

IDD Elimination through Universal Salt Iodization in Kazakhstan

Kazakhstan has built a model USI program over the past decade that should ensure sustainable elimination of mental impairment and goiter due to iodine deficiency.

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Iodized salt will protect young women in Kazakhstan from iodine deficiency

Background

The Republic of Kazakhstan is located in central Eurasia. The size of its territory makes it the 9th largest country in the world and the population by January 2006 numbered 15.2 million. The urban and rural shares of the population are 57 and 43 percent, respectively. Almost one

quarter of the population is less than 15 years old and the number of newborns each year is close to 200 thousand. During the past 5 years, GDP growth in Kazakhstan has been among the highest in the world at 9 percent on average, boosted by a growing production of crude oil and natural gas. Departing from a relatively low budget of less than 2 per-

cent of GDP in 2003, the public expenditure for national health care services is projected to grow to 4 percent by 2010, including a sizable increase in budget allocation for preventive public health.

Prior to Independence, Kazakhstan was one of the USSR Republics. The Soviet historical record offers ample evidence that following a period of quick success in controlling endemic goiter and cretinism by the late 1960s, iodine deficiency made a comeback during the 1980s. Central oversight was abandoned and the changes in dietary iodine supply and consumption, as well as biological status, were no longer monitored for central consolidation and decision-making. The simultaneous reduction of funding for investments in maintaining the salt industry's capacity led to a serious deterioration in the amount and quality of iodized salt supplies throughout the Soviet territory by the time of the collapse of the USSR.

Emerging as a sovereign nation in 1991, Kazakhstan had to establish its own human, administrative and industrial basis for economic development. By 1996, the need for a national policy on nutrition, including IDD elimination, had become apparent. In the same year, the



AralTuz Company, which had been established in the 1950s, was provided with financial and technical assistance by UNICEF as a first act to build the national capacity to address the iodine deficiency problem in the population. Only 10 years later, the goal of Universal Salt Iodization (USI) has been reached, thanks to a series of joint collaborative steps by a range of national organizations with steadfast support of international agencies. Evidence from a country-wide population-representative cluster household survey in early 2006 showed that 92 percent of the Kazakh households were using adequately iodized salt. This is a quantum leap as compared to the situation in 1999 when the first DHS survey showed that iodized salt was present in less than one-third of the households in Kazakhstan. Moreover, 3 months later, in 2006, a National Micronutrient Survey demonstrated that the median urinary iodine concentration among women of reproductive age was 250µg/L as compared to 95µg/L in 1999. Further in-depth data analysis of the National Micronutrient Survey (Figure 1) revealed that the use of adequately

iodized salt ($\geq 15\text{mg}$ iodine/kg) in the households across Oblasts (Provinces) was closely correlated with the share of urinary iodine concentrations $\geq 100\mu\text{g/L}$ in the women living in these households. This affirms that the USI strategy is the underlying factor driving the alleviation of iodine deficiency in the population of Kazakhstan.

Legislation

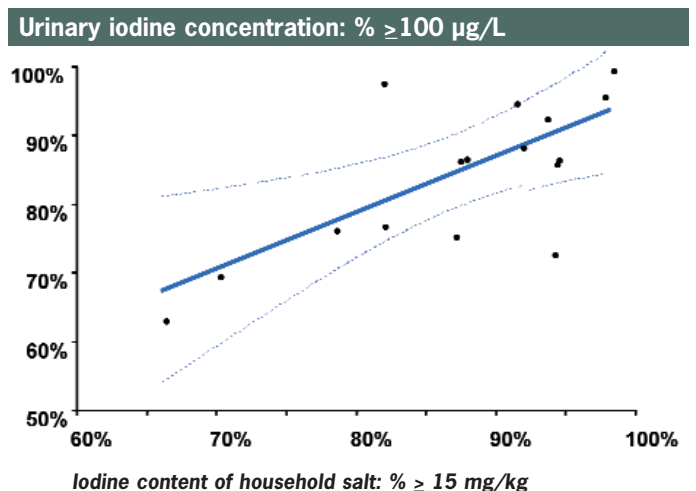
A Law “On Prevention of Iodine Deficiency Disorders” was enacted on 14 November 2003. It bans the sale or trade of non-iodized salt in Kazakhstan, thus making iodization compulsory for all the edible, food-grade and fodder salt accessible by the population, the food manufacturing industry and the cattle breeders. This principal law specifies also the exclusive use of potassium iodate (KIO₃) as the salt fortificant and lays down the requirements for packaging, labeling and storage of iodized salt. The Inter-State agreement, signed in May 2001 by the Heads of State of the Commonwealth of Independent States at their meeting in Minsk, Belarussia, has been adopted for the normative iodine level in salt at production, import and trade, i.e., $40 \pm 15\text{mg}$ iodine per kg salt. The national legislation on IDD prevention is anchored in a comprehensive set of Decrees and Declarations by the President and the Government of the Republic of Kazakhstan. These aim to promote a healthy population as the basis for national development.

Salt production

The key domestic salt producers are:

- AralTuz (80-85 percent of domestic human consumption) near Aralsk in the eastern Kyzyl Orda Oblast
- SuzakTuz (± 10 percent) in South-Kazakhstan Oblast
- PavlodarSol (<10 percent) in the northern Pavlodar Oblast

The salt companies are conducting continuous quality assurance of their iodized salt by overseeing the quality and use of KIO₃ and its addition into food-grade salt during processing. This is combined with regular qualitative spot tests or quantitative measurements in a company-based laboratory. The salt producers and traders are united in a National Association of Salt Producers, which represents their interests and produces obligatory reports on the national salt production and supply. Salt inspections in the wholesale and retail markets and catering institutions are conducted by the Sanitary-Epidemiological Supervision (SES) authority. The results of inspections are summarized in obligatory quarterly reports to the Chief Health Inspector in the Ministry of Health.



Salt imports, which constitute approx. 15–20 percent of the total food-grade salt used in the country, are subject to a mandatory Certificate of Conformity. This is issued by the exporting country's food control authority and inspected by Kazakh Customs officials under the oversight of the Technical Regulation and Metrology Department under the Ministry of Trade and Industry. The three domestic salt companies must operate under the same rule for permission to release the salt products to their sales channels.

Recent progress in USI

Two landmark events were especially noteworthy for their influence in shaping the national IDD elimination effort in Kazakhstan, namely the Minsk agreement mentioned above and the Almaty Forum on Food Fortification in October of 2001.

■ The Minsk agreement among the Heads of State and Government of CIS countries stated the political will for adopting a coordinated policy and collaborating in setting uniform national iodization standards for the salt industry, as well as for the inspection of salt quality norms by the national SES authorities.

■ The Almaty Forum in 2001 was a summit gathering of multi-sector national delegations from the Central Asia region and Mongolia. They worked together with support of the Asian Development Bank (ADB) and UNICEF on program development and rules of engagement for a joint public-private-civic collaborative approach to tackle vitamin and mineral deficiencies through food fortification.

In immediate follow-up to the Almaty Forum, the Minister of Health of Kazakhstan entered into a cooperation agreement with ADB to stimulate the speedy achievement of USI and a significant increase in for-

tification of all the roller-mill wheat flour of premium and first grade. A national multi-sector coalition was formed (see photo) and started holding periodic meetings for collaborative oversight of progress and for making joint agreements on the actions required in each sector toward the fortification goals.

The ADB-managed grant project, funded by the Japan Fund for Poverty Reduction (JFPR), supported AralTuz and PavlodarSol in 2002 with equipment for salt iodization, packaging equipment and KIO₃ against one-third reimbursement of the costs. In 2005, the AralTuz Company made an additional investment in five automatic packaging machines and new iodization spray equipment. During 2006, the supply of iodized salt for domestic consumer use by AralTuz was almost 65,000 MT. The production of iodized salt by PavlodarSol has remained low and was initially of sub-par quality. Only by the end of 2006 did the internal laboratory record of the Company show that the appropriate salt iodization level had been attained.

A third salt producer, SuzakTuz, emerged during 2004 in South Kazakhstan Oblast and it expects to have adequate capacity in place by the end of 2007 for modern quality assurance of its production, estimated at about 5,000 MT/y. The domestic salt supplies are complemented by imports of approx. 15,000 MT consumption

salt per year mainly from the Russian Federation and Ukraine. The three domestic salt companies purchase their KIO₃ from a domestic chemical import firm L-Pharma, which sources it usually in the Crimea, Russian Federation.

Data on the production, import, export and supplies of iodized and other types of salt have been included in the official annual State



The USI program reaches Kazakh families living in remote mountain regions

Statistical reports of the Agency on Statistics. The production, import and export statistical data indicate that the amount of iodized salt supplied for use by the households and the food manufacturing industries in Kazakhstan is sufficient for the size of the population.

Communication of the IDD message

With technical and funding support from UNICEF and ADB, a comprehensive communications effort has been ongoing during 2002–2006 using a multitude of media, materials and channels. This is with full participation of a wide array of national stakeholders coordinated by the Kazakh Academy of Nutrition. The communications efforts quickly achieved an uncommonly high awareness that iodine deficiency is a significant threat to the intellectual performance of children and that regular use of iodized salt is the effective and sustainable remedy for prevention. Its success was due to:

- inclusion of a broad range of civic society organizations in delivering the communications drive “at the doorsteps” of the population
- keen attention to ensuring that the salt industry and its sales agents remain well-informed
- inclusion of food inspection and control bodies of SES and Customs in training workshops
- systematic targeting of key politicians with specific information and advocacy were important factors for the successful communications effort.
- various aspects of the dangers of IDD and the benefits of USI have been inserted in the ongoing training, education and awareness systems of the country
- technical and methodical learning has been assimilated in the basic and ongoing curriculums of the primary health care staff, institutions of academic learning and secondary schools. The insertion in ongoing educational curriculums of the essential knowledge about the permanent IDD threat and its dietary prevention has laid the basis for sustained acceptance of USI throughout society.

Financing

High-level political oversight of fortification policies is vested in an Interdepartmental Coordination Council on Food Fortification, headed by the Minister of Health and with members from the two Chambers of Parliament, relevant Government Departments, supportive international agencies, the NGO and scientific communities, and the food industry (salt and flour) associations. The Committee of State SES, chaired by the Chief Health Inspector, Ministry of Health, is ultimately accountable for ensuring technical progress. Practically all necessary financing of costs for USI and IDD elimination has become incorporated in the ongoing expenditures of the public and private entities involved.

The salt companies and traders have included the costs of iodization in the price of the product to their clients. The costs for inspections by SES and Customs authorities are carried in the State budgets of the respective agencies, as is the official annual reporting on national statistics. Research and surveys on iodine nutrition in the population are requested on a periodic tender basis by the Ministry of Health, with the Kazakh Academy of Nutrition among the contenders. It should be noted that the budget of the Ministry of Health has an item for iodine supplement entitlements that is no longer needed because the evidence in Kazakhstan indicates that the USI strategy alone is sufficient to ensure adequate dietary iodine supplies in the population. Thus, the entitlements of State-financed iodine supplements on a mass scale will be discontinued and are available for regular efforts to monitor the situation.

Starting in 2005, the Committee of State SES under the Ministry of Health has been building a national database to consolidate and track key performance indicators of USI for IDD elimination. The obligatory quarterly reports by the Republican SES of the salt iodine inspections, in combination with reports of the Customs Committee on iodized salt imports and the Committee on Technical Regulation and Metrology on the Certificates of Conformity are entered in the database. These data are combined and verified against information supplied by the Salt Producers Association to reflect the complete dietary iodine supply situation.

During 2006, the Ministry of Health introduced a report form for cases diagnosed in the clinics and hospitals with hypothyroidism or thyrotoxicosis with and without goiter. This data system is under review for replacement in the future with newborn TSH data from the new national newborn screening for congenital developmental disabilities, currently being introduced. The Ministry of Health recognizes the additional need for continuous surveillance of the iodine consumption, connecting the iodine supply data with iodine nutrition status indicators in pregnant women and a scheme for collecting these data is being developed.

Keys to success

The case of Kazakhstan illustrates important factors for the achievement of quick USI success.

- The principal law made the iodization of all the salt supplies compulsory. It translated the evidence of highest political will into a commitment for national action.

- The continued close collaboration among concerned leaders – captains of the salt industry, high officials of government, nationally respected academics, expert communicators, civic society leaders – formed a strong basis on which the consequent actions could thrive.

- International collaboration and generous donor funding offered much-appreciated catalytic support.

- Partly for historical reasons, but also because of the persistent leadership, advocacy and testimony by the President of the Kazakh Academy of Nutrition, IDD was widely perceived in Kazakhstan as a major nutrition problem.

- The AralTuz Company, the major national salt producer, was among the early supporters of the national program. It has sufficient supply capacity to produce a sizable amount of salt that is also exported to the neighboring countries.

- The Ministry of Trade and Industry recognized the importance of listing food-grade salt among the consumer goods for which a Certificate of Conformity had to be compulsory for any industry with customers in Kazakhstan.

- The results of transparent inspections by the national food control agency in the sales channels and markets, followed by enforcement as and when needed.

- A state-of-the-art national survey demonstrated the USI goal had been

reached, which was followed by an affirmation a few months later that optimum nutrition was achieved in the population on basis of the USI strategy.

- The Committee of State SES of the Ministry of Health is moving closer to developing a continuous food and nutrition surveillance system that can assist the concerned parties in ensuring that the success of USI in Kazakhstan will be permanent.



IDD National Coalition meeting in Astana, Kazakhstan, 2003