



- *trade policy* stimulating the import of iodized table salt
- *prohibition of the sale* of noniodized table salt on the market
- *laboratory control* of the iodine content in the table salt at production, Customs and market levels
- *establishment* of Central Iodine Laboratory at the National Center of Hygiene, Nutrition and Medical Ecology.
- *development and implementation* of health promotion interventions
- *mechanism for guidance and co-ordination* of IDD elimination and prevention activities by establishment of an Interagency Commission to the Council of the Ministers under the leadership of the Minister of Health.

Changes have been introduced to the Bulgarian State Standard of table salt. The quantity of iodine content in the table salt was stipulated in *Amendment N 7/01.07. 1996* of Bulgarian State Standard 628-77 "Table salt". According to the above, the iodine content of the table salt shall be 28-55 mg KIO<sub>3</sub> per kg.

### 3. SALT NEEDS AND SALT SUPPLY

The country's average yearly salt consumption per person is 2,3 kg/1996, 2,2 kg/1997 and 2,3 kg/1998 respectively. Table salt needs of the population, and the food industry and catering are satisfied with local production and import of table salt (Table 1).

The only domestic producer of table salt is a plant situated in town Pomorie and owned by the state company "Bulgarian Black Sea Saltern" - Burgas.

Table 1

Table salt supply in tons (According to data from National Statistic Institute)

	Local production	Import
1996	152023	71182
1997	75675	51617
1998	73742*	78484

\* Including lye and salt solution

The plant produces sea salt. It disposes of a technological line for salt iodization. The line is out of date, but nevertheless it can ensure good and comparatively uniform iodization.

Iodized table salt is imported from 22 countries, mainly from Moldova, Ukraine, Belorussia, Poland and Israel. The import of iodized table salt is tax free.

The import of table salt is realized by more than 20 state and private companies. In order to carry out these activities, the companies need to obtain permission from the Ministry of Health. The issuance of permission for import of table salt is subject to special regulations.

Usually the import of the table salt is in sacks of 50 - 100 kg. Their contents is apportioned and packed in small packs of 0,5 - 1 kg. These procedures are carried out in food stuff's sheds. Most of the state and private companies dealing with food stuff own such facilities

There are two sheds for iodination and packaging of table salt only. They belong to the salt plant in Pomorie and the private company "BCK - Kanotrans", one of the biggest importers of table salt.

The exemption of the iodized table salt from import taxes is executed after laboratory analysis of the iodine content.

### 4. TABLE SALT MONITORING

In accordance with item 4 of Order N RD-09-244/ 14.06.1994 the *overall control* of the situation in the country is entitled with the *Chief State Sanitary Inspector* (one of the Deputy Ministers of Health) and table salt monitoring is entrusted to the

Hygiene-epidemiological Inspectorates (HEI). These are regional structures of the Ministry of Health for health prevention and state sanitary control. They correspond in number to administrative regions in the country. HEI main activities include:

- *Regular check ups* concerning storage, packaging and labeling of the table salt in the store houses and in the shops
- *Thematic check ups* in food stuff production facilities, food stock exchanges and their store houses and public catering facilities
- *Laboratory analyses of iodine content* in table salt at the customs, on the market, in the food industry and catering.

The analysis of the iodine content is performed by the laboratories for food stuff quality analyses at the HEI. *Quality assessment* of HEI laboratories was conducted periodically by the National Referent Chemical Laboratory at the National Center for Hygiene, Medical Ecology and Nutrition. The performance of the testing and the statistical analyses of the results were done according to the requirements of the International Harmonized Protocol for the Proficiency Testing of (Chemical) Analysis Laboratories.

The last *quality assessment* was conducted in the spring of 1999. The results of the testing showed that

27 out of 28 Hygiene-epidemiological Inspectorates carry out excellent analyses of Iodine contents.

## 5. TABLE SALT MARKET STATUS

Ministry of Health receives information from HEI on a three months basis. Ministry of Health are being informed about the monitoring of the market, food industry and catering as well as the laboratory results and the measures undertaken in cases of violation of the regulations.

Data from HEI and official data from National Statistic Institute were used in analyses of table salt market's status.

Data from laboratory analyses show *the existence of significant differences* in the relative shares of standardized iodized table salt at customs (100%), at stock exchanges and their store houses (73.1%) and at market's level.

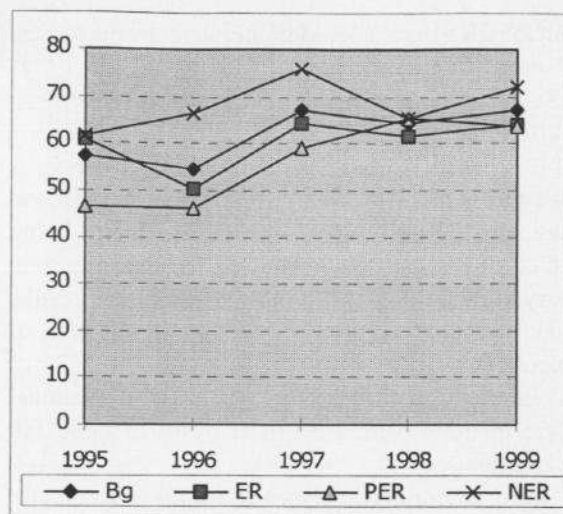
The standardized iodized table salt on the market's level was 61.3 % during the whole period 1995-1999 (table 2). The lowest level was observed in 1996- 54.5% and the highest one in 1997- 67.2%. The situation in endemic, partially endemic and nonendemic regions characterizes with big differences in the period 1995-1999 (Figure 2).

Table 2  
Results of table salt laboratory analyses in the period 1995-1999\*

Year	N of analyzed samples	N of standard samples	%
1995	3763	2158	57.3
1996	3352	1828	54.5
1997	2717	1826	67.2
1998	2643	1698	64.2
1999	1718	1152	67
<b>Total</b>	<b>14193</b>	<b>8662</b>	<b>61</b>

\* First 9 months of the year





Bg- Bulgaria; ER-End. regions; PER-Partial end. regions; NER -Nonend. regions

Figure 2: Relative shares of the samples corresponding to BSS 628-77 by years and type of the region

The *best situation* was observed in the nonendemic regions where the population practically did not need additional iodine intake (Figure 2). The relative share of the standardized iodized table salt in these regions was 61.6%/1995/, 66.4%/1996/, 75.8%/1997/ , 65.3%/1998/ and 72% (1999 - first 9 months).

In the endemic regions the level of the standardized iodized table salt on the market was 60.9%, 50.3%, 64.2%/ 61.6% and 63.8% respectively.

The *worst situation* was observed in the partially endemic regions. The level of the standardized iodized table salt was 46.6%, 46.1%, 59.2%, 65.4 % and 63.8% respectively

Although the status of the iodized table salt's market in the endemic and the partially endemic regions is improving in the last two years it is still unsatisfactory.

The data concerning the results from the check ups on the market, and in the food industry and catering pointed out that in the period 1995-1998 the most common violations found out were violations of labeling regulations, mostly lack of producer/importer's name, date of production and expired date, quantity of the iodine contents.

Violations of storage and preservation regulations were usually very rarely revealed.

In all cases of standards' violations, the following penalty measures have been applied:

- imposing sale restriction and scrapping non-standard table salt in cases of small quantities
- imposing fines to retailers/ producer/ wholesale dealer who had violated the Bulgarian State Standards for Iodine content, packaging or labeling in accordance to the Bulgarian legislation.
- redirection of nonstandard table salt for additional iodination, technical use or blending in the cases of big quantities.

## 6. DISCUSSIONS

Effective elimination and prevention of IDD depend on the adequacy of the adopted measures and their implementation (1)

Bulgaria is a good example for a country where the adopted measures correspond to the socio-economic situation but their execution is insufficient. The problem is that the legislation by itself is one of the factors needed for successful IDD elimination and prevention. The most important factor is the supply of the market with standard iodized table salt. In this respect the commitment of producers, importers, wholesales dealers and retailers is an extremely important factor.

In our case the consequences as a result of the lack of commitment of the producers, importers and retailers were : shop-soiled table salt in the storages or supply of huge quantities for a long period of time. We consider the last one as a main reason for the low level of the standard iodized table salt especially in the greater part of the endemic regions.

The role of the population in this process should not be underestimated either. Raising the awareness of the population on the need to consume iodized salt would contribute to increase in iodized salt demand. In its turn, it would put under pressure all the actors participating in the supply, distribution and sale process.

The data available to the Ministry of Health shows that the supply of the market, the food industry and catering with standardized iodized table salt is still far from the standard 90 % determined by ICCIDD, WHO and UNICEF as one of the indicators for the efficacy of the introduced measures (2)

We consider and recommend that the future efforts must be directed to the education of importers, wholesales dealers, retailers and population on the significance of iodized salt for the health of the population. Their commitment will be of extreme importance for the success of IDD prevention and elimination.

#### REFERENCES

1. G.Gerasimov and F. Delange, Proceedings of a conference held in Munich, Germany, 3-6 September 1997,7
2. F. Delange, Proceedings of a conference held in Munich, Germany, 3-6 September 1997,103