Azerbaijan

Before Independence, most salt in Azerbaijan was imported from Kazakhstan, Ukraine and Russia. In the early 1990s, local surveys by the National Institute of Endocrinology demonstrated a mild to moderate burden of iodine deficiency (1). Salt for human consumption was largely imported from Ukraine, with small amounts from Iran and Turkey, and none of it was iodized. A first advocacy meeting was held in Baku in 1994, and the Vice-Minister of Health at that time committed herself to start addressing the problem while seeking collaboration with UNICEF.

A national health and nutrition survey in 1996 (2) revealed goiter prevalence throughout the country (11%), with higher rates among women, refugees and in the mountains. A National IDD Commission was formed and developed a plan of action including attention to ensure salt iodization by a state enterprise located at Masazir lake, North-East of Baku. The underground deposits in Neftçala, 100km south of Baku, were noted for potential iodine production (3).

A detailed survey of iodine nutrition took place in 1998 in collaboration between Padras Medical School, Greece and Azerbaijan Medical University, Baku, covering a purposive sample of schoolchildren 8-14y in 13 regions (4). The mean visible goiter prevalence (stages II and III) was 13%; goiter was higher in the mountains and in girls. The median UI was 54µg/L and UI values were significantly related to blood Tg levels - a surrogate indicator of long-term stimulation of the thyroid gland. In follow-up to the alarming findings, 293,000 school children 6-16y in the mountainous areas were given oral iodized oil capsules in 1999-2000, which were shown to promote linear growth and normal onset of pubertal development (5).

During the 1990s, the conflict with Armenia and economic collapse were among the reasons why the action plan of the IDD Commission was slow to proceed. For example, 3 iodization machines ordered by UNICEF in 1996 had not been installed by May 1999 (6). A salt situation assessment in May 1999 found 20 different brands of edible salt in the Baku markets, only 3 of which were iodized sufficiently. Six of the 20 brands were packaged by 2 local enterprises and together were estimated to cover 10-12% of the total salt supply. Other brands were imported from Iran, Turkey, Ukraine, Russia and Turkmenistan. The SSA report (6) also notes that the Nakhchivan Salt Factory had been provided with iodization technology but produced only 2,000MT salt per year. The MICS report (7) cites that 41% of the households used adequately iodized salt by end 2000.

A more encompassing situation analysis in 2001 (8) confirmed the isolation of the Nakhchivan factory and stated that it had started iodizing 185MT salt, or 18% of the total production capacity. Progress was mentioned in the development of an overall legislation frame (Sanitary-Hygienic wellbeing; Consumer Right Protection; Standardization) and some regulations (standards for food-grade salt and for test methods). Also a Law “On Prevention of Iodine Deficiency Disorders” was being drafted and included a clause to prohibit the importation and sale of non-iodized salt. The report listed 11 licensed producers in Baku and at Masazir salt lake, some producing iodized salt. The enterprises applied a variety of crude QA methods and produced around 150-500MT tons of salt each during 2000, some iodized and some not. According to Customs information, the annual import of food-grade salt was 37,000MT in 2000, and this

was handled through 84 small firms, joint ventures, enterprises and private individuals. Most of the salt was imported non-iodized from Ukraine (Artemsol) and repackaged by small firms in Baku.

A comprehensive approach was adopted by the Multi-Agency IDD Commission during 2001, as reported by UNICEF in early 2002 (9). Key elements included advocacy, public awareness, civic participation, training and capacity building in QA and QC, partnerships with private producers and repackers, direct assistance to production and import, insertion in school curriculums, etc. Also, the law on USI/IDD was adopted by Parliament and signed by the President in 2001, making it mandatory that all the edible salt produced, imported and sold must be iodized, effective January 2003. The CIS-agreed iodization level was adopted in Azerbaijan: 40±15mg iodine/kg, as was the mandatory fortificant potassium iodate.

Azerbaijan was invited among the participating countries in the ADB-managed and Japan-funded project "Improving Nutrition of Poor Mothers and Children in Asian Countries in Transition" but the delegation participated as "observer" in the multi-sector launch event in Almaty, Kazakhstan in October 2001 due to the long delay in MOH in signing a MOU with ADB. The project aimed at establishing the required national policy capacity, iodized salt production and delivery systems, and operational competence in managing a national alliance for IDD elimination (10). Despite the opportunities provided through this project, MOH was slow in organizing the agreed management frameworks and mobilizing the required multi-sector collaboration arrangements (11). The project support was terminated by end 2003.

Investments in advocacy, expert training, iodized salt testing, laboratory and quality control capacity, civic society mobilization and official oversight (12) were continued with Kiwanis support through UNICEF. MOH also started collaboration with civic organizations, i.e. the Independent Consumers Union, who conducted mass education and tracked the supplies and consumption of iodized salt on regular basis (13-15). The reports show that in the various regions of Azerbaijan, 50-80% of the household salt supplies were found adequately iodized by 2003. About half of the national demand for household salt in Azerbaijan is imported, mainly from Ukraine (Artemsol) and Turkey. The other half originates from the small producers around Masazyr Lake. The production by the plant in Naxicevan Autonomous Republic is negligible.

A population-representative iodine survey was conducted in 2007 by Azerbaijan Medical University, Baku, with support by UNICEF and ICCIDD, and covering all Azerbaijan except Naxicevan. The design consisted of 30 clusters (schools) selected proportional to enrolment and 30 children, aged 8-10y, selected at random in each school. The field teams also enrolled ±10 consecutive pregnant women each in a prenatal clinic located nearest to each school (16). Samples of household salt were obtained from about half of the children and women, and measured by titration for iodine content.

The median iodine content in 558 salt samples was 22.2mg/kg, and 77% of the salt contained ≥15mg iodine/kg. Median UI levels in school-age children (204µg/l) and pregnant women (195µg/l) were within the recommended safe range. The UI in school-age children showed a close relationship (p<0.01) with the salt iodine levels in their households (Table 1), indicating that the salt use in the households was the major contributor in their dietary iodine consumption.

Level of iodine content in household salt	UI in school-age children						
	n	Median (µg/L)	95% Conf. Interval	Relative risks			
				RR <100µg/L	95% Conf. Interval	RR >300µg/L	95% Conf. Interval
0-14.9mg/kg	85	175[a]	149 – 199	1.84	0.83 – 4.06	0.69	0.42 – 1.12
15-29.9mg/kg	175	202[b]	180 – 230	1.71	0.84 – 3.46	0.69	0.47 – 1.01
≥30mg/kg	130	242	206 – 271	1.0		1.0	

[a] $p<0.01$ compared to the group ≥30mg/kg; [b] $p<0.05$ compared to the group ≥30mg/kg

Table 1: Urinary iodine excretion in school-age children by the salt iodine content in their households

Also, the median UIs in pregnant women and in school children were closely correlated ($p<0.001$, two tailed) when analyzed by cluster. As shown in Table 2, the median iodine levels in salt and child urine were lowest in Baku and its suburbs.

Median Iodine Levels	Geographical Regions of Azerbaijan		
	North-Mountain	South-Plain	East-Baku and Suburbs
Salt (mg/kg)	27.5	26.5	18.5
Child Urine (µg/l)	201	252	170

Table 2: Iodine levels in salt and urine in different regions of Azerbaijan, 2007

Thus, although the population of Azerbaijan on average enjoys optimum nutrition, significant quality problems remain especially in domestically produced iodized salt at Masazyr Lake (17). On the other hand, two recent developments forebode a promising potential for achieving USI based on national industry capacity in Azerbaijan. The Azersun Holding is due to open a salt factory in 2010 near Masazyr Lake with the capacity to produce 100% of the country's need for iodized salt (18). And a note of the European Development Bank, dated April 2009, reports the modernization and expansion of the Neftçala factory capacity for iodine production to 500MT/y (19). While this investment is positioned as a contribution in raw material for biocides, LCD displays and X-ray contrast media, it should permit also improved access by the salt industry to the fortificant.

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, 15-16 June 1994
- 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
- Almaty Forum, 2004: Launch of the JFPR project "Improving nutrition of poor mothers and children in Asian countries in transition". Asian Development Bank and UNICEF

- 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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