



Meeting Report

The East Asia Pacific Regional Workshop on Achievement of Universal Salt Iodization for Optimal Iodine Nutrition

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1 - Introduction

Iodine deficiency is the most common cause of preventable mental impairment throughout the world. In countries affected by iodine deficiency, its sustainable elimination through the universal iodization of all edible salt¹ can contribute to socioeconomic development and achievement of the Sustainable Development Goals (SDGs). Over the past 25 years, it has become widely recognized that the consequences of iodine deficiency, including impaired brain development and low IQ in children, and nodules and hyperthyroidism in adults, can occur in the absence of clinical manifestations, such as cretinism and goiter.

Calculations by the World Bank show that each dollar invested towards IDD prevention and the achievement of optimal iodine status yields a productivity gain of US\$ 28, demonstrating IDD elimination as one of the most cost-effective public health interventions. The commitment to eliminate iodine deficiency disorders (IDD) was first adopted globally at the World Summit for Children (WSC) in 1990. Universal Salt Iodization (USI) was identified as a central strategy to achieve the WSC goal, and in 1994, a special session of the World Health Organization (WHO) and UNICEF Joint Committees on Health Policy concluded that USI is a safe, cost-effective and sustainable strategy to correct IDD.^{2 3}

There has been remarkable progress in the global effort to eliminate IDD. In 1993, WHO estimated that the prevalence of goiter due to iodine deficiency affected 110 countries globally. Over the past decade, the number of iodine-deficient countries has fallen from 54 to 25 and the number of countries with adequate iodine intake has increased from 67 to 116.⁴ Currently, more than 75% of the global population has access to adequately iodized salt, a dramatic increase from 20% in 1990. Many countries are now approaching the goal of IDD elimination, with their emphasis shifting to sustaining achievements.

As countries approach the goal of IDD elimination, it has become apparent that, salt iodization programmes are fragile and require a long-term commitment from governments, the salt industry, and other key stakeholders. Initial enthusiasm for IDD elimination is liable to wane as other health problems (e.g. infectious diseases, obesity and diabetes) gain higher priority in the public health agenda and compete for available resources. In several countries where IDD had been eliminated, salt iodization programmes have faltered, leading to a decline in iodine intake and often to the recurrence of IDD.

The global progress towards the elimination of IDD is reflected across the East Asia and Pacific region, which has experienced remarkable improvements in iodine status. However, some countries have yet to achieve optimal iodine nutrition, and the sustainability of IDD elimination is, or may be, at risk in several others. While some countries still strive to achieve high household consumption of adequately iodized salt, in several countries there is a risk of excessive iodine intakes, which needs to be better understood.

1 Universal Salt Iodization (USI) is defined as at least 90% household consumption with adequately iodized salt.

2 Aburto N, Abudou M, Candeias V, Wu T (2014). Effect and safety of salt iodization to prevent iodine deficiency disorders: a systematic review with meta-analyses. WHO eLibrary of Evidence for Nutrition Actions (eLENA). Geneva: World Health Organization.

3 WHO (2014). Fortification of food-grade salt with iodine for the prevention and control of iodine deficiency disorders. Geneva; World Health Organization (http://www.who.int/nutrition/publications/guidelines/fortification_foodgrade_saltwithiodine/en/, accessed March 4, 2016).

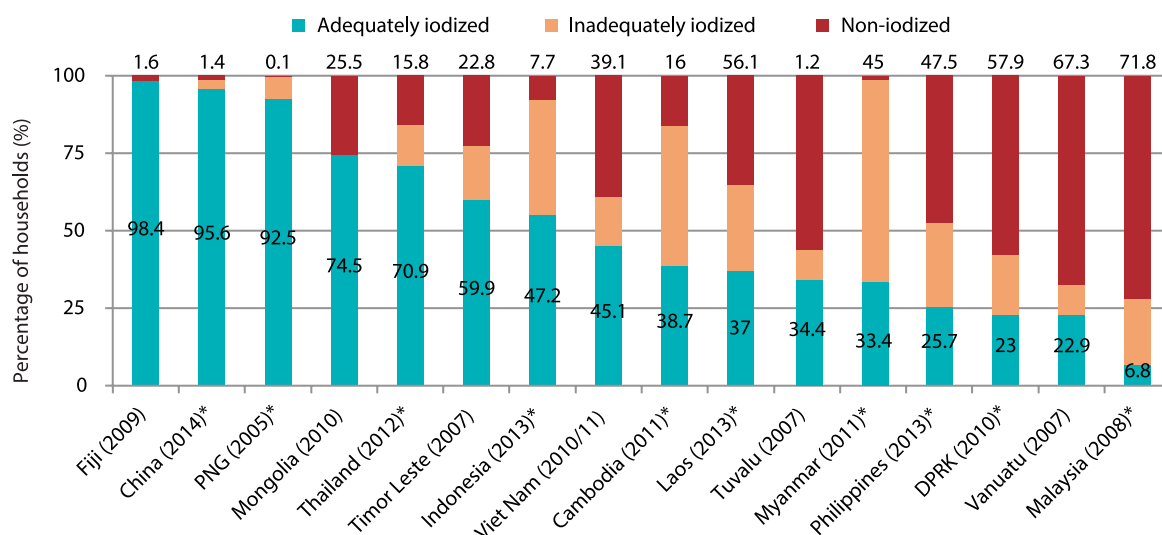
4 IGN (2014). Global Iodine Scorecard 2014: Number of iodine-deficient countries more than halved in the past decade. IDD Newsletter 1/2015 (http://www.ign.org/cm_data/IDD_feb15_global_iodine_scorecard_2014.pdf, accessed April 6, 2015)

The objectives of the East Asia Pacific Regional Workshop on *Achievement of USI for Optimal Iodine Nutrition* were to 1) review the status and experiences of countries in the region and identify barriers to achieve national and global targets and sustainability, 2) share global lessons learnt on sustainability of IDD elimination and USI programmes and ways to address barriers, 3) provide technical updates on IDD elimination and USI, 4) develop country-level consensus on a few essential actions to strengthen the sustainability of national programmes and address barriers. Representatives from 11 countries (i.e. China, Democratic People’s Republic of Korea, Indonesia, Lao People’s Democratic Republic, Mongolia, Myanmar, Papua New Guinea, Philippines, Thailand, Timor Leste, Viet Nam) participated in the meeting.

2 - Overview of USI in East Asia and Pacific

The region of East Asia and the Pacific has experienced tremendous progress over the last years. Fiji and China (98% and 97% household consumption, respectively) are clear examples of great success. Other countries where high household consumption has been achieved are Papua New Guinea, Mongolia and Thailand (see Figure 1).

Figure 1. Household consumption of adequately, inadequately and non-iodized salt

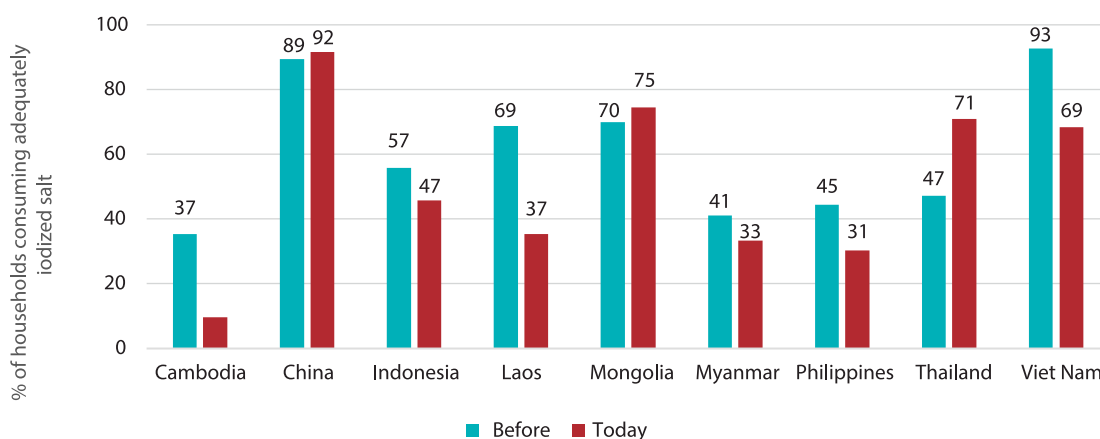


Note: Percentage of households where salt is adequately iodized (green), inadequately iodized (orange) or not iodized (red). The specific year of the survey is given in parentheses for each country. Sources of reference are national surveys, such as demographic health surveys (DHS), multiple indicator cluster surveys (MICS), living standards, national nutrition surveys (NNS) or IDD, except for Fiji (sentinel surveillance data). The definition of adequately iodized salt is based on the national standard. Households with no salt have been included in the group of households with non-iodized salt for Cambodia, Thailand and Viet Nam.

*Surveys assessing salt iodine status with a quantitative methodology, such as titration, are shown with an asterisk

However, major disparities exist among countries in the region. Indeed, some of the countries are far from reaching USI, such as Malaysia, Vanuatu, Democratic People’s Republic of Korea, Philippines, Laos, Myanmar or Cambodia (see Figure 1). Moreover, declines in household consumption of adequately iodized salt have been recorded in several countries, including Cambodia, Lao People’s Democratic Republic, Myanmar and Viet Nam (see Figure 2). The task of eliminating IDD in all countries is therefore far from being achieved and the sustainability of achievements has not yet been assured.

Figure 2. Trends in household consumption of adequately iodized salt in the East Asia region



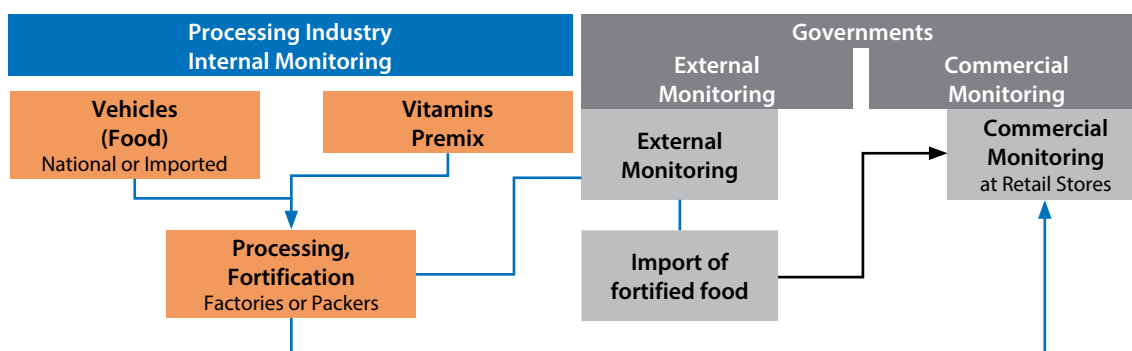
Note: Adequately iodized salt is salt with iodine content equal or higher than national standards. Before and today, respectively: Cambodia 2008 & 2014; China 2002 & 2014; Indonesia 2007 & 2013; Laos 2005 & 2013; Mongolia 2010 & 2013; Myanmar 2006 & 2011; Philippines 2005 & 2013; Thailand 2005/6 & 2012; Viet Nam 2005 & 2008/9. The sources of data are national surveys, such as DHS, MICS, Living Standards, National Nutrition Surveys or IDD Surveys, assessing iodine in salt by a quantitative method (e.g. titration, WYD or iReader), with the exception of Mongolia, where RTK was used. Cambodia 2014 data are based on a market survey rather than a household survey.

Among many causes, lack of mandatory legislation, poor internal and external monitoring, weak governmental support and coordination, and lack of integration of USI into national strategies have been identified as some of the main causes for this stagnation and backsliding. In addition, scarcity of up-to-date data from evaluation and surveillance systems is hindering innovation in policy development, timely programme modification, and adequate programme implementation and enforcement. There is also growing recognition in the region that salt used in food processing is often not iodized, although increasing amounts of salt are being consumed through processed foods rather than household salt. Other identified potential barriers for achieving USI are a fragmented salt industry and difficulties in accessing potassium iodate (e.g. difficulties in relation to importation of small volumes).

Among all barriers, internal and external regulatory monitoring constitutes an issue that has not received the necessary attention over the years. Internal, external and commercial monitoring systems (see Figure 3) are frequently insufficient or ineffective. This is often due to lack of political commitment for enforcement, as well as capacity issues within regulatory agencies and salt production facilities themselves.^{5, 6}

5 Luthringer CL, Rowe LA, Vossenaar M, Garrett GS (2015). Regulatory Monitoring of Fortified Foods: Identifying Barriers and Good Practices. *Global Health: Science and Practice* 3(3):446-461 (<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4570017/>), accessed March 4, 2016).
 6 Van den Wijngaert A, Bégin F, Codling K, Randall P, Johnson QW (2013). *Food Nutr Bull* 34(2) suppl1 S102-S111 (http://fnb.sagepub.com/content/34/2_suppl1/S102.full.pdf+html), accessed March 4, 2016)

Figure 3: Internal and external regulatory monitoring for universal salt iodization



Source: adapted from WHO/FAO (2006). Guidelines on food fortification with micronutrients (<http://www.who.int/nutrition/publications/micronutrients/9241594012/en/>, accessed March 14, 2016)

3 - Emerging issues

Recent shifts in the landscape around salt iodization imply that adjustments need to be made in order to sustain progress, achieve USI, and ensure that IDD does not re-emerge.⁷ Consequently, countries in the East Asia and Pacific region are committed to understand the new landscape and adjust their programmes to the new requirements. Some of the main emerging issues that were discussed during the meeting are detailed below:

More momentum for nutrition, less momentum for USI? Keeping the eye on the ball

The nutrition landscape has changed in recent years. There is now more momentum for nutrition than ever before. Governments and development partners are focusing on integrating nutrition-specific and nutrition-sensitive interventions to address current malnutrition problems. However, this has not necessarily translated into momentum for USI. Since the nutrition agenda is comprised of a variety of high-priority topics, prioritization of some interventions (e.g. stunting prevention or treatment of severe acute malnutrition) has possibly occurred at the “expense” of others in some countries. Salt iodization has often lost importance in this “competitive” nutrition arena, often as a consequence of the likely perception of decision-makers that IDD has already been eliminated or is not as serious as other forms of malnutrition. This has been clearly exemplified by declines in political commitment for USI, the elimination of salt iodization coordination structures, or the change from mandatory to voluntary legislation in some countries. As a consequence, stagnation and even a very rapid decline in household consumption have been observed in several countries of the region.

Declines in salt iodization household consumption are a tragedy and a violation of the rights of children to health and optimal development, and also impact societies and economies. It is therefore crucial that countries integrate salt iodization in the food fortification agenda, as well as in the general nutrition agenda. There is a need for governments to take opportunity of the momentum and develop national ownership, increase political commitment and ensure maximum effort for the implementation at scale of all effective nutrition interventions, including USI. Efforts to control IDD are indeed the cornerstone of the nutrition agenda. There is a need for countries to **sustain** their

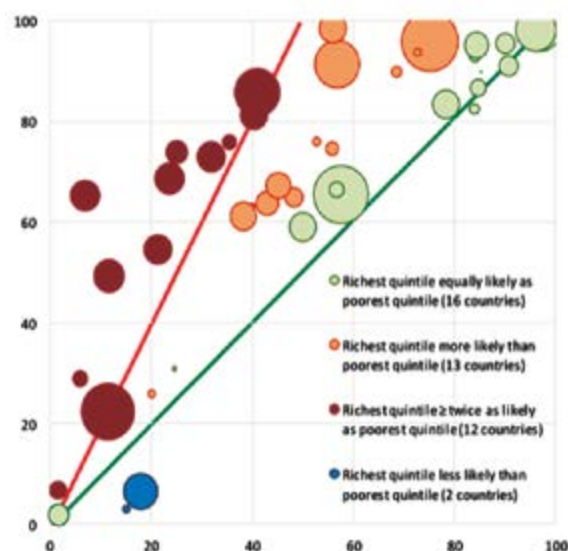
⁷ Timmer A. Iodine nutrition and universal salt iodization: a landscape analysis in 2012. IDD Newsletter November 2012 (http://ign.org/newsletter/idd_nov12_iodine_nutrition_landscape_analysis.pdf, accessed March 4, 2016)

achievements with regard to the household consumption of adequately iodized salt, **improve** their strategies so that all inadequately salt becomes iodized in appropriate levels, and finally **expand** programmes to ensure there is no non-iodized salt. There is also a need for development partners to adjust and reposition themselves in order to support governments with the most effective tools to overcome new challenges and deal with changing environments.

Hidden populations: key issues behind national figures

While household consumption rates of salt iodization are increasing in some countries of the region, this does not necessarily imply that household consumption is increasing equally for all population groups. It is evident that certain population groups, mostly composed of the lowest quintiles of the population, still do not have access to iodized salt (see Figure 4). While national household consumption is increasing, the gap between the poorest and the richest is often also increasing. Consequently, there is a need for governments to increase household consumption in unreached populations.

Figure 4. Percentage of households consuming adequately iodized salt among the richest and poorest quintile, in 43 countries with available data, 2006-2011



Source: UNICEF Global Database 2012 (<http://data.unicef.org/nutrition/iodine.html>, accessed March 14, 2016)

Note: Each circle represents data from one country. The size of a circle is proportional to the size of the country’s population. The horizontal axis represents the percentage of the poorest 20 per cent of households consuming adequately iodized salt, while the vertical axis represents the percentage of the richest 20 per cent of households. Circles along the green line represent countries in which the likelihood of consuming adequately iodized salt is similar among the richest and the poorest households. Circles above or below the green line suggest disparity. The closeness of circles to the upper-left corner indicates greater advantage for the richest households in that country (which also means greater disadvantage for the poorest households).

Salt for food processing also counts

Eating habits are changing in the region, and they are bringing new challenges for the USI programmes. While the majority of salt was consumed as household salt when the first USI programmes were conceptualised, a shift in eating patterns might have changed that equation. Nowadays, a significant proportion of salt is consumed through industrially processed foods and condiments, and in many instances this salt is not iodized⁸. For example, in Indonesia⁹ and Philippines¹⁰, 39% and 40% of the salt intake originates from processed foods, respectively. Frequently, legislation for salt iodization only applies to household salt. Therefore, countries are advised to analyse the amount of salt intake that originates from processed foods and modify legislation accordingly so that processed foods are made with adequately iodized salt.

Salt reduction strategies are compatible with salt iodization strategies

Salt consumption patterns are also changing. At the same time that salt is being used as an effective vehicle to deliver iodine to the general population, salt is also in the spotlight for its high consumption and link to hypertension and associated non-communicable diseases (NCDs), such as cardiovascular disease and stroke. As a consequence, programmes and strategies are being implemented in many countries to reduce the population salt intake¹¹. One of the voluntary global NCD targets by 2025 is a 30% relative reduction in mean population intake of salt/sodium¹². However, it is crucial to recognise that salt reduction and salt iodization strategies are not contradictory¹³. As salt consumption is reduced, iodine levels should be increased to ensure populations continue to consume enough iodine. Meanwhile, the objective of salt iodization programmes is not to encourage increased consumption of salt but to ensure it is all iodized. There is also potential to jointly monitor both programmes as iodine and sodium are both assessed through urine and accurate data on salt consumption, the key indicator of salt reduction programmes, can be used by salt iodization programmes to set iodization levels¹⁴. Therefore, no conflicting messages should be sent by governments. The key for all stakeholders is to ensure that the population consumes enough iodine, while sodium intake is limited to less than 2 g/day (5g of salt/day).

Setting boundaries: can salt carry too much iodine?

WHO has recommended average levels of iodine to be added to salt, taking into consideration salt consumption amounts, anticipated losses and recommended iodine intake¹⁰. Until recently national standards for iodized salt have been set without data on salt consumption. In addition, many governments in the region have only established minimum iodine levels. If no maximum levels are established, it is not possible for health authorities to control over-iodized salt. However, iodine levels might be very high in some countries where the salt iodization industry doesn't have good internal regulatory monitoring systems in place. Therefore, there is a need for governments to

8 WHO (2007). Reducing salt intake in populations. Report of a WHO Forum and Technical Meeting. Geneva (http://www.who.int/dietphysicalactivity/Salt_Report_VC_april07.pdf, accessed March 14, 2016).

9 Clarity for GAIN. Usage of Iodized salt in the processed food industry. *Manuscript in preparation*.

10 GAIN/UNICEF estimate (2015): 144,000MT of salt used for food processing out of 360,000MT of salt for human and animal consumption

11 WHO (2012). Guideline: Sodium intake for adults and children. Geneva (http://apps.who.int/iris/bitstream/10665/77985/1/9789241504836_eng.pdf, accessed December 18, 2015).

12 WHO (2013). Global action plan for the prevention and control of noncommunicable diseases. 2013-2020. Geneva (http://apps.who.int/iris/bitstream/10665/94384/1/9789241506236_eng.pdf?ua=1, accessed December 18, 2015).

13 WHO and the George Institute (2014). Salt reduction and iodine fortification strategies in public health Report of a joint technical meeting, 2014. (http://www.who.int/nutrition/publications/publichealth_saltreduc_iodine_fortification/en/, accessed December 19, 2015).

14 WHO (2014). Guideline: fortification of food-grade salt with iodine for the prevention and control of iodine deficiency disorders. Geneva (http://www.who.int/nutrition/publications/guidelines/fortification_foodgrade_saltwithiodine/en/, accessed March 4, 2016).

review national standards for salt iodization taking into consideration salt consumption data when available. If not available, low and high levels of urinary iodine concentration should be monitored through appropriate surveys. In addition, it is recommended that governments start incorporating maximum iodine levels in standards for salt iodization.

4 - Lessons Learned

Discussions among representatives from countries and experts in the field during the workshop resulted in the agreement of a number of lessons learned, some of which are summarised below:

USI is a cost-effective strategy to eliminate IDD

- In accordance with 2014 WHO's guideline on fortification of salt with iodine¹⁵, USI was confirmed by the workshop as a simple and highly cost-effective strategy to eliminate IDD, especially if programmes are established in a sustainable way. This strategy provides a great public health benefit.
- Contribution of iodization to the overall cost of salt processing is small.

USI achievements have not been sustained

- Sustainability of achievements has not yet been ensured in many countries of the region. Programmes in some countries have not been established in a sustainable way. Often, salt iodization programmes are implemented as a stand-alone programme or there is no integration of systematic regulatory monitoring into routine food control systems. Some programmes are dependent on donor funds to subsidise potassium iodate or provide fortification equipment.
- Changes in programme components, such as the removal of mandatory legislation, or phasing out of subsidies for potassium iodate, have affected the programme sustainability and contributed to a reversal of achievements.
- Political commitment is critical for a USI programme; in those situations where political commitment has been inadequate or fallen away, programmes have suffered. Political commitment is necessary to ensure adequate inter-sectoral collaboration and coordination, to implement effective regulatory monitoring systems and to maintain adequate surveillance and monitoring systems.
- Bottleneck analyses along the supply chain, including major stakeholders, are recommended to identify barriers and solutions for improvement.

National, multi-sectoral alliances are necessary to guide salt iodization/food fortification programmes

- A national multisectoral coordination alliance, including private, public, civic and scientific sectors, should be established and should be led by the government. National partnership and long-term industry and government collaboration underpin successful programmes.

¹⁵ WHO (2014). Guideline: Fortification of food-grade salt with iodine for the prevention and control of iodine deficiency disorders. Geneva; World Health Organization. (http://www.who.int/nutrition/publications/guidelines/fortification_foodgrade_saltwithiodine/en/ , accessed March 4, 2016).

- Although salt is iodized by salt processors, collaboration between government departments, agencies and ministries is necessary to create an enabling environment for USI. An enabling environment consists of an adequate legislative framework, support to the salt industry, regulatory monitoring and enforcement to ensure all producers comply with the legislation, and information to the public to ensure understanding of the importance of salt iodization.

Salt iodization should be integrated into the wider food fortification and nutrition agenda

- Salt iodization should be recognised as a food fortification intervention and be supported and implemented as part of a national food fortification strategy. In many countries, salt iodization is implemented separately from other food fortification interventions.
- There are often cross-cutting issues across all food fortification programmes, including salt iodization. For example, one coordination committee should oversee implementation of all fortification programmes (although sub-committees may be needed to focus on specific foods) and principles behind setting fortification standards should be the same across programmes, regulatory monitoring systems for all fortification programmes should follow the same principles and be integrated into the routine food control system. The same surveillance and evaluation systems can often assess indicators for all fortification programmes.
- Food fortification structures and systems, including those for salt iodization, should be integrated into national food and nutrition systems to ensure sustainability.
- Food fortification, including salt iodization, should be recognised as a nutrition-specific intervention, and be included in nutrition-related initiatives and movements, such as the Scaling Up Nutrition (SUN) movement.

Mandatory legislation is necessary for the achievement of universal salt iodization and public health impact

- National mandatory (and not voluntary) legislation for salt iodization is essential for countries in the East Asia and Pacific region. Mandatory food fortification programmes can achieve higher household consumption and thus have much stronger public health benefits.
- Mandatory legislation ensures that all salt is iodized, so that populations benefit from it even without changing their behaviour or even if they are not aware of the importance of purchasing and consuming iodized salt. Indeed, a key lesson learnt is that communication on the benefits of iodized salt to consumers does not have a significant impact on purchasing or consumption behaviours.
- Mandatory programmes require clear and unambiguous legislation and regulatory monitoring to enforce the legislation. Well-implemented mandatory programmes create a safe environment for salt producers to effectively iodize salt.
- Salt iodization legislation should apply to salt used for food processing, including condiments, as well as household/table salt.

Sufficient and effective regulatory monitoring systems are lacking in many country programmes

- The salt industry should implement appropriate internal regulatory monitoring (quality assurance and quality control) systems to ensure consistent and adequate levels of iodine in salt.

- External regulatory monitoring should be undertaken by government authorities to create an even playing field for salt producers.
- The purpose of external regulatory monitoring systems is to verify that internal monitoring systems are in place and effective. Thus, they should rely on review of iodization processes, internal regulatory monitoring systems, records of fortificant (potassium iodate) procured and iodized salt produced, etc., rather than on sample collection for testing, as this only verifies that salt meets national standards at one point in time.
- External regulatory monitoring is more efficient if undertaken at salt processing facilities than in the market, as they are much less numerous and immediate corrective action can be taken. However commercial monitoring in markets can identify illegal and non-iodized salt.

Understanding the structure of the salt industry is key to implementing an effective salt iodization programme

- Salt farmers, who produce raw salt, should be differentiated from salt processors, who process raw salt and are responsible for salt iodization. The focus of salt iodization programmes should therefore be on ensuring all salt processors have the capacity and incentive to iodize all edible salt.
- Although countries often have many small-scale salt producers, the majority of salt is often processed by a small number of large processors. Therefore, focusing initially on large producers can rapidly increase the availability of iodized salt.
- Medium and small producers may need extra technical support to build capacity to effectively iodize, and to source potassium iodate, such as through group purchase.
- Countries that import salt should legislate that imported salt meets national salt iodization standards; the salt should be iodized in the source country or upon arrival.

Surveillance and evaluation systems are necessary to assess impact, identify unreached groups, and provide data for fine-tuning of programmes

- Management and oversight structures should include robust monitoring and evaluation systems to collect information on relevant programme process and impact indicators. This is done in order to regularly review the status of the programme at the national and sub-national levels, and to coordinate necessary changes, such as strengthened enforcement mechanisms, or adjustments in salt iodization levels to ensure safe and effective levels of iodine consumption, especially as countries implement programmes to reduce population salt intake.¹⁶
- USI monitoring and evaluation systems should be integrated into country nutrition monitoring and evaluation systems.
- Median urinary iodine concentration is a measure of population iodine status; it can not be used to assess the iodine status of individuals. Thus, it is not possible nor appropriate to estimate percentage of population with inadequate (or excessive) intake based on the percentage below or above different urinary iodine concentration cut-off points.

¹⁶ WHO. Salt reduction and iodine fortification strategies in public health: report of a joint technical meeting convened by the World Health Organization and The George Institute for Global Health in collaboration with the International Council for the Control of Iodine Deficiency Disorders Global Network, Sydney, Australia, March 2013. Geneva: World Health Organization; 2014.

- Salt consumption and urine iodine excretion levels need to be carefully monitored . Results should be used to inform policy development and modification, in order to ensure complementarity between salt iodization and salt reduction strategies.
- Where household use of adequately iodized salt does not seem to explain urinary iodine levels, other sources of iodine, such as processed foods, should be investigated.

The population should be informed regarding the benefits of USI

- In mandatory salt iodization programmes, where all salt is iodized, there is no need to promote consumption of iodized salt as only iodized salt will be available. However, it is still important to inform people of the reason why salt is iodized, its benefits and that it is safe.



5 - Country situations and planned future actions.

Country	Current country situation	Key issues	Planned future actions
China	<ul style="list-style-type: none"> China has maintained over 90% household consumption with adequately iodized salt since 2005 nationwide and in the majority of provinces. Median urinary iodine concentration (MUIC) of school age children and pregnant women is in the optimal range, nationally and in the majority of provinces. A sophisticated surveillance and evaluation system provides annual data on household consumption of iodized salt down to county level, and periodic surveys with provincial representation provide data on salt iodine levels, urinary iodine status and thyroid volume/goitre rate in school age children. A state-managed monopoly currently produces all consumption salt. However the industry will soon be privatised. 	<ul style="list-style-type: none"> There are concerns about how implementation of the salt iodization programme will need to change after the salt industry is reformed, specifically in relation to regulatory monitoring production of iodized salt. Concerns have been raised by doctors and the public that iodized salt might be causing excess intake of iodine, and there have been some calls for people to have a choice about whether they consume iodized salt. Shanghai has achieved adequate iodine intake, although iodized salt household consumption is less than 90% at provincial level. As a result, questions have been raised as to whether 90% of household consumption is necessary. While MUIC of school age children is in the optimal or slightly above adequate range in all provinces, in some provinces MUIC of pregnant women suggests below optimal intake. 	<ul style="list-style-type: none"> Update legislation after salt industry reform. Add UIC to routine monitoring system for all population. Carry out research on evaluation and surveillance indicators.
Democratic People's Republic of Korea	<ul style="list-style-type: none"> A 2010 survey found only 23% households were consuming adequately iodized salt and MUIC of school age children was 96.8ug/l. DPRK salt iodization efforts have been funded exclusively by UNICEF in recent years. The production of iodized salt has been restricted by problems with production of raw salt. 	<ul style="list-style-type: none"> Salt production factories need to be modernised. The salt produced in the major production facilities (Southeast region) does not reach the Northeast region of the country. Therefore, complementary strategies (iodine supplementation) might be needed in this region 	<ul style="list-style-type: none"> Finalise the National Action plan and Legal Framework to achieve USI by 2020. Establish national coordination & implementation body to oversee implementation of action plan. Invest in infrastructure, power supply, transportation, monitoring, QA/QC, etc.

Country	Current country situation	Key issues	Planned future actions
	<ul style="list-style-type: none"> • A salt iodization action plan is being developed. • The government is planning to increase its investments in the salt industry. 		<ul style="list-style-type: none"> • Establish/strengthen performance of the QA/QC authorities
Indonesia	<ul style="list-style-type: none"> • Household usage of adequately iodized salt has been stagnant at around 50% for several years, although UIC of children and women is adequate. • There is legislation for iodization of salt for human consumption, for processed foods and for animal consumption. • Coordination mechanisms are weak. • Regulatory monitoring is undertaken by the Food and Drug Authority (BPOM) and Ministry of Industry, but enforcement and coordination are weak. • Evaluation happens every 3 years and is donor-funded. 	<ul style="list-style-type: none"> • The salt iodization programme is not being implemented in coordination with a programme to increase national salt production and salt self-sufficiency. • The legislative framework is confusing and ambiguous. Implementing rules and regulations restrict iodization to higher quality salt rather than all salt and do not cover salt for food processing. • Although an estimated 60% of salt is produced by large-scale facilities, medium and small facilities produce the remaining 40%. • Many salt producers are not registered, even large ones, and capacity for quality iodization is lacking in some facilities, especially in smaller ones. • Regulatory monitoring is poor and penalties are rarely imposed. 	<ul style="list-style-type: none"> • Establish SNI (Indonesian standard) for table salt, animal salt and processed foods. Terminology in legislation should be clear and consistent. • Establish SNI for factory and retail levels. • Industry/Trade office at province and district levels should strengthen capacity of small producers. • Support government to put new architecture in place for food fortification, with sub-group on USI. • Strengthen monitoring & enforcement of all large scale suppliers. • Advocate to central government to plan, budget and implement USI/iodine status survey every 3-5 years. Advocate also to local government for more resources for surveillance.
Lao People's Democratic Republic	<ul style="list-style-type: none"> • The progress achieved by 2005 (68% of households consuming adequately iodized salt and the majority of the population with optimal iodine status) was mainly reversed by 2013: only 37% of salt was adequately iodized and the levels of iodine status halved. • Almost all salt is produced by 7 salt producers, which have formed the Lao Salt Production Group (LSPG). They have set up a potassium iodate Revolving Fund (PIRF). 	<ul style="list-style-type: none"> • The LSPG ran out of potassium iodate for several months in 2013 due to a global price increase and problems with procurement. • A shortage of WYD reagent solution has led to a lack of internal and external regulatory monitoring. • There is lack of budget for regulatory monitoring and weak enforcement even when it does take place. • There is no data on the different sources of sodium in the diet of the Laotian population. 	<ul style="list-style-type: none"> • Strengthen existing legislation. • Strengthen PIRF system. • Integrate IDD activities into annual nutrition action plans and budget. • Improve coordination among relevant agencies. • Revitalise internal regulatory monitoring practices. • Strengthen external regulatory monitoring system. • Build capacities of governmental staff on data validity and record keeping.

Country	Current country situation	Key issues	Planned future actions
		<ul style="list-style-type: none"> There is a need for import policies on iodized salt to be reviewed. 	<ul style="list-style-type: none"> Improve database and data dissemination on iodine status of pregnant women.
Mongolia	<ul style="list-style-type: none"> In 2010, there was high household consumption of adequately iodized salt, and MUIC of children and women was adequate. As a result, the USI programme was officially ended. A planned 2016 survey will provide more current information. It is expected that household consumption might be lower. Mongolia imports the majority of salt. Less than 10% of salt consumed in Mongolia is from locally produced salt. There are six major salt importers. 	<ul style="list-style-type: none"> Following the achievements from 2010, regulatory monitoring is currently not properly enforced. There needs to be good coordination among salt importers. There are efforts to increase local production of iodized salt. 	<ul style="list-style-type: none"> Government should provide regulation internal quality control and for payment of KIO₃. Provide new performance technology and new equipment in Western region. Establish salt producer association. Provide supportive supervision. Strengthen enforcement mechanisms to implement law and standards. Build capacities of inspectors and importers. Conduct survey in 2016
Myanmar	<ul style="list-style-type: none"> Myanmar has experienced backsliding in household consumption with adequately iodized salt from almost 70% in 2006 to about 30% in 2011. In 2006 the MUIC of children was just in the adequate range. The mandatory national legislation (household salt, processed foods/condiments, livestock feed) was revised in 2014/2015. Regional legislation is not yet finalised. Capacity for production of quality iodized salt appears to have declined. 	<ul style="list-style-type: none"> Enforcement of the national salt law remains weak due to independent sub-national laws in some states and regions. Limited technical capacity among the medium- and small-scale producers. The law requires importation of potassium iodate that is mixed with salt. Salt in Myanmar has a high moisture content. 	<ul style="list-style-type: none"> Finalise legislation at regional level. Technical support to salt producers to reduce moisture content, know potassium iodate content and internal monitoring procedures. Coordinate multi-sectoral meeting (MOH, MOM, MOE, MOHA). Expand government lab infrastructure - equipment, technical skills & staff. Build capacities for government staff on data management. Conduct survey in 2015/2016
Papua New Guinea (PNG)	<ul style="list-style-type: none"> All salt is imported. In 2005, 98% of salt samples were adequately iodized and women had adequate urinary iodine levels. However, small ad-hoc surveys since that time suggest the situation has declined. 	<ul style="list-style-type: none"> There is no enforcement of existing salt regulations at points of import. A recent small-scale survey in Gulf Province found very low levels of urinary iodine. 	<ul style="list-style-type: none"> Re-activate national coordination committee – food fortification committee. Strengthen the food control system through controls with Rapid Test kits at point of entry/customs and through monitoring of salt in markets.

Country	Current country situation	Key issues	Planned future actions
	<ul style="list-style-type: none"> National standards for edible salt, which include iodization, are not monitored or enforced. 	<ul style="list-style-type: none"> Some populations, in particular very remote communities, may not consume commercial salt and therefore will not benefit from iodized salt. Supplementation for these populations may be needed. 	<ul style="list-style-type: none"> Include salt indicator in demographic health survey (DHS). Undertake situation assessment of fortified foods imported into PNG.
The Philippines	<ul style="list-style-type: none"> Only a quarter of households consume adequately iodized salt and the situation remains unchanged since 2008. MUIC of school age children is adequate but that of pregnant and lactating women is not. The law requires the iodization of salt for human and animal consumption, including salt for food processing. Implementing Rules and Regulations were revised in 2004 and in 2015. Implementation of the National Salt iodization Programme (NSIP) is well-coordinated at the technical level by a Technical Working Group (TWG). 	<ul style="list-style-type: none"> There are low levels of senior political commitment and poor levels of coordination at policy level. There has been little to no change in programme indicators since the last survey, 5 years ago. The majority of salt is imported as non-iodized salt; it therefore has to be iodized in country. Regulatory monitoring by the Food and Drug Administration is lacking. Hence, while the majority of salt contains some iodine, the majority does not meet national requirements. There is lack of resources for more regular HHIS surveys, for subnational analyses and for looking at the contribution of processed food salt to iodine intakes. 	<ul style="list-style-type: none"> Explore alternative schemes for potassium iodate procurement. Include consumer groups and association of supermarkets in TWG-NSIP. Formulate NSIP Strategic Plan for 2017-2022. Advocate for Secretary of Health to be champion. FDA should monitor plants 2 times per week (in collaboration with RBATF). Complete study on salt in processed foods. Explore use of proxy measures for HHIS (total production by areas).
Thailand	<ul style="list-style-type: none"> MICS 2012 found 71% to be adequately iodized (RTK data) and MUIC of pregnant women was 156ug/L in 2014, indicating optimal iodine intake. Salt iodization legislation was updated in 2010 and includes separate legislation for the iodination of fish sauce, salt brine and soy sauce, either by using iodized salt or adding iodine directly. All regions and socio-economic groups of Thailand have adequate iodine status. 	<ul style="list-style-type: none"> Only around a third of samples of salty condiments are adequately iodized. Therefore, salty condiments might be removed from the legislation. The technology for monitoring of salt iodization is antiquated. This leads to problems in the consistency of iodized salt production. There is a need to develop surveillance on salt consumption levels and sources of iodine. 	<ul style="list-style-type: none"> Create system for QA/QC in factory. Build capacity of all salt producers (especially small-scale producers). Subsidize mixing machines (FDA) for small and medium scale producers. Carry out research study on salt testing machine for use at production level. Strengthen regulatory monitoring system: monitor salt quality twice per year. Create health worker network for monitoring, to identify pockets of low household consumption.

Country	Current country situation	Key issues	Planned future actions
	<ul style="list-style-type: none"> Strong national coordination and enforcement by FDA with visits made to factories once per year. Very small-scale producers where salt is boiled and sold locally, produce 8.4% of the salt available in Thailand. 		<ul style="list-style-type: none"> Research: contribution of household salt, iodized salty condiments, iodine contents of foods and water, and iodine supplements to overall iodine intake, and determination of cost-effectiveness. Integrate evaluation of IDD and salt reduction programmes.
Timor Leste	<ul style="list-style-type: none"> Timor does not currently have an IDD elimination or USI programme. A 2013 survey found about half of all households to be using adequately iodized salt. A large portion of salt is imported. 	<ul style="list-style-type: none"> There is no information about the exact amount of domestically produced salt. 	<ul style="list-style-type: none"> Carry out multisectoral technical review/consultation on draft legislation. Advocate for endorsement of legislation. Put salt iodization on agenda of Council of Food Security, Sovereignty and Nutrition (Konsantil). Carry out regulatory monitoring of salt iodization at import and local production.
Viet Nam	<ul style="list-style-type: none"> Between 1993 and 2005, Viet Nam had one of the most successful salt iodization programmes. In 2005 they replaced the mandatory legislation with a voluntary one. By 2008, household consumption became suboptimal. Now a new mandatory legislation is being drafted. 	<ul style="list-style-type: none"> In the past, production of iodized salt was a stand alone initiative managed by the Hospital of Endocrinology with free KIO₃. Implementation details for the new legislation are yet to be developed. The sources of salt used in processed foods are not fully understood, even if there is a high consumption of salty condiments. 	<ul style="list-style-type: none"> Develop mandatory legislation. Invest in new technology. Build capacities to ensure that all producers establish internal QA procedures. Identify best supplier of KIO₃. Coordinate among ministries, related agencies and local authorities. Establish roles and responsibilities. Reinstate regulatory monitoring at plants and markets.







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