INTERNATIONAL WATERS RESULTS NOTES

http://www.iwlearn.net/results 07-10-2011

Persistent Toxic Substances, Food Security and Indigenous Peoples of the Russian North

GEF ID#: 807 GEF Agency Project ID# GF/4030-01-01 (UNEP/DGEF) Project Status: Completed

Mr. Lars-Otto Reiersen
Executive Secretary
Secretariat of the Arctic Monitoring and Asessment Programme (AMAP)
amap@amap.no

PROJECT OBJECTIVE

The project's objectives are:

1) To assist indigenous peoples to reduce the health risks resulting from contamination of their environment and traditional food sources through the development of appropriate remedial actions;
2) To enhance the position of the Russian Federation in international negotiations concerning reduction of PTS use; and to empower indigenous peoples to participate actively and fully in these negotiations; and,
3) To enable the Russian Federation and the Russian Association of Indigenous Peoples of the North (RAIPON) to increase their involvement in the work of the eight-nation Arctic Council aimed at reducing emissions of PTS.

RESULTS: PROCESS

To clarify potential indoor and occupational sources and pathways of exposure, a targeted survey involving blood sampling among selected families was carried out in three selected indigenous communities. It was designed as a case study involving 28 families, selected based on measurements of umbilical cord blood concentrations of total PCBs derived from the basic survey done for the project. The three areas chosen were the settlement of Lorino, Chukotka, the district of Khatanga on the Taimyr Peninsula, and the settlement of Nelmin Nos in the Pechora River Basin.

Analytical methods used for PTS determination was based on internationally recognized methodologies (ISO, JAMP, NOAA, EPA, UNEP, HASL, ASTM), taking into account AMAP recommendations. The Russian standard methodologies certified by the Russian State Standardization Committee were also used when appropriate (GOST, PND, RD).

The full results of the project were published in English and Russian by the AMAP Secretariat in a user-friendly format. Key messages that were delivered to public and local authorities were that PTS impact on the indigenous people of the Russian North was one of the highest when compared to the other Arctic regions, and that the highest exposures and associated health risks were documented in the coastal areas of Chukotka, where the traditional diet is largely based on marine mammals and fish.

The indigenous population is at a higher risk of exposure to PTS through local foods as well as other sources, as illustrated by some information obtained from the survey. Fishing, hunting, and shot casting were not found to be sources of significant lead exposure in the surveyed populations. Smoking was one of the most significant sources of cadmium intake in indigenous people, as 54% of adults in the general population and 35% of pregnant women had reported smoking habits. 34-41% of respondents reported household use of toxicants, but although over 30% grew vegetables in garden plots, few reported using insecticides to protect cultivated plants. Seventy percent of the general population and 58% of pregnant women reported the frequent consumption of alcohol, including a significant number who reported the consumption of homemade alcoholic drinks. This is significant because a specific source of PTS contamination is found in used industrial barrels and plastic containers that are used to produce and store this alcohol.

The chemical that appeared most commonly in households is named "Medifox super" and is produced by "Fox Company" in Russia. Its main constituent is the permitrin concentrate and is generally used to disinfect rooms against ticks. It has been used widely in Chukotka kindergartens, schools, health instiutions, and residences since the early 1990s. A major occupational exposure risk which was frequently reported was in the treatment of reindeer with various insecticides to protect them against mosquito bites.

It was found that the indoor environment, including the home-processed, stored and ready-to-eat foodstuffs sampled from the surveyed residencies was widely contaminated by persistent organic pollutants. Comparison of POP concentration in meat sampled in the natural environment clearly

indicated that contamination levels and occurrences both increased while the meat was processed and stored.

PTS levels in the blood of the general adult indigenous population were up to 3-5 times higher than those in maternal blood due to the transfer of pollutants from the mother to the fetus through the placenta. The highest concentrations of PTS were found in the Chukotsky District, and this is thought to be because of the high consumption of traditional foods.

The death rate of aboriginals over the last 20 years corresponded to the average Russian rate, but the infant mortality rate (between 30-60 per 1000 live births) was much higher than that of the Russian Federation overall (15-20/1000 live births).

Charts and Graphs

As this was an assessment project, we have highlighted several notable statistics which were uncovered during the process, in lieu of normal indicators of stress reduction and impacts on water and environment.

This first graph shows the recommended and actual nutrition patterns of people in the Russian regions of Khanty-Mansi, Evenki, and Khabarovski, with respect to the amount of proteins, fat, and carbohydrates they consume.

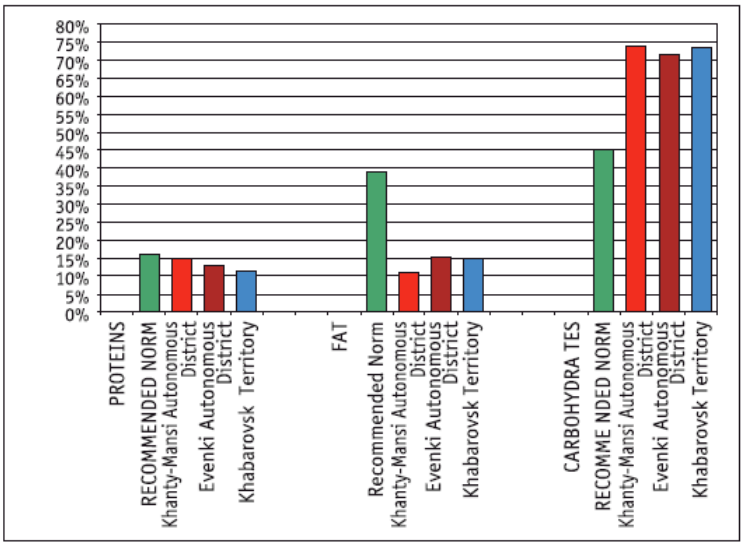

Figure 2.1. Recommended and actual nutritional pattern of northern indigenous peoples in some Russian regions, according to data of the State Statistics of the Russian Federation (compiled from Pika and Prokhorov, 1994).

This chart highlights activities associated with risk of Persistent Toxic Substances (PTS) exposure, with the results being drawn from a questionnaire. It includes the percent of pregnant women who reported exposure, as well as the numbers drawn from the general population.

Type of exposure	Site of exposure	Percent of pregnant women reported exposure	Per cent of general population reported exposure
Occupational	fishing/hunting, casting of pellets/plummets	0.9	7.3
	Reindeer herding, lather and fur handicrafts, animal treatment, maintenance female worker, veterinary	10.4	4.63
	Nurse, hospital worker	10.0	4.63
Vegetable gardening	Gardener	19.1	30.5
Use of toxic substances	Any place	41.3	34.1
	At home	39.6	30.96
	At work	5.2	2.3
	In vegetable garden	2.6	0.63
	Against rodents	6.1	3.74
Adverse habits	Smoking	35.2	54.1
	Alcohol abuse (including home-made hard liquors)	57.8	69.9

Table 4.33.
Activities associated with risk of PTS exposure (according to questionnaire).

This graph illustrates the main causes of mortality in the indigenous population of the Chukchi Autonomous Okrug (CAO), with the results indicating that cardiovascular diseases and traumas/accidents accounted for the highest number of fatalities between the years 1991-2001.

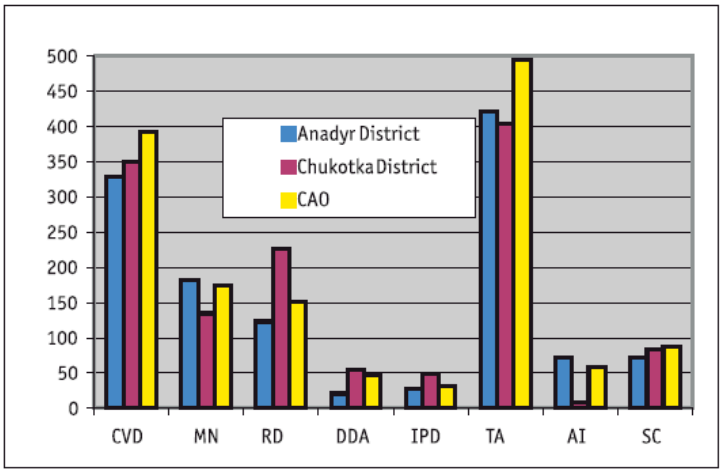

Figure 8.5. Main causes of mortality in the indigenous population of the CAO, 1991-2001; mortality rate per 100000.
Abbreviations: CVD – cardiovascular diseases, MN – malignant neoplasms, RD – respiratory diseases, DDA – diseases of digestive system, IPA – infectious and parasitic diseases, TA – traumas and accidents, AI – alcoholic intoxication, SC – suicide.