

This technical briefing paper examines the work of UNICEF Sudan and its partners in addressing the issue of iodine deficiency, and the progress made to date towards achieving Universal Salt Iodisation.

Situation analysis

Iodine Deficiency Disorders in Sudan

Micronutrient Deficiency Diseases (MDD) are a major public health concern in Sudan. Although UNICEF has made considerable progress in vitamin A supplementation through National Immunization Days (NIDs), less progress has been made in Universal Salt Iodisation (USI).

The consumption of iodized salt in Sudan is as low as 11 per cent¹. Each year, about 1 million new born children (91 per cent of all new born children) are not protected against brain damage due to lack of iodine consumption by mothers, and 142,000 of these are born with iodine deficiency consequences. The brain damage to these children is irreversible and can lead to a reduction of up to 15 points in IQ levels in endemic areas in Sudan. Therefore one quarter of children will not reach their maximum education potential.

In addition, there is a goitre prevalence of 22 per cent, which leads to a reduction of up to 25 per cent in productivity in those affected people.

Household use of iodized salt

In Southern Sudan, with the large presence of food aid and increased access to iodized salt from cross border trading with Kenya and Uganda, use of iodized salt in three states (Lakes, Central Equatoria and Eastern Equatoria) was found to be more than 50 per cent.

Preliminary results from the Sudan Household Health survey conducted in 2006 reported that 11.6 per cent of households were consuming adequate iodized salt (15+ parts per million), compared to only <0.6 per cent iodized salt consumption reported in the 2000 Multiple Indicator Cluster Survey (MICS). The use of iodized salt was found to be extremely low (less than 5 per cent) in 11 states in the north of Sudan

Supply of iodized salt

The total salt requirement in Sudan is estimated at 165,000MT (including human consumption of 140,000MT, 20,000MT for caustic soda production and 5,000 MT for canning). The bulk of Sudan's required salt (>90 per cent) is produced by solar evaporation of Red Sea brine in Red Sea State by 18 salt units.

Despite a government requirement in 2003 for all salt to be iodized, only one salt refinery to date has produced approximately 3,000MT of iodized salt, of which 2,000MT is supplied to the UN World Food Programme (WFP) for emergency food rations. In addition, a small quantity of iodized salt is purchased by supermarkets from Saudi Arabia, Turkey and countries in the Middle East.

UNICEF response

UNICEF has taken a leading role, alongside other key partners, to address four key areas; increasing supply of iodized salt, engaging with government to ensure political leadership on USI, increasing demand for, and understanding of, iodized salt through effective information and communication activities, and improved monitoring and evaluation.

Increasing supply of iodized salt

In October 2006, the Micronutrient Initiative (MI) and WFP conducted a thorough assessment of all salt producers in Port Sudan. Based on the recommendations of this assessment, salt plant design and manufacturing and procurement of tailored iodisation equipment has been completed and shipped to Sudan. The potassium iodate supply required for salt iodisation has also procured and is currently stored by WFP



A woman in Darfur displays symptoms of goitre. The prevalence of this iodine deficiency disorder in Sudan is estimated at 22 per cent

Photo: UNICEF Sudan

¹ Sudan Household Health Survey. Government of Sudan and UNICEF, 2006

In addition, WFP and MI recruited a consultant in June 2007 to oversee the commissioning of the equipment, training of salt producers, and starting the production of iodized salt

A national salt manager with relevant qualifications was also recruited to assist the project activities, through a secondment from the Ministry of Industry.

Iodized salt production commenced in June 2007 with technical support of the WFP/MI consultant and the launch of the national iodized salt programme is scheduled for November 2007.

Ensuring political engagement

A Ministerial Declaration issued on July 2003 under the Public Health Law of 1975 provided for blending of salt with potassium iodate (30mg/kg). The Ministerial Declaration called upon all salt producers to ensure production of iodized salt within six months from the date of the declaration. This decree has some limitations in that it does not ban non-iodized salt, and does not fully explain the role of inspectors or applicable sanctions for non-complaint salt producers. No action was taken following the issuance of the Declaration to enforce its requirements, and production was limited to one plant.

Following a Consultative Advocacy Meeting on Universal Salt Iodisation in Sudan, which was coordinated by UNICEF in December 2005 to renew and reiterate political commitment to tackle IDD, action plans were developed and the National Nutrition Directorate has since drafted the "Universal Salt Iodisation - Sudan Plan" which will act as a framework for all USI activities for Sudan. The Plan sets as an overall objective the elimination of IDD by 2015, and to increase household consumption of iodized salt to more than 90 per cent by the end of 2009. The Plan's main components include

- Strengthened programme management
- Increased production of iodized salt
- Quality control and distribution
- Increased public awareness of the benefits of iodized salt
- Monitoring and evaluation systems

Current legislative structures require that states are responsible for issuance of any decree to ban the production and sale of non-iodized salt for human and animal consumption. UNICEF continues to advocate for issuing decrees and laws at the state levels. The only state where a decree banning non-iodized salt has been enforced is in South Darfur – this was passed at the end of 2005. There is a local salt iodisation unit at Buskum, opened in 1997 and supported by UNICEF and the Federal Ministry of Health (including donations of three iodisation plants and a generator).

UNICEF also believes that advocacy for development of national laws and regulation of food fortification (flour fortification, iodized salt, sugar etc.) is needed. Legislation could be effected by amending the existing food control law or enacting separate legislation for food fortification. Adopting and enforcing legislation is an important prerequisite for sustainability.

One step towards this was the development of high level Ministerial steering and technical committees in 2006 to support the national fortification strategy and to ensure government commitments to achieving USI.

In 2007, a Memorandum of Understanding detailing institutional roles and responsibilities related to the achievement of USI in Sudan amongst key actors including the Federal Ministry of Health, UNICEF, and WFP – with technical input from Micronutrient Initiative – was signed in 2007. Under the terms of the Memorandum, the Federal Ministry of Public Health will be responsible for overall coordination, management, and quality control, while the Ministry of Industry will facilitate engagement with the private sector.

WFP and MI will focus support on production of iodized salt components through the private sector. UNICEF will support development and implementation of broad social mobilisation and marketing campaigns.

UNICEF will also conduct assessments at national level to enable monitoring of IDD, levels of consumption of iodized salt by households, sale of iodized salt by retailer and facilitate the development and enforcement of supportive legislation with the government.

Information, education and communication (IEC) on iodized salt

Community awareness of the benefits of iodized salt is very limited in Sudan. The Federal Ministry of Health, in collaboration with UNICEF, recruited a consultant to undertake a Knowledge, Attitudes and Practices (KAP) study in October-November 2003 to understand the perception, attitude and beliefs towards iodine and IDD.

Study findings revealed that:

- Goitre is considered to be a common disease linked to other causes and not due to a lack of iodine from salt. This belief is shared even among doctors, health staff and educated people.
- Iodized salt is believed to be used for treatment of IDD and not its prevention.
- Education officials did not know that iodine deficiency affected the performance children.
- There is a belief that iodized salt changes the colour and odour of cooked food.
- Iodized salt is believed to be more expensive than non-iodized salt.

The lack of production capacity in Sudan meant that until now it has not been considered useful to embark upon mass communication campaigns on the issue of iodized salt, for fear of creating a demand which could not be met in the market place. Now that large-scale production has commenced, the State Ministries of Health, with support from UNICEF as part of the Universal Salt Iodisation—Sudan Plan, are currently coordinating state level advocacy meetings with key actors. Advocacy IEC materials are also being developed, as well as integration of USI messages to the education sector, for example through schools and colleges, along with the use of product labelling to deliver key advocacy messages.

UNICEF has also developed a three year detailed communication, social mobilisation and marketing strategy with all key actors including influencers and decision makers, salt, flour and sugar traders, school teachers and community leaders, women's groups, health workers and children. This plan includes:

- Communication to the general public through mass media, dissemination of IEC materials, and the use of interpersonal communication channels.
- Development of an advocacy framework for lobbying government to create a supporting environment for iodized salt production.
- Exploring potential for integration of USI messages to the education system.

IDD social mobilization and marketing campaigns will commence in October 2007 targeting all segments of Sudanese society, with the objective of increasing awareness and changing attitude and behaviour by 2010 with the following targets:

Awareness

- 100 per cent awareness among consumers about the causes and effects of iodine deficiency.
- 100 per cent awareness about the visible and non-visible symptoms of IDD among health workers and community.
- 100 per cent awareness among policy makers, media and others about the economic, social and developmental effects of IDD
- Health workers, school children, teachers and others understand the role they can play in IDD control and the promotion of USI.

Attitude

- 100 per cent of consumers feel that extra investment in buying iodized salt is a worthwhile one, and as a result do make that investment.
- 100 per cent of salt producers feel that they are responsible for the lives and health of millions of Sudanese people and its duty to become part of larger cooperative to produce iodized salt.
- 100 per cent of policy makers are committed to legislation and enforcing a law that leads to USI.

Behavioural changes and other outcomes

- 90 per cent of the population consumes iodized salt
- Sustainable production capacity in Sudan
- Legislation and enforcement in place to insure USI

Improved monitoring and evaluation

The sustained elimination of IDD through USI requires a well-established system to monitor population iodine status, use of iodized salt and programme implementation. Impact, process and the programme itself must all be monitored. Currently, the role and responsibility of each actor is unclear; therefore, a monitoring plan that illustrates the role and responsibilities of all key actors must be developed.

There is need for:

- An effective programme monitoring system that includes standardised collection and reporting of information, matched with efficient feedback and adjustment mechanisms that allow continuous improvement of USI. The roles and responsibilities of government or independent public health institutions to monitor programme implementation status should be defined in USI enforcement documents and are important to ensure efficient functioning of the monitoring system.
- Monitoring at production, distribution, and market levels is a prerequisite for successful implementation and

important in ensuring access at the household level. Capacity resources and systems should be in place to sustain routine monitoring of salt production, distribution and consumption to ensure continued operation of the programme. In addition, this will capture changes in production and consumption, and identify trends that may impact on the effectiveness, safety and sustainability of USI.

- Monitoring of population iodine nutrition status in the population, including assessment of impact indicators such as levels of urinary iodine in population and goitre rates. These may be used for preliminary assessment of the magnitude of the problem during the initial stages of USI/IDD elimination programmes. However, changes in goitre prevalence are not a proper determinant of changes in iodine nutrition status since goitre rates are slow to respond to added iodine in the diet.

Moving the programme forward: 2007 and beyond

The following key steps are required now to move Sudan forwards towards Universal Salt Iodisation:

The issuance of notification and legislation banning sale of non-iodized salt. The Government is urged to enact and immediately enforce laws banning the marketing of un-iodized salt for human and animal consumption.

A time bound commitment to implement salt iodisation. The Government should direct salt producers and distributors to switch over to the production and sale of iodized salt within a definite timeframe.

The establishment of minimum quality standards for salt iodisation. This should include recommendations that only potassium iodate should be used for fortification.

Ensuring standardised labelling of iodized salt to allow for more visibility of iodized salt and to enable consumers to make informed choices in the market. This requires all salt producers to follow uniform packaging and labelling standards.

Increasing awareness about the threat of IDD and the benefit of iodized salt, leading to increased demand by using the strategic communication, social mobilisation and marketing plan with all key actors

Support to the Government of Sudan in instituting a comprehensive system for monitoring, which clearly establishes roles and responsibilities of Government ministries (including the Ministry of Finance, Ministry of Education, Ministry of Industry, Ministry of Agriculture and Ministry of Health) and their partners to ensure quality control at all levels of production, transport and retail and to ensure adequate iodine intake at the household level.

Increased role for the public and private sector

The success of USI will depend on a fully collaborative partnership between the public and private sector. In particular, financial commitments from government will be important to ensure sustainability. UNICEF, WFP and MI are all advocating with government to make significant investment in the programme; until now there has been a feeling that the cost of the USI programme should be met through increased retail prices—allowing consumers to effectively pay for any incurred costs of the iodisation process.

This has resulted in producers being allowed to increase prices by up to 10 per cent. However, some producers have been willing to invest in their own advertising and marketing of iodized salt. There will be a role for UNICEF in assisting producers to create effective and tested social marketing campaigns to increase uptake of the product.

Salt producers have also established a laboratory for industry-level quality control.

For its part, the government has made a commitment to providing human resources for a cadre of inspectors.