Panama: 5 program pillars ensure sustained salt iodization

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The Republic of Panama lies on the narrow isthmus that links North and South America, bordering the Caribbean Sea, to the North, the Pacific Ocean, to the south, with Costa Rica and Colombia to the west and east, respectively. Panama’s landscape is dominated by mountains and highlands, and it is divided into 10 provinces and 5 indigenous regions.

Salt iodization policy
The success of salt iodization has its antecedents in the Panamanian legislation dating back to 1955-1969. Law No. 17, on Salt Iodization (1955); Decree No. 256, regulating food registration and control (1962) established the mandatory nature of salt iodization and prescribed the iodization levels. Those early laws ensured that salt iodization was implemented, but there was no monitoring or surveillance to measure the impact of iodized salt on the population.

During the 1970s, the Ministry of Health implemented parallel strategies of supplementation with iodinated compounds to high-risk population groups, and fortification of salt with iodine, which were accompanied by communication and social mobilization actions, general training to all the sectors involved and monitoring and surveillance activities.

Evolutions of sustainable salt iodization practice
The development of salt iodization in Panama into the successful and sustainable program of today is unique across the Central America and Caribbean Region. It has been built of five fundamental pillars: a legal framework (including laws, policy and regulations), institutional support (a program under the auspices of the Ministry of Health), and engagement of the national salt industry (adoption of technology and quality processes), an integrated monitoring and surveillance system, and internal and external advisory support of the National Commission for Micronutrients (Figure 1).

1. A responsive legal framework
An important feature of the early legal framework was that it could be adapted to capture the changing dietary requirements and health status of the populations, as well as the iodization process. In the 1997-2007 the following legal instruments were added: Law No. 23, on Mandatory Iodization of Salt for Animal Consumption, (1997), Executive Decree No. 28, Measures of salt for animal consumption, (1998), Law 43, modifying Decree 366 (2000), Executive Decree No. 20, on New levels of iodization of salt, (2001), and Resolution No. 1014, Creation of the Micronutrients Commission, (2007).

The evolution reflects how the initial prescriptive and normative purpose of the legal framework gave way to a more practical approach which focused on feasibility as a result of an ongoing advocacy process involving policymakers. The inclusion of iodized salt in animal feed is notable. The legislators also saw it fit to update the iodization range to 20-60 ppm (still in effect today), and create the National Commission for Micronutrients, whose role is to integrate the work of all relevant sectors, and monitor the prevalence of iodine deficiency and other micronutrients.

2. Institutional program of the Ministry of Health
The Ministry of Health has coordinated the salt iodization program through the Department of Population Assistance, Department of Food Protection and Department of Nutritional Health at the central, regional and local level.

The Ministry’s executive unit, which has been responsible for training technicians at the regional laboratories and at all salt iodization plants, periodically monitors regulatory compliance through the Gorgas Memorial Institute for Health Studies.
3. Industry engagement

The National Federation of Saline Cooperatives of Panama first came into existence in 1974 in the province of Los Santos, as a union of four first-degree cooperatives. Quickly, it began the commercialization of raw salt for different brands and in 1978, it established its first salt processing plant for human consumption.

The salt sector is considered a strong pillar in supporting standardization of the processes and reinforcing the important role of the salt and food industries in disease prevention. The sector took on the commitment emanating from national and international meetings, such as the Quito Declaration on the Universalization of Salt Iodization for the Elimination of Iodine Deficiency Disorders in the Americas, in Quito, Ecuador, in 1994.

Salt in Panama is produced by solar evaporation of seawater, with an annual output of 20,000 MT (metric tons). Iodization plants use their own budget to procure KIO3. For the production of a premix, a protocol was developed which includes weekly equipment check (pre-mixers, scales, pumps, dryers and spray equipment) and regular sample analysis.

4. Monitoring and surveillance system

Internal monitoring

By law, each salt processing plant must have its own laboratory, to monitor the salt iodization process, and it is also required that each plant must have a written manual describing the quality control system, a risk analysis plan and its critical control points. In addition to internal quality control, salt samples of at least 100 grams are sent weekly to an external reference laboratory.

External monitoring

The Department of Food Protection within the Ministry of Health is responsible for conducting quality inspections at the salt processing plant. The number of annual inspections depends on the classification of salt plants as either poor, good, or excellent. Legal measures that can be applied in cases of non-compliance may include confiscation and/or destruction of the product or other applicable sanctions.

In parallel the National Commission for Micronutrients makes two annual visits to regional iodization plants and laboratories, with the participation of the Gorgas Memorial Institute for Health Studies, the Department of Food Protection, with technical support from INCAP.

Commercial monitoring

Commercial salt monitoring is a responsibility of the Department of Food Protection. Annually, the department monitors 10 commercial samples per district (collected from processing plants and stores), with systematic monitoring in at-risk areas within 29 sentinel districts.

A similar supervision and sampling system was established by the Ministry of Agricultural Development to monitor iodized salt for animal consumption at farm and stores. Salt for animal consumption is packed in 100-pound bags, which must be labeled correctly.

To introduce imported salt into the market, the Autoridad Panameña de Seguridad de Alimentos, (AUPSA the national food security agency), stipulates that product must undergo a registration process and meet import requirements. Surveillance is carried out at points of entry, with samples being sent to a central laboratory for analysis. Fortification of industrial salt is not required.
**Household monitoring and surveillance**

The monitoring system includes epidemiological surveillance, using urinary iodine concentration in school-age children as a biochemical indicator and measuring iodine in samples of household salt from children’s homes.

The surveillance began 2000, and it covered 29 sentinel districts plus the capital city. Six clusters are selected, and from each one, four schools (1 urban and 3 rural) are selected at random from all primary schools in each district of interest, and 30 students are selected per school (for a total of 720 samples). Currently, this monitoring is included within the budget of the MoH.

**Determinants of the sustainability of salt iodization**

Given the evidence of ongoing success of the salt iodization program, the most important determinants of program sustainability should be highlighted: a favorable administrative framework; a cost/effective monitoring and evaluation system; and communication for sustainability (Figure 1).

![Determinants of sustainability of the salt iodization program in Panama](image)

1. **A favorable administrative framework**
   - **A high degree of institutionalization.** Salt iodization is able to be implemented nationally in an environment which fosters discussions, participation and stakeholder commitment, supported by regulations. Stakeholders include government institutions and the salt industry.

2. **Potassium iodate procurement.** The salt sector voluntarily takes on the responsibility, without the need for regulation, for the procurement and import of KIO3.

3. **Focus on training and process to optimization.** Technological advances in laboratory techniques and iodization technology drives progress and creates a need for ongoing staff training, which is the responsibility of the Gorgas Memorial Institute for Health Studies.

4. **Sharing the cost.** Institutions and business alike allocate a budget to enable them to fulfill their responsibilities in the development of the salt industry in the country.

5. **Sustaining capacity.** Budget are allocated to cover the necessary human resources and the costs of compliance with the activities of the Ministry of Health. Personnel and experts are essential to draft standards, monitor iodization in the salt industry, supervise iodization plants and retailers, and conduct surveys of population iodine status.

6. **Leveraging institutional resources.** The monitoring system leverages the human, material, financial and technological resources of the Ministry of Health.

3. **Communication for sustainability**
   - **Seeking behavior change.** The goal is to educate students and their parents through awareness raising activities, about the importance of iodization in achieving optimal iodine nutrition, so that they drive the demand for iodized salt.

   - **Building vigilance.** A well-educated population ensures the market for iodized salt for human and animal consumption, as long as the topic remains of importance to population health.

   - **Driving industry compliance.** Dissemination of monitoring results encourages the salt industry to comply with the regulations and with the expectation of a vigilant population. Through market forces, it motivates businesses to continue their industrial development to ensure their continued profitability. Some who did not make this commitment ended up closing their businesses.

Universal salt iodization programs around the world lead to improved populations iodine intakes. Sustaining optimal iodine intakes requires vision, commitment, and collaborative efforts of multiple sectors. The framework which enabled Panama to successfully sustain USI success could serve as a model for other countries in the Region.

**Iodized salt is used in cafeterias throughout Panama**

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*Image source: IDD Newsletter*