

## **Indigenous peoples' control over contemporary challenges of traditional subsistence socio-ecological systems sustainability: The case from the taiga zone of Siberia**

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### **Abstract**

Traditional subsistence socio-ecological systems (TSSESs) based on hunting, gathering and fishing are widely spread all-over the taiga zone of Siberia. Nowadays, they are strongly impacted by several drivers of change, coming from human activities and climate changes with cascading both positive and negative effects on all components of ecosystem functions and services. The effects may influence quality of life of indigenous people and human capacities. Key multi-scale issues and possible ways of their solution are identified in TSSESs of Evenkia municipal district of the Krasnoyarsk region based on scientific research and traditional local knowledge and perceptions integration. Among key issues the degradation of ecosystems heavily impacting local subsistence resources availability (fish and meat for food as well as wild animals' skins for sale) is the most urgent for the indigenous people living on land. Several negative driving forces both socio-economic and natural such as widespread poaching, forest land auctions and increasing annual rent obligations for hunting grounds to the indigenous peoples, imposing limits (quarters) without taking into account real subsistence need of indigenous communities, non-compensated impact of spreading infrastructure and logging on taiga forest ecosystems and hunting grounds, as well as climate changes, are impacting quality of life and human capacities of indigenous people. This analysis of key issues and driving forces leading to them gives us opportunity to propose several ways of such issues solution. The improvement of control and management of TSSESs sustainability with active participation of indigenous people is the principle way for achieving TSSESs resilience and sustainability.

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**Key words:** traditional activities, poaching, logging, sustainability, monitoring, indigenous people participation

**Abbreviations:** CSR – Corporate Social Responsibility, IPRN – Indigenous Peoples of the Russian North, TSSESs – Traditional Subsistence Socio-Ecological Systems, RAIPON – the Russian Association of the Indigenous Peoples of the North

## Introduction

The paper evaluates the importance of the traditional subsistence socio-ecological systems (TSSESs) investigation and continuous socially-oriented monitoring involving broad participation of local people with their knowledge and perceptions of contemporary issues and ways of their solution. The background of such research was laid in 2003 when scientists were asked by the Russian Association of the Indigenous Peoples of the North (RAIPON) to help in the implementation of the UNEP/GRID-Arendal project “Local health and environment reporting by the Arctic indigenous peoples”. Within this project the structured interviewing was conducted in several Siberian taiga zone settlements where indigenous small-numbered people (less than 50 thousand persons) also usually called in official documents as Indigenous Peoples of the Russian North (IPRN) live. Among urgent issues the IPRN of the taiga zone underlined such as: improper policy and management; disobey of laws; the lack of public awareness; weak IPRN participation in decision-making; inappropriate local administration control (especially of poaching, and industrial companies activities), *etc.* According to this interviewing, the IPRN consider poachers and after them the natural resource extraction companies and the forest managers to present the greatest threats. On the other hand they emphasise the role of the different stakeholders in the protection of the environment: people in the settlement, environmental protection agencies; public organisations, the local administration, the indigenous community region-

al authorities; the federal government; international organisations. The interviewing also tells us about conflict situations arising between different groups of arctic residents. The most frequent for the IPRN are discrepancies with local administration, then - with regional authorities and private companies working at regional or national levels. There were rare conflicts on nature resources use with the federal government. A new kind of conflict started to appear at that time between the IPRN and the wildlife conservation institutions. In many cases IPRN considered, not trusting especially to local administrations, that only they themselves could improve the socio-ecological situation in their settlements. Among essential measures to improve the environmental situation they mention the need to raise the level of environmental education and public awareness and tighten enforcement of environmental laws (Vlasova 2006).

Since 2003 the negative impacts of industry and poaching on socio-ecological systems have increased and discrepancies between the provision of ecosystem services for indigenous peoples traditional way of life, from one side, and the needs for them, from the other side, brought to further escalation of conflicts among indigenous communities, industrial companies, local and regional administration.

These issues and driving forces leading to their appearance are discussed in this paper together with possible directions and ways of their solution.

## Material and Methods

### *The brief description of the case study situation and the region.*

The conflict situation analyzed in this paper took place in 2012 when public organization ARUN announced the fact that the officials of the local government's wildlife conservation and environment control institutions in the Krasnoyarsk region have given the right to use wildlife resources freely to some persons not belonging to the IPRN (81 such persons in the settlement of Baykit in Evenkia only). According to the views of the ARUN, authorities do not want to see difference between hunting for sustaining the traditional way of life and amateur, sports and even commercial hunting or poaching (Kaplin 2017).

It is well known and emphasized in many scientific works that traditional activities and way of life of the IPRN is important not only for their material well-being but provides sustainability to the entire socio-ecological system. This can be said about hunting, reindeer herding, fishing and gathering in Siberia as well as in the European North (Jansson 2015, Medvedkov 2013). The purpose of economic profit, as a rule, is not a key factor. However, products of hunting and gathering are sold to cover costs related to sustaining of traditional activities and way of life, for the formation of financial and material bases for their continuation (Palchin 2014). These people accompany their actions while hunting with norms and rituals. According to the tradition the first caught fish is shared with the elderly, single mothers, disabled and poor relatives.

The public organization ARUN that expressed its concerns over the availability of traditional hunting grounds and wildlife resources unites at the local scale legally established 19 so called "clan" communities to keep up their traditional activities and way of life. These communities have demarcated their clan lands into territories of traditional economic activities with a to-

tal area of 9 million hectares, comprising 13% of the total area of the Evenkiyskiy region (Evenkia), one of the northern municipal regions of the Krasnoyarsk region of the Russian Federation (Kaplin 2017).

In the Krasnoyarsk region the following 6 administrative regions have been identified as the territories of traditional land use and economic activity of the IPRN: Yeniseyskiy, Severo-Yeniseyskiy, Taimyrsky Dolgano-Nenetskiy, Turukhanskiy, Tyukhtetskiy and Evenkiyskiy. The total area of these regions covers 2/3 of the Krasnoyarsk region territory where over 16,000 representatives of 8 IPRN live and lead their traditional way of life (Krasnoyarsk region official portal [2]). Geopolitically, it is necessary to note that both Evenkia and Taimyr in the period of political, economic and administrative transformations in 1993 - 2008 have lost their autonomy in governance and economy.

Within the framework of regional programs financed from the Krasnoyarsk region budget, representatives of the IPRN have to receive some support from the state. However, in accordance with the current legislation, this population category should have a formal status of peoples leading traditional lifestyles and performing traditional activities. Yet there is no adequate legal mechanism to identify and ascribe residents to this status in the Krasnoyarsk region. Besides that, there are no up-to-date statistics (sex and age distribution, employment proportion, *etc.*) on the indigenous minorities. Statistical characteristics of the population are determined mainly according to the national census data (last one in 2012) (Kaplin 2017).

Employment providing salaries in these places of compact IPRN residence does exist mainly within the confines of the public sector: education, culture, health-care and municipal authorities. Thus main

sources of livelihood and welfare of the majority of the indigenous population still remain in the traditional hunting, reindeer herding, fisheries and gathering based on personal or communal self-organization with or without formal registration into business community. Production is based mainly on the exploitation of fur animals (Siberian sable), wild reindeer, elk and aquatic biological resources. There are few attempts to diversify the employment structure for local population developing new economic activities based on modernization of traditional ones such as fur farming, processing wild berries, fish, *etc.*

Annually, 150 - 250 school graduates from indigenous people enter a variety of secondary special and higher educational institutions. After professional qualification they are forced to search work places outside the territories of traditional land use and indigenous economic activity due to the lack of vacancies there. Those young professionals who are returning home and get an employment do not receive any support either at the workplace, or in the bodies of local self-government.

Moreover a decrease of 803 people in 2015-2016 is reported by the Rosstat Statistical data. This happens when natural increase (birthrates exceeding death-rates) was 2071 but outmigration was high and numbered -2874 people. This overall population annual decrease is significant comparing to the small number of population in these Far North areas of the Krasnoyarsk region (amounting only to 443,500 on January 1, 2016). This decrease mainly encompassed rural areas where population shrinks by approximately 600 people annually.

At a scale of the Evenkia administrative region, the attempt to analyze existing so-

cial information on demography, employment and well-being is of primary importance in understanding sustainability of the entire TSSSES and the main factors influencing the analyzed case situation.

Before the merger with Krasnoyarsk region, Evenkia was the smallest entity of the Russian Federation in terms of the number of inhabitants. It has lost more than one-quarter of its population since 1989, causing a shift in the relative ethnic distribution: the share of ethnic Russians dropped to 62%, while the Evenki increased to 21.6% (Petrov 2016).

Despite the huge territory 767,600 sq. km, its population is small, just 15,425 residents in 2016 [1]). It is important to note that the Evenkia administrative region is traditionally inhabited by the IPRN numbering 4,500 persons in 2012 (Kaplin 2017). We can see IPRN dynamics (2002-2010) with a help of statistics (Table 1). The total decrease of the Evenks (2002-2010) was 219 people. Most Evenks were lost in urban areas and one half as much in rural ones.

These negative trends in population dynamics is the signal of TSSSES insustainability in this region where people do not want to live. According to socially-oriented methodology of the sustainability monitoring, the state of human and social capital, the consideration of the IPRN perceptions on the base of their traditional knowledge are the main pillars of TSSSES sustainability and resilience (Vlasova et Volkov 2013, 2016). In the next section we will try to analyze the issues of communities sustainability at the Evenkia administrative district viewed from indigenous peoples perspectives and at the end of the paper we will propose ways for these issues solution.

Ethnic group	Total		Result	Urban population		Result	Rural population		Result
	2002	2010		2002	2010		2002	2010	
Dolgans	–	48		–	41		–	7	
Nganasans	–	6		–	2		–	4	
Nenets	–	8		–	5		–	3	
Kets	–	207		–	16		–	191	
Selkups	–	1		–	0		–	0	
Evenks	3802	3583	–219	1097	945	–152	2723	2638	–85
Total	3802	3853		1097	1009		2723	2843	

**Table 1.** Evenkia municipal district ethnic groups population. The table is based on official statistics (Evenkia website 2017 - [1]) and literature (Palchin 2013).

### *Issues of TSSES sustainability in Evenkia viewed from indigenous peoples perspectives*

It is reported by ARUN that 670 IPRN persons in Evenkia were engaged in traditional economic activity in 2011 (Kaplin 2017). These people tend to perform their traditional economy and subsistence way of life associated with the availability and the state of hunting grounds and forest lands, quality of water resources and air. The quality of life for the indigenous peoples is associated with their human and social capacities to control and regulate the state of natural environment on traditional lands and to undertake entrepreneurial activity through keeping the traditional economic activities of the indigenous peoples.

Several still unregulated issues discussed below entails a reduction of material well-being, impairment of life standard, not speaking about the degradation of spiritual-cultural values. The materials of the Accounts Chamber of the Krasnoyarsk region have demonstrated a recent years' trend of the increased number of citizens

with incomes below the minimum subsistence level. In Evenkia this number of poor people went up from 1,283 persons in 2009 to 4,668 in 2011. Figures are common, they do not take into account the national characteristic of the region inhabitants, but there is no doubt that the number of the indigenous peoples falling in this category is sufficient (Palchin 2014).

Many local and indigenous people in Evenkia have to live getting significant amount of their income as well as food on the base of their subsistence activities such as hunting, gathering and fishing. Proportion of traditional food used in their personal food consumption needs is not estimated, but could be about 50-80%. That is why any negative impacts on the provision of forest and pasture lands, ecosystem services on territories local and indigenous people commonly use to lead these traditional subsistence activities are very painful for them.

***Issues of widespread poaching in combination with climate change leading to the over-exploitation of wildlife resources in hunting and sable business***

From the indigenous peoples views, the main factor of the widespread poaching is the uncontrolled hunting and ineffective regional regulations of traditional land resources usage. These lead to so called - by the IPRN words - “legitimized poaching”.

According to ARUN – “Currently, in the absence of the present legal framework determining the status and nationality of the hunter, the hunting permission issued to anybody does not act as a mechanism for the fur animals (sable in particular) population regulation, distribution and control of the hunting resources, but actually legitimizes massive poaching under the pretext of ensuring the traditional lifestyles and economic activities of the indigenous peoples” (Kaplin 2017). Sable skins go to the auction house in St. Petersburg, wild reindeer carcasses and tons of fish are purchased by businessmen on winter roads for the export from Evenkia. Officials and businessmen obtain super profits bypassing the taxation.

Particularly the consequences of such regional government actions resulted in o-

verexploitation of sable population that is evident in statistics announced by ARUN public organization. The export of the sable from Evenkia in 2012 (115 thousand skins) was five times higher than the quota for its take (22 thousand skins) (Kaplin 2017). These figures correspond well with those from the WWF expert estimations - with the limit of 63,600 sable skins, 240,000 skins were exported totally from the Krasnoyarsk krai in 2012 (Vaisman 2015). These figures tell us about the evidence of sable population commercial overexploitation.

Other factor except poaching leading to such overexploitation may be connected to negative impacts of climate changes in this taiga zone of Siberia. We have many evidences of such impacts on the productivity of pine nuts which are the principle source for sable survival (Medvedkov 2013). Also indigenous people notice since 2005 the negative impacts of higher winter temperatures and humidity on the quality of sable skins as well as summer droughts leading to forest fires escalation in the taiga zone (Vlasova 2006).

***Issues of traditional nature use areas and hunting grounds availability***

From the indigenous peoples views, the introduction of forest land auctions has become one more factor effecting traditional nature use areas and hunting grounds availability and having a negative impact limiting subsistence resources. Public organizations of the indigenous peoples of the North have addressed the head of the Evenkia municipal region concerning the way of organizing and conducting auctions in respect of traditional hunting grounds. Hunting resources are located on lands of the Federal Forest Fund or within the indigenous hunting grounds, but the auctions applications come from both individual en-

trepreneurs and commercial organizations registered in Krasnoyarsk and other cities all over Russia. In such a way open auctions of hunting grounds, based on not still regulated market economy, make it possible and legally adopt exclusive use of hunting grounds for up to 49 years in favor of business organizations.

Due to the lack of sufficient money to compete, neither indigenous communities, nor individual hunters from the northern indigenous settlements, who keep up their traditional activities do not have an opportunity to participate actively in the auctions. Such auction arrangements deprive

indigenous peoples of their traditional land use and economic activities (Kaplin 2017).

Besides that, increasing annual rent for forest hunting grounds put bounds to indigenous people in course of their traditional economic activities and traditional livelihoods close to the natural environment such as reindeer herding, hunting, and gathering. Indigenous public organization ARUN complains that the regional Governmental Act of March 14, 2017 increases annual rent for the forest hunting

grounds (from 0.03 Rub to 2,838 Rub per 1 hectare). Indigenous communities in Evenkia (total 19) have to pay about 28 billion Rub to rent their native community lands for traditional hunting activities (Kaplin 2017). One more issue which should be separately discussed is the imposing impossible limits (quarters) to the indigenous communities concerning possible amount of wild animals shot and fish catches, not taking into account real needs of indigenous communities (Kaplin 2017).

***Unregulated and non-compensated impacts of infrastructure development on taiga forests and hunting grounds is one more serious issue of TSSSES sustainability***

The spreading area of winter roads due to the increased industrial exploitation, as well as more widely used snowmobiles and motorboats by outsiders coming for hunting and poaching in these regions heavily impact the availability of land for traditional activities. In March 2016 the public organization ARUN has got information that construction and operation of winter roads in the Evenkia region are funded through the state budget and carried out annually without demarcation of forest land and cadastral works performed for road construction and operation (Kaplin 2017). In October 2016 several communities of indigenous minorities in Evenkia ("*Kunnoir*" (Strong), "*Madra*" (Sensitive), "*Urkje*" and "*Ajava*" (Favorite) have received letters of proposal to make an agreement for transfer (alienation) of property rights of indigenous peoples of the North in favor of this road management company to allocate lands for construction and operation of winter roads without any compensation, referring to the fact that "*Kunnoir*"

and "*Madra*" communities had already received compensation within the framework of Agreement between the Government of the Krasnoyarsk region and major oil extracting "Transneft" Joint Stock Company on cooperation in social projects in the Krasnoyarsk region (Kaplin 2017).

In this way, regional as well as federal authorities demonstrate no intention to pay for damages and provide new forest sites to the indigenous communities as a compensation for seized plots of land along the roads assigned for economic activities of the industrial companies. And moreover, administration of the Evenkia region announces cynically that in case of failed negotiations "it will have to use the funds which, inter alia, were assigned to support development of traditional economic activities". According to ARUN public organization this actions could entail social stress, unemployment among indigenous persons, declined income of the local population and lower standard of living (Kaplin 2017).

## Results and proposed ways of issues solution for discussion and future activities

The underlined and described issues of TSSEs sustainability such as widespread poaching, the introduction of forest land auctions not available for indigenous peoples, and increasing annual rent for traditional hunting grounds as well as unregulated impacts of infrastructure development leading to traditional lands degradation, gives us possibility to propose several ways of these issues solution. In order to achieve sustainability in TSSEs, several simultaneous measures in social, cultural, legislative, economic, nature protection spheres and should be implemented.

The public organization ARUN mainly focuses on the need of legislative measures and law enforcement which should be implemented. On a base of the issues analyzed in the paper we propose a set of concrete directions and more broad set of measures for achieving sustainability which should be implemented at different interacting scales - from local communities to circumpolar area involving different stakeholders.

First of all the principle direction is to support more active participation of indigenous communities in the decision-making process through regional, municipal and local governments.

This will help to *develop the procedure for establishing traditional nature use territories of the indigenous peoples* to be included in the strategy of nature use and territorial planning. In this respect, broad involvement of local and indigenous people is necessary through activities as: mapping of properties in traditional land use, the development of forest plans, and land-use planning.

Moreover the IPRN participation is necessary *in creation of the ethnic cultural natural protection complexes*, for example - the environmental-ethnographic parks, reserves, where the priority rights to land and economy of the indigenous people are

realized. Our surveys of the Kets population confirm the significance of this direction for TSSEs sustainability. According to the residents of Sulomay Village, granting an environmental-ethnic status to the Central Siberian Reserve and the inclusion of hunting and fishing grounds of the IPRN into it could protect against poaching and would strengthen the indigenous and other local people rights to the territories of traditional nature use. Such experience exists in other Arctic countries, where the creation of biosphere reserves meets not only the objective of preservation natural but also of spiritual-cultural environment and subsistence livelihoods of indigenous peoples. But sometimes, as our experience shows, the establishment of a traditional land use area regulated as the lands of strictly protected natural sites may be in conflict with the traditional economic activities of the IPRN.

Several *land use regulation improvements* suggested by the IPRN should be discussed in consensus with regional and municipal governments' arrangements. They include: a reorganization of auctions on purchasing rights in the territory of the IPRN hunting grounds in order to prevent emergence of conflict situations in the area of the traditional hunting economy; setting rational annual rents in the forest hunting grounds not-limiting possibilities for indigenous people traditional economic activities and traditional livelihoods closely connected to the natural environment such as hunting, gathering, reindeer herding, *etc.*

Concerning *IPRN interaction and communication with industrial companies* (logging, mining, infrastructure building, *etc.*) *special procedures and agreements should be established and signed* which should engage indigenous peoples and cover such matters as compensation, education, employment, entrepreneurial development, environmental protection, and support of so-



cial and cultural issues. Such mechanisms as Environment Impact Assessment (EIA), as well as ethnological expert reviewing are not fully recognized and utilized.

It is necessary to implement mechanism of *Corporate Social Responsibility (CSR)* as the possibility for both indigenous and non-indigenous people to be fully consulted and have a strong say and control in decisions regarding resource exploration and extraction. CSR is widely successfully used in Norway and other Arctic States. Norway, as a petroleum producing state considered to be socially and environmentally responsible, could furthermore provide useful insights into how CSR of petroleum industries could be and are implemented in practice (Loea et Kelman 2016). This experience is of particular interest to our investigations in the Russian Siberia.

*Credible forest certification* which covers much more than just logging practices but also accounts for the social and economic well-being of local communities, transparency and inclusiveness in decision making could be considered as a mechanism for achieving sustainability.

One of the most important direction of achieving TSSSES sustainability is *the development of traditional IPRN activities* on a base of traditional knowledge, culture, traditional economic activities and their integration with modern technologies and taking into account contemporary needs and views of indigenous people especially young generation. For example the organization of local processing of non-timber resources of the taiga zone - nowadays poorly developed - could become an important sector of modernized traditional

economy and local food-sufficiency. Also it is possible to establish plantations growing valuable species of mushrooms, berries, and medical plants to increase the volume of commodity production. Along with this, it is necessary to set up small processing facilities that could receive caught fish and gathered wild plants from the local population in order to process and sell these products, which would increase employment in the taiga settlements. This direction will stimulate: getting working placed for local graduates from the educational institutions, and support for their employment at home lands; develop programs of special training for students from indigenous minorities residing in territories of traditional land use and economic activities in the sphere of education, culture, health care and environmental protection with their expected employment in the settlements of indigenous residence; provide grants for the house construction to young families and young professionals from indigenous minorities.

Finally, it should be underlined the importance of a permanent long-term participation of the IPRN in the process of the TSSSES socially-oriented sustainability monitoring grounded at a local-regional scale with the provision and sharing of data to decision-makers, scientists, mass-media, and business community. The proposal of the Evenkia TSSSES to become one of the sites and transdisciplinary spaces of a Circumpolar Sustainability Monitoring Network has been accepted by the participants of the Belmont Forum project "Arctic Sustainability: syntheses of knowledge".

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