Moldova

Moldova depends entirely on import for its national salt requirements: about 80% hails from Ukraine (Artemsol) and the remainder from Romania (Salrom) and Western Europe. As a predominantly agrarian economy, the preservation and pickling of fish, vegetables and plant products are widespread in the households and the food manufacturing industry. Iodine deficiency has been increasingly recognized as a public health problem since the mid 1990s when population data showed 37% goiter and a median UI level of 78µg/L among 8-10y old schoolchildren (1). In 1997, a Government Decree banned the import of non-iodized salt and in 1998, the Government approved a 'National Program to Eliminate IDD by 2004', which included stipulations to establish a National IDD Committee under MOH and promote the supply of iodized salt by salt importers and its use in the homes, catering institutions and large canteens. The national program document also included provisions on quality, directions for iodine supplements and improved diagnosis and treatment in health care centers, but it specifically excluded the food industry from using iodized salt. The iodization level was set at 25-35mg/kg, using either KIO_3 or KI. Finally, the document also outlined the expected roles and responsibilities of a variety of Government departments in revising the legislation, conducting research, tracking morbidity due to iodine deficiency, monitoring the supplies of iodized salt and special fortified products, and cooperating with UN agencies. By 2000, the MICS survey showed however that only 33% of the households used adequately iodized salt (2). A UNICEF briefing document, dated 2002, noted that the cooperation among officials in the National IDD Committee was poor, monitoring at import and in the markets feeble, public awareness low, and the budget allocation to the National Program minimal.

To assist in acceleration of program activities, UNICEF supported the Maternal and Child Health Program of MOH during 2000-2004 in a range of actions including advocacy, communication, monitoring and evaluation, legislation, and supply of iodization equipment for one salt importer to begin domestic iodization (3). Being the focal point for coordination, the National Center for Preventive Medicine (NCPM) conducted high-level advocacy to raise the stature, improve the cohesion and broaden the composition of the National IDD Committee. A comprehensive Salt Situation Analysis was conducted in 2002, and a series of journalist and media briefings were held into early 2003 to prepare for a 3-month' intensive communications campaign starting from February 2003. Supported by a reputable advertising agency, the campaign raised the awareness of the public to nearly universal level, and convinced half of the mothers in Moldova that the use of iodized salt in the households was a necessity (3). Also during 2003, the four import firms, who commanded 90% of the total and 95% of the table salt supply, formed an Association 'Bigsalt' and agreed to sell table salt at a single price to their customers.

Three major efforts took place during 2004: First, a succession of two national multi-sector workshops aimed to improve the QA and QC/enforcement of the salt supplies and the monitoring of iodine intake and status of the population (4), as well as to develop a collaborative plan of action to eliminate IDD in Moldova (5); Second, an external assessment of program performance (6); and Third, a multi-sector national advocacy and communication campaign (in two phases) targeted at high-level policy makers including the Prime Minister and reaching over 450,000 secondary school students and their teachers, PHC nurses and small salt retailers (7).

Nevertheless, despite the high-level advocacy and the technical work to support Government in developing legislation, the principal Food Law enacted in May 2004 did not stipulate the exclusive import and sale of iodized salt and its use in food industry. NCPM monitoring reports showed that although the salt was fully adequate in the warehouses of the importers, ±50% of the salt in the retail outlets still had <25mg iodine/kg because of the continued supply of non-iodized food industry salt in the markets (8). The DHS in 2005 reported that 60% of the salt tested in the households was adequately iodized (9).

After completion of the 1st National Program, and in recognition of the key importance to address the issue of the continued use of common salt in the food industry, a key part of the programmatic efforts during late 2005 and early 2006 became directed toward developing an improved program proposal for the next phase, combined with the mobilization of political will in the food industry and Government to accept the USI strategy. High-level advocacy material was disseminated among politicians and the press in a 'Damage Assessment Report', 'Protection Audit' and 'Leadership Briefing' that outlined the impacts on the economy and the human condition of continued deficiencies (10). Employees of Government, science and food industry visited Switzerland and Bulgaria to observe first-hand the practical use of iodized salt in the production of common foods, such as cheese, bread, meat and meat products, pickles, etc. Also, the legislation frame and food control were discussed in-depth during the study tour (11). A workshop in Chisinau in May 2006 (12) developed the details of a proposal for the 2nd National Program, drafted a national action plan, and focused on ways to stimulate the use of iodized salt in the industries for bread and cheese on the short term and for preserves, such as sweet corn and green peas, and meat/meat products later. A national nutrition conference in late 2006 endorsed the draft 2nd 'National Program to Eliminate Iodine Deficiency Disorders', which led to its adoption in May 2007 by the Government of Moldova.

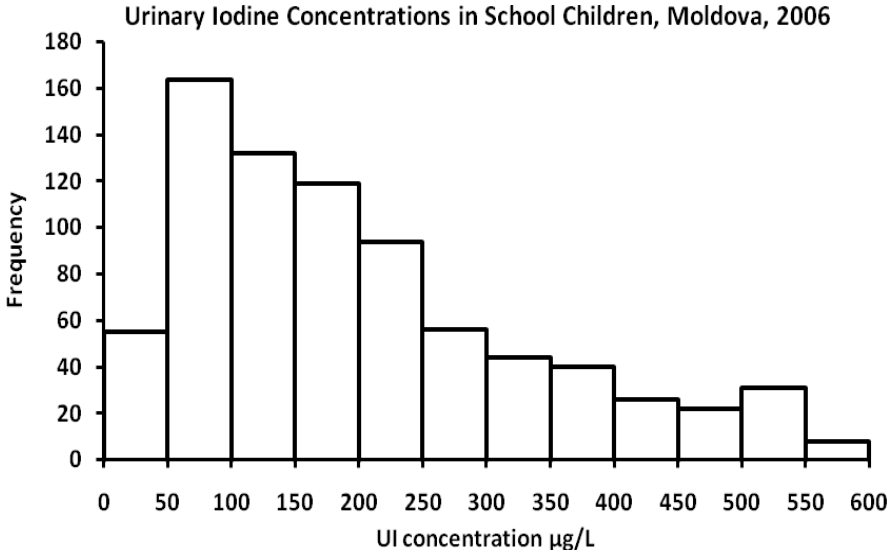

Figure 1: Histogram of urinary iodine concentrations in Grade 2-4 school children, Moldova, 2006

In the spring of 2006, a national iodine survey was conducted with the recommended 30x30 design among Grade 2-4 school children, collecting urine samples which were sent for measurement of iodine concentration in the ILRI laboratory in Sofia, Bulgaria. Also, the children were asked to bring salt samples from home for testing with a rapid test kit, and a short questionnaire was completed by the parents on the type and quantity of salt used for household use and consumption. The rapid test results indicated that 34% of the salt samples brought from the homes did not contain any iodine; 44% in rural areas and 18% in urban centers. The histogram of UI concentrations in the children is illustrated Figure 1. The median UI was 165µg/L (95% CI: 155-174), i.e. within the range recommended for school-age children, which led the draft report to conclude (13) that 'Moldova can be considered as a country where iodine deficiency is not a public health problem anymore in 2006'.

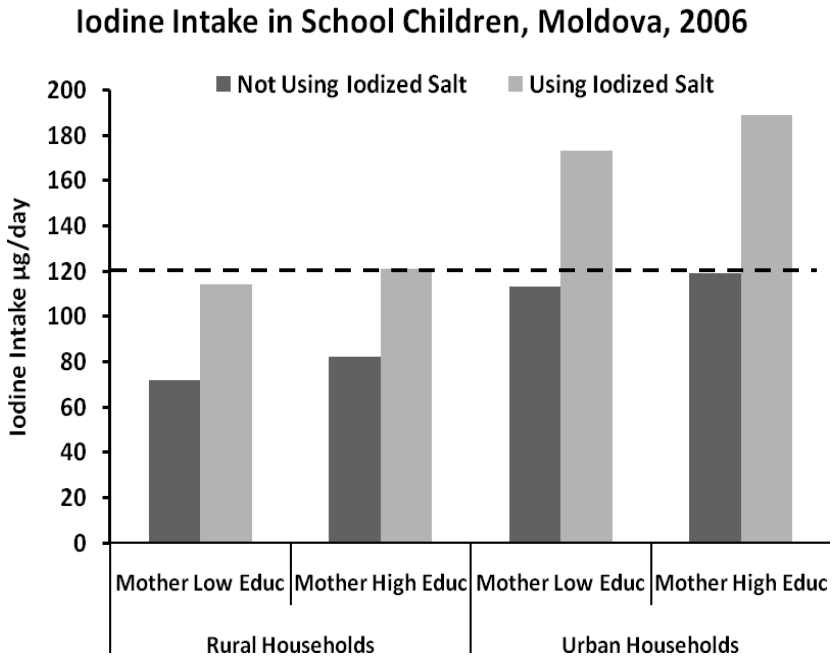

Figure 2: Iodine consumption of Grade 2-4 school children of Moldova, 2006. The recommended dietary allowance (RDA) of 9-11y old children of 120µg/day is indicated by the dotted line

Although the median of 165µg/L seemed adequate on average, the survey results did demonstrate also that USI was not attained. Especially in the rural areas the use of iodized salt in the households was below the 90% operational level. Moreover, the survey approach assessed a limited age range of the school children (Grade 2-4, ages 9-11y) instead of the full range of 6-12y recommended internationally. Finally, the UI levels among the children from the rural households that were not using iodized salt fell below the cut-off of 100µg/L for adequate iodine nutrition. The report's conclusion, therefore, would be premature and a re-assessment of the survey data proceeded as follows: First, to enable a comparison with the dietary iodine recommendations for children, the UI data were converted to iodine intake estimates, using the formula of the Institute of Medicine (14) and; Second, in a more refined analysis, the intake data were classified by area (rural/urban) and mother's education level (above or below 9

years of education). As shown in Figure 2, the findings of this re-analysis indicate that relative to the recommended dietary allowance (RDA) of 120µg/day for 9-11y old children, the iodine intake of the children in the households not using iodized salt was insufficient, particularly when the household was rural and the mother had low education. Only the children living in urban households that were using iodized salt were meeting the RDA.

Despite the shortfall in reaching USI and the remaining uncertainty whether the iodine nutrition status is adequate, substantial progress has been made in Moldova since the 2nd national program took off. An external assessment in 2009 noted the following improvements (15):

- The import of iodized salt in Moldova increased from 20% of the total national salt requirements in 2006 to 45% in 2008
- The regulations and certification of import consignments ensure that the import of iodized salt is of good quality and according to standards
- The nation-wide food inspection system demonstrates that 95% of all the tests of iodized salt in Moldova were in compliance with the standard (≥ 25mg/kg); with Chisinau and surrounding suburbs at 98%
- The use of iodized salt in bread production has taken off significantly – The Franzilutza bread company who has a market share of 30-35% is using only iodized salt in bread baking
- Five major food producers and several small food processing enterprises have accepted using iodized salt in their production upon extensive research during the past years. Upon rewriting of technical standards, this will reach coverage of more than 80% of the preserved foods supply on the national market

Next steps for the short-term include a national iodine survey in 2010, when of the current National Program runs out. A preliminary outline recognizes the need for quantitative data collection of the salt supplies in the households as well as the food industry; iodine status measurements in pregnant women (as the most vulnerable group), and a disaggregated analysis by urban and rural settings.

Concluding, the iodine situation in Moldova has improved significantly during the past decade. Under leadership of MOH, two successive national programs have been carried out with extensive consultation among the major stakeholders, including the salt import firms and the major food industries. Due to an emphasis on iodine status indicators, a national iodine survey in early 2006 raised the impression that IDD was no longer a significant issue although the rural households where iodized was not being used had a sizable shortfall in iodine consumption compared to the recommended dietary allowance. Study tours to Switzerland and Bulgaria have raised the understanding among stakeholders that iodized salt can safely be used in industrial manufacturing of common foods (dairy, bread, meat and conserves) and a number of researches in Moldova have contributed to the acceptance that the use of iodized salt in food industries is safe and does not affect the end product qualities. Ongoing inspections by the food agency and Customs control on salt import shipments have led to a situation that the majority of the salt supplies in Moldova meet the agreed standards. A repeat national iodine survey is planned for 2010, with high expectations of a demonstration that USI has been attained, leading to sustained IDD elimination.

Participation of national officers in UNICEF-supported regional meetings:

- 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
- Eliminating Micronutrient Malnutrition with focus on Universal Salt Iodization – Multi-sector Management Course, 15-22 June 1998, Tbilisi, Georgia
- Regional Salt Producers' Meeting, 29 September – 1 October, 1999 Kiev, Ukraine
- 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. Iodine deficiency disorders in Moldova. Briefing document UNICEF, 2002
2. Multiple Indicator Cluster Survey, Republic of Moldova - 2000. http://www.childinfo.org/mics2_moldova.html (Accessed 1 February 2010)
3. Johns Hopkins Bloomberg School of Public Health Center for Communication Programs, 2003. Elimination of Iodine Deficiency Disorders in Central and Eastern Europe, Commonwealth of Independent States, & the Baltic States: Assessment of UNICEF Communication Activities, Country Case Study Moldova
4. Houston R, Timmer A, 2004. International Workshop on Monitoring IDD/USI Programs. Trip report 22 April – 1 May, 2004
5. Van der Haar F, 2004. National Capacity Building Workshop on the National Action Plan for IDD Elimination in Moldova. Trip report 20-27 November, 2004
6. Schoffelen E, 2004. Assessing Progress in Universal salt Iodization (USI) in the Republic of Moldova. Trip report September 1-15, 2004
7. Report on the preparation and implementation of a national communication campaign to promote the exclusive use of iodized salt . UNICEF Moldova October 2004. http://www.ceecis.org/iodine/03_country/mol/03_15_mol2.html (Accessed 1 February 2010)
8. UNICEF Moldova, 2004. Progress of iodine deficiency disorders prevention project
9. National Scientific and Applied Center for Preventive Medicine, Ministry of Health and Social Protection, ORC Macro, 2006. Moldova, Demographic and Health Survey 2005. http://www.measuredhs.com/pubs/pdf/FR178/FR178.pdf (Accessed 1 February 2010)
10. 'Damage Assessment Report' (DAR), 'Protection Audit Report' (PAR) and 'Leadership Briefing', Chisinau, Moldova, 2006
11. Eriksson A, Timmer A, Turcan L, 2007. Convincing food producers in Moldova to use iodized salt: A study tour in Switzerland. *IDD Newsletter* **23(1)**: 3-6

12. Van der Haar F, Gerasimov G, 2006. National Workshop on Program development, with Special Reference to the Use of Iodized Salt in Food Processing Industries (Bread, Cheese, Vegetable Conserves). Trip report 21-28 May, 2006

13. Chauliac M, 2007. Results of a national survey on the iodine situation in the population, May 2007. Internal UNICEF report

14. Institute of Medicine, Academy of Sciences, USA, 2001. Dietary reference intakes of vitamin A, vitamin K, arsenic, boron, chromium, copper, iodine, iron, manganese, molybdenum, nickel, silicon, vanadium and zinc. Washington, DC, National Academy Press

15. Ivanova L, 2009. Assessing Moldova Progress in Universal Salt Iodization (USI), 12-21 October 2009. Internal UNICEF document