Case Studies from different national contexts.

Data sources and methods of analysis used to assess salt, and potential iodine, intake from processed foods

This resource presents an overview of five examples of national experiences using the data sources presented in Table 2 of Module 1. Many of these assessments used a combination of different sources of data and methodological approaches to assess the potential contribution of food industry salt to iodine intake.

Each example shows the combination and sequence of different assessment methods conducted and how outcomes were triangulated to verify the reliability of estimates. In some of the following examples, the steps shown have been adapted to show a generic process based on the use of one methodology in multiple countries. In others, a description of how the same method was applied differently in two countries is shown.

All the processes shown were conducted in liaison with national partners as GAIN-commissioned research/studies under a previous GAIN-UNICEF USI Partnership Project (partnering with WFP in Egypt), unless otherwise specified. The exceptions were: Burkina Faso, where the national government was supported by UNICEF, the Micronutrient Initiative and GroundWork; and Haiti, which was supported by the Iodine Global Network, UNICEF and USAID.
1. Indonesia and the Philippines – using: market research data, Ministry of Industry data, and semi-structured food industry interviews

Research consultancies were commissioned to conduct an analysis of the use of iodised salt by some main food industries producing key salt-containing products\(^1\)\(^2\). Data came mainly from the food industry, but were used in combination with information from market research and from Ministry of Industry reports. The figure shows the main methodology and process used in both countries. Indonesia and the Philippines have legislation for all food grade salt to be iodised, however, there are loopholes for food industry salt in Indonesia that were highlighted during the consultancy, along with recommendations for addressing these gaps in implementation.

\(^{1}\) PT Clarity Research, Indonesia, National Agency of Drugs and Food Control, Indonesia & Ministry of Health, Indonesia (2014) *Usage of iodized salt in processed food in Indonesia*. Jakarta, Indonesia: GAIN.

\(^{2}\) Nutrition Center of the Philippines (2015) *Survey of Food Processors Utilizing Iodized Salt*. Taguig City, Manila: Nutrition Center of the Philippines

---

\(^{a}\) Per capita consumption based on market research/ food industry/ dietary survey or FFQ data and related to serving size amount.

National managers of programmes to achieve optimal iodine status took advantage of planned national nutrition/iodine surveys to incorporate FFQ modules into the survey questionnaires in these three countries\(^3\)\(^4\)\(^5\). The methodology used to estimate frequency and semi-quantitative amount of product intake was slightly different in Burkina Faso to in the other two countries. The survey datasets included information on iodine status and access to iodised household salt and, in Ghana and Senegal, the data have been used to further investigate the association between iodine status and reported consumption of FFQ foods products with high potential to contribute to iodine intake, taking into account the household salt iodine level.


\(^{4}\) Ministère de Santé, Direction de la Nutrition, Burkina Faso (2014) National iodine status and anemia survey, Burkina Faso

\(^{5}\) GHS, GAIN, UNICEF. National Iodine Survey Report, Ghana 2015. GHS, 2018

\(^{a}\)Per capita consumption was based on previous dietary survey and the FFQ data.
3. China and Haiti – using: salt and food industry-based data sources

In China, research was commissioned to review the supply and use of iodised and non-iodised salt by the processed food industry. In Haiti, a technical inter-agency team reviewed previous studies of the salt industry, along with the current situation for salt production and utilisation of salt by the bouillon and tomato paste industries and by large bakeries, to compile a preliminary analysis of the total supply of food grade (iodised) salt in the country.

- Salt industry data on quantity of iodized and non-iodized food grade salt produced and the proportion of each supplied for household salt use and for food industry salt use
- China: Self-completed questionnaires sent to food processing industry to obtain information about: the company, products, total salt used in each product and the proportion iodised versus non-iodised, reasons for not using iodised salt in some products
- Haiti: Not clear on the methodology to obtain the information?
  Obtained information on: the amount of iodised and non-iodised salt used in production of select food products (bouillon, tomato paste and bread); and the standard iodine level of iodised salt used (for products made in Haiti and imported products)
- Outcomes from 29 provinces (high participation) included estimates for:
  - Volume of non-iodised and iodised salt used in the production of different industrially-processed foods
  - Identification of main salt-containing foods
  - Food industry reasons for not using iodised salt
- Broader programme-related outcomes:
  - Listed concerns for future iodine nutrition if iodised salt use in the food industry not regulated.
  - Recommendations to overcome identified national challenges.
- Actual and potential daily iodine intake and percent RNI based on average per capita consumption of each product and expected salt iodine level

---

4. Pakistan and Bangladesh – using: food wholesale- and retail-based data sources

Research was commissioned to investigate the availability and sales patterns of processed foods in rural areas of Pakistan and Bangladesh. In Pakistan the research covered a wide range of processed food products, not all of which were key salt-containing foods. In Bangladesh the research focused on bakery products (at retail outlets). Interviews were also conducted with bakeries in Bangladesh (presented separately in Example 5).

Pakistan: observational quantitative assessment of:
- Number product types per processed food category in each retail outlet
- Labelling information, including salt & whether iodised
- Product source (local, national scale industry) and brand

Bangladesh: observational quantitative assessment of:
- Bakery products available and sold; type and quantity
- Product (industry) source and brand, ingredients listed
- Retailer awareness of iodised salt

Information collected from the commissioned research was used to advocate for inclusion of iodised salt in processed food products, through demonstrating an expected (but not quantified) impact on iodine status if identified high-sales volume (at the local level) products were manufactured using iodised salt.

---

7 The Nielson Company (2011) Study on processed foods in rural market - Pakistan. Global Alliance for Improved Nutrition
8 The Nielsen Company (2010) Market research on processed food in rural Bangladesh. Global Alliance for Improved Nutrition
5. Egypt and Bangladesh – using: bakery-based data sources

In Egypt the assessment was conducted as the first step in establishing a protocol to monitor bakery use of iodised salt in the production of Baladi bread, which is mandated under Egyptian legislation for salt iodisation.\(^9\) Salt test results were recorded in the national bakery management information system established to monitor the use of fortified flour in bakeries. Testing of bread iodine content was implemented as part of the system pilot, to check agreement with the (routine and continued) salt iodine field test results and confirm that iodine was retained during the baking process. In Bangladesh, bakery research was commissioned along with the retail outlet study in the previous Example 4 and was focused on a randomly selected sample of bakeries in rural areas only. A similar method to that used in Egypt was implemented in New Zealand to assess the iodine content of a representative sample of bread along with assessing iodine status of children following implementation of mandatory use of iodised salt in bread.\(^10\)

\begin{itemize}
  \item **Egypt: routine bakery inspection system to verify:**
    \begin{itemize}
      \item Labelling of salt used (iodised or not and any expiry date)
      \item Testing for the presence of iodine in salt using the rapid test kit field method
      \item Collection of a bread sample to test iodine content in the laboratory (pilot only)
    \end{itemize}
  
  \item **Estimated daily iodine intake and percent RNI based on average per capita consumption\(^1\) of Baladi bread and measured average bread iodine level**

  \item **Bangladesh: observational quantitative assessment of:**
    \begin{itemize}
      \item Bakery products made and sold; type, and quantity
      \item Type of salt (iodised or non-iodised) used in production
      \item Distribution channels
      \item Bakery awareness of iodised salt
    \end{itemize}

  \item **Information collected from the commissioned research was used to advocate for inclusion of iodised salt in bakery products, through demonstrating an expected (but not quantified) impact on iodine status from bakery products manufactured using iodised salt.**
\end{itemize}

---
