

Armenia

At the time of the MOH Ordinance of the USSR (1956) high goiter rates (25-30%) were reported in the Northern mountainous areas of Armenia. The Avan Salt Company (ASC), established in 1970 started producing “Extra” quality vacuum salt for local supply and export of iodized salt at 23 ± 13.5 mg iodine/kg using KI as was the GOST standard at that time (1). UNICEF support in 1995 assisted in modernizing the ASC production line and improving the laboratory-based QA capacity in industry and MOH. A Goiter Control Unit was established in MOH in 1997 for thyroid volume and UI assessments. The iodization standard was revised in the same year to 35 ± 10 mg iodine/kg as potassium iodate, although iodization remained voluntary (2).

A national iodine survey in 1997 among 2,000 households (3, 4) found a median UI of under-five children of $139.5\mu\text{g/L}$; visible goiter in 6% of the fertile age women; and 66% of HHs using iodized salt as tested by rapid kits. In 1999, the (still voluntary) salt iodization standard was raised to 50mg iodine/kg as KIO_3 . According to two salt situation analyses conducted in 1998-1999, the salt production by ASC, reported at 12,000MT, was fully iodized (5). The DHS2000 showed that 90.4% HHs used iodized salt, of which 83.6% had >15 ppm. An analysis by Province (6) showed relative low coverage in the Northern provinces due to infiltration of non-iodized salt from Georgia, where IS coverage was low (Figure 1).

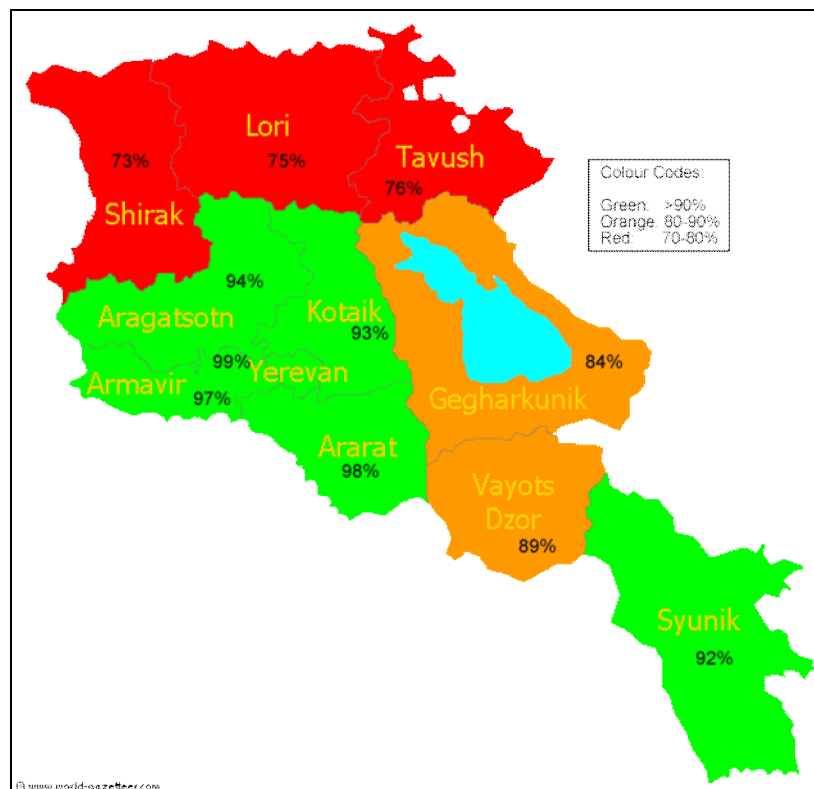


Figure 1: Variation in the use of iodized salt in households, Armenia, 2000

In the absence of mandatory USI legislation, the Avan factory continued producing only iodized salt. At the request and with full support of the factory, compulsory USI was decreed by the Government of

Armenia in 2004 while re-confirming the iodization standard at 50 ± 10 mg iodine/kg salt with KIO_3 (7). In 2005, a national assessment conducted with UNICEF support, used a 30x30 cluster design among 8-10y old children. UI analyses were conducted by the ILRI laboratory in Sofia, Bulgaria, and salt iodine was measured by titration in the National Public Health Institute. The results (Figure 2) showed 97.2% of 926 salt samples >15 mg iodine/kg and a national median UI of $313\mu\text{g/L}$. Geographical variation in UI levels by Province were from 159 to $365\mu\text{g/L}$ (8):

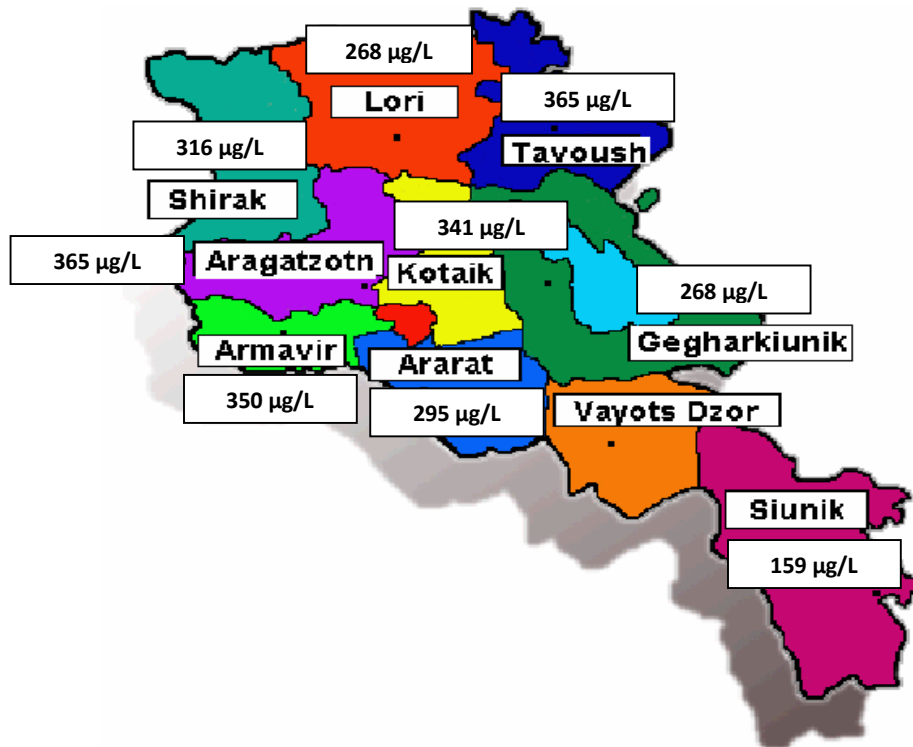


Figure 2: UI levels in 8-10y old children by Province, Armenia, 2005

An in-depth analysis of the relationship between the iodine content in household salt (a proxy indicator for iodine consumption) and the UI levels (reflecting the children's iodine status) showed that the large variation in salt iodine content did not explain the differences in UI levels among children(9). This lack of a relationship illustrates that the proportional contribution of iodized household salt in the total iodine consumption is small in comparison to the iodine consumption from foods manufactured with iodized salt (bread, dairy and meat products, cheese, etc).

The 2005 national iodine survey offered testimony that iodine deficiency had been overcome by the USI strategy. The survey report recommended an adjustment of the technical requirement downward in alignment with the CIS standard of 40 ± 15 mg/kg and emphasized the need for continued oversight. The success of attaining the goal of iodine deficiency elimination in Armenia was acknowledged in July 2006 by the Network for Sustained Elimination of Iodine Deficiency (10). Internet site ArmeniaNow.com of June 2009 (11) illustrates the continued interest and concern about the linkage between thyroid disease and salt iodization among the scientific, civic and official organizations in Armenia.

To summarize, the Avan Salt Factory in Armenia has long been a strong proponent of USI for ensuring optimum iodine nutrition in the population. ASC has consistently iodized their edible salt production, which in theory should suffice for the full national consumption needs. Going through several voluntary variations from the mid 1990s, USI became mandatory by Decree in 2004 while setting the standard at a relatively high level of $50\pm 10\text{mg/kg}$. A national iodine survey with an external expert in 2005 showed that the population is protected against iodine deficiency. The UI exceeded the upper recommended limit, however, and Armenia was advised to reduce the mandated standard to the agreed-upon CIS level of $40\pm 15\text{mg}$ iodine/kg. The survey results illustrated that the food manufacturing industry makes the key contribution to the dietary iodine consumption due to their use of iodized salt in processed foods.

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 (ref 1)
- Eliminating Micronutrient Malnutrition with focus on Universal Salt Iodization – Multi-sector Management Course, 15-22 June 1998, Tbilisi, Georgia (ref 2)
- 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

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