

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

**THE REPUBLIC OF SUDAN**  
**FEDERAL MINISTRY OF HEALTH**



**Why Universal Salt Iodization Regulatory Function and Coordination System is  
Weak in Gadarif State , Sudan**

**Report on the Study Outcomes**

**June 2016**

## **Background on the working context**

Salt iodization probably represents the first large-scale experience in national fortification of a commodity to eliminate a public health problem. It has taught valuable lessons in collaboration between government, industry, international organizations, the community at large and other sectors. It has also offered insights into building and sustaining an intervention politically, technically, managerially, financially and culturally. Strengthening salt iodization and expanding it to cover all edible salt in the country is the key requirement to eliminate iodine deficiency in the country.

It is well established that the commitment to IDD elimination by a national government is essential to firmly root a USI program. Evidence of political commitment to USI and elimination of IDD usually comes in the form of legislation that mandates that all salt for human and animal consumption be iodized; a national coalition or oversight body responsible for the programme that reports to the Minister of Health; and the appointment of a responsible executive officer for the IDD elimination programme. (Achieving Universal Salt Iodization, the Network for Sustained Elimination of Iodine Deficiency, 2012).

Experience has shown that legislation is a corner-stone to sustaining a USI programme. India, Russia and China demonstrate the effect of government support upon USI.

Salt has a significant place in India's political history, notably Gandhi's salt march to Dandi in protest of taxation on salt in 1930. But it was in 1962, that the Government of India (GOI) introduced iodization of edible salt under the National Goitre Control Programme, in effect from 1963 to 1982, however, salt iodization was permitted only in the domain of the public sector. In 1983, iodized salt production was opened to the private sector, thus marking the beginnings of a strategy towards universal salt iodization in India.(Achieving Universal Salt Iodization, the Network for Sustained Elimination of Iodine Deficiency, 2012).

In 1998 India instituted legislation which banned the sale of non-iodized salt. This legislation was revoked in 2000 amidst political turmoil, and subsequently resulted in a drop of adequately iodized salt production from 70.3% on 1997 to 29.6% in the period 2000- 2004. With the dissolution of the USSR in 1991, the salt iodization program also became fragmented as government infrastructures underwent major reorganization. In addition, during this period of decline, there was no investment into the salt production infrastructure further hampering the capacity to produce adequately iodized salt. Consequently, the USSR went from an era of iodized salt production of almost 1 million tons in the 1960- 70s, of which Russia produced 318,000 tons and imported the remainder of their domestic demand from the Ukraine, through a period of decline such that by 1997 Russia, as a country, produced less than 25,000 tons. Meanwhile, with the lack of iodized salt available, iodine deficiency re-emerged. (Achieving Universal Salt Iodization, the Network for Sustained Elimination of Iodine Deficiency, 2012).

In 1997, the Head State Sanitary Physician of the Russian Federation issued a resolution on “The Prevention of Iodine Deficiency Conditions” which provided for the mandatory iodization of salt but for judicial reasons, was never enacted into legislation. Numerous subsequent attempts to get legislation passed have failed. Nevertheless, the production of iodized salt has improved somewhat as a result of collaboration between the Russian Association of Salt Producers, the Russian government and the Ministry of Health, supported by UNICEF and other international agencies. Consequently, the capacity for iodized salt production improved considerably but iodized salt production remains low (at approximately 130,000 tons in 2008, compared to an estimated domestic demand of 500,000 tons) and the household consumption of iodized salt is approximately 29%. (Achieving Universal Salt Iodization, the Network for Sustained Elimination of Iodine Deficiency, 2012).

China, in contrast, is a study of dedicated government commitment at the highest level. Iodine Deficiency was noted in ancient Chinese medical script as early as 3,000 BC. Actual epidemiological evidence of the magnitude of IDD in China came to light in the 1960s which investigated the origins of endemic goitre and cretinism and showed that iodized salt was an effective intervention to address the problem. At that time an estimated 700 million people were at risk from iodine deficiency. In the 1970s, there were 35 million people with visible goiters and 25 million people with intellectual impairment due to iodine deficiency across the country. Earlier efforts to deal with this public health problem were focused on highly endemic areas but were not entirely effective due to low government commitment, uneven salt iodization and, likewise, monitoring. (Achieving Universal Salt Iodization, the Network for Sustained Elimination of Iodine Deficiency, 2012).

Spurred on by the UN Summit for Children in 1990, where the Premier signed the declaration which had the elimination of IDD as one of its goals, China launched into an era of dedicated strategy to eliminate IDD. Thus in 1991, that the Chinese government made a formal commitment to eliminate IDD by the year of 2000. The defining moment, however, was a high-level advocacy meeting in September 1993. The meeting resulted in a State Council Leading Group on IDD Elimination which reaffirmed the commitment to eliminate IDD by 2000; the establishment of a National IDD Control Program; a roll out of USI, regulation on iodized salt – including the creation of a salt monopoly to ensure iodized salt production, and the establishment of a multi-sectoral mechanism for social mobilization and advocacy. These key developments have sustained China's efforts. Universal salt iodization as the main strategy was adopted in the whole country in 1995. The result was an increase in iodized salt production from less than 3.3 million tons in 1993 to 8 million in 2005. Today nearly 96% of Chinese consume effectively iodized salt on a sustained basis (Achieving Universal Salt Iodization, the Network for Sustained Elimination of Iodine Deficiency, 2012).

IDD has been recognized as public health problem in Sudan since 1950s (Kambal A. Endemic goiter in Dar fur, Sudan. M.Sc. Thesis, University of Khartoum, Khartoum, Sudan, 1967). Although IDD control programme in the form of distribution of iodized oil capsules was launched in Sudan as early as mid-1970, Iodine Deficiency Disorder National Survey conducted in 1997(Sudanese Ministry of Health, Iodine Deficiency Disorder National Survey,1997). showed prevalence of IDD at a rate of 22%.

Accepting that salt iodization is the most ideal method for IDD control, USI for both human and animal consumption is adopted as one of the government strategies for combating IDD in Sudan. Starting from 1994, the Federal Ministry of Health (FMoH) in collaboration with UNICEF and other stakeholders have taken the initiative to support the mandatory production of iodized salt in Sudan. Following the food fortification forum of 2005, WFP (World Food Programme) and MI (Micronutrient Initiative) have joint to support the USI initiative.

The legislative structures require that all states are responsible for issuance of a decree to ban the production and sale of non- iodized salt for human and animal consumption. So far 11 out of the 18 states in the country have passed laws banning the sale of non- iodized salt.

In 2010 Sudan National Household Survey (SHHS) showed only 9 percent of the household was found to have consumed iodized salt. To ensure iodized salt reaches people with adequate level of iodine content, an effective and proper monitoring system is required. Monitoring for iodized salt starting from production up to the consumer level through market followed by appropriate decisions to remedy problems will guarantee a positive impact. The overall responsibilities for iodized salt monitoring at each monitoring points lie with the following ministries: Ministry of Health (MoH), SSMO, Ministry of Trade (MoT) Ministry of Industry (MoI) etc.

International Council for Control of Iodine Deficiency Disorders contributed to the drafting of comprehensive salt iodization legislation in 2010 with the Ministry of Health, the National Nutrition Program and other regulatory bodies

in the country. The legal provisions on monitoring covered two aspects. First, self-monitoring by the salt industry defined procedures for internal monitoring, where the industry routinely examines its own processes and procedures to identify and correct problems found. Second, external monitoring is legislated by the government pursuant to its inspection and investigation powers. However, until 2012 the implementation of the law had not been formally approved and this remained a major obstacle (IDD newsletter, volume 40, Number3, August 2012).

According to these results the elimination of micronutrient deficiencies becomes an essential priority of the Federal Ministry of Health, which is led by the National Nutrition Directorate. This is reflected in the recent Policy and strategy which states in its objectives:

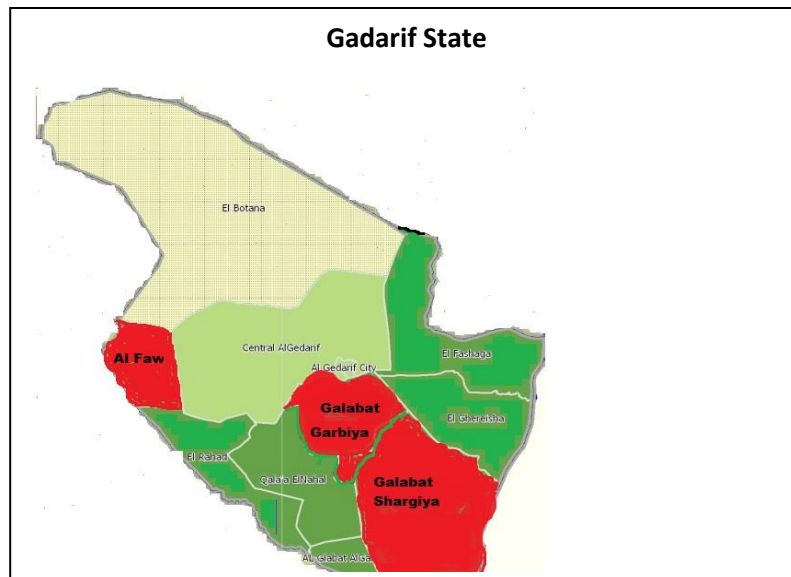
Strategy A: Ensure the prevention and treatment of nutrition related disorders in emergency and non emergency situations.

Strategy B: Prevent, detect and treat Iodine Deficiency Disorders (IDD) through Universal Salt Iodization

Strategy C: Prevent, detect, and treat Micronutrient Deficiency Disorders (MDDs) through a combination of supplementation, fortification, education, and food based approaches.”

Supply of iodized salt is not a health sector responsibility, but it is ensured by establishing a coordination committee at the state level and the quality of the salt is monitored by checking salt at the entry point and at post marked by assigning inspectors and also health sector implement awareness programs to create demand.

Gadarif state is located in the eastern part of Sudan where the production of iodized salt occurs in the same region (Eastern region) so as to cover all the country ,it is composed of ten localities with a population of about 1.5 million from different tribes and ethnic groups, although it is one of the main agricultural and food production areas in Sudan, the national S3M survey revealed that the nutrition status of children under five is above international threshold of nutrition emergency with range of stunting prevalence (35%-73% ) within localities , on the other hand since four years Gadaref state passed the mandatory salt iodization but the universal salt iodization was not achieved with great inter-locality variation in iodized salt house hold consumption .



## Section 2



## **Implementation Challenges Addressed by the Research**

### **a. Implementation Barriers:**

Insufficient evidence and studies concerning salt iodization consumption in Sudan makes it difficult to come up with a firm decision about how, where, and why universal salt iodization policy enforcement is not effective in parts of the country, Sudan policy assumed that legislation is the shortest approach to achieve universal consumption to iodized salt with complementary efforts in awareness and due to federal system challenge the national level pushed the states toward declaring their own legislation variation in the commitment between the states affect this but also there is difference between and within the states to implement this legislation, the states were fully delegated to design their systems.

It has been revealed that variations existed among iodized salt, household consumption of which 14% at Faw and 79% at Algalabat Al Shargiya in Gadarif State (S3M 2013), such variations questions the regulation and coordination systems which affect the accessibility of local communities for consumption.

### **b. Theory about the systems failure that caused the barrier:**

The variations existed among iodized salt, household consumption of which 14% at Faw and 79% at Algalabat Al Shargiya in Gadarif State (S3M 2013), such variations questions the regulation Which is declared by the state level and its effectiveness to reach the universal iodized salt consumption because of the overall failure of the state to achieve this target and also coordination mechanisms at the different localities due to this wide range in consumption between localities

c. The research question and how did it relate to the theory about the system failure:

Insufficient evidence and studies concerning salt iodization consumption in Sudan makes it difficult to come up with a firm decision about how, where, and why universal salt iodization policy enforcement is not effective in parts of the country, thus research is urgently required to identify factors that may hinder consumption, distribution and enforcement of laws of iodized salt among consumers and commercial sellers and distributors, then evidence based actions towards improving iodized salt consumption will be taken.

### **Section 3:**

## **The study design and Methods used to answer the research question**

### **a. Methods used in the study:**

A comparative descriptive study has been conducted. Structured questionnaire used, among inspectors, managers, commercial distributors, sellers etc.. FGD conducted with Community members to obtain relevant information on background of participants as well as exploring the perception of salt sellers, inspectors and community leaders , about programs and enforced iodized salt law..

### **b. Data collected and analysis :**

- The study has been conducted at the inspector's check-in points, distribution center point, Central markets, and communities living in the Gadaref state within each locality selected. (Faw, Algalabat Alshargiya, Algalabat AlGarbiya)

## **Data Collection**

For the purpose of the outcome we used a structured, pre tested questionnaire. During data collection, questions checked one by one to ensure all possible answers. Obtained data categorized and coded in the questionnaire before entering the data. Data entered and reviewed by the investigator. Number of team members (3) each team consist of 3 persons.

For the purpose of this study both primary and secondary data collected, where primary data obtained from the study targeted participants (mangers, inspectors, distributors, sellers and community leaders. Secondary data obtained through reviewing of the relevant documents, (laws and regulations from policy makers at state and locality level).

Both qualitative and quantitative data generated through Observation, interviews, focus group discussion, reports and document reviewing when necessary .

**Interview:**

Data collection consists of structured questionnaires which completed by the interviewer her/him self on a face-to-face basis during the In-depth interview. To ensure reliability of data collection the interview conducted in formal base as well as a supervision team established in Khartoum conducted the supervision in order to resolve any encountered problem or deviation from the study protocol.

**Sources of qualitative information, and the collection tools:**

Both primary and secondary qualitative information obtained. The primary information collected from the study target population, while secondary information obtained through relevant document review.

Key informant interviews (KIIs): Individual structured interviews also held with both positional and reputational key informants in the study sites. The key informants include community leaders, and inspectors.

**c. People included in the study**

**Target population included:**

- Inspectors
- Commercial distributors and sellers of iodized salt
- Community members, both male and female
- Community Leaders
- Managers, Policy and decision makers at state level

## **Sampling and Sample size:**

### Sampling for FGDs / Focus Group Discussion /

Participants of FGDs were been selected using purposive sampling. Key informants at each selected site asked to help identify potential participants for each target population selected.

Focus group discussions of 8 participants each, took place in the selected target area across the three selected localities.

The planned sample size for FGDs in each state is between 8 participants. The following table illustrates the distribution of FGDs among the different population categories

**Table 1: The distribution of FGDs and In-depth interviews among the different population categories**

<b>S.NO</b>	<b>Category of FGD</b>	<b>Number of FGDs</b>	<b>Total number of participants in each Locality</b>
A.	FGDs within the community / one group: males & one group females		
A.1	Al Faw Locality	2	16
A.2	Al Galabat AlShargiya	2	16
A.3	Al Galabat AlGarbiya	2	16
	Total number of FGDs in each Locality	6	48

### **Sampling of In-depth interviews:**

**Table 2: The distribution of In-depth interviews among the different population categories**

<b>S.N0</b>	<b>Category of In-depth interviews</b>	<b>Number of In-depth interviews participants</b>
B.	In-depth interviews with different categories and High authority officials (Health Director, commissioners, Quality Control Inspectors, nutrition staff, etc..)	
B.1	Al Faw locality	10
B.2	Al Galabat AlShargiya	10
B.3	Al Galabat AlGarbiya	10
B4	At state: <ul style="list-style-type: none"> <li>• G. Director of Health</li> <li>• PHC Director</li> <li>• Nutrition</li> <li>• Public Health Directorate</li> <li>• Environmental health</li> <li>• Legislative counsel</li> <li>• Trade chamber</li> <li>• Consumer protection</li> <li>• Pastoralist Union</li> <li>• Police checking point stations</li> <li>• SSMO</li> </ul>	1 1 2 1 2 2 2 2 2 2 3
C.	In-depth interview with community leaders	
C.1	Al Faw Locality	5
C.2	Al Galabat AlShargiya	5
C.3	Al Galabat AlGarbiya	5
	Total	15

**Review of secondary data:**

The secondary data has been reviewed and correlated with the results of the in-depth interviews and the FGD. The secondary data covered the following:

1. National policy, guidelines, plans
2. Availability of Iodized salt law at all levels (State and the 3 localities)
3. Inspector monthly reports
4. Public health directorate/food inspection guidelines
5. Plans at state and locality levels

### **Criteria of Selection**

Inclusion Criteria for interviews: Managers( decision makers and policy makers at state and locality level), Inspectors , commercial distributors and sellers of iodized salt, community leaders, in Gadaref state, working or distributing at the following locality : Faw, Algalabat Shargia and Algalabat Algarbi

Exclusion Criteria: Community leaders, inspectors ,distributors and sellers of iodized salt NOT living ,working or distributing to Gadaref state at locality Faw, Algalabat Shargia and Algalabat Algarbi ,

## Results and Discussion

A total of 88 people were interviewed while 6 FGDs; two groups per each locality (one group of 8 persons for men and the other for women).

### 1- Results:

#### a. Indepth Interview Results

**Table 1**

**Commercial sellers:  
a: Awareness of Iodized Salt and its impact on health:**

variable	Faw locality		Galabat Shargiya		Galabat Garbiya		Total
	Yes.	No	Yes.	No	Yes.	No	
heard of IDD (iodine deficiency disorder)	0	5 100%	5 100%	0	5 100%	0	15
aware of iodized salts and its impact on health	0	5 100%	5 100%	0	5 100%	0	15
use Iodized Salt at your household	3 60%	2 40%	5 100%	0	5 100%	0	15
sell Iodized salt?	5 100%	0	5 100%	0	5 100%	0	15
aware of any enforced laws concerning iodized salt	0	5 100%	5 100%	0	5 100%	0	15
undertake any inspections or test checking for iodized salt before selling it	0	5 100%	0	5 100%	5 100%	0	15
any supervisory inspection from the state	0	5 100%	3 60%	2 40%	5 100%	0	15

- All the commercial sellers in Galabat Shargiya and Garbiya heard of the iodine deficiency disorder while non of the commercial sellers in Faw heard about IDD, same situation regarding the awareness of any enforced laws



**Table 2****Application of enforced law and monitoring systems and coordination:**

variable	Gadarif State		Faw locality		Galabat Shargiya		Galabat Garbiya		Total		
	Yes.	No	Yes.	No	Yes.	No	Yes.	No	Yes.	No	Total No.
aware of the laws concerning iodized salt	9	1	3	3	5	1	4	2	71.4	28.6	28
apply a monitoring system, including monitoring of iodized salt	8	2	3	3	5	1	4	2	20	8	28
conduct any type of training towards your staff	10	0	3	3	4	2	3	3	20	8	28
receive any guidelines from the state	10	0	2	4	4	2	3	3	19	9	28
Are there any challenges that hinder distribution and or accessibility of iodized salt at your level?	2	8	5	1	3	3	6	0	16	12	28
Aware of salt iodization coordination committee	8	2	2	4	3	3	1	5	14	14	28
Member of the coordination committee	7	3	0	6	1	5	1	5	9	19	28
Availability of coordination plan with clear roles and responsibilities of each partner	8	2	1	5	3	3	1	5	13	15	28
Participated in the plan implementation	7	3	0	6	1	5	1	5	9	19	28

Table 3

### 3: Inspectors

#### *Application of enforced law and monitoring systems*

- All the inspectors surveyed showed a copy of checklist of guidelines or laws

variable	Gadarif State		Faw locality		Galabat Shargiya		Galabat Garbiya		Total	
	Yes.	No	Yes.	No	Yes.	No	Yes.	No	Yes.	No
aware of the laws concerning iodized salts	6	2	4	0	4	0	2	2	16	4
have a copy or a checklist of guidelines or laws concerning iodized salt?	8	0	4	0	4	0	4	0	20	0
apply a monitoring system, including monitoring of iodized salt	7	1	2	2	3	1	2	2	14	6
undergo any training towards inspections	5	3	0	4	4	0	1	3	10	10
Apply any of the following:										
(a) Proper checking for salt in entry point and post market using salt testing kits	7	1	0	4	4	0	2	2	13	7
(b)supervisory visits	6	2	1	3	3	1	2	2	12	8
(c)Notification of non iodized salt to authorities	5	3	0	4	3	1	1	3	9	11
(d) Decisions on coordination committee implementation	3	5	0	4	2	2	1	3	6	14

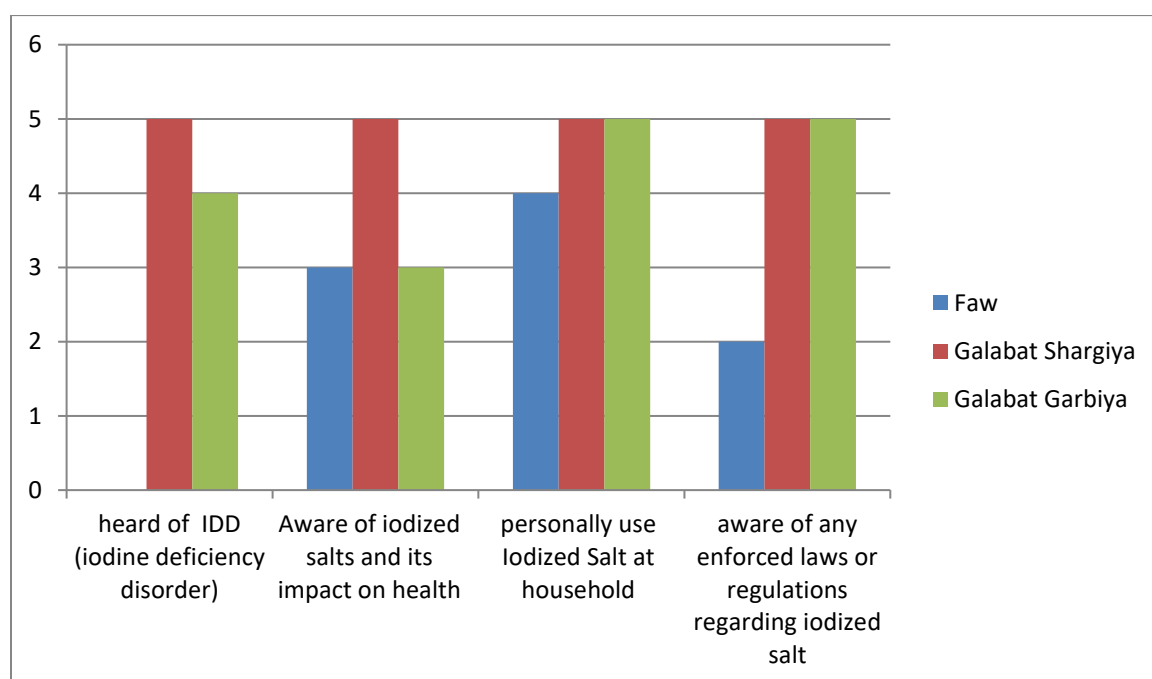
concerning iodized salt but the application of the guidelines was found to be poor except in Galabat Shargiya because they have a monitoring system in place .

#### **b: FGD Results with Community leaders:**

- Causes of Low Iodized Salt Use A number of reasons were given by the respondents as being responsible for the low or none use of iodized salt in AlFaw and Galabat al garbiya localities are
  - The high cost of iodized salt accounted for its low or none use.

- Some of the respondents gave other reasons such as: used to the none iodized salt, both of them sold together in the market.

variable	Faw locality		Galabat Shargiya		Galabat Garbiya		Total		
	Yes.	No	Yes.	No	Yes.	No	Yes.	No	Total No.
heard of IDD (iodine deficiency disorder)	5	0	5	0	4	1	9	6	15
Aware of iodized salts and its impact on health	3	2	5	0	3	2	11	4	15
personally use Iodized Salt at household	4	1	5	0	5	0	14	1	15
aware of any enforced laws or regulations regarding iodized salt	2	3	5	0	5	0	12	3	15



Key Informant Interviews (KIIs):

- Majority of the key informants believed that ignorance of the salt iodization law and benefits of iodized salt was responsible for none compliance to the law.
- “So many people especially those who sell salt in the market are not aware of the existence of the salt iodization law.
- They do not even know that flouting this law could lead to their arrest.
- A major contributory factor to the non compliance to the law is because those who flout this law are not being arrested”.

During the KIIs, they identified none compliance to the law on salt iodization and therefore accounting for the low coverage and utilization of iodized salt in the localities. Majority of the key informants believed that ignorance of the salt iodization law and benefits of iodized salt was responsible for none compliance to the law. “So many people especially those who sell salt in the market are not aware of the existence of the salt iodization law. They do not even know that breaking this law could lead to their arrest. A major contributory factor to the non compliance to the law is because those who ignore this law are not being arrested”. The remainder was of the opinion that a combination of both ignorance and poverty are responsible for non agreement to the law. On responses from a question on how to improve the agreement to the law, majority of the key informants recommended that more education on the law and benefits of iodized salt be get on whiles other key informant thought people will learn when they see others use iodized salt and its beneficial effect visible on their bodies. “The only way to improve on fulfillment to the law is to make sure that we educate and continue to educate community members about the salt iodization law and benefits of iodized salt”.

Focused Group Discussion The FGDs were conducted amongst one female groups (8 members in each group) and one male group in each locality, after a dissemination point was reached in each of the three localities to give a deeper understanding of the reasons or factors responsible for the low use of iodized salt in the Al Faw locality.

- The responses from these discussions are summarized and presented into various thematic areas:
- **Availability and cost:**
- Al Faw and Galabat Garbiya groups indicated that iodized salt was not available all the time in the market and some mentioned that even when available is expensive for them. The iodized salt is usually too expensive, while the non iodized salt one can spend only fifty (50) SDG to buy a salt for one month while for the iodized salt this amount only last for just one week.
- Lack of knowledge about the benefits of iodized salt was identified as one of the key contributing factors to the very low usage of iodized salt in those 2 localities.
- Some members of FGDs indicated that they had no idea of the benefits of iodized salt, some also had no knowledge on the specific benefits of iodized salt and only said they heard from health personnel that too much salt gives poor health.
- Some women from the three localities said that they were only educated during antenatal care on the need to reduce their salt intake and not the importance of the iodized salt

### **Mixed Method Results:**

Mixed data analysis shows that the reasons or factors mentioned by focus group participants and key informants as being responsible for the low or none usage of iodized salt were also reflected as frequency items in the indepth interview such as: unavailability, high cost and lack of knowledge of the benefits of iodized salt. After comparing both data sets (FGD and Interviews), the only point of divergence had to do with the knowledge levels of the law of salt iodization by key informants. This difference was to be expected since key informants tend to have much knowledge into the subject area.

## **Section 5:**

### **Discussion**

This study uses Sudan health system which consist of three-tier: (The federal level, the state and the localities levels with specific terms of reference for each) as a guide to explain the functionality of the iodized salt system in GAdarif State and the targeted localities in the study (Al Faw, Galabat Garbiya and Galabat Shargiya). Accordingly we looked at the different levels of the Fedral health system and identified the strengthes and the gaps that has direct effect on the salt iodization system in Gadarif State.

The National Nutrition Programme under the PHC/ Directorate and MCH Directorate in the Federal Ministry of Health is the lead government agency responsible for monitoring the salt iodization program in Sudan.

#### **National policy, guidelines, plans:**

Looking to the result of the secondary data reviewed regarding the National policy, guidelines and plan at national level with reference to the International guidlines of salt iodization system we found that there were many strengthes at national levels that has to have positive effect on the system at all levels but those oportunities hindred by some weaknesses which resulted in big gaps in the system where leads to the variabilities in the ipmlementation processes;

### **System strengthes at national levels:**

- The universal coverage of iodized salt is clearly stated in the National nutrition policy, in the nutrition strategy and the annual National nutrition plan.
- The National nutrition monitoring and regulations is found to be in place
- Iodized salt national guidelines and training package endorsed and implemented.
- All stakeholders and partners received orientation about salt iodization importance and processes
- National counsel for food security and nutrition formulated who will deal with all the nutrition and food security issues at all levels (headed by Vice president)

According to this findings we found that

### **System gaps at National Level:**

- The national salt iodization law is not issued uptill now while 11 out of 18 States issued the law
- The regulations and monitoring guidelines has no strong emphasis on the rewarding and punishment statement, that is to say the guidelines did not accompanied with clear instructions .
- There is no clear job description emphasis on the iodized salt inspection, the adequate number and qualifications of the inspectors.



- Lack of followup the formulation of the salt iodization technical committees at different levels
- The system of supplies depend on support from partners and not within the health system supply. (test kits, reporting format)
- The communication strategy and plan did not suit the different cultural contexts , where Gadarif State reidence are from different tribes of Sudan as it is a main agriculture area which laboureres come to it from alover Sudan with their culture bleaves and norms which need to be addressed in the communicaion plans
- Lack of M and E system
- The implementation processes ont accompanied by operational research that help the improvement of the system.

This result showed that although and according to the National nutrition policy, the laws and regulations is the States responsibilities but it seems that the absence of the National laws has negative impact on the system at State and Locality level because according to the inaternational guidelines the main regulatory monitoring systems for salt iodization has to be based on the national legislation, regulations, standards which is not the case in Sudan where each State issued their own laws according to their context.

### **State policy, guidelines, plans:**

Athouth Gadarif State is one of the first States that issue the Salt iodization law but the result showed that there is variability between the localities in the houshold consumption.

The plans found at SMOH, Nutrition Directorate uptill 2016 and AlFaw locality till 2014. The plan include activities regarding the awareness raising and community

mobilization. When looking to the implementation of the activities it seems not properly implemented and this is clearly seen in the focuss group discussion results and the in-depth interviews with the key informants, where the majority mentioned that they did not know about the salt iodization law and some even did not know about the importance of the iodized salt which reflected in the results of the iodized salt consumption in the S3M survey.

This study looked at both a quantitative and qualitative approach to identify the weaknesses and failures of functioning regulatory and coordination systems to reach universal salt iodization coverage at Gadaref state.

The low cost of non-iodized salt as compared to iodized salt influenced the decision to consume common (non-iodized) salt among some non-users and occasional users of both iodized and common salt. Although Gadarif has passed a law on salt iodization, the absence of strict enforcement of this law and ineffective monitoring could serve as one of the main drawbacks for Gadarif achieving the target household usage of iodated salt goal by 2015. In this study, one of the main reasons given for the low household usage of iodized salt was weak enforcement of the law .

The policy implecation of this situation is the shifting from focusing on only endorsing laws at the state levels as key intervention to grantee the universal salt iodization towards building the enabling environment in term of clear system capacity to implement the law.

Reasons of relatively high consumption in on locality is due

## **Conclusion**

The survey revealed that knowledge levels about the existence of the law on salt iodization were very low. Some of the reasons accounting for the low use of iodized salt in households included; the high cost of iodized salt, non-availability of iodized salt, not received any education on the importance of iodized salt and ignorance of the law on iodization of salt amongst others, weak monitoring system, the law not linked with clear guidelines and regulations, implementation plan and monitoring system which need to be incorporated in the law. The quick turn over of the staff and the lack of the supportive supervision which affected the sustainability of inspections. Communication strategy and plan did not clearly address the different cultural contexts.

Shifting from focusing on only endorsing laws at the state levels as key intervention to grantee the universal salt iodization towards building the enabling environment in term of clear system capacity to implement the law .

In conclusion the major challenges stand in the way of universal salt iodization in Sudan. More than a decade after adopting USI as the strategy for combating IDD, Sudan has not been able to produce sufficient quantities of iodized salt. There are many potential reasons for this lack of progress. A major one is that the community awareness need to improve and the salt producers are not trained and not aware of proper salt producing and processing techniques, and they are profit oriented rather than quality oriented. There is no legislation that compels them to produce and sell iodized salt. Secondly, there is no system in place to monitor production and distribution, and no authority delegated to a ministry or department for oversight.

As a result, the unrefined crystal salt usually sold by salt producers ends up with millers, where the crystals are crushed and sold un-iodized to retailers.

Regarding the different level of iodized salt consumption between the three localities in Gadarif State besides the National effect mentioned above and as stated by the different authorities that the locality with high consumption may be due to its location where it located near Eriteria where there is a good system and good production of salt which sold in Sudan specifically in this locality.

## Recommendations

Based on the findings of this survey, we recommend that Ministry of Health, and other stake holders such as the media should embark on a massive educational campaign in the localities with much focus on women and those with no formal education in order to increase the awareness of the importance of iodized salt and also improve on compliance to the law.

Regular and routine monitoring by the PHC Management Team in conjunction with the revitalization of iodized salt law to ensure that salt sellers sell only iodized salt and those found selling non-iodized salt are punished. This will go a long way in ensuring compliance to the law. The national level should ensure that all salt producers iodize their salt before they are released into the open market. Since iodine deficiency is a public health concern, the government could support local salt producers to have their salt iodized and thereby helping to regulate the price. This will always lead to low cost of iodized salt being sold in the market. We suggest that further studies are conducted to assess the iodine status in the most vulnerable groups of iodine deficiency disorders such as school children and pregnant women in particular, using the determination of Urinary Iodine Concentration (UIC) levels as recommended by the WHO.

Other specific Recommendations:

- Addition regulations and monitoring guidelines to the law with emphasis of rewarding and punishment.
- Human resources: adequate number and qualified trained inspectors, reviewing the job description emphasis on the iodized salt inspection
- reactivation of the salt iodization technical committees at different levels

- availing sustainable system of supplies (test kits, reporting format)
- revisiting the communication strategy and plan to suit the different cultural contexts.
- strengthening of M and E system
- conduction of operational research at different phases of implementation

**Needed Resource to implement the change:**

- human: training and motivation of inspectors by incorporating salt iodization inspection within the system,
- financial: availing the iodized salt test kit and the training and advocacy material, and training advocacy campaign cost,

**Political Support/approval to implement the change:**

- approval of required additional regulations and monitoring guidelines to the law with emphasis of rewarding and punishment.
- Issuing Directives to Support the implementation of the law.
- Solving the problems and constraints facing the implementation process
- Resource mobilization

## Action Plan

Proposed Strategy	Key Implementation Steps	Key Players	Lead authorities	Timeline
Orientation of the needed change and what support needed from them	Feed back of the IPIER Workshop outcome	Minister of Health, undersecretary, PHC, MCH, NNP	MCH Directorate and NNP	June 2016
Orientation of the needed change and what support needed from them	Feed back of the workshop outcome	Partners and stakeholders	MCH Directorate and NNP	July 2016
Orientation of the needed change and what support needed from them	Feed back of the workshop outcome	State Authorities	MCH Directorate and NNP	July 2016

Proposed Strategy	Key Implementation Steps	Key Players	Lead authorities	Timeline
- Development and endorsement of regulation and monitoring guide line	Consultation workshop at states and National level	Concern department at states and national department	PHC directorate/ Partners	August\Sep 2016
Adequate qualified human resources for implementation	- Assessment of Gaps - deployment /task shafting(revision of the TOR)	Partners and stakeholders	MCH Directorate and NNP	Up to the end of the year2016
Strengthen the coordination mechanism	-review the member of the coordination committee - System for monitoring of the committee performance -include the committee reports to the FS and Nutrition committee	- Undersecretary and States minister of health	FMOH &States	Sep- Oct2016



<b>Proposed Strategy</b>	<b>Key Implementation Steps</b>	<b>Key Players</b>	<b>Lead authorities</b>	<b>Timeline</b>
- To ensure sustainable supply kits for monitoring	- Integrate the needed kits to the public health lab supply system	FMOH UNDERSECRETARY /PHC	PHC directorate/ Partners	Oct /DEC2016
- Revise the communication strategy	- Addition of research finding to the desk review for the national communication strategy for key family practices. - Development of the strategy	- MCH	MCH Directorate and NNP	End of 2016
- Strengthen of information system	- Selection of some IDD indicators be integrated to our nutrition information data base. - To include some of IDD indicators to surveys and surveillance system	- NNP	MCH Directorate and NNP	Nov-Dec2016

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