that pollute the environment in the basin of Baikal Lake. Ecological (“environmental”) consciousness determines the emergence of conflicts of all descriptions that, in the long run, have to do with incommensurability of ecological (“environmental”) and economic values, regional conflicts included. For example, in the 1970s, there was a *regional conflict between Moscow and Tverskaya* (at that time, Kalininskaya) *Oblast*: the reason for the conflict was that severe economic restrictions on expansion and location of surface-water polluting sources surface on the terri-

tory of *Ivan'kovskoe Water Reservoir (the towns of Tver, Torzhok, Rzhev and others)* were imposed for the benefit of Moscow only (see : Krylov, 1984). *In this case, ecological interests were defended by the local authorities.*

There exist diverse opinions regarding the “degree of ecological compatibility” (“environmental orientation”) of Russian culture. In this connection, there remains unanswered the question of the expediency of having greater or lesser orientation (as applied to the problem of environmental protection) of Russia’s current development to the Russian (or western?) cultural tradition – meaning, above all, the criterion of environmental orientation of Russian society.

1. Local identities and environmental problem

In this connection, the study of specific environmental “properties” (characteristics) of contemporary Russian sociocultural development is definitely of great interest. Among such properties, local identity is something that pins the attention of researchers (rootedness, self-awareness, local patriotism) : once people are attached to their land, love it, regard it as *their own*, they tender the sense of responsibility for their land, the desire to see it beautiful and “environmentally clean, a safe place for residence. In such a case, *it is the local population that defends ecological interests.*

Indeed, there exists a fairly well developed network of local ecological (“environmental”) organizations (“green” movements) in Russian towns. These were most active during the second half of the 80s – the early 90s of the 20th century. At that time (or : during that period), regional organizations had roughly 100 members, most of whom lived in the regional centers ; at the same time, in medium-size towns (of the regional centers), the ratio of local residents – members of such organizations, was by an order of magnitude higher (see : Krylov, 1999a).

It should be noted that environmental activity of local communities of Russian citizens manifested itself in the past, too : apparently, since the early 20th century – within the framework of local governments and especially of organizations of Russian noblemen prior to the year 1917, as part of regional studies – societies set up for the purpose of studying the history and nature of local areas in 1922 – 1930 and after 1955 – as part of nature-conservation societies and local lore organizations (see : Krylov, 1999a).

It may be assumed that not all types of local identity equally encourage the study of the diverse forms and levels of local identity development (in greater detail – of European Russia) or the diverse responses of the Russian population (European and Asian Russia) to the existing ecological situation (Krylov, 1995, 1999b, 2005, 2007).

As a result of the study, as the author presumes, the well-known conception of Russians as a no-

madic people “in its perception of the world” similar to that of “a northern Chinese, dweller of Manchuria or a Turkmen” to whom Homeland is not a “village, but an infinite plain, Mother Russia” (e.g. Spengler, 1933, Rus. transl. 2006, p. 64).

One should also take into account a rough coincidence of the local identity development level in Russia and in the countries of Eastern Europe as well as in the USA, the Russian local identity often being better developed than in other countries (Draganova, Starosta, Stolbov, 2002).

It was discovered that the power of identity, contrary to widespread views, does not decrease for younger age groups; rather, it does for the middle-aged (Krylov, 2005, 2007). It is of interest that perception of the level of cultural-landscape diversity, the beauty of locality, the answer to the question of whether a particular town is new or ancient is determined by the degree of local patriotism displayed by the dwellers of such towns (in the latter case – “all other conditions being equal”) (Krylov, 2007).

However, according to official data, perception of the degree of natural environment pollution in Russian towns roughly corresponds to the level of atmospheric pollution (exceptions are possible in less than 10% of the cases). (As an indicator of perceived level of environmental pollution in the towns the author used the opinions of town-dwellers, regarding the correlation between environmental pollution and their health). However, the level of support of the local (“green”) movements given by the townspeople is, by and large, secondary in relation to the level of local patriotism in the appropriate towns. Another determinant of support extended by the townspeople to the local “greens” is the level of perceived environmental pollution.

The author established a correlation (data on 102 Russian towns) between such indicator of local patriotism as “lack of desire to move to a different place of residence” with the currently perceived state of environment ($R_s = -0.62$) as well as with the indicator of willingness to move to a different place of residence due to environmental pollution ($R_s = -0.89$).

According to V. A. Krasilschikov (1993), the “green” movements constitute a crucial subject of contemporary Russian (post-industrial) modernization.

2. The civilization macroregions according to the support of the local “green” movements by town inhabitants

Using the criterion of the ratio between proponents and opponents of ecological movements, we managed to identify macroregions that may be easily interpreted from the standpoint of their affiliation to various civilizations: western-Christian (Latvia, Lithuania, Estonia – the ratio 3 : 1); Slavic (Russia, Belarus, Ukraine as well as Kazakhstan – the ratio 1 : 1); Islamic (Azerbaijan, Tajikistan,

Turkmenistan, Uzbekistan – the ratio 1 : 10) as well as the limitrophe zone : Armenia, Georgia, Kirghizia, Moldova – the ratio 1 : 3 (Krylov, 1999b, 2007).

3. The quantitative regularities in relations between the “green” movements, perception of the environmental quality, local patriotism and sociocultural potential of towns

Superposition of the two directlyproportional dependences that determine the level of support of the local “greens” (accompanied by the growing local patriotism and degradation of environment) accounts for the emergence of a wave-like (cyclical) dependence spotted by the author, that contains 2 “turning points” (Krylov, 1995, 1999b, 2007). This dependence (with reference to our published paper, but somewhat modified) was used by R. G. Khlebopros, A. I. Fet (1999, p. 87) for the development of a theory of economic measurement of the outcome of nature-conservation measures.

Initially, the level of support extended to “green” movements is rather high (relatively clean environment ; high level of local patriotism). However, as local patriotism dwindles, its role as the determinant of environmental activity declines visibly : it ceases to be the leading determinant of environmental activity and gives way to the factor of environmental degradation, in which case the level of support of “green” movements is abruptly accelerated (even though the factor of local patriotism, albeit reduced, remains as an important “background”). Yet, when environmental degradation reaches its maximum, there comes “ecological depression”, i.e. an abrupt drop, to zero, of the support given to “green movements” (“fear followed by apathy”).

When 60% and more of townspeople do not wish to change their place of residence, this is equivalent to “automatic” support of the local “greens” by the population. The 10% and less of people “unwilling to change their place of residence” coupled with 80% and more of those “who attribute deterioration of their health to pollution of urban environment” is definitely as good as rejection of the “greens”. The “peak” of pollution-induced support extended to the “greens” occurs when 40–65% of people tend to ascribe deterioration of their health to environmental pollution (see Fig. 1).

On the whole, the resultant curve is described by the well-known A. J. Toynbee’s formula : “The most stimulating impact is one generated by a challenge of average force” (1991, p. 212) ; “excessive harshness of challenge determines delay of civilization growth, short of its death” (op. cit., p. 181–182) and, also, by the stress formula, after G. Selier (1979).

Interestingly that the directlyproportional dependence between the level of environmental pollution and support of “green” movements, complying with the “European common sense” and economic logic, can be easily reproduced if we add up the number of respondents supporting the “green” move-

Support of the "green" movements in relation to perception of environmental pollution in towns

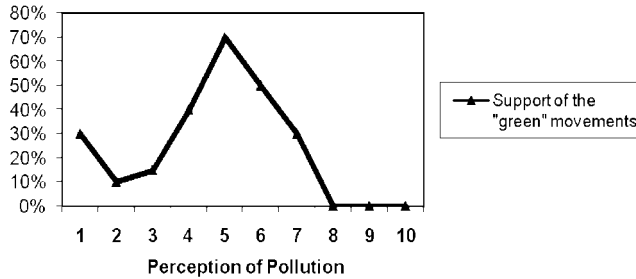


Fig. 1 Interrelation between the level of perception of environmental pollution and support extended to the local "green" movements.
 Horizontal : a. perception of environmental pollution ;
 Vertical : degree of support extended to the "greens" (%).

Support of the "green" movements in relation to urban sociocultural potential

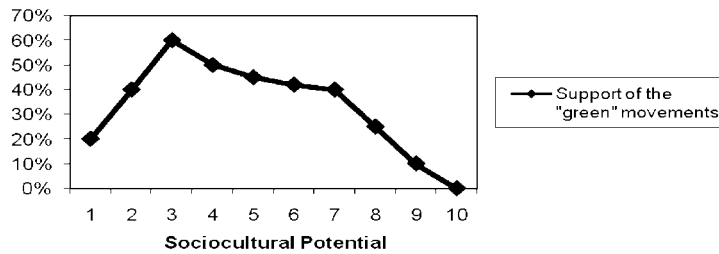


Fig. 2 Interrelation between the level of urban sociocultural potential development (in ppm of Moscow's sociocultural potential) and support of the "green" movements.
 Horizontal : level of sociocultural potential development ;
 Vertical : degree of support extended to the "greens".

ments, and the number of their opponents (aggregate interest to the problem of environment", which brings together those "not indifferent to the "greens" as distinct from "undecided" and "ignorant of the "greens" activity). However, in this case, too, we are faced with an insufficiently high (insufficiently modernized?) level of local identity (development of local patriotism). The data for 2002–2003 indicate that the level of ecocultural movements is higher by an order of magnitude, yet these movements do not have proper institutions (Krylov, 2007).

Equally of interest is the dependence (Fig. 2), portraying a much greater gravitation of medium-size towns with middle socio-cultural potential towards ecological values, which is determined by the absence of interchangeability of ecological and cultural amenities in such towns as well as by the growing power of local identity tending to gravitate towards medium-size towns (Krylov, 1999a, 2007). Outwardly, this may be perceived as a breach of the "center – periphery" principle.

4. The specificity of the types of towns and macroregions

The specificity of semi-functional and industrial towns : response of the dwellers of a one-sidedly-industrial town is characterized by “ecological depression”, at the same time ; an unusually high local patriotism is not typical of such towns.

The specificity of the European Russia and Asian Russia (both – without the Urals). Response of the population of Asian Russia to the environmental situation is very similar to that of one sidedly industrial towns ; response of the population of the European Russia is very much like the response of polyfunctional towns.

All towns where the level of support extended to the “green” movements is higher than the proportion of dwellers willing to quit those towns for ecological reasons, except Irkutsk, are in European Russia (Volgodonsk, Kaluga, Krasnodar, Makhachkala, Mytishi, Novorossiisk, Pervouralsk, Pskov, Rostov-on-Don, Ryazan, Saratov, Tver, St.-Petersburg, Elektrostal).

The Urals is characterized by high local self-awareness and generally by a rather high degree of concern for the problem of ecology, a high degree of support of the local “green” movements. Support of the “green” movements is dominant in Berezniki, Yekaterinburg, Nizhni Tagil, Orenburg, Pervouralsk, Perm, Ufa, Chelyabinsk. There is an approximate “equality of forces” of the protagonists and opponents of the “greens” in Kamensk-Uralsk and Sterlitamak. In Magnitogorsk, negative attitude towards the “greens” prevails.

Asian Russia exhibits great “weakness” (except Irkutsk and Tomsk and, to some degree, Novosibirsk), – despite the advanced Siberian identity (Sverkunova, 2002, et al.). Obviously, the problem here is the weakness of local urban identity of many Siberian towns (except, however, for Irkutsk, Novosibirsk, Tomsk, where local identity is augmented by the pride of their dwellers associated with traditional scientific specialization as well as by their significant cultural role, which was manifest in the special role of such towns as centers of Russian democracy during the civil war of 1917–1922, partly, this is also true of Omsk). Besides, most Siberian regions display a weak mesoregional identity (except Altaiskii Krai). There exists excessive urbanism, too (Krasnoyarsk claims to be a capital city of Siberia).

In Asian Russia, the local “green” movements are supported by the local population in the following towns (out of 102 towns of the existing sample) : Irkutsk, Komsomolsk-on-Amur, Omsk, Tomsk, Yakutsk ; there is an approximate “equality of forces” of the greens’ protagonists and opponents in Barnaul, Kemerovo, Ulan-Ude, with significant reservations – in Novosibirsk. Negative attitude towards the “greens” prevails in Angarsk, Biisk, Bratsk, Blagoveshchensk, Vladivostok, Krasnoyarsk,

Kurgan, Nizhnevartovsk, Novokuznetsk, Norilsk, Prokopyevsk, Surgut, Tyumen, Chita ; negative attitude also prevails by an order of magnitude in Leninsk-Kuznetskii, Khabarovsk and Yuzhno-Sakhalinsk (Opinion. . . , 1991).

5. The sociocultural regularities of the Russian local identities and possible perspectives of the Russian environmental orientatation

Presumably, most (or significant part of) the towns exhibit a certain stereotype attitude towards the “green” movements (not necessarily very hard-line), which roughly remains unchanged as time goes on (this was confirmed by the results of sample sociological surveys, e.g. in 1995).

According to the author’s own study (Krylov, 2007), local identity is a relatively independent cultural phenomenon, usually with its own dynamics and associated with Russian patriotism. At an intraregional level (as distinct from an interregional level), local identity is related to some specific settlement (described by V. Crystaller’s theory of central places) and socioeconomic parameters typical of individual settlements as well as to their peculiar outward appearance and comfort (in different meanings of the word) of living in them. All this determines the difficulty of forecasting the dynamics of local identity. Still, it may be said that deterioration of the look of the towns, diminition of their cultural-landscape diversity will be conducive to the weakening of their local identity and, by virtue of the fact, to a reduced concern of the population and local governments over of environmental protection issues. At the same time, the effect of regularities associated with the emergence of “ecological depression” and combination of augmented local patriotism with the high environmental activity will continue. Therefore, deterioration of the ecological (“environmental”) situation admittedly may be regarded as a circumstance (or factor) “acting in favor of” local patriotism. However, regularities associated with the effect of “postpatriarchal character” (Fig. 2) will serve to intensify ecological (“environmental”) trend of the provincial way of life in medium-size and moderately large towns that preserve typical of such towns (not necessarily “traditional”) mode of life and originality of their historic and cultural-landscape outward appearance, especially in conditions of vigorous socioeconomic (not to the detriment of historical and cultural individuality) development of these towns. In this connection, it must be admitted that the idea of forced development of the “poles of growth” in Russia to the detriment of the rest of its territory as well as the trend of building a “network society” in Russia weaken “protective environmental reactions” of Russian society. At the same time, the idea of “self-reliance” contains an unconditional (and in the case of Russia – rather powerful “environmental”) potential. In this sense, the author opposes the idea of maximizing spatial mobility of the Russian population and of the need to struggle (! – MK) with its attachment to the place of residence

(Shchedrovitskii, 2005).

The aforesaid (noted, fixed by the author) tendencies, true of the whole of Russia, geographically are rather diverse, revealing unlike gravitation towards various regions (Asian and European Russia, South and North of European Russia, the Urals, the Far East). Particular trends are characteristic of major towns and their agglomerations. Russia combines traits that draw her closer to the West ; Russia has its own peculiarities ; as it does so, contrasting cosmogenic and technogenic civilizations is not always productive : apparently, modern civilization includes the elements of both.

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