

# TRADITIONAL AND TECHNOLOGICAL RESOURCE USE IN CHANGING SOCIETIES

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Until recently the principal and frequently the only arguments advanced in favor of regulating resource use were the need to preserve the quality of the environment and to enhance the economic and resource efficiency of industry. However, recent years have seen the appearance of a new, social aspect of these problems, namely the preservation and development of the indigenous ethnic minorities of Russia. In the broader sense this social aspect of resource use involves the coexistence and interaction of traditional and technological resource use at the regional and federal levels. The contradiction between these two types of resource use is most acute in societies undergoing a process of change, where the situation is exacerbated not only by the general social crisis, but, at times, by ethnic conflicts as well.

Chukotka is one of the most remote, sparsely populated and economically underdeveloped regions of the Russian Federation. Its specific geographic location, at the junction between the Arctic and the Pacific Oceans, accounts for the extremely severe climate and is conducive to the occurrence of permafrost tundra and forest-tundra landscapes which are highly vulnerable to technological impacts.

Chukotka is rich in diverse natural resources. They include, first, non-ferrous and precious metals, oil, gas, sea and river industrial fish resources. No less valuable are territorial resources characterized by well preserved wildlife and by the rich spiritual and material cultures of the Chukotka indigenous peoples.

Of the 120,000 inhabitants of the Chukchi Autonomous Area (*Okrug*) living in the territory of just over 730,000 square kilometers, about 17,000 belong to the indigenous nationalities. The indigenous minorities of Chukotka include Chukchi (68%), Evens (8.5%), Eskimo (8.3%), Chuvan (5.4%) and Yukagirs (1%) (Pilyasov 1992a). They mostly live in native villages and 'old' settlements (65-95% of the population), while a smaller number (5-0.5%) live in towns and urban settlements.

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The ethnic composition of the newcomers is dominated by Slavs, i.e. Russians (78.6%) and Ukrainians (19.8%). The specific feature of the immigrant population is their age structure: over 65% of them are of working age.

The economy of Chukotka is based on primary resource utilization. The processing industry, surface transport and the power generation industry exist mainly to serve local needs. Almost all food and household items have to be imported. The main exports are gold, silver, platinoids, tin and wolfram concentrate, coal, fish, caviar, rawhide and leather products, endocrine enzymes and souvenirs.

More than 93% of the commercial output of Chukotka is produced by the mining industry. It is represented by two coal mines, six ore concentration plants and many prospector cooperatives. The mining enterprises process 120-140 million cubic meters of rock annually. In recent years the role of gold mining enterprises has increased dramatically in the *Okrug*. About 90% of the metal extracted comes from the Shmidtovsky, Chaunsky and Bilibinsky Districts (*Raions*) of Chukotka. The future development of the industry depends on bringing into production the Karal'veem, Valunistoe and Maiskoe gold ore deposits using workshift methods. The industry employs mainly immigrant labor living in 'new towns' and industrial settlements, as well as seasonal workers arriving from the central regions of the country in summer.

Potential oil and gas production figures prominently in the socio-economic development programs for Chukotka. At present consideration is being given to starting up production at the proven oil and gas fields of the Anadyr basin (the Anadyr lowlands), and exploring and developing the deposits of the Khatyr basin (the coastal part of the Beringovsky *Raion*).

The economies engaged in by the indigenous population of Chukotka include reindeer herding, fishing and sea mammal hunting. The total reindeer population in Chukotka in the early 1990s was about 400,000, or 20% of the total in the Russian North. The highly productive grazing grounds located at the junction of the Bilibinsky, Anadyrsky and Chaunsky *Raions* of Chukotka can feed about 600,000 reindeer. The annual kill was about 100,000 head, with almost an equal number lost and deceased. Apart from meat, the most important reindeer product is *panty* (reindeer horns) used as raw material for the production of biostimulants and biologically active substances.

The principal target of the fishing industry is salmonids in the Bering Sea basin, which are caught in the estuaries and lower reaches of the major rivers and in lakes. Salmonid sea fishing is also growing. The most important fishery in Chukotka is in the basin of the largest river, the Anadyr. The annual catch of salmon ranges from 1,500 to 5,000 tons, of which over 80% is processed at a factory located in the city of Anadyr. The stock of freshwater commercial species - Achir' (*Coregonus nasus*),

whitefish, grayling - are also concentrated mainly in the Anadyr basin. The total annual catch of those species is 170-260 tons, and the limit of the basin is estimated at 500-700 tons (Kotov *et al.* 1995). The catch of the fishing cooperatives in the native villages accounts for not much more than a hundred tons per year. Village processing facilities where the fish is cut and salted for local needs operate only for two or three months a year.

Sea mammal hunting is the oldest economic activity in Chukotka. The annual catch quota is 1-3 Greenland Whales, 150-165 gray whales, some 3,000 walruses, 2,000 square flipper seals and 8,000 small seals (Kotov *et al.* 1995). The annual haul of sea mammal meat is comparable with the total output of the reindeer industry. The produce is used to feed the native population and as feed for caged fur-bearing animals. The main resource derived from sea mammals apart from meat is raw material for the production of endocrine enzymes, a process which has not yet been mastered. Marine mammal hunting teams are concentrated in the coastal native villages of the Chukotsky, Providensky, Iul'tinsky and Beringovsky *Raions* of Chukotka.

The modern history of the Chukchi Autonomous *Okrug* reflects the coexistence of the technological and traditional resource use in the Arctic and Sub-Arctic regions. The active immigration of Slavic population to Chukotka occurred during the Soviet period of the territory's development, i.e. in the middle of the current century. From 1939 to 1959 the proportion of immigrants in the total population rose from 25% to 75% while the total population increased by less than 100%. The later periods up to 1980 saw a continued growth of the immigrant proportion of the population from 75% to 85%. This occurred against the background of a zero increase in the indigenous population and a rather sharp increase in the total population, mainly because of the immigrant influx. From the early 1990s one can observe a decline in the total Chukotka population caused by outmigration, and a simultaneous increase in the proportion of the Chukotka indigenous population. Recently the total population of the *okrug* has stabilized at 100-110,000, with a small rate of increase in the indigenous population.

Thus in this century the most serious demographic crisis of the indigenous population of Chukotka occurred during the period 1940 to 1960, characterized by zero growth in the local population against the background of a sharp increase in the number of immigrants. The reasons for that crisis were a 'flu epidemic in 1942-1945, unfavorable weather conditions (frequent ground icing), and mobilization during the war (Pilyasov 1992b). It was during the same period that Soviet power became established in Chukotka: private farms were transformed into collectives, the nomadic lifestyle gave way to settled, and political repression took place. Those changes in the lifestyle of the indigenous peoples of the North caused epidemics, famine and a

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reduction in the resources of traditional nature-based occupations, characterized by overgrazing of pastures, and a decline in the sea mammal stock.

Coexistence of the traditional and technological civilizations in Chukotka is also illustrated by the reindeer population dynamics. Declines in the reindeer populations occurred in the 1930s, the 1950s and the 1990s. In the first case we can observe the two stages of collectivization during which 30% and 90% respectively of collective farms were set up (Garusov 1981). The subsequent periods of decline in the reindeer population coincide respectively with the period of the transformation of the collective reindeer-herding farms into state farms at the end of the 1970s, and the breaking up of the state farms into private farms during the period of *perestroika*.

It is interesting to compare the processes described above with gold production dynamics. The formation and expansion of the gold mining industry in Chukotka coincides in direction and scale with the growth in the reindeer population in 1960-1980. The industry peak corresponds with the maximum reindeer population in Chukotka (550-600,000), and the amount of gold mined during this period (37 tons) accounts for the lion's share of growth in the country's foreign currency reserves. Starting from the eighties there has been a virtually parallel decline in the output of the typically technology-based and traditional branches of economy. That decline continues to this day, with both reindeer population and gold production far from stabilization.

The analysis of the fishing industry dynamics is also very difficult. This is related to natural big fluctuations in the numbers of diadromous salmon species. The sharp rise in fishing activities during the 1940s might have been due to wartime orders, to the settling of the nomadic indigenous population, and to a crisis in reindeer herding. The overcatch resulted in the deep decline in the Anadyr salmon stocks which became evident during the 1950s. The two other less extreme but long periods of rise in the catch occurred during the 1960s and late 1980s. It is easy to see that the growth in the state farm catch is mostly related to the periods of the decline in the reindeer population and, hence, to the need to replace meat with fish in the diet of the local population.

The comparative analysis of the fishing and coal mining industries in Chukotka does not show any correlation between them. This can be explained by the independence of the coal mining industry which has traditionally been part of the state sector. The increase in coal output between 1960 and 1990 is probably the result of the growth in the total population and of the social infrastructure development in Chukotka.

The results of analysis of the fluctuations in sea mammal hauls are in full accord with the overall picture, although the selection available is insufficiently representative for

detailed analysis. Common to all traditional occupations is their close positive and negative interrelation inside Chukotka, which allows one to view them jointly, as a single mode of traditional resource use common to the whole region. The critical points in the development or, rather, existence of those industries are the periods of change in the social system, and in the way of life. In terms of the whole country, a crisis in Chukotka occurs 10-20 years later than elsewhere and has more serious consequences.

While the relationship between the technological and traditional resource-exploiting industries is not favorable, it is at least not adverse. Periods of increase in the output of these industries coincide with periods of general economic growth in Chukotka. This points to the possibility and attainability of mutually beneficial coexistence between technological and traditional resource use in the Far North. The conflict-free and mutually beneficial cooperation should be based on the redistribution of financial resources between the users of non-renewable mineral resources and renewable biological resources.

But it would be wrong to regard this situation as normal, or as not requiring regulation. Although technology-based production in Chukotka has barely completed its initial phase of development, it has already led to the disturbance of more than 100,000 hectares of permafrost tundra landscapes which is slow to recover. The increase in gold production, expansion of the oil and gas industry and initiation of commercial sea salmon fishing which are expected in Chukotka are bound to result in new environmental and socio-economic conflicts. The primary focus of argument between the technology-based and traditional resource use industries will be territorial resources, i.e. grazing grounds, coastal seas and rivers.

To conclude this analysis of coexistence between traditional and technology-based resource use we shall examine several ways in which they can be regulated by the state to ensure their balanced development.

The priority task is to stabilize the traditional economic sectors and ensure that they enjoy stable growth of output. The importance of this task under modern market conditions is explained not only by the need to achieve economic growth in the Chukchi Autonomous *Okrug*, but also and to a greater degree by the need to increase the proportion of local food products in the diet of the population. The crucial point here is to preserve the material and spiritual Chukchi-Eskimo culture, and hence to preserve the indigenous peoples themselves as *a major resource of the multi-ethnic Russian state*.

One of the solutions may be the essentially market-type price control mechanism used during the Soviet era. For example, in the period from 1930 to 1950 private reindeer

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farms were destroyed by a fall in their produce purchase prices, but later, during the 1960s, collective reindeer farms were supported by an increase in the prices. Fishing, trapping and sea mammal hunting were regulated in a similar manner. Hence under present conditions the policy of providing social and tax privileges and material aid to the indigenous population must be abandoned, and federal and regional financial resources must be concentrated on targeted subsidies for the products of traditional economies, i.e. reindeer meat, fish, and meat and fat of sea mammals. Past experience shows that such actions can ensure economic growth and subsequent subsidy-free development of traditional economies within ten years.

At present the resolution of any problem, be it environmental, social or ethno-cultural, is based on financing. It is especially difficult to raise funds for non-export-oriented industries, including traditional economies. It is not surprising then that the economic growth sectors for Chukotka are mining, oil production and fish processing, which can supplement local budgets and provide credits for traditional industries. So the development of traditional and technological resource use, the conservation of Chukotka's natural resources and the economic growth of the Chukchi Autonomous *Okrug* are all parts of the same problem.

The most important element in resolving this problem is to avoid environmental, social and ethnic conflicts in the future development of the territory. This can be achieved by creating an effective environmental and economic mechanism for regulating resource use which will ensure that any economic decisions relating to the use of territorial natural resources take into account the need to preserve the ethnic composition of the population and the long-term prospects of indigenous peoples' development.

The payments for the use of natural resources should be spent firstly on rehabilitation of damaged lands and, secondly, on developing the traditional forms of natural resources use characteristic of those areas. The very mechanism of payment for the use of natural resources should function to regulate the choice of the most efficient and environmentally safe method of natural resources use instead of taking the form of an 'ecological and social' tax. This would ensure economic growth, social and environmental stability in the territory, and the simultaneous and mutually beneficial development of traditional and technological resource use industries.

Those goals, especially under market conditions, can be achieved only by state legal regulation of the socio-economic development of the territory. In the first place it is necessary to pass at the federal and, later, at the regional level legislation concerning the development of traditional economies and the regulation of natural resources use in the regions of Russia that produce mostly raw materials. Chukotka is one of such regions.

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