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SPATIAL FEATURES OF SECTORAL DEVELOPMENT

Socioecological Consequences of the Transformation of Natural Resource Utilization in Russia's Eastern Part in the Post-Soviet Period

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Abstract—The article considers tendencies in the demographic development of Russia's eastern part (Eastern Siberia and the Far East) in the post-Soviet period. The relationship between the transformation of natural resource utilization and the dynamics of the local population has been discovered. The social consequences of various types of post-Soviet transformations associated with territorial–industrial structural elements of natural resource utilization on the local level, detected on the base of field studies, are explored. The social and ecological problems stemming from the closure of enterprises, engaged in resource utilization, and the emergence of new ones have been studied. It has been established that mechanisms for the mitigation and prevention of negative social and ecological consequences of resource utilization transformation are either absent or very weak. The existing tax mechanisms insufficiently promote the social and ecological development of resource areas. The necessity to elaborate scientifically based mechanisms of mitigation of negative effects of resources utilization, taking into consideration the natural, ethnic, and other features of local areas, has been established.

Keywords: Eastern Siberia and the Far East, post-Soviet period, local areas, population dynamics, transformation of natural resource utilization, enterprises engaged in resource utilization, social and ecological consequences, tax mechanism

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INTRODUCTION

In recent years, a critical task of resource utilization is the search for capabilities and means (ways) to raise its social significance for the development of raw material-based regions and their specific parts [10]. This task seems to be very important for Russia's eastern part (Eastern Siberian and Far Eastern economic areas) with its mainly resource-based model of economic development at the present time and in the nearest future. In the coming decade, eastern regions, which are rich in raw materials (except for large industrial centers), will not likely be able to make a transition from a raw materials economy to a knowledge economy. Nevertheless, it is possible to direct social efforts to make natural resource utilization in eastern regions, especially in adverse ecological and climatic conditions, maximally focusing on the social effect and providing economic and other types of benefit to the local population.

The relevancy of the theme is determined by the social problems, aggravated in the post-Soviet period, inter alia connected with the transformation of resource utilization, as well as the relevancy of new approaches to their solution. Crisis and intercrisis periods in modern Russia are full of examples of social shocks and negative effects in the area of natural resource utilization that showed an urgent need in the development of mitigation mechanisms. Company towns, where one-tenth of the country's population lives, are in an extreme need for them [7]. In view of the fact that in Russia's eastern part core enterprises in most company towns are companies using exhaustible natural resources, the absence of these mechanisms is a "tinder box," which can detonate by way of social protests. In respect of such settlements, the closing of a budget- and township-forming enterprise can destroy the entire system of the corresponding area's social development. In turn, the elaboration of scientifically based mechanisms for the mitigation of the negative effects of resource utilization and methods of its social significance improvement demands a thorough analysis at the local level of social consequences and problems of transformation of the territorial structure of natural resource utilization.

Social and social–ecological development problems in Russian regions, including the Eastern ones, in the post-Soviet period are fully examined in the works of domestic economists and economic geographers

Table 1. Net migration in economic areas of Russia's eastern regions (thous people)

Economic area	1979–1988	1989–1998	1999–2010
Eastern Siberia	42	–190	–196
Far East	333	–789	–337
Russia's eastern part, total	375	–979	–533

Source: Calculated by [2, 14].

[1–5, 8, etc.] and several foreign ones [15, 17, etc.]. This article supplements them with an analysis of the peculiarities and problems of the social development of local territories under the influence of the post-Soviet transformation of natural resource utilization, conducted in the course of an expeditionary study covering the period from 2001 to 2009 (a list of the regions studied and the appropriate dates are presented in [6]). As initial material, apart from statistical data, the library materials of enterprises and local archives were used, as well as interviews with the local population, representatives of economic entities, and regional and municipal authorities.

POPULATION DYNAMICS IN RUSSIA'S EASTERN PART IN THE POST-SOVIET PERIOD

It is well known that during the entire Soviet period the state made efforts for the rapid development and settlement of Eastern Siberia and the Far East. Only in 1979–1988 the population inflow in these macroregions numbered 375000 people, mainly, at the expense of migration replenishment of the Far East (333000 people) (Table 1). The largest growth, i.e., 17.6%, was noted in the north of the Far East; this was not only accomplished on the basis of inflow, but also on the basis of higher rates of natural increase due to the younger age structure of the population [3].

As of the end of 1990, the population of eastern Siberia numbered 9.2 mln people; in the Far East, 8.06 mln (Table 2). Since 1991 the population of eastern Russia has started to reduce steadily; migration flows have transformed from a factor of population growth in the Eastern part of Russia into a factor of its reduction. These processes were caused by several reasons [3, 8], among other things by the closure of numerous enterprises (mainly connected with natural resource extraction and processing) due to their unprofitability under new conditions of the market economy. Outflow was the most massive in the period of economic crisis in the 1990s. In 1989–1998 979000 people left Russia's eastern part (Table 1). The population decline was much higher in the north; in the north of Eastern Siberia, it numbered 14.6% against 1.6% in the south; in the Far East, 19.2% in the north against 4.7% in the south [3].

Natural decrease has also made a contribution to the depopulation of Russia's eastern part in the post-Soviet period, although it was significantly lower than the average in Russia due to the younger age structure of population [3, 20]. At the same time, the Republics of Tyva and Yakutia, Chukotka, as well as former Taimyr, Evenki, Ust'-Orda, and Agin-Buryat autonomous okrugs were characterized by a natural increase over the entire post-Soviet period due to traditionally higher birth rates among indigenous people of the North.

Thus, the above-mentioned combination of outflow and natural decrease (with some exceptions) led to a steady population decline in most regions in Russia's East in the post-Soviet period. Generally, in 1990–2010 the population of Russia's eastern part decreased by 2.7 mln people (Table 2).

The sociodemographic development of Eastern Siberia and the Far East and their individual regions in the post-Soviet period had some differences. In 1990–2010 the population of the Far East reduced by 21.9%; it is 1.9 times more than in Eastern Siberia (Table 2). Northeastern Russia was particularly remarkable: Chukotka Autonomous Okrug lost 68.4% of its population; Magadan oblast, 59.3%; Kamchatka krai, 33.0% (hereafter the population change is calculated on the basis of [11, 14]).

Among the regions of Eastern Siberia, the largest population decline happened in Zabaykalsky krai 16.1%), Irkutsk oblast (13.2%), and Krasnoyarsk krai (10.7%) (mostly at the expense of Taimyr (Dolgano–Nenets) and Evenki autonomous okrugs at rates of 23.5 and 41.6% from 1990 until 2006, respectively) [20]. The Republic of Tyva is the only federal subject

Table 2. Population change in the economic areas of Russia's eastern part compared to the RF level (1990–2010)

Macroregion	Population, mln people		Population change, 1990–2010, thous people	Population change, 1990–2010, %
	1990	2010		
Eastern Siberia	9.207	8.175	–1.032	–11.2
Far East	8.064	6.299	– 1.765	–21.9
Russia's eastern part	17.271	14.474	–2.797	–16.2
Russian Federation	148.274	142.938	–5.336	–3.6

Source: Calculated by [11, 14].

in its eastern part where the population has grown (by 3000 people) due to the predominant influence of natural increase over outflow. For the same reason, the population of former Ust'–Orda Autonomous Okrug in Irkutsk oblast and Agin-Buryat Autonomous Okrug in Zabaykalsky krai increased in 1990–2006 by 4.6 and 4.2%, respectively [20].

In the course of the field research, the differences between local areas with predominantly indigenous and predominantly Russian population were studied. The former increased or slightly decreased due to natural growth and absence (or low intensity) of outflow due to the predominance of more stable traditional activities on the basis of renewable natural resources. The population of those settlements where Russia population prevailed (mainly involved in mineral resource extraction and processing in the Soviet period) has decreased significantly (many of them were completely liquidated) because of putflow and natural decline. The differences in the transformation between settlements with predominantly indigenous and predominantly Russian population are most evident in Chukotka Autonomous Okrug: while the former mainly remain and only have a slightly decreased population, the latter were liquidated or depopulated significantly [18].

Thus, the general tendencies in the population dynamics are clearly observed at the level of macroregions and federal subjects, and the differences become most apparent at local level. The peculiarities of the population dynamics (and settlement dynamics) are determined by various social processes and problems, which are considered in the article for the local level.

SOCIAL CONSEQUENCES OF THE TRANSFORMATION OF TERRITORIAL–INDUSTRIAL STRUCTURAL ELEMENTS OF NATURAL RESOURCE UTILIZATION AT THE LOCAL LEVEL

The influence of the transformation process of natural resource utilization[1] on the sociodemographic situation in local areas, discovered in the course of expeditionary studies, has shown that social consequences to a large extent depend on the differences in the nature of structural changes. They are represented by several types and subtypes of transformation of territorial–industrial structure elements[2] of natural resource utilization [6]. This article describes in more detail the results of a study of the social consequences of two types, i.e., the total disappearance of territorial structure elements of natural resource utilization and the emergence of new elements.

Total Disappearance of Elements

After closing down enterprises, engaged in resource utilization, the situation developed according to two main scenarios: (1) closure of enterprises without the transfer of the local population which means the adaptation of the local population to new conditions; (2) closure of enterprises with the transfer of the population which means liquidation of settlements.

Settlements that were not liquidated after the closure of enterprises (the first scenario) are located either in the south of eastern Russia (far from the northern region and adjacent localities) or have a status of a district or regional center within the boundaries of both northern and southern regions. The situation developed according to the first scenario after the liquidation as a result of the bankruptcy of Dzhidinskii vol'framovo-molibdenovyi kombinat (Dzhida tungsten–molybdenum plant) in Zakamensk, Buryatia, in 1997. The enterprise, which existed since 1934, ranked number two in the Soviet Union (after Tyrnyauzskii kombinat in Kabardino-Balkaria) in tungsten extraction, was among the 100 most important industrial plants in the Soviet Union. The plant was town-forming and supported the social area; it had auxiliary plants and a subsidiary plot. Due to the particular importance of the plant in the Soviet period in Zakamensk, a boundary regime was established and special "Moscow" supplies with foodstuffs and consumer goods were delivered. According to the district administration data, in 1990 the plant had about 3800 workers (including mines and the social area) and the town population was 15800 people.

Since 1992, by reasons of a decline in the production of tungsten concentrate, the employment level started to decrease. Due to the absence of living means, people moved out, usually leaving behind their houses which were unsalable. The flowing out highly skilled workers were able to get jobs in gold mines and diamond enterprises in Yakutia, as well as in Norilsk, Neryungri, and other relatively successful enterprises of the time. Those who stayed did not work (were registered as unemployed) or moved out for temporary work. Net inflow in the town and district in 1992 (up to 1999) was replaced by outflow, which reached its maximum in 1996. According to local experts' estimates, the most difficult period lasted for 3–5 years (1993–1998). Poverty and absence of employment opportunities forced the local population to mine illegally, extract tungsten, and sell metal to assemblers.

In the second half of the 1990s, jobs started to appear in the town and district in small new enterprises engaged in resource utilization, mainly associated with gold mining and timber harvesting. According to official statistics, the population of Zakamensk

[1] We render the transformation of natural resource utilization as transformation of elements of the territorial–industrial structure at the local level, reflected in the interaction dynamics between resource utilization and natural and socioeconomic factors.

[2] Elements of the territorial–industrial structure of natural resource utilization are enterprises, firms, and companies of all forms of ownership, the activities of which are based on natural resource utilization.

Fig. 1. Liquidated urban-type settlement Iul'tin (Chukotka Autonomous Okrug) after the closure of Iul'tinskii GOK in 1994 (the photo was given by the staff of the Local History Museum of Urban-Type Settlement Egvekinot in 2007).

started to reduce in 1994, attained a minimum of 12700 people in 2002, and then stabilized and started to grow gradually. A positive role was also played by the inflow of rural Buryat population in the town, who were attracted by employment opportunities in the district center with its typical set of budget organizations.

The situation developed similarly in the urban-type settlement of Khovu-Aksy (the Republic of Tyva) after the closure of the Tuvakobal't enterprise. As a consequence of the liquidation of the enterprise, the outflow of non-indigeneous population began. Nevertheless, the township managed to survive owing to the emergence of new small hunting, fishing, and timber enterprises, as well as to the inflow of Tuvan population from villages after the establishment in 1994 of the Chedi-Khol'skii district with the center in the urban settlement of Khovu-Aksy. The rural population in the area of the Chedi-Khol'skii district in the period from 1991 to 1995 reduced from 4500 to 3500 people, then stabilized, and increased to 3800 people by 2008.

The settlements liquidated after the closure of enterprises (the second scenario) were also mainly multiindustry but did not have the status of regional centers. They are located in regions of the Far North and adjacent localities; earlier they were mainly inhabited by Russian population, engaged in the extraction or processing of natural resources. So, the closure of goldmining enterprises caused the liquidation of settlements in Magadan oblast, Chukotka Autonomous Okrug, Oimyakon ulus, and uluses located in the northeastern part of the Republic of Sakha (Yakutia). In the Aldan district of Yakutia, after the closure of the Aldanslyuda enterprise, the townships of Snezhnyi, Kankunskii, Katalakh, and Bezymyannyi were liquidated; after the closure of an enterprise for uranium ore mine building, the township of Zarechnyi was also liquidated.

Numerous uninhabited completely or partially neglected settlements in Chukotka are the consequence of closing enterprises engaged in the extraction of commercial minerals and the massive outflow of non-indigeneous population in the 1990s. For example, after closing Iul'tinskii GOK in 1994 and its auxiliary enterprises, the urban-type settlements of Iul'tin (Fig. 1), Svetlyi, Geologicheskii, and Vostochnyi were liquidated. In the course of an expeditionary research in 2007 and with the use of a cartographic method, it was possible to find 14 liquidated and uninhabited settlements in the Bilibino district, 6 in the Chaunskii district, 4 (the above-mentioned) in the Iul'tinsk district, 3 in the Anadyr' district, and 1 in the Provideniya district [18].

It is important to note that the closure of most enterprises in the 1990s was not accompanied by measures for ecological remediation, usually due to the legal and organizational confusion at the time and collective irresponsibility. The law of 1991 on Ecological Protection tells us nothing about an enterprise's liability for natural landscape recovery at the postoperational stage of deposit development. That is why the local population faced serious ecological problems in places where enterprises were liquidated. For example, the waste of Dzhidai tungsten–molybdenum plant, i.e., radioactive sands, located in close proximity to the town (Figs. 2, 3) pose a hazard to life and the

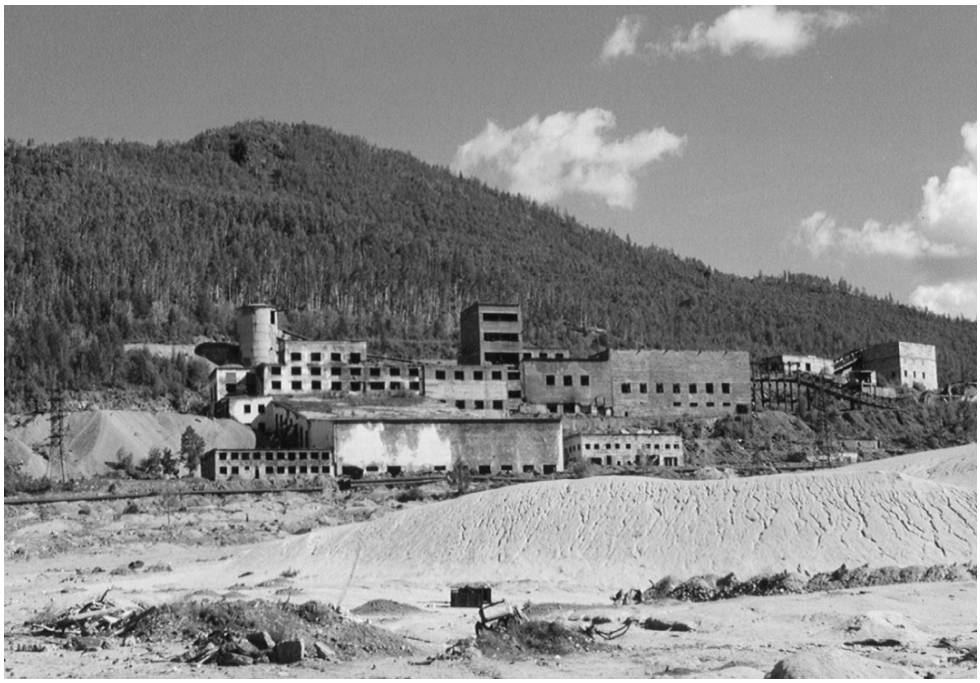

Fig. 2.

Fig. 3.
Waste of the Dzhidinskii tungsten–molybdenum plant liquidated in 1997 (Republic of Buryatia), located in close proximity to the town of Zakamensk (August, 2003).

health of people. Radioactive elements, together with precipitation, penetrate into soil and ground water, where their concentrations exceed significantly the maximum permissible level. In Khovu-Aksy there is an acute problem of storage of the waste of liquidated cobalt enterprises (Figs. 4, 5). The toxic waste from

Fig. 4.

Fig. 5.

Figs. 4 and 5. Enterprise Tuvakobal't (Republic of Tyva) liquidated in the early 1990s and its hazardous waste storage facility in the vicinity of the urban-type settlement of Khovu-Aksy (August, 2009).

cobalt extraction penetrates into rivers, where its concentration (including arsenic) multifold exceeds the maximum permissible limit. A matter of big concern for the local population and the administration of the Aldan district, Yakutia, is cyanides in the waste of liquidated Lebedinskaya Gold Concentration Fabric [19].

Fig. 6. Temporary working settlement of the Selegdar team of prospectors for rotational workers of the Samolazovskii, Garbuzovskii, and Mezhsopochnyi mines (Aldan district, Republic of Sakha, August 2005).

It is not possible to say that regional and local authorities underestimated the risk associated with the ecological consequences of the enterprises, liquidated in the 1990s. For many years, the administration of the Zakamensk district tried with no success to get funds from the federal budget for the implementation of a program for the ecological recovery of the territory of its district center, i.e, the town of Zakamensk. The administration of the Aldan district tried with no success to force the Aldanzoloto company to finance measures for the prevention of cyanide penetration into surface water. The small amount of money from the republican budget, allocated for these purposes in 2004, was obviously insufficient. The efforts of the Republic of Tyva to get funds from the federal budget for the strengthening of the cobalt toxic waste repository also had no success. Generally, the negative experience of the 1990s indicates the collective irresponsibility related to the long-term consequences of closing enterprises engaged in resource utilization.

The situation has changed after the adoption of the new federal law On Ecological Protection (2002), according to which (article 39) measures for ecological recovery have to be elaborated and implemented in the case of closure of buildings, facilities, structures, and other objects [13]. Expeditionary research has shown that the enterprises, closed after 2003, were liquidated in full compliance with the Russian ecological laws. Such examples in Yakutia are soil recultivation after the completion of gold mining, implemented by the Selegdar team of prospectors in the Aldan district; measures for ecological recovery, taken by a gas-producing enterprise in Kobyaiskii ulus after its closure in 2004 due to the depletion of the Ust'–Vilyuiskoe deposit; and the soil recultivation in abandoned places of the Neryungrinskii coalpit, implemented by OAO KhK Yakutugol' since 2006.

SOCIAL CONSEQUENCES OF NEWLY EMERGED TERRITORIAL–INDUSTRIAL STRUCTURE ELEMENTS OF NATURAL RESOURCE UTILIZATION

The emergence of new elements has positive social consequences, such as growth in employment and population income. A peculiarity of the post-Soviet period was the fact that the emergence of new natural resource development points was not accompanied by the appearance of new settlements. For the period of extraction and primary processing of a natural resource, temporary working settlements, i.e., communities for labor migrants mainly working on a rotational basis, were created. Large-scale research in the Aldan district of Yakutia in August 2005 found out that the Selegdar team of prospectors is an important taxpayer in the district. Its new gold-mining places (the Samolazovskii, Garbuzovskii, and Mezhsopochnyi mines) guaranteed relatively high-paid work positions for 550 people. In the Samolazovskii (extraction since 1999) and Garbuzovskii (since 2005) mines employed 220 people, 40% of who were from the Aldan district. Gold mining was carried out from May to December; the rotation system prevailed. The workers lived in temporary working settlements near the mines (Fig. 4). It was a little more than ten new wooden houses where office premises, a canteen, living rooms, and sporting and cultural premises were located.

Table 3. Share of payments by companies, engaged in natural resource utilization, in the budget revenues of RF subjects (2004)

RF subject	Company) which is the main source of payments into the budget of federal subject	Share of payments into the budget of federal subject, %
Republic of Khakasia	Sayanogorskii Alyuminievyi Zavod (RUSAL)	47
Taimyr (Dolgano–Nenets) Autonomous Okrug	Transpolar branch of OAO Gorno-Metallurgicheskaya Kompaniya Noril'skii Nikel	60 (2003–93%)
Krasnoyarsk krai	Transpolar branch of OAO Gorno-Metallurgicheskaya Kompaniya Noril'skii Nikel	50
Republic of Sakha (Yakutia)	AK ALROSA	70

Source: Interviews with representatives of the government of the Republic of Khakasia (January 2005); government of Taimyr (Dolgano–Nenets) Autonomous Okrug (February 2005); government of the Republic of Sakha (August 2005); and the Transpolar branch of OAO Gorno-Metallurgicheskaya Kompaniya Noril'skii Nikel in Norilsk, Krasnoyarsk krai (February 2005).

An expeditionary research in Chukotka in August 2007 found out that temporary working settlements sometimes appeared near neglected townships due to the impossibility of their recovery [17]. In the period of economic growth (from the end of the 1990s up to the global financial crisis in October 2008), due to new projects for natural resource development, the number of temporary settlements in eastern Russia increased.

A well-known example of the emergence of new elements of the territorial–industrial structure of natural resource utilization based on export is gas and oil resource development in the Sea of Okhotsk shelf area near Sakhalin Island. Projects for the development of Sakhalin energy resources belong to the most successful ones in the financial and economic sense in post-Soviet Russia. Nevertheless, along with the significant income, derived by the federal budget owing to the development of the Sakhalin Island shelf, emergence of new highly paid work positions, and the development of regional and local infrastructure, serious social and ecological problems arise. They were widely discussed in government bodies of various levels, by representatives of the scientific community, nongovernmental ecological organizations, and the local population. Sakhalin projects constitute a threat to the fishing industry and endanger the marine ecosystem of the Sea of Okhotsk. The local population (especially aboriginal minorities) of the Nogliki district consider oil extraction both with hope and trepidation; they see new employment opportunities, but at the same time fear ecological disasters in places of traditional subsistence activities, breakdown of the fishing industry and deer pastures, and the destruction of the traditional culture [16, 21]. Social consequences appear because Sakhalin shelf resources are in federal, but not regional or, moreover, municipal, ownership. The Nogliki district does not get any tax revenues or payments from the utilization of shelf oil and gas resources, although these deposits are located in close proximity to the district area and their development can damage the local fish industry. The given examples show the low efficiency of the methods used to manage the ecological and social consequences of these projects.

Summarizing the study results of the social consequences under the conditions of various transformation types of the territorial–industrial structure elements of natural resource utilization, the following conclusions can be made. A decline in an element's size or its total disappearance causes a population employment reduction and unemployment growth. It causes a constrained migration outflow of population, particularly among people of the employable age; as a result, the population age structure changes in favor of elderly people, and the population of settlements decrease up to their total liquidation. Social expenses from a local budget decrease or completely cease due to a reduction or cessation of tax and other payments of an enterprise. The social support of the local population by the enterprise also ceases. All this causes negative consequences, such as poverty, deviant behavior of people, illegal business as a form of population self-adaptation, etc. At the same time, ecological conditions improve due to the manmade load decrease, although ecological problems remain, if the enterprise liquidation was carried out without measures for the restoration of the natural environment.

An increase in the size of a territorial–industrial structure element of natural resource utilization and the emergence of a new element provide employment growth and an increase in the population's standard of living. The process can be accompanied by labor migration and the appearance of temporary settlements. Municipal budget expenses for the social development of the area increase due to the growth in budget revenues based on tax and other payments of the enterprise. An increase in the enterprise's profit due to the growth in the physical volumes of production enables it to spend some funds for projects of social support of the local population. At the same time, such transformation types of the territorial–industrial structure of natural resource utilization can deteriorate ecological conditions, if the anthropogenic impact rises. Various social and ecological conflicts and conflicts of industrial resource utilization with traditional activities, as well as with the culture of indigenous people, are possible.

Table 4. Share of payments by enterprises, using nonrenewable natural resources, into municipal budgets (%)

Municipal unit	Enterprise which is the main source of payments into the municipal budget	Year	Share of payments into the municipal budget, %	Endowment of an enterprise with nonrenewable natural resources (years)
Town of Neryungri, Republic of Sakha (Yakutia)	OAO KhK Yakutugol'	2007, 2008	26	15–30
Nizhneilimsk district, Irkutsk oblast	OAO Korshunovskii GOK (Stal'naya gruppa Mechel)	2004	60	15
Town of Sorsk, Republic of Khakasia	OOO Sorskii GOK (UK Soyuzmetallresurs)	2004	50	30
Mirnyi district, Republic of Sakha (Yakutia)	Mirninskii GOK (AK ALROSA)	2004	60	40
Town of Noril'sk, Krasnoyarsk krai	Transpolar branch of OAO Gorno-Metallurgicheskaya Kompaniya Noril'skii Nikel	2004	80	50
		2003	97.6	

Source: Interviews with representatives of the administrations of the Nizhneilimsk district, Irkutsk oblast (August 2004); Sorsk, Republic of Khakasia (January 2005); Norilsk, Krasnoyarsk krai (February 2005); Mirninskii district, Republic of Sakha (August 2005); and Neryungri, Republic of Sakha (August 2010).

Various transformation types of a territorial–industrial structure element of resource utilization aimed at export and attraction of foreign tourists are accompanied by the emergence of highly paid work positions and an inflow of highly skilled labor force. Nevertheless, at the same time, the appreciation of goods and services and the increasing imbalance between the rich and the poor, i.e., aggravation of the inequality problem and discontent of the local population regarding the use of national wealth for the satisfaction of strangers' needs, are also possible. At the same time, weighty tax and other payments of export-oriented companies or enterprises (usually with larger profits compared to domestically oriented companies) provide growth in local authorities' expenses for the social development of the area. Most often, export-oriented companies or enterprises have programs for the support of the local population and spend some funds for their implementation.

Thus, each transformation type is accompanied by both positive and negative social consequences, but, at the same time, the necessity to mitigate some negative effects always arises.

MEANING OF PAYMENTS IN RESOURCES UTILIZATION AND MECHANISMS OF ITS INFLUENCE ON THE SOCIAL DEVELOPMENT OF LOCAL AREAS

The prevention and mitigation of the negative consequences produced by resources utilization become particularly important in eastern areas of Russia. It is connected with the high dependence of the socioeconomic development of their territories on payments into regional and municipal budgets on the part of enterprises and companies, functioning on the basis of natural resource utilization (Tables 3, 4). Representatives of the administration of the Nizhneilimsk district, Irkutsk oblast, noted in an interview (August 2004) that in the mid-1990s, when Korshunovskii GOK (Korshunovskii Mining and Processing Complex) functioned without profit and had no capability to pay taxes, no social development plans were implemented in the district.

The population of eastern areas depends heavily on enterprises engaged in resource utilization, and all main enterprises use exhaustible natural resources. In this case the following questions are pertinent: what will happen with the area and its population after the closure of an enterprise due to resource depletion or by other reasons? What are the mitigation mechanisms of the negative social effects of resource utilization? Who (federal, regional, and municipal authorities or an enterprise) is in charge of all negative social consequences of resources utilization, especially long-term ones?

Searching for an answer to the posed questions is based on the study of the mechanisms through which resources utilization has an influence on the social development of local areas. Interviews with representatives of regional and municipal authorities and company managers in the course of the expeditionary research have shown that several such mechanisms come to the fore. One of them is the contractual relations between an enterprise (company) and municipal or regional authorities related to social assistance by the enterprise or to measures for the social development of the area of its location. Enterprises support local authorities both on the basis of officially signed agreements and contracts and without them. For example, Sayanogorskii Alyuminievyi Zavod (Aluminium Plant of Sayanogorsk; RUSAL) has an agreement with the municipal district Town of Sayanogorsk

and cooperation contracts related to certain purposes. The plant has constructed at its own expense a sports center for the town's population and, together with the town, takes part in children's summer recreation programs.

The municipal district Town of Sorsk has an agreement and contracts with Sorskii GOK for heat supplies to the settlement. The administration of the Nizhneilimsk district of Irkutsk oblast has partnership agreements with each enterprise, where there is a plan of support to local authorities on the part of an enterprise. It offers enterprises an opportunity to legally spend certain funds for the area's social needs. Such a close dialog between business and local authorities enabled the preservation and support of municipal educational, healthcare, and sports facilities. It had a particular importance for company towns, for which a widespread transfer of social and cultural, as well as housing and communal, facilities in the municipal asset list was a deadlift.

According to the administration of the town of Dal'nogorsk, the GMK Dal'polimetall and GKhK Bor companies help to support the social infrastructure, although the scope of this participation cannot be compared with the Soviet period. For example, both companies take an active part in the repair of social and cultural facilities and execution of town and professional celebrations.

In order to prevent the negative attitude of the local population to the development of shelf energy resources of Sakhalin Island, the Sakhalin Energy company has been implementing the "Sakhalin Indigenous Minorities Development Plan" since 2006 [9]. The resources allocated by the company for programs supporting indigenous people exceed considerably the expenses of the Sakhalin oblast administration for these purposes [19]. Thus, the cooperation between authorities and enterprises, engaged in resource utilization, provides the joint resolution of social problems and the social development of areas.

Another important mechanism of influence of resource utilization on an area's social development is the legislated social responsibility of enterprises to their employees. In the opinion of representatives of the legal department of OAO Korshunovskii GOK, the social responsibility of an enterprise to its staff is prescribed by a collective bargaining agreement, Federal Law on Insolvency (Bankruptcy), and the Labor Code of the Russian Federation [12]. A company's responsibility to its employees within a maximum of six months after its liquidation or closure (or after staff reductions) is enshrined in law. Nevertheless, there is no answer regarding who (an enterprise or local, regional, or federal authorities) is in charge of long-term negative social consequences.

TAX MECHANISMS OF INFLUENCE OF RESOURCES UTILIZATION ON AN AREA'S SOCIAL DEVELOPMENT

In order to find out how by virtue of tax mechanisms resources utilization provides the social development of specific territories in relation to several enterprises, the allocation of all taxes and charges in the budgets of various levels, i.e., federal, regional (the budget of a subject of the Russian Federation), and local (municipal), were studied (Table 5). It was found that the largest part of allocations goes into the federal and regional budgets; the least part, into municipal ones.

The analysis has shown that the tax mechanism provides no direct relationship between natural resource utilization and the social development of the territory where certain natural resources are located. The obvious fact that enterprises, engaged in resource utilization, first of all, pollute the environment of the

Table 5. Assessment of all taxes and charges paid into budgets of various levels by recourse-utilizing enterprises

Enterprise	Year	Budgetary allocations (%):			
		Federal	Regional	Municipal	Nonbudgetary funds
OAO GMK Dal'polimetall (the town of Dal'negorsk, Primorskii krai)	2007	26	37	9	28
Mirninskii GOK, AK ALROSA (the Mirnyi district, Republic of Sakha (Yakutia))	2004	7	69	4	20
OOO Zakamensk (Zakamensk district, Republic of Buryatia)	2003	14	23	14	49
OAO Korshunovskii GOK (Nizhneilimsk district, Irkutsk oblast)	2003	36	18	24	22

Source: Interviews with representatives of OAO GMK Dal'polimetall, Dal'negorrsk, Primorskii krai (September 2008); AK ALROSA, Mirnyi, Republic of Sakha (August 2005); OOO Zakamensk, Zakamensk, Republic of Buryatia (August 2004); and OAO Korshunovskii GOK, Zheleznogorsk–Ilimskii, Irkutsk oblast (August 2004).

local areas where they are situated and should pay for it, in the first place, to the municipal budget, is neglected. The local population demands to solve vital ecological problems from company managers and local authorities, but not from regional or, even more so, federal authorities.

Poor revenues from resource utilization into municipal budgets caused another problem: municipal expenses for the ecological protection and solution of ecological problems are also very scarce or are completely absent. For example, according to the data of representatives of the administration of the Dal'nogorsk urban district, Primorskii krai, very insignificant ecological expenses are only directed to solid domestic waste treatment. In this regard, ecological problems, such as a high lead concentration in soil, excess of the maximum acceptable lead concentration in children's blood, and the pronounced tendency towards growth in mortality from malignancies, mostly associated with the activities of OJSC GMK Dal'polimetall and its predecessor companies, remain unresolved. Neither federal, regional, or local authorities nor the enterprise itself are solving these problems that have been accumulated over decades.

Thus, the tax mechanisms existing in the country do not promote the social development of local areas that specialize in natural resource utilization.

CONCLUSIONS

Expeditionary studies have disclosed that transformation types, such as the total disappearance of territorial–industrial structure elements of natural resource utilization and a reduction in these elements in eastern regions have very serious and long-term social and ecological consequences. The main explanation is the severe climatic conditions of most areas, their remoteness, and the peripheral location in the socioeconomic space. Many problems, connected with the closure of enterprises in 1990, have not been resolved yet, and they require the coordination of actions of federal, regional, and local authorities, as well as the participation of international ecological funds.

In the post-Soviet period, especially in the years of economic growth, resource utilization provided the country's socioeconomic development and ensured business success in regard to the extraction and processing of natural resources. Nevertheless, at the same time, a process of decay, hopelessness, and poverty in territories that only specialize in natural resources utilization can be observed. The discontent of people who live near places rich in resources but remain poor and deprived and try with no luck to solve an array of social and ecological problems through local authorities seems to be reasonable.

The main problem of the post-Soviet period, especially at the local level, that was detected in the course of the expeditionary research is the absence or weakness of the existing mechanisms for the mitigation of the social and ecological consequences of transformation of resource utilization. The existing tax and other mechanisms slightly promote the social and ecological development of areas rich in natural resources.

The conducted studies have revealed a necessity for the further extension of knowledge concerning the social consequences of transformations in natural resource utilization management. The results of such studies, as well as the positive experience of foreign countries, should become the basis for the development of scientifically substantiated mechanisms for the mitigation of the negative effects of resource utilization, taking into account the natural, ethnic, and other features of local areas. The development of an early warning system, related to the long-term negative consequences of resource utilization, as early as its initial stage is important.

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