

## Sustaining Salt Iodization Program in the Russian Federation\*

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### 1. IDD CONTROL PROGRAMS IN THE FORMER USSR AND RUSSIA

Iodine Deficiency Disorders (IDD) have been known to exist in Russia for centuries. Recent IDD surveys performed in 1990-1998 have identified IDD of varying levels of severity (from mild to severe). Undoubtedly, IDD is a significant public health problem in the Russian Federation. There are other important factors to consider: accidental radiation increases risks of thyroid cancer as shown following the Chernobyl accident. Protection of the population within reach of potential accidents from radioactive material is a serious public health issue and one requiring, perhaps, priority attention as part of a national endeavor to eliminate IDD.

IDD were virtually eliminated in the USSR in the period 1950-1980. This was accomplished by a mix of means including iodized salt production and use, and careful monitoring. However, as in many countries, IDD returned when systems became lax, or supervision waned, and when regular effective was monitoring reduced. Even when continued, an outmoded fortificant was used for the iodization of salt and it was produced on a limited scale. It is safe to presume that iodization of salt stopped as a public health measure after the dissolution of the Soviet Union in 1991. However, long before the breakdown of Soviet Union, in 1970s-1980s, IDD control system was not fully efficient. In 1989 requirements for iodized salt in the Soviet Union were 1,2 million

tonnes, whilst only 786,000 tonnes were produced (65% of demand). The quality of iodized salt was universally low. Regular monitoring of iodine content in salt on wholesale and retail levels performed in 1985-86 showed that less than 50% of salt samples had the required level of iodine, while in others iodine levels were reduced or absent.

Production of iodized salt was regulated by outdated document GOST-13830-91 (state industrial standard code), adopted in 1991. Main regulated issues are: chemical composition, particle size, packaging, labelling, storage and transportation. Regarding salt iodization, this document required the use of potassium iodide (KI) at the level of 23+/-11 ppm of iodine (both on production and consumer levels). Iodized salt was required to be packed in nontransparent polyethylene bags or carton boxes. The shelf life of iodized salt was only 3 months. Iodization of vacuum salt («Extra» grade) was prohibited.

Starting from 1997, salt producers in collaboration with the Ministry of Health and with the support of UNICEF and bilateral agencies (USAID and others) increased their efforts to produce quality assured iodized salt. In November 1997 UNICEF in collaboration with Ministries of Health and USAID sponsored OMNI/PAMM program organised a meeting of salt producers of Russia, Ukraine and Belarus and supporting national and international organisations "Iodized salt production: problems and solutions". The purpose of this meeting was to bring together key actors, to examine current barriers and

\* Salt Situation Analysis in the Russian Federation was supported by UNICEF

to discuss solutions needed to bring iodized salt to every table. In the resolution of this first meeting, salt producers of Russia, Ukraine, and Belarus jointly agree that IDD is serious public health and economic treat to their nations, and that it is **the responsibility of regional salt producers to lead in the effort to eliminate IDD**. Salt producers agreed to produce quality assured iodized salt and implement universal salt iodization as soon as iodization equipment is installed and appropriate legislation adopted. They also agreed to implement fortification of salt with potassium iodate and increase level of iodization to 40+/-15 ppm according to WHO/UNICEF/ICCIDD recommendations.

UNICEF with Kiwanis funds supplied Russian salt producers with iodization equipment and laboratories for quality control of iodine in salt, and provided funds for training.

## 2. SALT PRODUCTION IN RUSSIA

Salt production in Russia started from the 12<sup>th</sup> century. Salt was extracted from the natural salt brines and salt deposits, which lie close to the ground's surface. In the second half of the 20<sup>th</sup> century the former Soviet Union is characterized by sharp increase of demand and production of salt for all branches of industry (especially chemical). In 1987, the total production of salt in the USSR reached 15,400,000 tones. Since the break-up of the former Soviet Union, salt production has declined in Russia from 3,600,000 tones in 1992 to 2,104,000 tones in 1996. Potassium fertiliser manufacturers additionally produced 1,500,000-1,700,000 tones of salt as by-product.

Currently, the following methods of sodium chloride production in Russia are employed:

- Open extraction of salt from the salt lakes resulting in relatively low quality **lake salt**, which is mainly used for needs of chemical and other industries;
- Underground mining resulting in **rock salt** which is used both for industrial application and for human consumption;
- **Vacuum salt** production mainly for human

consumption;

Since salt as a raw material is integrated in the whole industrial system of Russia, general economical recession causes lower demand and therefore lower production level. Industrial salt consumers are unable to pay for salt they need because of lack of financial resources. Salt producers tend to supply salt only against payments. The main facilities of Russian salt producers require reconstruction and regular maintenance, which are not performed properly because of financial constraints. Breakdown of centralised distribution system of the USSR caused problems with salt trade.

Currently the following products are available on the market:

1. **Rock salt:** grade «Highest», grinds 1,2,3, stone lumps and blocks;
2. **Lake salt:** grade «First» or «Second», grinds 1,2,3, stone lumps and blocks;
3. **Vacuum salt:** grade «Extra».

Russian salt producing industry consists of two main groups:

«**Genuine**» **Salt Producers**. Before dissolution of Soviet Union in 1991, these «genuine» salt producers were under the Ministry of Food Industry of the Russian Federation. During the period of economic reforms which started in Russia after 1992 most of Ministries within the Russian government were liquidated. Instead, quasi-governmental structures (Associations, Holdings, etc.) were organised. Salt producers formed an association «Solprom» («Salt Industry»). «Solprom» is an expert and advisory organization on issues of salt production for the Russian government. «Solprom» also represents salt producers in relations with the Ministry of Agriculture and Food of the Russian Federation. There are seven enterprises cooperating with «Solprom». Among them three small salt plants, which have outdated technology and limited production of salt (up to 1,500 tones per year) serving local needs.

**Producers of Potassium Fertilizers.** There are two

potassium fertilizers producers, «Uralkali» and «Silvinit», which produce considerable amount of sodium chloride as a by-product. Before privatization, potassium fertilizers producers subordinated to the USSR Ministry of Chemical Industry. Nowadays they are private (joint-stock) companies. Potassium fertilizers producers form organization which is called «Association of Potassium Producers».

Thus, most of food grade salt in Russia is produced only by 6 main enterprises, which cover up to 80% of requirements of retail trade and food industry. Actual production of food grade salt in 1997-1998 constituted 27-29% of total salt production. Production of iodized salt in 1998 increased almost 4 times compared to 1997 data and reached 8% of total food grade salt production (Table). However, it should be mentioned, that not all food grade salt is used as edible salt for human consumption. Estimated annual requirement for edible salt for Russian population, 147 million people, (3,5 kg per person) is 500,000 tones, or about 50% of all food grade salt production. Out of this amount, 17% of salt is iodized. There is no reliable information on amount of iodized salt packed in small-sized bags; it was estimated that up to 30% of all salt produced for retail in small-sized bags is iodized. In the first 4-5 months of 1999 the relative amount of iodized salt production decreased; however, this decrease may be in part explained by overall increase of production of food-grade salt (from 29% in 1998 to 39% of total salt production in 1999) due to significant decrease of salt import from Ukraine.

The main producer of iodized salt in Russia is «Iletsksol» salt mine. Production of iodized salt in this mine increased from 10,000 tones in 1997 up to 47,252 tones in 1998. «Uralkali» is the second largest iodized salt producer. This plant increased iodized salt production from 7,200 tones in 1997 up to 25,200 tones in 1998 or up to 21% of all food grade salt. In the first 4 months of 1999 iodized salt production on «Uralkali» increased further up to 34,6% of all food grade salt.

### 3. SUSTAINING THE PROGRESS

Universal Salt Iodization (USI) means that 90% or more salt for human consumption (for retail trade and food industry) must be iodized. It also means that salt for animal consumption must be supplied in iodized form. This has not yet been achieved in Russia. Currently potential requirements for iodized salt are covered only by 15-20%.

There are no significant technical obstacles to salt iodization: all production sites in Russia have the necessary equipment to produce quality assured iodized salt. The main reason for insufficient iodized salt production is lack of legislation requiring production of *only* iodized salt for human consumption. Lack of legislation and enforcement results in low consumer demand for iodized salt. Currently issues of iodized salt production, trade and quality monitoring are regulated only by decrees of the Ministry of Health. An advocacy effort aimed on creation of good environment to legislation initiatives and adoption of appropriate laws on USI is needed to encompass the following audiences:

- political leaders and decision takers, leaders of policy sectors of government such as education, labor, industry, health, commerce, finance, agriculture and trade;
- scientific societies and their members, especially the medical profession, leaders in academic institutions, civic associations, public media organs.

From the point of view of salt producers insufficient demand for iodized salt is the most important obstacle to USI. In the absence of legislation, when salt iodization is voluntary, demand for iodized salt is limited to consumer's requests. Technically, salt producers are able to produce and supply much more iodized salt to the market (ideally - to meet demand of USI).

Getting everyone to consume iodized salt means creating a new habit, a new standard for generations to come. These need development of social mobilisation framework - broad, societal approach which promotes political commitment, community participation and encompasses the important



elements of marketing such as audience segmentation and message design. The national plan for IDD elimination must therefore include strong communications element.

It is absolutely clear that salt iodization will not take place unless salt producers start iodize their salt. Therefore salt producers should be much more

actively involved in national IDD control programs. Russian salt producers clearly understand their crucial role in national effort to combat iodine deficiency and prevent brain damage, impaired mental performance and risk of low intelligence of future generations.

**Table 8. Salt production (tones) by 6 main Russian salt mines in 1997-1999.**

	1997	1998	1999*
Actual production of salt	3,356,726	3,619,438	1,165,357
Actual production of food grade salt	904,504	1,067,035	456,149
(% of total production)	(27%)	(29%)	(39%)
Actual production of iodized edible salt	19,929	83,494	29,543
(% of total food grade salt)	(2,2%)	(8%)	(6,3%)

\* - 4-5 months