

# Co-option in Siberia: The Case of Diamonds and the Viliui Sakhai

Susan A. Crate,

Assistant Professor  
Department of Environmental Science and Policy  
George Mason University  
USA

## Introduction

Viliui Sakha are a native non-Russian peoples of the Viliui River regions of northeastern Siberia, Russia, who maintain a uniquely-adapted horse and cattle breeding subsistence in the subarctic environment of the western Sakha Republic, Russia (Fig. 1). Within post-Soviet Russia, the Sakha Republic is unique as an emerging economic power with strong ethnic representation in its state apparatus. The region, twice the size of Alaska, is rich in mineral wealth and natural resources.<sup>ii</sup> These resources, largely developed during the Soviet period, today provide the Republic and the Russian Federation with sizeable income (Tichotsky 2000). To some extent related to this economic power and a substantial ethnic population, the Sakha, unlike other post-Soviet non-Russian peoples, have emerged on equal, and in some cases superior, footing with their Russian counterparts in controlling their Republic government and social status (Balzer and Vinokurova 1996). The Republic is also heralded with an unprecedented environmental record based on former President Nikolaev's designation of 20% of the Republic's area to protected status. From the west, from Moscow and from the capital city, Yakutsk, it appears that the Sakha Republic has well overcome the hardships of the post-Soviet period with its robust economy and cutting edge environmental policies.

However, there is a divergent side to this story. It involves understanding the environmental

and socio-cultural impact of the Republic's achievements on the rural Sakha inhabitants adjacent to its main industrial activities, in this case, diamond mining, and those inhabitants' struggle for environmental justice. Among western coverage of the Sakha Republic's post-Soviet progress, research to date has only made partial reference to the local impacts of diamond exploitation, in one account referring to the colonization of native populations (Tichotsky 2000), and in another focusing on the health impacts of industrial development (Marples 1999; Espiritu 2002). What is lacking is a holistic historical and contemporary analysis of environmental and socio-cultural degradation due to diamond mining activity in the Viliui regions and a chronology of citizen activism around those issues.

This article begins with an introduction to the Viliui ecosystem and its early human settlement, followed by an analysis of the environmental impacts of the Soviet period. It next explores the environmental history of the Viliui regions based on information made available in the late Soviet and post-Soviet periods. Following this, the article traces the beginnings, evolution, and co-option of the Viliui Committee, a regionally-based citizen action group concerned with disseminating information, educating local inhabitants, and lobbying policy-makers to better the environmental issues of the Viliui regions. Lastly, the article draws on similar Russian and international cases to analyze why the Viliui environmental movement lost its momentum when others gained their footing. It concludes with a discussion of what strategies

are necessary to work for Viliui environmental justice.

## **I. The Viliui Ecosystem, Indigenous Adaptation, and Russian Colonization**

The predominant ecosystem of the Viliui watershed is boreal forest (taiga) interspersed with *alaas*, round fields bordered by woods usually with a lake in the center. The climate of the Viliui regions is sharply continental, with winter temperatures uncommonly low<sup>iii</sup> and summer temperatures comparatively high. Seasonal variations exceed 100°C, from +40°C during the summer to -60°C in winter. The main factor determining the hydrological characteristics of the Viliui regions is the presence of a continuous permafrost layer.

Historically, human inhabitation of the Old World taiga regions, adjacent waterways and coastal areas has been dominated by reindeer-herding and foraging cultures. Tungus (Even and Evenk) and Tumat, who preceded Sakha as inhabitants of the Viliui regions, utilized the wild resources across extensive land areas subsisted by means of a mixture of reindeer herding and foraging (hunting, gathering and fishing). Their population density was low and their subsistence practices had a relatively low impact on the natural environment.

Sakha, a Turkic-speaking people who practiced horse and cattle agro-pastoralism, began settling in the Viliui regions in the 1400s (Ksentofontov, 1992; Ergis, 1974). Their Turkic ancestors transmigrated from Central Asia to the shores of Lake Baikal in the 800s and then, beginning in the 1300s, traveled north, following the Lena River to their present home (Okladnikov, 1970; Gogolev, 1986; Maak, 1994). Their subsistence practice was less “environmentally friendly” than their predecessors’ and equally disruptive to the neighboring reindeer-herding, foraging cultures. From their earliest arrival in the Viliui regions, Sakha were known by the indigenous cultures as land-changers, who created more pasture by draining lakes and clearing forest by burning (Nikolaev, 1967). In the process, these practices destroyed the vast resource of natural lichen “fields,” the main fodder for reindeer.

Russian colonization in the Viliui regions began in the mid-1600s and had its own reverberations on the local environment and

cultures. Russian colonists annexed native lands and demanded *iasak* (fur tribute) from all local inhabitants, further burdening native peoples’ subsistence demands altering the natural populations of fur-bearing animals (Bassin, 1991). Although indigenous practices and colonization impacted the Viliui’s natural ecosystem, it was the collectivization and industrialization of the Soviet period that made for the greatest environmental and socio-cultural damage.

## **II. The Soviet Period**

### *Collectivization*

Collectivization began in the late 1920s and culminated in the late 1950s with the establishment of state farm agro-industrial systems. Over that thirty-year period, Viliui Sakhas’ formerly extensive and dispersed subsistence strategy, an historically-based and ecologically-founded subsistence adaptation, based on kin-based clan groupings of scattered homesteads, was transformed to agro-industrial state production in densely-populated, centralized village settlements. Similarly, land, in pre-Soviet times held in ancestral clan usufruct, was deemed state property.

The main effects of Soviet period collectivization on Sakha pre-Soviet subsistence strategies include the breakdown of traditional family/clan interdependence, the loss of indigenous ecological knowledge, the loss of use of vast areas of land, dependence on modern transportation to reach necessary resources, environmental stress in populated areas due to concentration of waste, and reorganization of local collectives into a centralized state farm whose sole objective was producing meat and milk for the nascent diamond industry.<sup>iv</sup> These impacts of collectivization altered the Viliui natural environment but Soviet period industrialization had the most devastating effect.

### *Industrialization*

The foremost objective of the Soviet government following WWII was rapid industrialization (Forsyth, 1989). Just before that time in 1941, geologist Victor Sobolev attested to the similarities of geologic structure in diamond regions of central and southern Africa, and that of the Viliui regions. Spurred by the post war need for industrial diamonds to supply the growing military-industrial complex, the Soviet government immediately

invested substantial resources to find the expected diamonds (Duval and others, 1996). In 1949, the G.H. Feinshtein geological expedition first discovered diamond granules near the present-day town of Krestyakh in the Viliui River basin (Kharkiv and others, 1997) (Figure 1).

In the years to follow, expeditions came regularly to locate more natural pipes of kimberlite. On August 21, 1954, the young geologist Lorisa Popugaeva discovered the first kimberlite pipe *Zarnitza*. In 1955 the diamond industry began mining the *Mir* and the *Udachnyi* pipes. In addition to finding diamonds in kimberlite columns, geologists also found substantial kimberlite deposits in the Irelakh River, which ran adjacent to the *Mir* pipe. To extract these deposits the government built a “drag,” an enormous machine, similar in looks to a one block, five-story office building, to move up and down the river, dredging up the riverbed strata to sift and sort it for kimberlite.

Like all Soviet-period industrialization, the exploitation of diamonds was not confined by environmental laws and regulations, because those that existed were largely disregarded and were in themselves impotent, having been written by the industrial ministries and economic planners, whose priority at that time was industrial development (Peterson, 1993, p. 175).<sup>v</sup>

From its beginnings, this new and extensive diamond mining industry required large amounts of electric energy, which the government solved with the construction of the Viliui Hydroelectric Station (Viliui GES) in Chernoshevski, the first hydroelectric power plant built on permafrost. The nascent diamond industry also required substantial manpower which it solved by the “importation” of workers from outside the area, mostly from the Ukraine, Belorussia and European Russia, a move that increased regional population and ethnic diversity.

Just as the Soviet period ushered in quantum change to the Viliui Sakha, the post-Soviet transition has had a similar effect. In the post-Soviet period, Viliui Sakha are forced to reconcile with the past on at least two levels, in terms of their daily subsistence survival and in terms of the myriad of environmental offenses to their homelands.

In terms of daily subsistence, with loss of local employment and access to basic food products

after the 1991 state farm dissolution, Viliui Sakha have developed a household-level food production system termed “cows-and-kin,” focusing on keeping cows and exchanging labor and products with kin households. Cows-and-kin offers a sound mode of household-level food production for contemporary rural Viliui Sakha and represents a unique adaptation, which is historically-founded, environmentally sustainable and culturally resilient (Crate 2003). Cows-and-kin is a tenacious adaptation but is also vulnerable to the changing conditions of contemporary life, most notably a disinterested youth, the loss of indigenous and issues of land tenure. It is also compromised by the former and ongoing degradation of the environmental (Crate 2003b, Crate 2003c).

### III. The Post-Soviet period: Reconciling with the Environmental Legacy of the Soviet Period

The main environmental issues of the Viliui regions include 1) the physical impacts of the Viliui hydro-dam and its adjacent reservoir, 2) the chemical contamination of the regional surface waters, 3) the nuclear contamination from fall-out during the diamond company's holding pond dam construction and, 4) the chemical contamination from airborne rocket debris.

#### *The Impacts of the Viliui Hydro-dam and its Adjacent Reservoir*

The Viliui hydro-electric station (Viliui GES) and its adjacent reservoir have disrupted the river's natural ebb and flow, “softened” the local climate, inundated native settlements and valuable land resources, and contaminated the surface waters with phenols.

The hydro-station's activity has changed the natural water regime of the watershed by artificially retaining and releasing water for energy needs (Shadrin, 1984) and by decreasing average downstream water temperatures (Nogovitzin, 1985). These disruptions alter habitat for numerous fish and animals, and in turn affect subsistence resources. Sakha elders describe the pre-hydrodam Viliui River as having crystal clear waters abundantly teeming with sturgeon, freshwater salmon, and other valuable fish species, now rarities. The river otter (*Lutra lutra L.*) and black or hooded crane (*Grus monacha*), once common to the Viliui and its tributaries, are gone (Andreev, 1987).<sup>vi</sup>

In the process of creating the reservoir, 356,000 acres of prime fields and woodlands, containing haying, pasturing and hunting areas and economically valuable timberlands, were lost. Additionally, the reservoir flooded indigenous settlements. About 600 people lived along the Chona River, a tributary of the Viliui, which flows north and follows the Republic's western border (Fig 1). The area, rugged with mountainous regions and raging rivers and streams, was seen as unsuitable for agriculture as Soviet efforts grew to collectivize and consolidate adjacent farms. On account of its rugged topography and the need for regional hydro-power, it was determined that flooding of these areas would be their most productive use.<sup>vii</sup> The final impact of the hydrodam is chemical contamination of surface waters, discussed in the next section.

#### *The Chemical Contamination of the Regional Surface Waters*

Surface water contamination has polluted the Viliui River and its tributaries. There are three main sources of such contamination including phenols, thallium, and highly mineralized brine water. The waters of the reservoir flooded 965 square miles of taiga, pasture and swamp, none of which had been cleared prior to submersion, which resulted in the anaerobic decomposition of vegetation and released phenols and copper into the reservoir waters and the adjoining Viliui watershed system.<sup>viii</sup>

Thallium contamination resulted from the use of liquid "klerich," a highly toxic thallium-containing compound used to separate diamond granules from their natural substrate, kimberlite. Klerich-rich wastewater was emptied into surface water systems and thallium contamination proceeded. In an effort to contain thallium contamination, in 1986 the diamond industry installed holding ponds to contain the wastewater. The thallium-containing water was then piped to these ponds where it was decontaminated after passing through a series of specialized filters. Investigations since that time have shown the system is ineffective (IAE, 1993).

The third source of surface water contamination is highly mineralized brine water, which seeps up from under the permafrost layer<sup>ix</sup> and collects at the bottom of the diamond pipes. High in salts and metals elements such as copper, chromium, nickel, iron, zinc and lead, until 1986 the brine was dumped directly into the surface water system.

Since then, the company has tried various methods of containment and "proper" disposal, all which have continued to contaminate the ecosystem (IAE, 1993; Crate, 1995, p. 11).

#### *Nuclear Contamination from Fall-Out During Dam Construction*

Between 1974 and 1987, the Soviet government performed a dozen secret underground nuclear tests in the Viliui regions. Then in 1987, an insubstantial newspaper article about the blasts prompted citizen concern and after persistent inquiry, the state acknowledged that 2 of the 12, "Kristall" and "Kraton-3" had had catastrophic above ground nuclear fall-out (Burtzev, 1993).<sup>x</sup>

In 1990, state specialists, and soon after them researchers from the Russian Academy of Sciences, investigated the situation and revealed levels of Cesium-137, Strontium-90, Plutonium-239 and -240 in the soil, rain, lichen, tree bark and adjacent water systems (Pavlov and Afanaseeva, 1997). The plutonium contamination, considered the most deadly of all, was verified at levels equivalent to the maximum contamination of soils in Belorussia and Ukraine following the Chernobyl accident (Yablokov, 1992). Although it was common knowledge that this research was going on, local inhabitants were not informed of the extent of plutonium contamination until 1993 (Pavlov and Afanaseeva, 1997). Despite the life threatening level of the accidents, to this day there has yet to be a comprehensive study of these two sites.

#### *The Chemical Contamination from Airborne Rocket Debris*

Since 1958, the Nyurba region of the Viliui watershed has been the designated drop-off area for the second stage of space exploration rockets launched from the Bikanur Cosmodrome in Kazakhstan.<sup>xi</sup> The exact number of rocket drops over the Viliui regions is, to this day, a secret.<sup>xii</sup> The shed rocket parts emit highly toxic gases containing geptile (dimethylhydrazine),<sup>xiii</sup> which contaminate the taiga and indigenous settlements. The Viliui inhabitants consider this contamination a link to the rise of cancer in their populations since the late 1970s. Local hunters report sightings of entire herds of dead animals and birds found in the taiga where the rockets fall (Crate, 1997, 2000).

### *Official Efforts to Reconcile the Environmental Issues of the Viliui Regions*

Based on the record of environmental abuses to the Viliui ecosystem and its inhabitants, life on the Viliui continues to entail a myriad of reverberations from both the industrialization and collectivization of the Soviet period and changes of the post-Soviet times. In the post-Soviet context, the Russian state is accountable for the environmental of the past and is taking some steps to reconcile the situation, mainly in two directions: 1) to fund and organize remedial environmental projects in the Viliui Regions, using a percentage of profits from diamonds, and 2) to increase the environmental programs coordinated by the Sakha Ministry of the Environment.

In 1993, the Sakha government and the Sakha-Russian diamond company established the financial corporation, *Sakha-almaz-proinvest* (SAPI), to fund remedial environmental programs for the Viliui regions. Since its beginnings, SAPI was fraught with issues of state-level, regional, and local money laundering (Romanov, 1997). SAPI funds were often depleted at the regional level, before even reaching village populations, those often most affected by environmental contamination. After its first five years in operation, SAPI's reputation was well known. Former Sakha Republic President Mikhail Nikolaev was quoted in 1997 to say, "We await good work from SAPI" (Alekseev, 1997).

Perhaps in response to the bad press they were receiving, in 1997 SAPI reported a host of environmental programs, such as expeditions throughout the Viliui to study indigenous health, preliminary planning for a monitoring system for drinking water in the Viliui regions, the creation of a series of geographic-ecological maps for the diamond mining areas, the methodological groundwork to develop ecological insurance for the areas, and several cooperative efforts with the Ministry of Ecology conducting research of the regions (Andreev, 1997). However, there was a clear conflict of interest with the diamond company conducting such studies.

In 2001, SAPI was dissolved and the operation was placed into the "Tselovoi Fond, a controlled government department . . . to ensure that the money has a definite address," commented Vasili Alekseev, Minister of Ecology (Alekseev, 2003). But how is the new money being used? Alekseev and his regional representatives all agree that the first and

foremost need of Viliui inhabitants is good drinking water. However, none can show that the *Tselovoi Fond* plans to finance water filtration systems in the regions. Presently, the monies are allocated to develop gas, oil, and high voltage electricity development in the regions.

Beginning in the mid-1990s, the Sakha Ministry of the Environment began a major effort to monitor the Viliui ecosystem. In 1993, the Russian Federation established a federal ecological monitoring system with many regional systems coming under the federal wing, including the Sakha Republic in 1996. The program objective for the Viliui watershed is stated as: "to provide objective informational support to assist the state organs, industrial decision-makers, agricultural sector and inhabitants with data regarding the ecological conditions in the region's territories" (Ministry of Ecology, 1997). Due to the lack of comprehensive data, the project also considers original research to fill these informational gaps a high priority.

The Ministry, having confirmed that the Viliui regions underwent major environmental damage, developed regulations to prevent further damage and initiated the Viliui monitoring project. However, with the late 1990s economic downturn, the Ministry became financially strapped and underwent a 50% lay-off, a terrible loss for an organization trying to watchdog a Republic twice the size of Alaska. In 2000, Russian president Putin consolidated the Ministries of Environment and of Natural Resources into one and set this new body's priority to be the exploitation of natural resources as Russia's main source of economic renewal.

The Sakha Republic is the only subject within the Russian federation that has, for the last nine years, had its own Ministry of Ecology. With Putin's changes they have lost their control. Likewise, bureaucrats working in the ministry must accept reality of coming under Russia's federal structure and taking on Russia laws. There is a lot of contention. When asked about this conflict of interests in the summer of 2003, Ministry of Ecology's Vasili Alekseev commented, "We can't agree with this—we are a sovereign state of Russia but we don't have our own power—we can only hope that there will be changes and we will get to have our own control again."

Any pressure on the government to make these efforts effective falls on deaf ears since

government bureaucrats tend to downplay the ecological issues on the Viliui based on a lack of "conclusive evidence" (Crate, 2001; Marples, 1999; Tichotsky, 2000). As a result, local inhabitants remain concerned about the effects to their and their progeny's lives. But why haven't concerned Viliui citizens protested these abuses and pressured their government for environmental justice like others have done in post-Soviet Russia? The answer is "yes." In the early 1990s there was a powerful environmental movement in the Viliui regions. However, after over a decade of hard work and gaining substantial headway, elite diamond interests have co-opted the movement. What enabled this citizen activism to emerge and to bring to light the many local environmental and social problems? What were the reasons for this activism's disappearance or descent into apathy? The answers to these questions make up the following section.

#### **IV. The Birth and Demise of the Viliui Committee**

In the late 1980s, on the heels of *glasnost* (openness) and *perestroika* (restructuring), inhabitants across the Soviet Union first gained access to information about the environmental offenses of the Soviet period. Empowered by this information, like so many across the Former Soviet Union, in 1989 concerned citizens and representatives of the city's scientific intellectual community founded a public ecological center in the Sakha Republic's capital, Yakutsk, to research and disseminate information about the environmental legacies of their homelands. In the fall of 1989 the center organized a Republic-wide conference to discuss ecological problems and to form regional watershed-based organizations to initiate local activism. Many concerned residents of the Viliui regions were in attendance and there was much discussion and interest in the complex of environmental issues on the Viliui. One of the watershed organizations formed during the conference, the Viliui Committee, focused on the Viliui watershed. Later that fall the Viliui Committee and Public Ecological Center organized a conference in Mirny, the diamond mining center, to meet with representatives of *Almaz-Rossia-Sakha* (ALROSA) the Russian-Sakha diamond mining conglomerate.<sup>xiv</sup>

Since the Viliui Committee had started its work within the membership of the Public

Ecological Center in Yakutsk, it already had substantial support of many government representatives and had received a lot of coverage in the press, "Our press supported us and played a big role in getting the word out," commented Lyubov Yegorova, one of the original founders of the Viliui Committee. "Soon the whole Republic knew about "The Tragedy of the Viliui"—and all the other things they called it—everyone knew about what was going on—we kept talking about the problems—then in 1991, with the help of the Committee to Save the World and the Sakha Minister of Ecology—and we shot a film about it— the radiation problems and all the ecological problems—we were working—we gathered a lot of money by showing the ecological problems throughout the Republic"<sup>xv</sup> (Yegorova, 2003).

During this time, concerned citizens throughout the Viliui regions initiated local chapters of the Viliui Committee and began taking action by organizing village meetings and discussing environmental concerns and contentions. At first, these public meetings were largely soapbox venues--- a time to gather the local citizenry and express anger and disdain at the damages done. As the committee matured, regional representatives organized scientific conferences and drafted citizens' petitions to the government.

In 1993 a new guiding member, Pyoter Martinev, experienced in the technology of diamond transport and passionate about citizen advocacy, joined the committee. Martinev traveled with most of the ecological expeditions, researching the nuclear accident sites in the Viliui. He also traveled frequently to Yakutsk to meet with representatives in the parliament and state Duma. It was under his leadership and vision that the committee became actively involved in the legal process. He was a life-long resident of the Nyurba region, where the diamond company found new mines to exploit in 1994.<sup>xvi</sup> Martinev focused all of his efforts towards the blockage of these mining ventures. He took every opportunity to speak openly about his conviction that these new diamond reserves needed to be mined only after the diamond company had adopted environmentally safe technology and had justly appropriated a percentage of the diamond profits to Viliui inhabitants. In 1996 he spearheaded several referendums that impeded the diamond industry's plans to exploit new diamond columns, based on their failure to perform comprehensive environmental impact assess-

ments. But these only temporarily set back the diamond company's plans. In 1997 Pyoter Martinev died an untimely death after a several year struggle with liver cancer. With this loss, the Viliui Committee suffered a severe setback. Martinov was the guiding vision and force behind the committee. His energy inspired others and his organization skills maintained a distinct pathway for all to follow.

Deterred by the ineffectiveness of their referendum efforts and with the loss of their main leader, in the months that followed, many of the original Viliui committee members left the organization. This was also a time of active propagandizing by the diamond mining interests. Between 1997 and 1999, Viliui citizens were told outright that if they pushed their rights to a clean environment too far, that they would risk losing their state salaries, subsidies and pensions. While conducting research during this span of years, it was evident that this propagandizing worked. I witnessed an active and concerned citizenry turn into a silent and apathetic one over the course of those two years.

The regional representatives of the Viliui Committee also changed markedly. While the committee was preparing to celebrate its 10<sup>th</sup> anniversary in 2000, a complete turnover of membership produced new priorities that were anything but environmental activism. The new personnel, all key figures in regional economic development, transformed the Viliui Committee from an environmental NGO focused on involving the citizenry in environmental activism, to a bureaucratic board of local officials who gather privately to discuss their plans. In short, the active environmental agenda of the original Viliui Committee had been successfully co-opted.

## **VI. Imagining a Future of Environmental Justice on the Viliui**

What can we now say about Viliui Sakhas' way out of their environmental predicament? What were the movement's strengths and weaknesses? The Viliui Committee had many of the salient features of contemporary successful environmental movements in Russia, including a strong urban base with support and interest by elected officials, knowledge and use of existing environmental legislation, and a strong local leadership. What went wrong? There are several moments to contemplate. First, a series of failed

referendums that served only to stall the mining company's operations. Perhaps if the Viliui Committee had some central representation in Moscow and on the international front, there could have been sufficient pressure to carry through these legal processes. The second crucial moment was the loss of Pyoter Martinev, whose guiding vision and unfailing vigilance was central to the committee's success in the mid-1990s. Lastly, and most significantly, was the co-option of the movement by elite diamond interests involving both the deliberate subduing of its citizens' nascent environmental movement through repeated threats to their economic livelihood should they act in favor of environmental protection, and the appointment of bureaucrats to the empty seats left in the regional chapters of the Viliui Committee when citizen activists left following Pyoter Martinev's death in 1997, a move that rendered the committee politically impotent.

What are the chances of reviving this vital citizen movement and work towards realizing environmental justice in the Viliui regions or will it remain a relic of activism gone to apathy? The strong support by political representatives in Yakutsk that the committee enjoyed during its formative years, like the committee's regional representation, has been replaced with elite diamond interests. This leaves finding support and interest from an international and/or Moscow-based group as the Viliui Sakhas' main hope in reviving their environmental movement. This is a strong possibility given the establishment of many international NGOs with representation in Moscow. Similarly, there is a growing concern in the international community for the health of our circumpolar environment. The Viliui River is a major tributary of the Lena and thereby contributes to the biological health of the Lena Delta and the Arctic Ocean environment. Once this international attention is achieved, the inhabitants of the Viliui can move forward and take up the fight they began in the early 1990s for a healthy environment for generations to come.

## References

- Alekseev, V.G. Personal interview. Yakutsk, 2003.
- Alekseev, V.G. Personal interview. Yakutsk, 1997.
- Andreev, B.N. *Birds of the Viliuisk Basin*. Yakutsk: Knizhki Izd., 1987.
- Andreev, V. Personal correspondence. Yakutsk, 1997.
- Balzer, M and U. Vinokurova. "Nationalism, Interethnic Relations and Federalism: The Case of the Sakha Republic," *Europe-Asia Studies*, 48 (1): 101-120, 1996.
- Bassin, Mark. "Inventing Siberia: Visions of the Russian Far East in the Early Nineteenth Century," *American Historical Review* June: 763-794, 1991.
- Burtzev, I.S. Nuclear Contamination of the Sakha Republic: The Problem of Nuclear Safety. Yakutsk: Polygraph, 1993.
- Burtzev, I.S. and Kolodoznikova. "Nuclear Contamination on the Viliui," In Pavlov, N.P. and V.M. Afanaseeva, eds. 1997. *The Tragedy and Pain of Old Viliui*. Yakutsk: SAPI-Torg-Knigi, 1997.
- Crate, Susan. "Viliui Sakha Post-Soviet Adaptation: A Subarctic Test of Netting's Smallholder, Householder Theory," *Human Ecology*, 31(4). (Winter 2003)
- Crate, Susan. 2003b Viliui Sakha Oral History: The Key to Contemporary Household Survival. *Arctic Anthropology* 39(1).
- Crate, Susan. 2003c The Great Divide: Contested Issues of Post-Soviet Viliui Sakha Land Use. *Europe-Asia Studies*, 55(6): 869-888.
- Crate, Susan. *Cows, Kin & Capitalism: The Cultural Ecology of Viliui Sakha in the Post-Socialist Era*, Ph.D. dissertation, University of North Carolina, Chapel Hill. 2001.
- Crate, Susan, ed. *Kwek Tiin (Green Spirit)*. Yakutsk: Bichik, 1995.
- Crate, Susan. *Field Accounts*, 1994.1995.1996. 1997. 1999. 2000.
- Duval, D., Green & Louthean. *The Mining Revolution*. London: Rosendale Press, 1996.
- Ergis, G. *Ocherki po Yakutskomy Folklore [Essays on Yakut Folklore]*. Moscow: Science Publishers, 1974.
- Espiritu, Aileen A. "The Local Perspective: Interviews with Sakha in the Viliui River Region," *Central Eurasian Studies Review*, 1(1):15-17, 2002.
- Forsyth, James. "The Indigenous Peoples of Siberia in the 20th Century." In *The Development of Siberia*. Alan Wood and R.A. French, eds. Pp. 72-95. London: MacMillan, 1989.
- Gogolev A. I. *Istoricheskaya Etnografiya Yakutof [The Historical Ethnography of the Yakut]*. Yakutsk: Yakutsk State University, 1986.
- Institute of Applied Ecology (IAE). *The Ecology of the Viliui River Basin: Industrial Pollution*. Yakutsk: Siberian Russian Academy of Sciences, 1992.
- Institute of Applied Ecology (IAE). *The Ecology of the Viliui River: State of the Natural Environment and Human Health*. Yakutsk: Siberian Russian Academy of Sciences, 1993.
- Kharkiv, A.D., N.N. Zinchuk and V.M. Zuyev. *The History of Diamonds*. Moscow: Nedra, 1997.
- Kohler, Thomas and Kathrin Wessendorf, eds. *Towards a New Millenium: Ten Years of the Indigenous Movement in Russia*. Copenhagen: IWGIA. 2002.
- Ksentofontov, G.V. *Urankhai Sakhalaar [Points in Ancient History of the Yakut (Sakha)]*. Yakutsk: Sakha Republic Publisher, 1992.
- Maak, R.K., 2nd ed. *The Viliuisk Okrug*. Moscow: Yana, 1994.
- Marples, David R. "Environmental and Health Problems in the Sakha Republic," *Eurasian Geography and Economics*, 40,1:62-77, 1999.
- Martinov, P.N. Personal interview. Nyurba, 1996.



Ministry of Ecology. "The Technical and Economic Appropriation for the System of Ecological Monitoring for the Viliuisk Regions." Unpublished governmental document, Ministry of Ecology, Yakutsk, 1997.

Moore, D., I. House and A. Dixon. "Thallium Poisoning," *British Medical Journal*. v 306 n 6891 p 1527, 1993.

Nikolaev, S.I. Yakutia: Sketches of Life and Subsistence. Yakutsk: Russian Academy of Science, Siberian Department. Fund 5, Op. 1, delo 501, 1967.

Nogovitzin, D.D. *The Water Resources of Yakutia and Their Use*. Yakutsk: Siberian Russian Academy of Sciences, 1985.

Nuttall, Mark. *Protecting the Arctic*. Amsterdam: Harwood Academic Press, 1998.

Nuttall, Mark and Terry Callaghan, eds. *The Arctic: Environment, People, Policy*. Amsterdam: Harwood Academic Press, 2000.

Okladnikov, A.P. *Yakutia*. London: McGill-Queen's Press, 1970.

Pavlov, N.P. and V.M. Afanaseeva, eds. *The Tragedy and Pain of Old Viliui*. Yakutsk: SAPI-Torg-Knigi, 1997.

Peterson, D.J. *Troubled Lands: The Legacy of Soviet Environmental Destruction*. Boulder: Westview Press, 1993.

Petrova, V.A. Personal interview. Nyurba, 1997.

Romanov, A. Personal interview. Nyurba, 1997.

Shadrin, A.P., ed. *The Human Impact on the Water Resources of Yakutia*. Yakutsk: Siberian Russian Academy of Sciences, 1994.

Soubotin, Xenia. "Building Civil Society through Environmental Advocacy," paper presented for *Russia's Environment: Problems and Prospects* conference, October 24-26, Miami University, Oxford, Ohio. 2002.

Tichotsky, John. *Russia's Diamond Colony: The Republic of Sakha*. Amsterdam: Harwood Academic Publishers, 2000.

Tobonov, A. Personal interview. Nyurba, 1997.

Vozin, V.F.,ed. *The Impact of GES on the Natural Environment in the Conditions of the North*. Yakutsk: Siberian Russian Academy of Sciences, 1987.

Yablokov, A.V. "The Recent Environmental Situation in Russia," *Environmental Policy Review* 6(2):1-12, 1992.

Yakovlev, A. Personal interview. Suntar, 1997.

Yegorova, Lyubov. Personal interview, Yakutsk. 6 June, 2003.

Young, Oran and Gail Osherenko. *Polar Politics: Creating International Environmental Regimes*. Ithaca: Cornell University Press, 1993.

## Acknowledgements

I dedicate this article to the late Pyoter Martinev, who taught me how one person with an environmentally and socially progressive vision can initiate change. My hope is that this article can be one of many reminders of what Pyoter did and serve as an example for others to carry his vision of environmental sustainability and social equity on the Viliui forward. I would also like to acknowledge all inhabitants of the Viliui Regions of the Sakha Republic, without whose help my ongoing research of the last twelve years would not be possible. I especially want to thank members of the Viliui Committee, past and present, and all specialists and representatives who gave their time and expertise about environmental issues on the Viliui. I also acknowledge my funding sources over the years including the John D. and Catherine T. MacArthur Foundation, the National Science Foundation (NSF), Fulbright-Hays, the Social Science Research Council (SSRC), the International Research & Exchange Board (IREX), and the American Association of University Women (AAUW). Lastly, but certainly not least, I thank the thorough and informative work of the journal's anonymous reviewers.

---

### Notes

i The following case study is based on the author's last twelve years of work and research in the Viliui River regions of the western Sakha Republic, Russia. In 1991 and 1992, Crate performed a contemporary analysis of the Sakha traditional summer festival, yhyakh, which comprised the field work for her master's degree in folklore from UNC-Chapel Hill. In 1993, Crate studied the indigenous Sakha language with support from an IREX on-site language training grant. In 1994, Crate received a

---

two-year grant (1994-1995 inclusive) from the John D. and Catherine T. MacArthur Foundation to direct a river-basin-wide environmental education initiative based at the Elgeei Nature museum, a regional learning center on the Viliui. In 1996, Crate received a second two-year grant (1996-1997 inclusive) also from MacArthur to direct a research policy project analyzing the environmental, cultural and economic impact of new diamond mines scheduled to open in the Nyurba region. From 1999-2000 Crate conducted doctoral research, a two-village study combining quantitative and qualitative methods analyzing Viliui Sakha household-level food production adaptations since the fall of the USSR. Statements in this case study not attributed to a published source are based on Crate's personal observations and fieldwork. Presently she is directing a 3-year project, funded by Arctic Social Sciences of National Science Foundation entitled "Investigating the Economic and Environmental Resilience of Viliui Sakha Villages: Building Capacity, Assessing Sustainability, Gaining Knowledge.

ii The Sakha maintain an old legend that, when the gods were flying over the earth giving out all the natural resource wealth, when they got to the Sakha Republic it was so cold they froze and the entire contents of their chest spilled out-- hence, to this day, all the elements of Mendeleev's chart can be found within the Republic's borders.

iii An extreme example of this is the Verkhoiansk region of the Sakha Republic which boasts the lowest temperature recorded for a place of human habitation at 71.2°C (-96.2°F).

iv The Soviet period also brought many improvements to local inhabitants. These include literacy, medical care, sanitation and hygiene, social services, and improved access to consumer goods.

v With the advent of diamond mining in the Viliui regions, the main protocol of the recently established State farms was to produce meat and milk for the diamond industry, essentially colonizing Viliui Sakha as servants of the Soviet industrial complex.

vi When governmental officials are confronted with these claims, they accuse the local inhabitants of over reaction and a tendency to be too emotional. Unfortunately, there is no statistical data about the densities of fish and animal populations before the dam to compare with contemporary times.

vii Chona inhabitants, most of whose ancestors had inhabited the Chona River areas for generations, protested the flooding. But the Soviet authorities gave them no choice and, over a period of several years, subdued their outrage by promising that their relocation to areas near large towns and cities would raise their standard of living. From the early 60's, Chonians began to relocate.

---

viii Research claims that phenol levels have now stabilized (IAE 1993). What effect the decades of phenol and copper contamination had on the river and inhabitants remains unresearched and undocumented.

ix The diamond pipes continue hundreds of meters into the earth, far below the permafrost layer.

x The lesser of the two, called "Kristall," occurred in 1974, just 1.5 miles from the industrial town of Udachnyi. It was the first of eight explosions planned to free the subsoil of permafrost to build a dam for one of several waste filtration ponds of the Udachnyi diamond industry. To accomplish this, the company's engineers located the detonation points an unconventionally shallow three hundred and twenty five feet underground. After the catastrophic fall-out of the first explosion, the remaining seven were canceled.

The second and more severe fall-out, "Kraton-3," occurred in 1978, a mere six hundred feet from the shore of the Markha River, a major tributary of the Viliui. The explosion was the same power of the bomb dropped on Hiroshima in 1945 (Pavlov and Afanaseeva 1997) at 19 kilotons (Burtsev and Kolodoznikova 1997). It is considered as "constituting one of the most serious problems in the history of nuclear explosions" (Yablokov 1992). The river is a major source of drinking water for villages that border it. Today, plutonium-239 levels can be found that measure higher than those in Chernobyl. There was no recording of the levels in 1978 when the explosion occurred.

xi Bikanur is the name of Russia's Kosmodrome located in Kazakhstan.

xii According to the testimony of the local veterinarian who has practiced in the Viliui regions for forty years, "From 1983 the rockets fall --in October ('83) 60 fishermen saw the (first) rocket and after that they saw many more . . . they fall in 4, 6, 8 pieces. In 1991 the Bikanur representatives came and openly said that only 3 fell but we have seen more and see the effect to our animals. Our region—in 1995 a cow was born without a skin-- then a 2 headed, and another. This year another--we have never had this before. There are many more examples of this . . . (Tobonov 1997)

xiii The International Agency of Research on Cancer has classified dimethylhydrazine as a possible carcinogen to humans (<http://www.epa.gov/ttn/atw/hlthef/dimethyl.html>)

xiv It was at this meeting that the initial plan was set to allocate 2% of profits from diamond revenues towards the environmental remediation of the Viliui regions, a decision that was realized with the 1993 establishment of the SAPI fund.

xv Former Sakha President, Mikhail Nikolaev also played an advocacy role by writing an article in the Russian newspaper about the atomic explosions on

---

the Viliui—he supported the Viliui Committee movement.

xvi In the mid-nineties, the diamond company, eager to find new kimberlite pipes to exploit since their original mines would soon be used up, announced their discovery of “the biggest diamond column in the Viliui regions,” and began preparing the area. In the process they discovered a second pipe adjacent. Both were located a relatively short distance from several indigenous populations in the Nyurba region on the Viliui. Local inhabitants openly voiced their opposition to these new mines, claiming that their settlements had already received their share of environmental havoc from previous mining activity. The company assured the public that they would abide by full environmental protection, including impact statements and monitoring. Based on the past history of the diamond company, the majority of Viliui inhabitants did not believe such promises.

The Ministry of the Environment promised to conduct extensive monitoring of the new diamond area prior to major mining activity. They argued that this way they can keep a check and take measures if they observe any contamination. This plan to establish a “before” picture as a baseline to measure contamination levels had a strong lobby from concerned local citizens who pointed out that damage by the first mine sites cannot be documented because no such “before” picture had been recorded 40 years ago (Martinov, 1996). However, the Ministry never began the project due to a lack of financial resources.

One positive change from the past in the new mining endeavors is on the regional level. The Nyurba regional government established an official partnership with the diamond company on July 15, 1997. According to this agreement, the region gets the right to buy 10% of the company stock, and the company will fund new schools and hospitals, better roads, and an overall rise in their standard of living. (Petrova, 1997) However, the administrative head sees most of the benefit coming to the center, Nyurba.