

Russian Federation

The history of the USSR offers evidence of success in eliminating goiter and cretinism during the 1950-60s (1). However, after large-scale goiter surveys during the late 1960s demonstrated that new cases of cretinism had ceased and the prevalence of goiter had fallen to a sporadic level, the MOH in Moscow proclaimed the problem as a “virtually eliminated disease”, abolished the direction and oversight, and discontinued the monitoring of the iodized salt supplies and the iodine status of the population. As can be expected on hindsight, iodine deficiency made a comeback and similar as in other Soviet Republics, surveys in the Russian Soviet Federative Socialist Republics during the 1980s revealed that goiter and iodine deficiency had reoccurred already prior to the dissolution of the Soviet Union in 1991 (2).

After 1991, the salt enterprises in the Russian Federation were privatized while the centrally planned and regulated economy was making way for a market-based trade system. In the scientific community, the understanding started slowly changing from the previous emphasis on prophylaxis in goiter endemic areas, toward a public health approach aimed at improving the iodine supplies in the common diet. During the 1990s, the Endocrinology Research Center (ERC) in Moscow, which had played a major role in the previous approach, continued conducting regional iodine surveys in the Russian Federation, thereby helping to build the evidence base for policy-making. In contrast to the previous goiter surveys, the iodine surveys conducted by the ERC during the 1990s measured UI concentrations and thyroid volume by ultrasound and found that iodine deficiency was evident in practically the entire Russian Federation (3). In 2003, the findings of the ERC were corroborated by sample surveys among 2,673 schoolchildren aged 8-10y in a Thyromobil project throughout the European part of Russia (4).

During the Soviet period, the production of salt was promoted by establishing large-scale enterprises under the Ministry of Food Industry. The Salt Industry Research and Development Institute of the Ukrainian SSR developed heavy machinery for salt harvesting and processing for the various Republics, including Ukraine, Russia, Kazakhstan, Turkmenistan and Tajikistan. Potassium iodide was readily available from mines located in Azerbaijan, Russia, Turkmenistan and Ukraine. For the supply of iodized salt, the industry standard prescribed a relatively low level of 23 ± 11 mg iodine/kg, and each enterprise was given an annual plan, which for all practical purposes had the power of law. From 1950 to 1965, the total supply of iodized salt in the USSR increased from approx. 100,000 to almost 1,000,000 MT/y (1). With the passage of time, however, the aging technologies and the stagnant QA methods in the salt enterprises became less capable to maintain the required range. Moreover, due to the relative instability of KI and the losses of iodine from the poor packaging and long supply routes, the quality of iodized salt in the retail outlets became increasingly uncertain, and by the mid 1980s, the sanitary-hygiene stations of MOH reported more and more findings of low quality iodized salt. And at the same time, also the amount of iodized salt production started to decrease, along with the overall decline in the centralized Soviet economy. By 1990, the production of iodized salt reached only 56% of the planned amount of 1.4 million MT (1).

On joint initiative by the Presidents Clinton and Yeltsin at the Vancouver summit in 1993 (5), Vice President Gore and Prime Minister Chernomyrdin established a Joint Commission on Economic and Technological Cooperation, (i.e. the Gore-Chernomyrdin Commission or GCC), which was aimed to

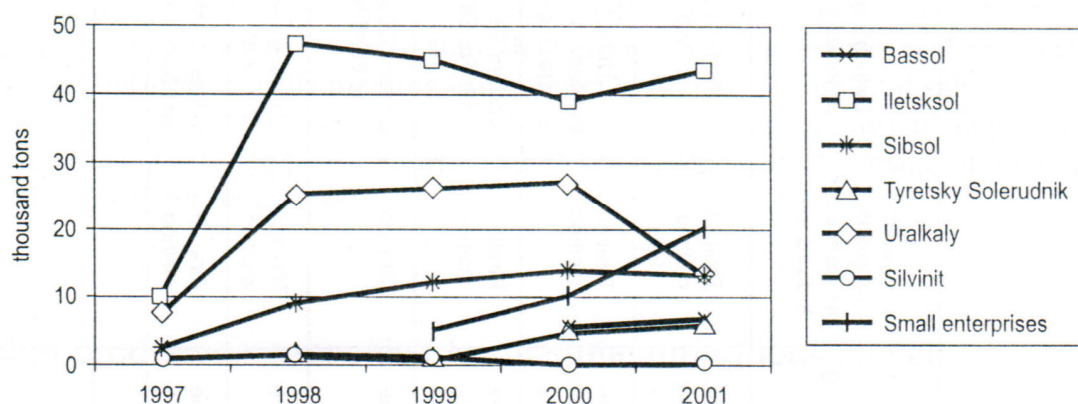
promote mutual cooperation on a range of subjects of mutual interests. At the first meeting of the GCC Health Subcommittee, agreement was reached on the priority areas, including environmental health and maternal and child health. In the spring of 1996, at the 10th anniversary of the Chernobyl nuclear meltdown, which had led to a starkly increased thyroid cancer incidence in children exposed to the resulting ¹³¹I fallout, international scientists and the US CDC emphasized the importance of iodine deficiency using, in part, the potentially decreased risk of thyroid cancer from the assurance of optimum dietary iodine supplies. The CDC scientists contacted the US Assistant Secretary for Health, who brought this issue to the attention of the GCC, and in November 1996, scientific staff briefed the GCC Health Subcommittee, pointing out the prevalence of IDD in Russia and the cost-effectiveness of salt iodization for eliminating the IDD problem in the Russian Federation. Although the Russian MOH officials did not consider IDD a significant problem, Russian high-level policy makers warmed to the idea, especially after a two-day briefing in Washington by US and Russian experts in science and technology, together with staff of the food industry, NGOs and UN agencies. Upon a signed agreement between the US and RF Ministers of Health in February 1997(6), USAID was directed to provide support and an action plan to promote USI legislation in the Russian Federation became part of the regular agenda of the GCC Health Subcommittee.

The increased mutual collaboration through the GCC, together with the funding for various pertinent inputs and activities, led to a succession of events (5) that stimulated progress toward USI in the Russian Federation and beyond. Workshops, meetings and conferences in Moscow and elsewhere set off a proposed “Healthy Nutrition Policy in Russia” (April 1997), launched an action plan on addressing micronutrient deficiencies (June 1997), informed the Russian scientists and officials of the IDD policies and issues in Europe (September 1997), encouraged the salt producers and associations of Russia, Ukraine and Belarus to collaborate in the national efforts (November 1997), devised a monitoring approach for iodized salt supplies and biological status (June 1998) and reformulated the medical training by including modern knowledge of IDD and USI (June 1998). Policy initiatives in legislation and regulation during this period included a Decree on IDD control by the Deputy Minister of Health (May 1997), a Resolution by the Chief Sanitary Physician on norms and requirements for iodized salt production and trade (April 1998), a Resolution by the Federal Government to adopt the IDD control program (October 1999) and an order by the Ministers of Health of the Russian Federation on IDD prevention (December 1999). During 1999, Russian MOH Officials introduced a draft proposal for collaboration on USI in the CIS countries, which led to an agreement, signed by the Prime Ministers at the CIS Secretariat in May 2001, on harmonized mutual assurances of the quality of iodized salt in cross-border trade, as well as a common standard for iodization at 40±15mg iodine/kg, adopting KIO₃ as the single fortificant (1). As a final accord from the joint Russian-US collaboration, an international conference was held in Moscow in February 2000 on the subject of “State Healthy Nutrition Policy; Elimination of Micronutrient Malnutrition in the Russian federation” which accorded priority to USI as a dietary improvement strategy.

The change to a market-based economy after 1991 effectively abolished the existing legal frameworks for iodized salt production and distribution in Russia, without replacing it with guidance or the resources for the salt industry to conduct its business. MOH reported that in 1996, less than 1% of the edible salt

in Russia was iodized and that only specialty shops offered the product at a higher cost (5). The supply of iodized salt came to its lowest level of 25,000MT in 1997. Meanwhile, UNICEF's global experience in promoting USI had led to the realization (7) that the salt productive industry has an indispensable key role in achieving USI. Therefore, together with like-minded partner organizations, UNICEF started promoting the inclusion of the Russian salt industries and associations in the activities stimulated through the GCC collaboration.

A turning point for iodized salt production emerged at a 1st joint meeting of salt producers of Russia, Ukraine and Belarus in Moscow, November 1997, which reached agreement to raise the iodization level to 40±15mg iodine/kg while gradually transferring to the stable KIO₃ fortificant. The Chief Sanitary Physician officially endorsed this standard in the above-mentioned Resolution of April 1998, followed in October 1999 with additional specifications for labeling, packaging, storage and certification of iodized salt. While during the 1990s, the six major salt enterprises in Russia had been able to reorganize their technology and re-establish their production, trade and sales networks, and UNICEF helped with funds from Kiwanis International to strengthen the capacity and accelerate the iodized salt supplies by donations of equipment and KIO₃ to the Russian salt plants. Consequently, the iodized salt supply by the Russian enterprises started increasing again (Figure 1), and by 2000 the combined capacities of the Russian salt industries were adequate to provide the full required amount of iodized edible salt for Russia (8).



Iodized salt production in the Russian Federation, 1997-2001 (ref 8)

A thorough and detailed salt industry situation assessment in 2002 (8) describes the six major salt production enterprises and their practices in salt production, iodization and sales. As in other reports, the salt industry assessment clearly exposes the constructive and supportive position of the Russian salt industry in the national effort toward USI. The consumer salt sales in Russia constitute less than 10% of the total salt market (9), which was estimated at 4.5million MT in 2005. The largest producers of salt overall are Bassol (Astrakan Region), Silvinit (Perm) and Iletskol (Ohrenburg), but in the consumer salt markets, the large companies Iletskol and Sibsol (Irkutsk), together with a few specialized packaging enterprises in large urban centers, play the major roles. In addition, under the increased "free trade" policy, the markets for salt in Russia are witnessing vigorous competition by foreign sources. Among the

international contenders are producers in Ukraine (Artemsol) and Belarus (Mozyrsol), who together are capturing as much as one-third of the Russian markets. The competitive strengths of the different supply sources is determined for the most part by their distance to the main markets, because the transport costs make up $\pm 60\%$ of the average landed price (10). The size of salt reserves in Russia is abundant (11), but the domestic salt industries are facing a major cost obstacle in their ability to compete on basis of the cost of shipping salt over long distances.

As described above for the 1997-2000 period, the momentum stimulated by the collaboration under the Gore-Chernomyrdin Commission had led to a series of official measures toward creating a legislative basis for USI. Soon it became apparent, however, that arriving at a comprehensive legislative framework would not proceed without obstacles. The Decree on IDD control by the Head Sanitary Physician in May 1997 included a ban on the import and trade of non-iodized consumer salt on Russia's territory. In response, the Ministry of Justice raised the objection that this would violate the Russian Constitution, which then prohibited the MOH to put the ban into effect. Because the various other decisions were voluntary or self-binding, no objections were voiced against the norms and specifications for iodized salt, nor was there disagreement about the direction by MOH that the institutions under its jurisdiction should only avail of iodized salt. Further actions of MOH included the request to its colleague Ministries that they purchase iodized salt for the canteens, schools, prisons, barracks and other catering networks. In the end, however, the key missing element in reaching for a complete USI statute was the lack of political will across all the constituents in decision-making for compulsory iodization of salt (1).

After the concluding conference of the Gore-Chernomyrdin Commission, the like-minded partners in Russia, including the Russian Salt Producers Association, government agencies, public health scientists, and the Confederation of Consumer Societies (KONFOB) continued their collaboration under a Public Coordination Council for IDD elimination (13). During 2002-2007, the Council continued with joint development of a proposal for a Governmental law on IDD prevention based on USI as the principal strategy. However, during 2003-2007, the Council of Ministers rejected the proposal twice, stating that USI would limit the freedom of consumer choice and that free entrepreneurship prevails over narrow legislation on one issue of food composition. Therefore, the official salt iodization directions up to the present in the Russian Federation remain an essentially voluntary approach based on the promotion of iodized table salt in combination with tolerating the sale of iodine-enriched other food products. In addition, the enforcement of the recommendations of MOH and the agreement to use only iodized salt in State catering institutions appears to be poor.

To achieve true USI legislation under the Russian Constitution, the alternative for the previous proposal of a Government decision through the Council of Ministers is that a Federal Law or an amendment of an existing law would be enacted by the Russian Parliament (12). This is unlikely to be attainable under the current political landscape of decision-making. Because salt is a cheap product with a very small profit margin, the clout of the salt industry with politicians and officials is no match for the political influence of other companies that are positioning their products, such as iodine tablets, iodized water and milk, iodcasein, etc, as alternatives for the USI strategy. Moreover, although the public health concept of USI as the single and most cost-effective solution for IDD has been increasingly understood among the main proponents, the key scientific advisors of Government continue their emphasis on an "encompassing"

approach, which means including alternative iodine products, and persist in the opinion that IDD elimination should be achieved by “consumer choice” and “free entrepreneurship” (14).

While the work on a proposed legislation in the Coordination Council was ongoing, the Russian MOH issued a joint strategic review in 2003 on the use of iodized salt in the bread industry (15). The report included comprehensive reviews of the biological, technological and economic considerations that would underlie the adoption in the Russian bread industry of the exclusive use of iodized salt in bread production. In view of the continued political insistence on permissive legislation, a combination of promoting voluntary iodized salt supplies with the prescriptive use of iodized salt in bread baking can offer an approach to achieve the objective of IDD elimination without mandatory USI, as shown by the experience in Belarus and other countries. An experimental study in Russia has demonstrated that the consumption of bread produced with iodized salt improves the iodine status among school children (G Gerasimov, personal communication). With the entry of GAIN in the global coalition for salt iodization (16), a focus on working with the bread industry would seem attractive in propelling the IDD elimination goal by 2015, the deadline for achievement of the Millennium Development Goals.

Tables 1 and 2 show the improvements in the supplies and quality of iodized salt that were taking place during the first years of this century. These data were collected as a special effort because the reporting of iodized salt supplies and quality has not been initiated by either the salt producers association or the MOH on a routine basis. The stalled supply of approx 150-160,000MT/y during this period illustrates the limitation of an effective trade demand in consumer and food industry retailing under the current voluntary approach. In terms of the quality of iodized salt, however, the inspections by sanitary officials indicate continued improvement in meeting the agreed specifications.

Net supply of iodized salt (MT) in the Russian Federation (ref 12)

1997	1998	2000	2001	2004	2005	2006	2007
25,000	100,000	131,000	136,000	157,000	163,000	160,000	145,000

Table 1: Supply data provided by the Russian Association of Salt Producers

Iodized salt quality inspections in the Russian Federation (ref 12)

	Samples with improper iodine content			
	2000	2002	2004	2006
All salt	16.7	9.6	6.7	4.5
Imported salt	15.8	13.7	7.5	3.0
Salt production enterprises	8.7	4.2	3.9	0.7
Trade outlets	14.6	9.5	6.7	4.5
Hospitals, schools and kindergartens	18.7	10.6	6.4	4.3

Table 2: Quality test data provided by the Russian Ministry of Health

Table 3 compares the key iodine nutrition data from surveys in selected administrative regions of Russia gathered by the ERC in Moscow before and after 2000. The comparison indicates that despite the restoration of the amount and the improvement in quality of the iodized salt supplies, little impact is yet

visible of an improvement in iodine status of the population. This is not surprising at the sales and user rates of iodized salt which have been stalled at $\pm 30\%$ for many years (12).

Iodine nutrition indicators in Russia, 1991-99 and 2000-5 (ref 12)				
Administrative division	Goiter rate (%)		Median UI ($\mu\text{g/L}$)	
	1991-99	2000-5	1991-99	2000-5
Moscow region	12-29	3-17	25-83	77-121
Belgorod region	8-13	12-16	74-136	58-61
Komi republic	6-15	7-30	52-160	43-180
Arkhangelsk region	11-98	17-89	30-74	29-84
Volgograd region	4-16	9-16	16-56	58-96
Krasnodar region	10-23	0-8	48-57	38-129
Tartarstan republic	48	4-12	77	47-89
Udmurtia republic	16-48	5	64-86	55
Krirov region	14-28	18-37	56-78	52-84

Table 3: Comparative data of iodine deficiency before and after 2000

In conclusion, the Russian Federation emerged from the Soviet period with evidence of a re-emergent and significant iodine deficiency problem after a previously successful prophylactic approach, which included directed iodized salt supplies to affected areas but was abandoned after large-scale surveys in the late 1960s showed that goiter and cretinism had been overcome. Russia has abundant salt deposits and major salt enterprises that partially supply salt also to neighboring countries. Because the cost of transport takes a high share in the landed price of salt, the Russian enterprises face fierce competition, especially in the highly populated European part of Russia by salt producers from Ukraine and Belarus who serve approx. 25% of the salt market in Russia. The Russian salt industry is united, it rebuilt its acumen during a period of significant economic hardship, and with some external assistance all the enterprises possess the full technical and managerial capacity for quality salt iodization. Most of the 1990s period witnessed high activity to develop a multi-sector partnership and the necessary frameworks for the USI strategy, consisting of supportive evidence, legislation and regulation, and product monitoring. The same period also revealed for the first time that mandatory decisions in the Russian Federation are politically opposed by citing the rights of free consumer choice and of free enterprise, which are stated to be grounded in the Constitution.

Although the current statutes include accepted norms for iodized salt quality and encouragements for its use in large catering institutions, the progress to attaining USI is hampered by the lack of compelling legislation. This situation has opened the doors for the aggressive promotion of so-called “alternative” products by local and foreign companies who have the financial clout in swaying the opinions of politicians and decision-gatekeepers. The iodine status in the population is being continuously tracked by small, localized surveys and a formal national iodine survey is still awaited. At the same time, the limited iodized salt supply which is stalled at $\pm 30\%$ of the total consumption is failing to raise the iodine consumption of the population to acceptable levels. The partners like-minded in supporting the goal of

IDD elimination are reassessing the principle approach and have started directing their collaboration toward efforts to engage the bread industry, in analogy of other countries in Europe.

Participation of national officers in UNICEF-supported regional and international meetings:

- Joint Workshop on the Elimination of Iodine Deficiency Disorders, Ashgabad, Turkmenistan, Economic Cooperation Organization, UNICEF, WHO, June 1994
- Conference on Elimination of Iodine Deficiency Disorders (IDD) in Central Eastern Europe, the Commonwealth of Independent States, and Baltic States, 3-6 September 1997, Munich, Germany
- Regional Salt Producers' Meeting, 29 September – 1 October, 1999 Kiev, Ukraine
- RUB salt producers meetings, Moscow (GCC Commission); Conference of Iodized Salt Producers and Suppliers of the Russian Federation with international participation, 16-17 October 2002
- UNICEF-ADB Regional Workshop for Salt Producers, Bishkek, Kyrgyz Republic, July 2004
- Workshop on Strengthening Strategies for the Elimination of Micronutrient Malnutrition. Ankara, Turkey, 13-17 September 2004
- Workshop on Strengthening of Laboratory Capacity and Iodine Status Assessments for Monitoring of Sustained IDD Elimination through USI in the CEE/CIS Region. Istanbul, Turkey, 18-19 May 2006

References/important documents

1. Gerasimov G, 2002. Iodine deficiency disorders (IDD) in the Russian Federation: A review of policies toward IDD prevention and control and trends in IDD epidemiology (1950-2002). Moscow, internal UNICEF document
2. Several contributions in the International Symposium of the Elimination of IDD with special reference to the USSR, held in Tashkent, 18-22 November 1991. *IDD Newsletter* **8(1)**: 1-12
3. Gerasimov G, 2002. IDD in Eastern Europe and Central Asia. *IDD Newsletter* **18(3)**: 33-37
4. Dedov II, Melnichenko GA, Peterkova GA, Troshina EA, Abdulkaribova FM, Mazurina VN, Platonova NM, Kavtaradze FR, Kichikova ZD, Arbuzova MI, Gerasimov GA, 2004. The 2003 IDD status research in Russia using Thyromobil. *IDD Newsletter* **20(4)**: 74-75
5. Jackson RJ, Delozier DM, Gerasimov G, Borisova O, Garbe PL, Goulchenko L, Shakarishvili, G, Hollowell JG, Miller DT, 2002. Chernobyl and iodine deficiency in the Russian Federation: An environmental disaster leading to a public health opportunity. *J Publ Hlth Pol* **23(4)**: 453-470

6. US Secretary of Health and Human Services Dr. D Shalala, and Russian Minister of Health Dr. T Dmitrieva, 1997. Joint Statement on the Problem of Micronutrient Malnutrition. Washington, DC, 5 February 1997
7. Maberly GF, Haxton DP, Van der Haar F, 2003: Iodine Deficiency – Consequences and progress toward elimination. *Fd Nutr Bull* **24(4)**; S91-S98
8. Apanasenko B, Gerasimov G, Koltunov V, 2002. Iodized salt in the Russian Federation – Review and situation analysis. UNICEF, Moscow
9. Survey of the Russian market for salt, 2009. <http://www.marketcenter.ru> (Accessed 11 January 2010)
10. Kondrateva IF, 2009. Russia's salt industry – Problems of development. *Studies on Russian Economic Development* **20(3)**: 254-258
11. US Geological Survey, 2009. Minerals Yearbook Commonwealth of Independent States. <http://minerals.usgs.gov/minerals/pubs/myb.html> (Accessed 11 January 2010)
12. Gerasimov G, 2008. IDD elimination in Russia: Challenges and solutions. *IDD Newsletter* **28(2)**: 1-6
13. Resolution of the National Conference of Iodized Salt Manufacturers and Suppliers in the Russian Federation, Moscow, 16-17 October 2002. Internal UNICEF document
14. ICCIDD annual Board meeting and round table on IDD in Moscow. *IDD Newsletter* **28(2)**: 7-8
15. Ministry of Health of the Russian Federation, Russian Academy of Sciences, Research Center of Endocrinology, IDD Centre, Moscow State Academy of Technology, Institute of Nutrition, 2003. Use of iodized salt in bread industry (In Russian). Internal UNICEF document
16. <http://www.gainhealth.org/programs/US/> (Accessed 14 November 2010)