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Bond with iodised salt: Moore

Sir Roger Moore, UNICEF Goodwill Ambassador, was in India from November 14, 2005 to November 18, 2005 to highlight the importance of Universal Salt Iodisation (USI) as a vehicle to eliminate Iodine Deficiency Disorders (IDD) in the country and he called for the urgent need to accelerate progress toward achieving the goal of Universal Salt Iodization. Accompanied by his wife Lady Kristina, Sir Roger Moore visited Delhi, Jaipur and Mumbai and interacted with key decision makers and heads of governments as well as with Bollywood celebrities.

Sir Roger Moore later visited Mumbai to drive home the message of USI. In a press conference held there on 18th November, he shared with the media, key points of his discussions with Ms. Vandana Krishna, Secretary, Department of Women and Children Development, Mr Ramani, Director General, State Mission for Health and Nutrition, and Mr. Mukesh Sharma, Director Doordarshan, to discuss ways to spread awareness about the dangers of consuming non-iodised salt.

"Salt Iodisation or the lack of it contains nothing of the drama, the visuals, of an epidemic like SARS, Avian flu, even HIV/AIDS. As such, it doesn't have an international movement or agency dedicated to keeping it at the top of policy and investment agenda. It is what we call at UNICEF a 'silent emergency'", said Sir Roger speaking on the occasion. In order to make realise the gravity of IDD, he held a brainstorming session with celebrities including, Mahesh Bhatt, Gulshan Grover, Irfan Khan, Soni Razdan, Vinta Nanda, Deepal Shaw, and asked them to play a key role in spreading the message of USI.

He also suggested frequent interactions between the government and salt producers to increase production of iodised salt. The following things were agreed during various meetings with the UNICEF Good Will Ambassador Sir Roger Moore and the Bollywood celebrities:

* Script writer's workshop to be coordinated by Mr. Mahesh Bhatt.

* Advocacy by the Film people.

The celebrities agreed to actively participate in the communication campaign to promote USI. It was a felt need during the brain storming session that celebrities can prove to be an effective tool for the communication campaign. They agreed to travel to Delhi, Gujarat, Tamilnadu & Rajasthan and have personal meetings with People's Representatives, Political Party Office bearers, Policy Makers, Producers of Salt & Iodised Salt

* **Film with James Bond on promotion of Universal Salt Iodisation (USI).**

It was agreed upon at the brainstorming meeting with the UNICEF Ambassador and the Film celebrities that a documentary film promoting USI would be made along the backdrop of Indian settings in which the character James Bond would feature with participation of film personalities from India. This will prove to be an effective tool for the communication campaign of USI.

Information Communication & Education (IEC).

It was decided that IEC material would be developed by UNICEF and ICCIDD to be given to Mr. Mahesh Bhatt and Mr. Ramani, Director General, State Mission for Health and Nutrition and other stake holders. They would in turn spread these IEC materials for widespread distribution which would help in large scale dissemination of the message of USI.

As a part of UNICEF's campaign to end IDD in India, Sir Roger Moore advocated the formation of state alliances to oversee the implementation of USI across the country and to layout a comprehensive communication effort to educate vulnerable groups about the dangers doomed with consuming non-iodised salt.

Times City - Saturday, November 19, 2005

Bond with iodised salt: Moore

Bond was here. James Bond, Sir Roger Moore shuffled from one Indian city to another over the last few days despite being unwell, and being almost 80 years old didn't help matter. The icon who made movies like Octopussy, Live and Let Die, The Spy Who Loved Me and For Your Eyes Only, was here at the invitation of UNICEF to address a series of press meets about the benefits of iodised salt.

He came armed with this simple message to a city hotel on Friday afternoon. The subject of conversation could have paled in his glamorous presence, except that Sir Roger was rather earnest in his plea to ensure that the Indian government enforces a proposed ban on non-iodised salt. A comprehensive presentation on iodine deficiency disorders (IDD) was earlier delivered by Dr. C. S. Pandav of AIIMS, New Delhi, so when it was Sir Roger's turn to speak, he rued that he did not have much left to say. But a point he did make was that half of the 26 million children born every year in India are exposed to IDD, which can result in serious diseases like goitre and mental retardation apart from lowered productivity.

A couple of times at least, Sir Roger's prized British sense of humour came to his rescue as his wife Lady Kristina pulled at his sleeve to remind him of a few statistics he should be quoting. He had sat down, but rose dutifully to make these points.

An hour or so before the press meet, the couple was at work, enlisting the support of Maharashtra government officials, as well as Hindi film personalities like Mahesh Bhatt, Gulshan Grover and Irfan to secure their support for iodised salt. His new friends from the film world later accompanied him to the event.

Sir Roger has travelled the world since he became goodwill ambassador for UNICEF in 1991 after being prompted into service by close friend, actress Audrey Hepburn.

His sincerity seemed to have paid off this time too, for not a single question deviated from the subject he was there to advocate.





असतो मा सद्गमय
तमसो मा ज्योतिर्गमय
मृत्योर्मा अमृतं गमय

*From the unreal lead me to the real;
From darkness lead me to light;
From death lead me to immortality.*

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ICCIDD Vision & Mission

Vision: The vision of ICCIDD is a world virtually free from Iodine Deficiency Disorders with national endeavors to maintain optimal iodine nutrition primarily through consumption of iodized salt, which should be made easily available and affordable for all people for all times.

Mission: The mission of ICCIDD is to provide a focused advocacy to governments and development agencies, of a continued priority for iodine nutrition, providing technical expertise in a multidisciplinary approach.

Dedication: ICCIDD dedicates itself to programs fully supported at the national level for permanent, sustained success and will work with all partners and national entities towards that end.



Editorial

Dear Colleagues,

The first meeting of the Regional Working Group for the IDD Elimination was held in WHO/SEARO on 28 & 29 September 2005. The main objective of the group is to review the country situation using the ICCIDD/UNICEF/WHO recommended process indicators and identify critical gaps/constraints that retard progress towards achieving USI and establish contact with the highest level in the political and bureaucratic hierarchy in each of the countries to enlist their support to accelerate progress towards USI in the shortest possible time. Prof. Quazi Salamatullah was one of the participants. None of us realised that this would be our last meeting with him.

Sudden demise of Prof. Quazi Salamatullah, National Coordinator, ICCIDD, Bangladesh is a great loss to entire scientific community, including ICCIDD. The area of iodine nutrition has suffered an irreparable loss. Prof. Salamatullah was our anchor in Bangladesh. He undertook the daunting task of building the Iodine Monitoring Laboratory in Dhaka. In addition to serving the requirements in Bangladesh, it also played an important role in the South Asian Region. He will be very much missed. May his soul rest in eternal peace.

Sir Roger Moore was in India for one week to talk to leaders and decision-makers about salt iodization as an issue of national concern. The former stellar James Bond has also been meeting celebrities in Mumbai, the heart of Bollywood, to talk to producers and actors about ways in which the entertainment industry could help promote salt iodization.

It is important to remember that sustainability is the key component of the IDD elimination program. There cannot be a place for complacency in this program of global interest. As we observe IDD day in 21st October, together we can give a new definition to sustainability by effectively putting into practice the policies and programs with an efficient delivery system aptly supported by national, regional and global partnerships. This issue covers various activities carried out on Global IDD Day in India.

Dr. Chandrakant S. Pandav

Regional Coordinator, ICCIDD-South Asia Region.





National IDD and USI Survey in Bangladesh 2004 - 2005

Iodine Deficiency Disorders (IDD) are recognized as a major global public health problem. The first ever IDD survey in Bangladesh and evaluation of Universal Salt Iodization (USI) were conducted in 1993 and 1996 respectively with UNICEF assistance. The first follow up national IDD survey and evaluation of USI both were conducted in 1999, again with the support from UNICEF.

Both the IDD surveys were conducted zone-wise (hilly, flood-prone and plain), surveyed children (5-11 yrs) and adults (15-44 yrs), households from the same location of the initial survey. The findings of these IDD surveys indicated that the prevalence of IDD had substantially fallen since the first survey in 1993. The total goitre rate (TGR) among the populations fell from 47.1% to 17.8%, cretinism 0.6% to 0.4% (only in children), and biochemical iodine deficiency fell from 68.9% to 43.1% during this period. The third IDD survey in children aged 6-12 years and women aged 15-44 years (adult males were not included as per WHO recommendations) was conducted during last half of 2004 and first half of 2005. The survey followed a stratified multi-stage cluster sampling design, which provided nationwide representative data. Out of 160 clusters surveyed 123 clusters from rural areas and 37 from urban areas were selected in the ratio of the rural to urban population is 76:24 (Census 2001). From a total of 6400 households 6400 children and 6400 women were assessed for goitre. A total of 2400 urine samples from children and 2400 urine samples from women were collected for urinary iodine excretion (UIE) measurement.

Trained physicians (M.B.B.S.) and technicians (minimum graduate) collected the data from field under the supervision of members of "Planning and Coordination Team". All urine samples were analyzed by simple microplate method for urinary iodine estimation according to Ohashi et al. in the ICCIDD lab at Institute of Nutrition and Food Science, University of Dhaka.

The total goitre rate (TGR) among children was 6.2% and that among women was 11.7% (almost double), Grade 1 (palpable) goitre was higher than grade 2 goitre (visible), particularly among the children (4.7% vs. 1.6%). Girls had a tendency of higher

prevalence (6.9%) than boys (5.6%), and urban children had somewhat higher prevalence (7.6%) than their rural counterparts (5.8%). In contrast to children, the prevalence of goitre among urban women was lower (9.9%) than among the rural women (12.3%). Again median UIE was higher in children (163 $\mu\text{g/L}$) than in women (140 $\mu\text{g/L}$). Boys had UIE of 175 $\mu\text{g/L}$ as compared to 149 $\mu\text{g/L}$ in girls, and the UIE in children of urban areas was 229 $\mu\text{g/L}$ compared to 141 $\mu\text{g/L}$ in rural areas. The UIE of urban women was also much higher (230 $\mu\text{g/L}$) than that of rural women (123 $\mu\text{g/L}$). In line with UIE levels prevalence of biochemical iodine deficiency (UIE < 100 $\mu\text{g/L}$) was higher in women (38.6%) than among children (33.8%). In rural areas, girls and women suffered iodine deficiency equally well to a higher extent (42-43%) than the boys (34%). But in urban areas, here, boys, girls and women all had iodine deficiency to the extent of 20-25%. The overall prevalence of iodine deficiency was 33.8% and 38.6% among the children and women respectively.

The present results indicate that IDD situation in the country has improved compared to the situation found in 1993 and 1999 in respect of prevalence of goitre and population deficient with iodine. The remarkable improvement in IDD situation in Bangladesh may be considered as yet another success story in the health sector.

The third USI survey was conducted during 2004 (last half) and 2005 (first half). In this survey salt samples were collected from households, retail shops, wholesalers and factories, and iodine content in salt was estimated titrimetrically in the laboratory. Results of USI survey indicated that in the rural areas 62% households consumed packet salt (presumably iodized) only in contrast to 90% in urban areas; these figures were 26-30% in 1996 & 1999. Similarly, percentage of households consuming open salt only (presumably non-iodized) was 33% in rural areas and 6.7% in urban areas, 45.2% of rural and 71% of urban households are currently covered by adequately iodized salt i.e. iodine, in salt was 15 ppm, making a national coverage of 51.2%. These percentage figures are much lower than corresponding to the packaged salts sold in the market that are adequately iodized. The household

Sad demise of Prof. Quazi Salamatullah

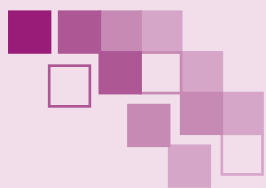
Death of Prof. Quazi Salamatullah, National Coordinator, ICCIDD, Bangladesh is a great loss to entire scientific community, including ICCIDD. The area of iodine nutrition has suffered a loss.

He was one of the first National Coordinators to be appointed by ICCIDD. The cause of IDD elimination in Bangladesh (Asia) was very dear to Prof. Salamatullah. He was Professor of Biochemistry at the Institute of Public Health and Nutrition in Dhaka and played a vital role in providing a high quality laboratory services for the IDD projects in Bangladesh and also neighbouring countries. He also continued to bring out IDD Newsletter in Bangladesh.

Mr. M. Mohiduzzaman, Associate Professor, University of Dhaka, Dhaka is now working as the Acting National Coordinator in Bangladesh.



(Late) Prof. Quazi Salamatullah



coverage with adequately iodized salt has remain stagnant nationwide at the level of 51-55% during the years from 1996 to 2004/5, despite remarkable increment in the use of packaged salt during this time, especially between 1999 and 2004/5.

In the rural areas, 62% retailers sold both open and packet salt and 35% sold packet salt (17% in 1999) only. In the urban areas, 61% retailers sold packet salt (48% in 1999) only and 37% both packet as well as open salt. Half of the rural (50.3%) and 63% of the urban retailers' shops had adequately iodized salt (20 ppm) making a national coverage of 53.3%, compared to 43.0% in 1999.

Nearly 53% of packet salt samples collected from wholesalers contained iodine 20 ppm, similar to retailers' salt.

Only 4.0% of the samples collected from factories contained iodine as per law, i.e. 45-50 ppm (2.5% in 1999 and 4.8% in 1996). Nearly 40% had < 20 ppm iodine, which was 43.4% in 1999 and 23.9% in 1996.

Out of 8 zones, Dhaka and Narayanganj had the best iodization status and the Chandpur the worst. Ninety percent of iodized salt produced by the factories was found packaged in 500g / 1 kg packets and the remainder was in big sacks.

Activities of CIDD

The Control of Iodine Deficiency Disorders (CIDD) through Universal Salt Iodization (USI) has the strong political commitment and administrative support of the government. The USI/CIDD project is implemented and coordinated by Bangladesh Small Scale and Cottage Industries Corporation (BSCIC) of the Ministry of Industries. Components of the CIDD project include planning, capacity building, social mobilization and advocacy, supply and logistics, supervision and monitoring, and research and development. The main focus of the CIDD project in the last five years has been to improve the quality of crude salt, to support cost-sharing of potassium iodate by the private sector for commercial sustainability of salt iodization, to improve quality assurance by the private sector through intensive monitoring and capacity building, and to improve consumer awareness of IDD and iodized salt. All these activities have been technically and financially supported by UNICEF. The CIDD activities of BSCIC for the last few months are mentioned below:

a) Mobile courts:

1) A total of 233 cases (factory / shops) in 83 mobile courts session were prosecuted from July 2004 to June 2005. Out of these, 17 cases were sent to courts and the rest were fined on the spot. 34.21 MT non-iodized salts were seized and million fine of Taka 0.246 collected.

b) Crude salt production:

- 1) Provided 75,000 meters polythene sheet to farmers to produce white crude salt during 2004-2005.
- 2) Jointly with "Salt Industries Development Project" help in providing training of "Crude Salt Producing Farmers" practically. Total courses conducted were 30. A total of 2400 farmers attended the training courses.
- 3) A total of 0.935 million MT crude salt produced by the farmers under supervision of CIDD & BSCIC.

c) Iodized salt production:

- 1) 197,661.34 MT iodized salt produced by factories under supervision of CIDD & BSCIC.
- 2) Sold 15.51 metric tons (MT) potassium iodate to the salt iodization factories.
- 3) One salt drying machine (centrifuge) produced with the help of BUET and handed over to a factory in the Narayanganj zone.

d) Information, Education and Communication (IEC) :

- 1) IEC materials and testing solutions: 0.1 million testing solutions, 30 thousand big posters, 30 thousand small posters, 10 thousand danglers, 5 thousand folders and 30 thousand leaflets were distributed.

e) Capacity building and training:

- 1) Salt mill managers / operators training : from August 2004 to April 2005 training was given twice by CIDD experts to managers / operators of salt mills in 8 zones.
- 2) Training was given to BSCIC officers (twice) and Inspectors (four times) by ICCIDD Bangladesh experts during May 2004 to April 2005 on quality control, monitoring and data use.

f) Monitoring and evaluation:

- 1) Once survey on wholesalers salt sellers was conducted which has been incorporated within the National IDD/USI survey 2004-2005.
- 2) Yearly review meeting of BSCIC officials on monitoring system were held from 8th to 9th September 2004, and 23rd to 24th August 2005.
- 3) A month long intensive monitoring in 8 salt zones in September 2004 and the yearly meetings with salt factory owners to review performance, quality control and work environment were held in 8 salt zones in December 2004.
- 4) To overcome the present hurdles for effective monitoring and it's subsequent application in law enforcement for correctional motive in the factories of the 8 salt zones, a year long program ("Revised external monitoring system") has been developed by BSCIC & UNICEF. It is being implemented by CIDD project from April 2005. The objective of establishing a strong link between monitoring and enforcement is that informations received throughout the year can be effectively used to invoke warnings or sanctions for non-compliance on a regular basis.
- 5) A total of 123 meetings of district salt committee for local level monitoring and supervision of iodized salt were held in 64 districts under 6 divisions between July 2004 and June 2005. Activation of Upazilla (sub-divisional) salt committees were done in 11 districts (83 meetings held between January and June 2005) with lowest iodized salt coverage for monitoring salt retailers and wholesalers.
- 6) Sentinel urinary iodine surveillance in the "Mother and Child Health Training Institute", Dhaka is in place since 2001. Half yearly surveillance was conducted on new pregnant women. On spot urine and household salt samples are being collected and iodine content analyzed in ICCIDD laboratory in Dhaka.



First Meeting of Regional Working Group for the IDD Elimination WHO/SEARO, New Delhi (28-29 September 2005)

1. Introduction

The Ninth Meeting of Health Secretaries of SEARO (July 2004) reviewed the IDD situation in the Region and the summary of the discussion was presented to the Fifty-seventh Session of the WHO regional Committee Meeting in, Kurumba, Maldives. The Committee endorsed the recommendations made by the Ninth Meeting of Health Secretaries and adopted a Resolution on IDD (SEA/RC57/R4), urging the member states to reaffirm their commitment to early and sustainable elimination of IDD and WHO/SEARO to assist Member States in revitalising advocacy and awareness and provide technical support to various components of IDD Control Programme. The committee also endorsed the formation of a Regional Working Group for the IDD Elimination to accelerate the progress towards sustainable elimination of IDD in the region. Therefore the Technical group was constituted in 2004 with members representing Programme managers (Public Health), Salt industries, Laboratories, Academicians and Collaborating partners.

The main objective of the group is to review the country status using the ICCIDD/UNICEF/WHO recommended process indicators and identify critical gaps/constraints that retard progress towards achieving USI, and establish contact with the highest level in the political and bureaucratic hierarchy in each of the countries to enlist their support to accelerate progress towards USI in the shortest possible time.

The first meeting of the Regional Working Group for the IDD Elimination was held in WHO/SEARO from 28-29 September 2005.

2. Inaugural Session

Dr. Ponam Khetrapal Singh, DRD/WHO/SEARO read out the inaugural address of Dr. Samlee Plianbangchang, WHO Regional Director for South East Asia Region. In his address, Dr. Samlee said that the Regional Office had been actively supporting IDD activities for many decades and the results had contributed substantially to policy formulation and actions by governments, particularly in progress towards sustainable elimination of iodine deficiency disorders. In conclusion he reiterated WHO's commitments to support the progress towards the sustainable elimination of the IDD.

Dr. Rukhsana Haider, Regional Advisor, Nutrition for Health and Development, WHO/SEARO, New Delhi welcomed all the participants and explained the objectives of the meeting.

Dr. Eric-Alain Ategbo, UNICEF, India Country Office was nominated as the Chairperson, and Mr. Gyambo Sithey, Programme Manager, IDDCP, Bhutan as the Rapporteur.

3. Plenary Session

3.1 Presentation on, "Rapid appraisal of progress towards IDD elimination in South East Region (SEAR) Countries" by Dr. Abdullah Dustagheer was made in the plenary session.

4. Two groups were constituted to identify constraints related to USI and IDDCP during The Group Work

Group 1

- Waning interest of collaborating partners and policy makers on Iodine Deficiency Disorders.
- Cross border salt movement.
- Lack of standard iodine level requirement at production, retail and household level.
- Lack of upper tolerable level for iodine in salt.
- Quality monitoring at production level is poor, leading to inadequacy of iodine at consumer level.
- Need to improve demand for iodized salt.
- Multiple food items iodized. This has raised the issue of iodine excess.
- Iodine excess in salt is raised as a concern by several countries like Bhutan, Indonesia and Thailand.
- Priority shift from Nutrition to Food Safety.
- Poor enforcement of iodine standards.
- Many small salt producers which leads to difficulty in monitoring and standardization.
- Decrease in demand of iodized salt with disappearance of visible IDD - i.e. goitre.

Group 2

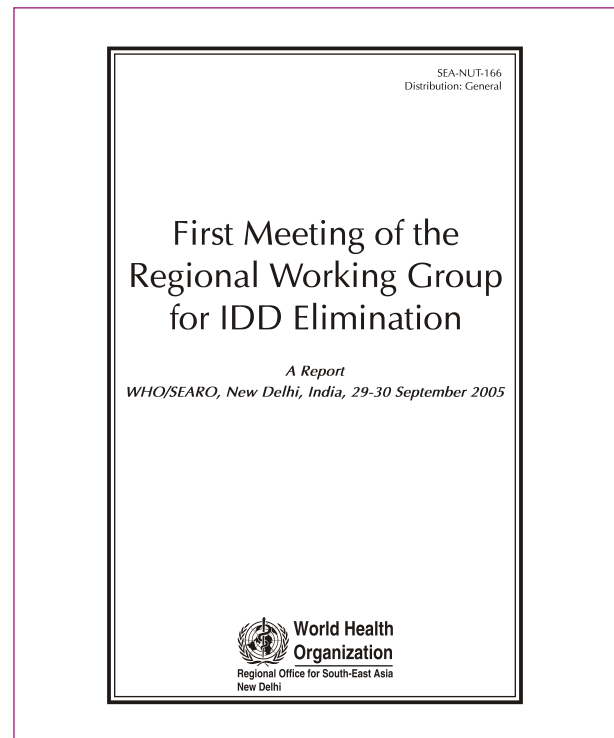
- Poor coordination.
- Low priority leading to poor enforcement of legislation.
- Lack of comprehensive & effective IEC strategies.
- Inadequate communication channels.
- Lack of funds to roll out communication strategies.
- Large no. of small scale producers.
- Increasing cost of KIO₃, SIP, maintenance & personnel training.
- Weak market signal to the producer.
- Inadequate knowledge about salt iodisation.
- Inadequate iodisation capacity.
- Low availability of iodised salt in rural & remote areas.



- Infiltration of non iodised salts.
- Improper monitoring at all levels from production to consumption.
- Inadequate human resource.
- Inadequate monitoring information network.
- Lack of co-ordination between monitoring & enforcement.

USAID expressed commitment to supporting IDD control programme. They also raised the possibility of iodized oil injection administration as one of the strategy in the region. After deliberation, it was realized that taking into consideration the present strength of the health system of various countries, it would be difficult to deliver iodized oil to pregnant women. Moreover, this would require modification of legislation which would take too long time to be obtained and finally, it would distract attention from USI which would experience a set back.

The respective groups made presentations in the Plenary session. Based on the country experiences the following recommendations were made by the Regional Working Group on IDD Elimination.



5. Recommendations

Keys Constraints	Key Recommendations	Key Agency	Time Line
<p>Decreasing interest in IDD elimination</p> <ul style="list-style-type: none"> • Governments • International Agencies 	<ul style="list-style-type: none"> • Regional (SEARO) level re-advocacy meeting aimed at political leadership either as a stand alone or as a piggy back event. • National level re-advocacy meetings in SEARO countries aimed at program managers and bureaucrats • Reactivate National and sub-national level Alliances for IDD elimination. (include consumer / civil society/media groups/ education and salt producers in these alliances if already not there) 	WHO & UNICEF	February 2006
<p>Quality Assurance at Production level</p> <ul style="list-style-type: none"> • Excess Iodine and inadequate iodine. • Lack of monitoring linked to corrective action 	<ul style="list-style-type: none"> • Quality control/assurance protocol for production level to prepare protocol • Quality assurance protocol for national laboratories. This will include training, defining external QA support (prepare protocol and training plan including curriculum) • Standardisation of iodine levels across the countries and recommending upper limit (define a range e.g., 30 to 40 ppm [short desk review to arrive at appropriate minimum and maximum iodine level]). • Link to corrective action where needed 	ICCIDD & Country Program Manager	December 2005

Investigation for the colour changes of Yellowfin Tuna with the application of Iodized Salt

(Aishath Naila¹, Vicky Solah²)

Introduction

The application of iodised salt to many foods has been found to be the best way to increase iodine consumption in individuals, preventing Iodine Deficiency Disorders.

In Maldives 44% of the population consumes iodised salt in adequate amounts, that is 15ppm according to WHO standards (Kapil 2002). The importation of only iodised salt into the country would be the best solution to increasing the iodized salt consumption in the Maldives. However, fish exporters report there are significant differences in the color of iodized and non-iodized salted fishery products. In this research the application of iodized salt to yellowfin tuna fish will confirm if a color changes does occur in iodized salted fish.

Methodology

In this research, a combination of brine and dry salting (pickling) has been applied as well as brine salting alone as this is considered the usual way of preserving fish (Chiralt et al. 2001).

The brine strength solution of 17% and 26% has been used by many researchers (Stoknes, Walde & Synnes 2005; Barat et al. 2005; Andres et al. 2005; Thorarinsdottir et al. 2004; Martinez-Alvarez & Gomez-Guillen 2004; Barat et al. 2003; Barat et al. 2004) and similar brines were used in this research. The usual duration and temperature for fish salting has been used fifteen days at 3 to 8°C thus the same was followed for this research. Brine per fish ratio of 20:1 was used to prevent the significant change of brine strength during salting period (Barat et al. 2003).

Sample preparation

Eleven fillets of raw yellowfin tuna were bought from Kailis Bros fish market located in Fremantle Perth, WA and were cut into approximately 5x3.5x2cm. The pieces were mixed in such that the pieces cannot be recognized as a piece from a specific fillet. Then it was placed into four plastic bags each bag contained 7 pieces of yellowfin tuna. In total for the experiment 35 pieces of yellowfin tuna were analyzed.

The methodology is divided into three stages of salting as follows:

Stage 1: Surface color of 17% and 20% brined iodised and non-iodised yellowfin tuna pieces for four days, were analysed by Minolta spectrophotometer for reflected color.

Stage 2: The yellowfin tuna pieces that were brined at 20% were then further brined at 26% brine concentration for eleven days. The yellowfin tuna pieces that were brined at 17% were then pickled for 11 days. The color of the fish pieces was then measured by Minolta spectrophotometer for reflected color.

Stage 3: The treated (brined/pickled) samples described in the stage 2 of salting process were then dried for seven days at room temperature with the fan on. The temperature of the room was 25°C.

Sensory evaluation

The third stage of yellowfin tuna salting process were evaluated by panelists for both surface and flesh color.

A line marking scale was used. The line was 10cm in length and the marked lines were measured in millimeters and the scores were averaged. Thirty five panelists were involved and those who marked the line out of the scale were considered as missing values.

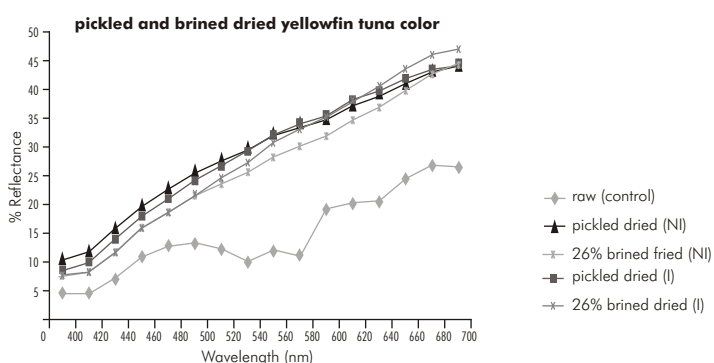
Data analysis

The results for Minolta spectrophotometer readings were analyzed using General Linear Model of univariate after confirming the normality and equality of variance. The results for sensory analysis were analysed using an independent sample t-test after performing Levene's test of equality of variance and performing normality.

Results and Discussion

Minolta spectrophotometer results

The surface color of the treated (pickled/brined) fish were analyzed and compared with that of the raw yellowfin tuna surface color (Figure 1).



*NI = non-iodized (standard salting method), I = Iodized

Figure 1: Spectral graph for the color of pickled and brined dried yellowfin tuna

As shown in the Figure 1 the surface color of the salted and dried yellowfin tuna are analogous. There are difference in surface color between the raw yellowfin tuna and salted and dried yellowfin tuna.

Table 1. CIE Lab parameter results for raw and dried salted yellowfin tuna

Treatment	L* mean ± SD (brightness)	a* mean ± SD (redness)	b* mean ± SD (yellowness)
Raw	42.05 ± 8.15	9.25 ± 2.36	10.45 ± 4.45
26% brined dried (I) *	61.25 ± 1.42 b	3.71 ± 1.39 b	28.22 ± 2.12 ab
26% brined dried (NI) *	59.10 ± 2.92 b	2.84 ± 0.53 b	24.99 ± 2.08 b
Pickled dried (I)	62.27 ± 2.91 b	2.03 ± 0.55 b	24.83 ± 0.91 b
Pickled dried (NI)	62.63 ± 2.54 b	1.22 ± 0.94 b	21.75 ± 1.78 ab

^b Values significantly different from the raw yellowfin tuna (P<0.05)

^a values within the same column are significantly different.

¹NI = non-iodized (standard salting method), I = Iodized

1. Public Health Laboratory, Ministry of Health, Male', Maldives

2. Department of Nutrition, Dietetics and Food Science, Curtin University of Technology, GPO Box U1987, Perth, WA 6845, Australia.



Table 1 shows that the brightness (L*) of the dried and salted yellowfin tuna are highly significant compared to the raw yellowfin tuna which consists of dark or less bright color. There are no significant differences detectable in brightness between iodised and non-iodised dried brined/pickled yellowfin tuna.

In the Table 1 positive a* describes the redness of the dried brined/pickled and raw yellowfin tuna. The degree of redness is highest in raw yellowfin tuna. There are no significant differences in the redness between iodised and non-iodised pickled/brined yellowfin tuna (P>0.05).

The positive b* (Table 1) indicates the yellowness of the brined/pickled and raw yellowfin tuna. There are significant differences between the yellowness of raw yellowfin tuna with that of dried brined/pickled yellowfin tuna. Moreover, the yellowness in brined dried iodised yellowfin tuna is significantly different than the yellowness in the pickled dried non-iodised yellowfin tuna. However there are no significant differences in yellowness detected between iodised and non-iodised brined dried yellowfin tuna or between pickled dried iodised and non-iodised yellowfin tuna.

In summary there were no color difference in terms of L*, a* and b* among the iodised and non-iodised brined dried and the pickled dried iodised and non-iodised yellowfin tuna.

Sensory analysis

In this study, the application of iodised salt in yellowfin tuna confirmed that the flesh color is not significantly different between iodised and non-iodised salted yellowfin tuna (Table 2), as judged by a panel of 35 people in a sensory analysis study. In addition, according to the sensory panel there were no significant differences of the surface color of brined iodised and non-iodised yellowfin tuna (Table 2). However, they did detect a difference in the surface color of pickled iodised and non-iodised yellowfin tuna as shown in Table 2.

Table 2.

Results for surface and flesh color of salted yellowfin tuna

Treatment	Type of salting	position	Mean ± SD	Total Panelists
Iodized	brined	surface	25 ± 17.22 (a)	34
Non-iodized			26.74 ± 17.98 (a)	31
Iodized	pickled	surface	38.94 ± 19.73 (b)	34
Non-iodized			51.82 ± 19.51 (b)	34
Iodized	brined	flesh	25.03 ± 19.33 (a)	32
Non-iodized			18.76 ± 11.03 (a)	34
Iodized	pickled	flesh	22.09 ± 17.12 (a)	34
Non-iodized			23.55 ± 20.12 (a)	31

(a) no significant difference at 5% level of significance

(b) significantly different at 5% level of significance

Conclusion

Reflectance color (Minolta) results and sensory evaluation results agree on the surface color of 26% brined dried iodised and non-iodised yellowfin tuna and show that there were no significant differences in surface color between the iodised and non-iodised brined dried yellowfin tuna. However, according to panelists there were significant differences for the surface color of the pickled iodised and non-iodised dried yellowfin tuna. In contrast the Minolta results showed that there were no significant differences between the surface colour of the pickled iodised and non-iodised yellowfin tuna. On the other hand, according to panelists there were no significant differences on the flesh color of pickled dried iodised and non-iodised yellowfin tuna.

It is recommended that a new study be conducted at a factory scale level to detect the color changes of fish with the application of iodised salt compared to non-iodised salt application. This study was conducted on a small scale in a food laboratory thus it is important to confirm the results of this study on a larger scale.

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“Building Partnerships for Sustainable Elimination of Iodine Deficiency Disorders in India”

- A symposium by the Vidarbha branch of the Indian Public Health Association, Nagpur and Department of Preventive and Social Medicine, Government Medical College, Nagpur in collaboration with ICCIDD & MI; September 2005

A symposium on “Building Partnerships for Sustainable Elimination of Iodine Deficiency Disorders in India” was organized by the Vidarbha branch of the Indian Public Health Association, Nagpur and Department of Preventive and Social Medicine, Government Medical College, Nagpur on the 4th of September 2005 at the Public Health Institute. The symposium was organized with the express intent of sharing the new knowledge available for the control of Iodine Deficiency Disorders, which is of significant public health importance and build partnerships to achieve the program objectives.



Dr. BR Shende, Joint Director, (Health), Government of Maharashtra was the Chief Guest on the occasion, Dr. VS Dani, Dean, Government Medical College presided over the function. Participants included Senior Faculty members of the Departments of Community Medicine from all over Vidarbha, Members from the Public Health Department, Government of Maharashtra, Representatives of the Indian Medical Association, Indian Association of Pediatrics, Nagpur Obstetrics and Gynecology Society, members from various health related NGOs, members and experts from the field of food, nutrition and Post Graduate Students. Dr. Avinash Chaudhary, Deputy Director, Health Services, Nagpur Circle, Dr. BS Garg, Prof and Head, Dept. of Community Medicine, Mahatma Gandhi Institute of Medical Sciences, Sewagram, Dr. MS Autkar, Principal HFPTC, Nagpur were the invited guests. `Trishna' a short film on IDD was screened on the occasion. The inaugural function was followed by a talk on `Tracking Progress Towards Sustainable Elimination of IDD in India' by Dr. Sanjay Zodpey, Professor Deptt. Of PSM, GMC, Nagpur. The panel discussion was subsequently undertaken, which



consisted of Dr. BS Garg, Public Health Specialist, Dr. Uday Bodhankar, eminent Pediatrician, Dr. MB Purwar, Head and Professor Dept. of Obstetrics and Gynecology, GMC Nagpur, Dr. Jayashri Shembalkar, Endocrinologist, Dr. Rekha Sharma, Nutritionist, Dr. Sanjay Zodpey, Epidemiologist. The discussion included issues of concern ranging from adequacy of salt iodisation to role of civic authorities and professional bodies like the Indian Public Health Association and Indian Association of Preventive and Social Medicine, which were discussed in depth. The ill effects of iodine deficiency in pregnant women, children and adolescents were also discussed. The participants provided their views on the efforts to achieve sustainable elimination of Iodine Deficiency Disorders; the panel also fielded queries from the participants. The panelist strongly endorsed the need for universal salt iodization in India.





Symposium on Iodine Deficiency Disorders in India on 21st October 2005 The National IDD Prevention Day - Organizational Report (Maharashtra)

As a part of celebration of 'National Iodine Deficiency Disorders (IDD) Prevention Day', a symposium on 'Iodine Deficiency Disorders in India' was organized by the Goitre Cell, Health and Family Welfare Training Centre, and Nutrition Bureau, Public Health Department, Government of Maharashtra on 21st October 2005 at the Public Health Institute, Nagpur.

The symposium was organized with the strong intent of sharing the new knowledge available in the field of control of Iodine Deficiency Disorders, which is of significant public health importance and build partnerships to achieve the program objectives. Another objective of this symposium was to clear the doubts and misconceptions related to IDD amongst various stakeholders of the program and emphasis on Universal Salt Iodization.



A total of 160 participants attended Symposium. Participants included NSS Volunteers from various colleges affiliated to Nagpur University, Nursing Students, Post-graduate students of Community

Medicine, Public Health Specialists, Participants of ongoing Professional Development Course, and Participants of ongoing Integrated Disease Surveillance Project (IDSP) Training Program.

Dr. P. P. Doke, Director, Public Health Department, Government of Maharashtra, Mumbai was the Chief Guest on this occasion. He inaugurated the symposium and presided over the Inaugural function. He also guided the audience about the need of universal salt iodisation. Dr. Sanjay Zodpey, Professor, Preventive and Social Medicine, Government Medical College, Nagpur delivered the key note address on IDD in India.

Other dignitaries who participated in the symposium included Dr. Karnataki, Additional Director, Maharashtra State AIDS Control Society, Dr. Khanande, Deputy Director, Health Services, Nagpur Circle, Dr. Mrs. Thorat, Principal, Public Health Institute, Nagpur, Dr. Kimmatkar, Deputy Director Health, Nagpur Municipal Corporation, Nagpur and Dr. M. S. Autkar, Principal HFPTC, Nagpur took efforts in organization of the Symposium.

National Launch of "Controlling Vitamin & Mineral Deficiencies in India; Meeting the Goal" organised by Micronutrient Initiative in New Delhi on 18 October 2005



National Launch of "Controlling Vitamin and Mineral Deficiencies in India: Meeting the Goal" Hotel Intercontinental, New Delhi 18 October 2005	
08:30	WELCOME PROGRAM - REGISTRATION, Sign The Micronutrient Initiative IMI Declaration
09:00	Address by Secretary Food, Government of India and Health Secretary Maharashtra, Government of India at 18, 19, 20th Floor
09:30	Address by Secretary Department of Health and Social Development, Government of Maharashtra, Nagpur
10:00	Address by the Regional Director of Health Services, Nagpur
10:30	Speech by Hon. Minister of Health, Government of Maharashtra
11:00	Speech by Hon. Minister of Health, Government of Maharashtra
11:30	Speech by Hon. Minister of Health, Government of Maharashtra
12:00	Speech by Hon. Minister of Health, Government of Maharashtra
12:30	Speech by Hon. Minister of Health, Government of Maharashtra
13:00	Lunch

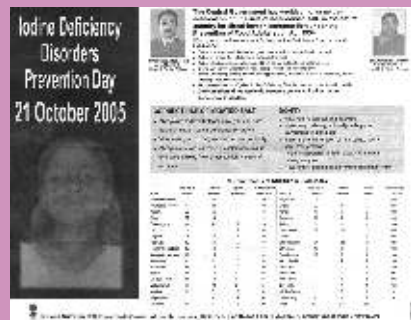
Global IDD Day - 21st October 2005- Delhi

Global IDD Day was celebrated on 21st October 2005 all over the country. A total of 314 newspapers all over the country carried a half page advertisement on IDD and Universal Salt Iodisation by Ministry of Health & Family welfare, Govt. of India (GOI).

The advertisement was published in all the 18 languages of the country. Department of Women and Child Development published

separate advertisements which were carried in 153 Newspapers published in all the regional languages including english & hindi publications all over the country.

While Ministry of Health & family Welfare spent Rs. 40,00,000/- (Four Million) on this, the Deptt. of Women & Child Development spent Rs. 25,20,000/- (Rs. 2.52 Million)



Global IDD Celebrations: Uttar Pradesh

The Times of India, Lucknow
Saturday, October 22, 2005

State Govt for large-scale promotion of iodised salt

Times News Network

Lucknow: In the wake of a new health initiative, the government is all set to gear up to meet the challenge of high risk iodine deficiency in the state. Director Health Services, who was instrumental in organising the World Iodine Deficiency Disorders Day function in collaboration with UNICEF said that the state is serious about the issue of iodine deficiency. The state is committed to ensuring that all its citizens have access to safe and adequate level of iodine. The state is committed to ensuring that all its citizens have access to safe and adequate level of iodine.



Officials of UP Health Department and UNICEF addressing a seminar on the occasion of World Iodine Deficiency Disorders Day in Lucknow.

Public Health Dept. (PHD) is committed to ensuring that all its citizens have access to safe and adequate level of iodine. The state is committed to ensuring that all its citizens have access to safe and adequate level of iodine. The state is committed to ensuring that all its citizens have access to safe and adequate level of iodine.

high iodine level in a country. In fact, we are still in a low iodine level. The state is committed to ensuring that all its citizens have access to safe and adequate level of iodine. The state is committed to ensuring that all its citizens have access to safe and adequate level of iodine.



UP gears up to tackle iodine deficiency

Pioneer News Service
LUCKNOW



Health Director Ram Babu inaugurating a function on the Iodine Deficiency Disorders Day at the Ashraf Jahangir Nagar Hospital in Lucknow.

It is expected to support the state government in the wake of the new health initiative. The state is committed to ensuring that all its citizens have access to safe and adequate level of iodine. The state is committed to ensuring that all its citizens have access to safe and adequate level of iodine.

has helped in tackling the issue of iodine deficiency. The state is committed to ensuring that all its citizens have access to safe and adequate level of iodine. The state is committed to ensuring that all its citizens have access to safe and adequate level of iodine.



Workshop on, “Refreshing Path to Iodization in Gujarat”

A Workshop on “Refreshing Path to Iodization” was held with the support of ICCIDD in Gujarat on 24th September 2005.

Dr. R. Sankar, UNICEF, Dr. Eric-Alain Ategbo, UNICEF, Dr. Arijit Chakrabarty, ICCIDD and Mr. Dinesh Thacker, ICCIDD Extender, Gujarat were present in the workshop among the local salt manufacturers.

The workshop highlighted on the following:

- A) Refreshing tips for Iodization Plants Owner
- B) Refreshing tips for Plant Managers
- C) Refreshing tips for Plant Supervisors



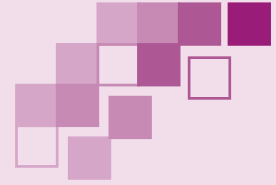
A) Refreshing Tips For Iodization Plant Owners:

- Daily visit to your plant.
- Surprise check for quality of salt.
- Emphasize on maintenance of plant. Assigning Responsibility.
- Check dripping of Iodine solution.
- Maintain a register of daily consumption of power. Meter reading habit will help you in many ways.
- Check, at the end of the day, no salt remains on the conveyor belt and in packing area.
- Prepare the schedule of cleaning and maintenance of plant and stick to it.
- Keep good human relations; be kind to laborers/workers. Maintain good rapport. Take good care of them.
- Avoid child labourers.
- Try to store the finished goods in covered area.
- Keep records of your powder salt to check the quality of Crushing Rollers, to ensure the quality consistency.
- Create hygienic atmosphere.
- Determine that, come what may, you are not compromising in the quality. Believe me “Quality will Take Care of You”.
- We all are gift of God and when God has assigned us to iodise the salt for our brothers and sisters, our intention and integrity should be proper iodization. Believe! HE WILL TAKE CARE OF YOUR BUSINESS.

- The OPPORTUNITY is with you to SERVE! Your careful and watchful actions are Blessings to UNBORN CHILD who equally has got right to be BORN NORMAL.
- Keep input/output register for packing material, KIO₃, raw material.
- Each proper iodised drop of your plant is like GOLD, as it is acting a preventing role, and prevention is always better than CURE.

B) Refreshing Tips For Plant Managers:

- Keep yourself informed about the Production Planning.
- As per the requirement and schedule, check that all the material is available with you at Plant Store. Like Potassium Iodate, Packing Material, Raw Salt etc.
- Check the stock of KIO₃ and requisite if you found short. Plan your production according to the availability of this important input.
- Always, get the thorough analysis of your KIO₃ done before iodisation. There are chances that, the same may not be of proper strength. Take the “Tested O.K.” Reports from your Boss and then use.
- Always use potable and soft water for dissolving the KIO₃. Boil it. Allow some time to get luke warm. Dissolve the KIO₃ in to water and make the solution.
- The ratio of KIO₃ is to dissolve 1 kg for 20 tons of salt to iodize. And accordingly, as per the requirements prepare the solution.
- Set the dropping time of solution as per the speed of your Conveyor Belt. But don't allow even a single Kg till the dropper is on and set.
- Check, whether the Solution Tank is properly cleaned.
- Before starting the belt, check that
 - a) all the dripping pipes are ok.
 - b) the solution tank is full for achieving proper pressure level
 - c) close the tank from the top properly
 - d) feeding hopper is full and the in-charge person for feeder is ready.
- Depute a person to remove the muddy lumps from the salt, which travels to crushing roller. Remember that this negligence may lead your salt to fail in standard set by PFA Act.
- Always maintain the dripping system in order to get minimum 30 PPM of Iodine in the salt.
- Keep your plant and its surroundings neat and clean. Do not allow your worker to chew tobacco/gutkha and smoking in the packing area. Earmark the space for such persons.
- Maintain the Power Consumption Register.
- Strictly follow the maintenance schedule set by your Boss/Seniors!
- Remember that, you are the part of Iodization Program that Opportunity God has shouldered upon you. Your negligent



attitude too can be harmful to pregnant women. They may give birth to a deaf and mute child. Child may be mentally retarded. These all can happen with any mother who is deficient with IODINE. DO WE WISH THIS MISFORTUNE TO OCCUR? IF NO, then follow sincerely and wholeheartedly.

- Your role is very important. You too can earn the blessings of God. Because you are saving million of lives from the Danger of IDD.
- Always be kind to your workers/juniors.
- Do not hesitate to speak truth, especially when something goes wrong. Don't escape from shouldering the responsibility. "Today's mistake tomorrow's misfortune"

C) Refreshing Tips For Plant Supervisors:

- Always make yourself available in the plant when packing of salt is on.
- See that solution tank always maintains the pressure so as there is no variance. Low pressure affects the PPM set by you.
- Feeding hopper of raw salt also be watched carefully, here also if pressure is not maintained, chances of variation in iodine PPM take place.

- Keep the solution tank clean. If KIO₃ powder is precipitated at the bottom of the tank, stir the solution properly.
- Depute a person on feeding belt, which carries salt to crushing rollers. He should be responsible for removing the muddy lumps from the belt. This will help to maintain the quality of the salt.
- Dripping of solution on belt should be constantly watched.
- Always keep the Test Tube with you and at regular intervals check the iodine content.
- Learn the procedure of checking the iodine.
- Don't allow your workers smoking and chewing tobacco/gutkha in your packing area.
- Apply, "First In First Out"(FIFO) system in your stock if the Brand Name is same. Stock it accordingly.
- Remember, you are the key person of the plant. Be alert and attentive to your job.
- Keep good relations with the workers and be kind to them.
- Owner will visit for 10 minutes. Manager may be for an hour, but you are there for rest of the time. Entire plant is in your control. So is the future of coming generation of India

National Conference on Eradicating Micronutrient Malnutrition for Better Health and Higher Economic Growth, Oct. 28 - 29, 2005, Napoleon Hall, Hotel Le Meridien, Janpath, New Delhi

Sponsored By: International Life Sciences Institute - India (ILSI - India), ILSI Human Nutrition Institute (ILSI HNI)

Over the last few years ILSI - India has focused attention on problems relating to micronutrient malnutrition in India and other South Asian Countries. They have organised workshops to discuss steps to be taken to improve the nutritional status. However the problem still persists and a large section of the population in India suffer from micronutrient malnutrition. While there is an understanding in the country about the existence of this problem more efforts are required from all stake holders to improve the nutrition status.

There is a need to bring greater focus on the nutrition issues and give its due importance on the Agenda of the country. Micronutrient malnutrition not only perpetuates a miserable life for malnourished population but also imposes an economic burden on the country and retards growth through decreasing productivity of labour force and increasing absenteeism from work.

Objectives:

- To review the micronutrient status of the population.
- To discuss the socio - economic consequences of micronutrient malnutrition.
- To consider various approaches for improvement in micronutrient status and suggest effective strategies.
- To assess the beneficial effect of enriched nutrition on health and economic development.
- To emphasise the need for public private partnership for eliminating macronutrient malnutrition to improve health, productivity and development.

Participants - A profile:

Mr. D. H. Pai Panandiker, Chairman ILSI - India
Prof. Abhijit Sen, Member, Planning Commission, Govt. of India

Mr. N. M. Kejriwal, Vice President, ILSI - India

Mr. D. P. Tripathi, Former secretary, Ministry of Food Processing Industries, GOI and Senior Corporate Adviser, AFPPA

Dr. Kamla Krishnaswamy
Ex Director National Institute of Nutrition and President, Nutrition Society of India

Dr. Alexander J. Stein, department of Agricultural Economics and Social sciences, University of Hohenheim (Germany)

Dr. C. S. Pandav, Professor & Head, Centre for Community Medicine, AIIMS and Regional Coordinator (South Asia), ICCIDD

Dr. Kanta K Sharma, Ex. Executive Director, Food and Nutrition Board.

Dr. S. R. Rao, Director, Department of Biotechnology, Ministry of Science and Technology, GOI

Mr. R. N. Das, Secretary, Deptt. of Food and Public Distribution, Ministry of Consumer Affairs and Public Distribution, GOI

Dr. Pralhad Sadashiv Patki, Vice President (Medical), Raptakos Brett and Co. Ltd

Ms. Deepti Gulati, Senior Nutritionist, World Food Program





The Micronutrient Initiative's IDD Programs in India

In India, the Micronutrient Initiative's programs on IDD control have largely been focused on the production side of the salt industry where it felt that maximum impact could be achieved through optimum investment. MI's iodine initiative which really took off only in 2003 had two components viz. (a) intervention in the large scale salt sectors and (b) USI promotion by providing support to the small scale sectors.

Support to Government Undertakings

In India MI's intervention in the large scale sector involved providing technical and financial assistance to two large salt producers, located in the south & north parts of the country.

Tamil Nadu Salt Corporation Ltd. (TNSC), a State Government undertaking was established with the dual objectives of generating employment opportunities for the vulnerable segments of society and also to use the potential natural resources for production of salt and salt-based by-products. In the past decade TNSC has been associated with the Government of Tamil Nadu in the implementation of the National Iodine Deficiency Disorders Control Programme (NIDDCP). TNSC contributes to this programme by supplying iodized salt to the most vulnerable section of the population through the Public Distribution System (PDS). TNSC also supplies iron fortified and double fortified salt (iron and iodine) through the mid day meal scheme. Although, TNSC salt works were harvesting around 100,000 tons per annum of salt, the quantity of edible iodized salt produced prior to 2004 was only around 10,000 tons. The iodized salt made by TNSC was being sold through the PDS under the brand name "Arasu" Salt at a price of Rs.2.50 as compared to Rs.3.50 and above for other comparable brands. In 2003, TNSC approached MI with a proposal seeking assistance to upgrade its salt iodization facility and thereby increase its production capacity to meet the requirements of the PDS in 2 South Indian States of Tamil Nadu and Andhra Pradesh. A grant agreement was signed between MI & TNSC, under which MI appointed a technical consultant to evaluate and modernize the iodized salt production facility. Utilizing grant funds provided by MI, TNSC was able to install an iodized salt plant with a capacity of 60,000 tons per annum good quality iodized salt. In return for the grant, TNSC made the following commitments to the MI :

- The increase in iodized salt production as a result of MI's intervention would be sold in fair price shops at affordable cost through PDS in Tamil Nadu and Andhra Pradesh.
- Even at the increased capacity, TNSC would continue with its existing system of manual packaging of salt which was being carried out by women from the economically weaker sections of society, thereby ensuring their continued livelihood as well as providing employment opportunities for additional labor force.

The upgraded plant was commissioned in February 2004 and in the past one year TNSC has produced around 42,000 tons of iodized salt with a potential reach of 10.5 million population.

In 2004, TNSC again approached MI for further assistance in augmenting its present production capacity by 30,000 tons per annum to meet the PDS requirements of salt in a third South Indian State namely Karnataka. This project is currently ongoing and the new iodization plant is expected to be commissioned in December this year 2006.

Hindustan Salts Ltd. (HSL) is a wholly owned Government of India undertaking with salt plants in Rajasthan, Gujarat and Himachal Pradesh. HSL approached MI in 2004 with a request for assistance in upgrading its Sambhar Salts plant located at Sambhar lake, a salt water lake in Rajasthan. Although Sambhar Salts plant was producing around 70,000 tons per annum of salt, only 6,000 tons were being marketed as edible iodized salt due to capacity and quality limitations. Under the grant provided by MI, HSL is installing a salt washery with iodization unit at Sambhar Salts of 70,000 tons per annum production capacity which is expected to be commissioned in January 2006 and has a potential reach of 17.5 million population through PDS in Rajasthan, Chattisgarh and Jharkhand.

Support to the Small Sector

In its endeavor to promote USI in India, MI has entered into a collaboration with the Indian chapter of ICCIDD, a renowned NGO and the premier institution in India engaged in IDD control activities. Three activities were envisaged in the grant agreement :

- Potassium Iodate Subsidy for Small Scale Salt Manufacturers
- State level activities for improving adequately iodised salt coverage at households
- Quality assurance and monitoring at production level

The potassium iodate subsidy scheme was undertaken with the key objective of providing an incentive to small scale iodized salt producers who normally produce non-refined iodized salt that is sold at a low cost and caters to poorer sections of the population. Under this scheme, 14 tons of KIO₃ are in the process of being distributed by March 2006, through Salt Extenders in 4 States, who identify the potential recipients of this subsidy and also monitor its usage. These Salt Extenders have also been entrusted with the task of assessing the present condition of iodization units so that the same may be made operable. 16 such plants have been targeted for rehabilitation in Andhra Pradesh. This entire exercise is being carried out in close coordination with the Office of the Salt



Iodized Salt Plant in Andhra Pradesh Identified for Repair

cont. on page 19



58th Session of WHO Regional Committee lauds WHO's work in the South-East Asia Region Special Focus on strategies for dealing with health aspects of disasters, and control of emergencies arising from emerging communicable diseases

Colombo/New Delhi, 10 September 2005: The 58th Session of WHO's Regional Committee for South-East Asia concluded on 10th September 2005 with a call for a strong commitment and joint endeavours for health development by the Member States. It noted with satisfaction the progress in the implementation of WHO's collaborative programmes and activities in the Region.

The Committee deliberated on several issues of importance to the countries, and adopted resolutions on subjects of regional priority, including on the following:

Consideration of recommendations arising from Technical discussions on skilled care at every birth: The Committee stated their concern at the unacceptably high maternal and neonatal mortality in the Region, and said that most of these deaths could be prevented with the availability of skilled care at birth and a strengthened referral system to ensure maternal and newborn care after birth. It urged Member States to strengthen national and sub national plans, strategies and programmes to ensure provision of skilled care at every birth. It asked countries to identify barriers to equitable access and utilization of skilled care at birth and to develop evidence-based actions to overcome them. Appropriate improvements in health systems should be instituted to strengthen programme management and improve health care delivery. The Committee sought WHO assistance in this regard.

Health Action in emergencies, including response to earthquakes and tsunamis of 26 December 2004: The Committee urged Member to strengthen risk management mechanisms in the health sector, as a prepared health sector could mitigate the impact of disasters by reducing avoidable deaths, injuries and illnesses. The Committee urged Member States to incorporate emergency preparedness and response programmes (EPR) within ministries of health to ensure sustainability. High level offices should manage the EPR, maintaining multisectoral, regional and intercountry collaboration. They also noted the importance of strengthening relations with national and international media by strengthening capacity of health professionals in dealing with media thus enabling journalists to report more accurately on health issues during emergencies. The Committee asked WHO to support Member States in exchanging expertise and information, increasing partnerships with other UN agencies and facilitating mobilization of resources.

Polio eradication - final strategy: The Committee recognized the substantial progress made in the Region towards the goal of polio eradication in 2005. It noted that while poliomyelitis remains endemic only in a few districts in India, all countries remain at risk, given the recent polio outbreak in Indonesia. It urged Member states where polio virus transmission was endemic, to further intensify their eradication strategies to interrupt wild polio virus transmission in 2005, and urged all Member States to maintain high levels of routine immunization coverage and high quality of AFP surveillance until global certification of polio eradication is achieved. The Committee requested countries to develop an action plan to respond effectively to any polio outbreak caused by

an importation of wild polio virus.

The Committee urged WHO to collaborate with partners in ensuring the highest political support for polio eradication and in mobilizing necessary financial and technical resources.

Asia-Pacific Strategy on emerging diseases: Recognizing the serious threats posed to public health from emerging diseases like SARS and avian influenza, Member states were urged to strengthen their capacity for surveillance and response to detect, verify and report on communicable disease outbreaks; to increase co-operation among themselves and to strengthen collaboration and coordination between the health, veterinary and agricultural sectors, to enhance early detection of zoonotic diseases such as Avian influenza and SARS and to urgently develop national preparedness and response plans with special emphasis on avian influenza.

Recognizing the likely shortage of drugs and vaccines to deal with emerging diseases like the avian influenza, the Committee recognized the importance for Member States to establish risk communication mechanisms to enable initiation of public health measures to protect populations, should the need arise.

WHO was requested to support Member States in strengthening national capacity for communicable disease surveillance and outbreak alert and response and to facilitate the establishment and networking of regional centres of excellence to coordinate and advise on effective implementation of the Asia-Pacific strategy on emerging diseases. WHO was also asked to assist in the mobilization of technical, logistic and financial resources to facilitate the implementation of the strategy to facilitate stock piling of essential medicines, vaccines and personal protection equipment to support, develop and implement national influenza pandemic preparedness plans.



International Health Regulations (2005): The Committee noted that the Asian-Pacific Strategy and International Health Regulations (2005) were complementary. It recognized the enormous challenge faced by Member States in building national core capacity of Member countries by June 2007 when the revised IHR would come into force. It stressed the urgency for Member



States to take all necessary steps, including upgrading existing health infrastructure, building core capacities, establishing surveillance mechanisms for developing early warning systems; strengthening laboratory services for immediate diagnosis and strategic stockpiling of drugs, vaccines and equipment and mobilizing political commitment.

The Committee urged WHO to facilitate the implementation of IHR through technical guidance and support including building core capacity in Member States in detecting, verifying and responding to public health risks and health emergencies of international concern. WHO was asked to support resource mobilization and promotion of inter-country and interregional collaboration.

The Regional Committee decided that the Technical discussions in 2006 would be held on the subject of "Promoting patient safety at health care institutions". The Regional Committee decided that its fifty-ninth session would be held in Bangladesh in conjunction with the Meeting of Ministers of Health.

Statement by Prof. M.G. Karmarkar, Senior Advisor ICCIDD

Professor Karmarkar made a statement on behalf of ICCIDD at the 58th session. He stated "one of the significant achievements in the South East Asia region under the leadership of Regional Director of WHO, Dr. Samlee Plian Bang Chang, is the progress made in elimination of iodine deficiency disorders. In the field of non-communicable diseases and mental health, it is known that iodine deficiency is the single most common cause of mental handicap. At the same time, iodine deficiency is the most common preventable cause of mental handicap, as well".

Children in iodine deficient environment on an average have 13 IQ points less as compared to those children who live in iodine sufficient areas. This adversely affects learning abilities of children, repeated failures and school dropouts thereby denying them the opportunity of attaining their maximum mental & physical potential. Ensuring mental health for all will not be achievable without elimination of iodine deficiency induced psychomotor retardation.

The groups at maximum risk of iodine deficiency are the pregnant women and the newborn children. To ensure family and community health, iodine deficiency disorders, one of the main predisposing causes of child morbidity and mortality must be eliminated.

While the situation still requires attention, the results of efforts made in many countries of the WHO - SEARO Region with respect to availability of adequately iodised salt so far are encouraging. We can safely say, "The glass is more than half full".

History teaches us that the sustainable elimination of IDD requires constant vigilance of a range of professional and public interests. Too many of us may diminish our efforts when we reach the first plateau. The long, climb to eliminate the stealthy scourge of IDD from the globe begins with the achievement of Universal Salt Iodization.

The primary concern to all of us is to ensure that every person should and, every mother and child must get his or her daily iodine requirements for all the time to come. The million dollar question is how?

Some countries of the region are making efforts to reach out for the vulnerable population by providing coarse grains, pulses and

iodized / double fortified salt to below poverty line (BPL) families through the public distribution system (PDS) to counterfeit macro and micronutrient deficiency. Technical assistance is being provided by ICCIDD in implementation of this program of the government.

The ICCIDD played pivotal role in policy formulation by regular interactions and supply of the inputs to the elected representatives, parliamentarians and policy makers. WHO has been ably assisted in bringing out the latest 'IEC kit'. We assist the salt industry in maintaining the quality of iodized salt through our quality assurance program on a regular basis. As part of strengthening the technical / scientific aspects of the program of USI in collaboration with WHO SEARO Office, we have organized two training programs, one in September 2002 and another in April 2003 at our laboratory in New Delhi wherein participants from 9 countries in the South east Asia region were trained. Our partnership with the civil society groups is expanding. All these, in fact, are in consonance with WHO's future plan of action.

Expertise and experiences are available amongst the Member countries. What is needed is coming together of policy makers and scientific fraternity - together they can start an odyssey into future ably supported by our partners of private sector, the iodised salt producers towards a world devoid of IDD, and a healthy society. Thus, fulfilling the Right of Every Child to optimal physical and mental development. In this direction, WHO-SEARO, New Delhi has formed a Regional Working Group comprising of representatives from Member countries, Salt Producers, Consumer Associations and representatives from UNICEF/MI/ICCIDD for IDD Elimination. The broad objectives of this group are:

- 1) to identify mechanisms for advocating and strengthening IDD control/prevention program in WHO Member Countries;
- 2) to maximize cooperation and coordination between governments, partner agencies, concerned stakeholders and WHO, and
- 3) to follow up actions at country and regional levels for implementing the WHO Regional Committee and World Health Assembly Resolutions for IDD elimination.

The major outcome of this group would be to develop a regional plan of action, specifying each member's contribution for IDD elimination in the South-East Asia Region.

And what a befitting health and nutritional problem to address that can be guided by three principles of working together as stated by Dr. Lee Jong-Wook, the Director General of World Health Organization.

To quote,

"We must do the right things.

We must do them in right places.

And we must do them in the right way"

The Elimination of IDD will be a great triumph in the field of public health, comparable to the eradication of smallpox". This is eminently possible. For there are few moments in time when there is a clear fork in the path of major human endeavor. As we battle against the ancient and pervasive scourge of iodine deficiency, we are certainly at a turning point. Never before has the way to our goal been so clear or so near. Never before have we been able to see so clearly or so far.



Pushing In the Right Direction - Steady Progress in the Control of IDD in India

Eric-Alain Atego, Rajan Sankar, And Werner Schultink
Child Development & Nutrition Section, Unicef India Country Office

In May 2000, only three years after the introduction of the Universal Salt Iodization Code - banning the sale of non-iodized salt for human consumption, Professor V. Ramalingaswami of the All India Institute of Medical Sciences confidently announced: "India is on the brink of the elimination of iodine deficiency as a public health problem."

In a stunning reversal, a mere four months later, the ban on the sale of non-iodized salt was repealed. The Indian Medical Association lamented the decision to repeal the ban, stating that "it re-imposes a serious public health burden". The damage from this decision in 2000 was widely felt: there was a dramatic drop in the percentage of households consuming adequately iodized salt, from 49% (in 1999) to 37% (in 2003). Despite an explicit commitment to the elimination of IDD through salt iodization expressed in India's 10th Five-year plan (2003-2007), IDD remains a public health problem in 2005. Surveys carried out by the Ministry of Health and Family Welfare indicate no state in India is free from IDD. Opening the market for both iodized and non-iodized salt and leaving the choice to the consumer was the wrong policy decision from a public health perspective. Once again, large numbers of people, including the most vulnerable- children and pregnant women- were exposed to the health, social, and economic consequences caused by insufficient iodine in the diet.

However, the recent Government of India has shown a renewed interest in salt iodization. On June 15, 2005, the Government officially announced its intention to re-introduce the central ban on the sale of non-iodized salt for human consumption. This decision brought IDD elimination through universal salt iodization (USI) back on the agenda of program managers. UNICEF, while working toward the reinstatement of the ban, has continued efforts on several fronts to promote USI in India.

Increasing the availability of iodized salt

The estimated annual requirement for iodized salt for human consumption in India is 5.2 million (m) tons. But, despite having the capacity to iodize 13 m tons with existing infrastructure, India currently only iodizes 4.6 m tons, and a significant amount of this is exported. As a consequence, the amount of iodized salt available in local shops and markets is generally inadequate.

Therefore, a central strategy to reach USI is to increase the amount of iodized salt on the market through dialogue with salt traders and wholesalers, as well as medium- and large-scale salt producers. These groups package the largest part of the salt for human consumption and also have the capacity to iodize. They should be motivated to do so at a reasonable price. The hindrances they experience should be understood and attempts made to remove them, without influencing normal trade practices. Large

producers, such as Hindustan Lever Ltd. and Tata Chemicals Ltd., have already agreed to market cheaper iodized salt. Moreover, penetration of packaged iodized salt in remote areas has remarkably improved.

To enable small-scale salt producers to adequately iodize their product, a series of training sessions have been carried out to improve their know-how and their iodization skills. In 2005 alone, more than 1,000 small scale salt producers were trained in the States of Gujarat, Rajasthan and Andhra Pradesh. Through the supply of mobile laboratories, technical support is given to small producers to improve quality assurance of their production.

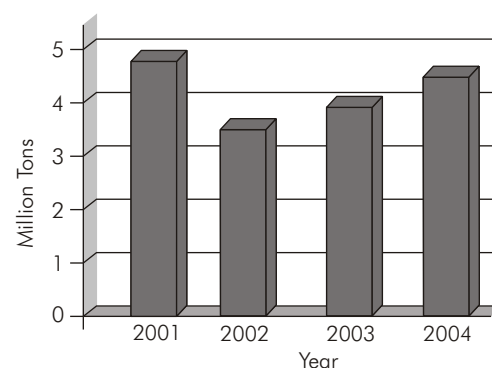
In addition, a study on the economics of the Indian salt trade was commissioned and used to devise a marketing plan for the production and trade of iodized salt. This study clearly demonstrated that iodization is profit-making business, a strong incentive for producers to engage in production and trade of iodized salt. The outcome of the marketing plan is in the public domain.

Due to close partnership with the salt industry, along with provision of technical and marketing support to salt producers (with special attention to small-scale producers), production of iodized salt started picking up again in 2003 to achieve a total production of 4.6 million tons in 2004 (Figure 1).

Educating the population on the importance of iodized salt

Because poorer communities often do not have information about the importance of iodine for their health and its benefits for the development of their children, they are unable to make the right choice. Creating awareness among the general population about the need to use iodized salt is critical. To accelerate progress, a new communication strategy was designed and implemented; its focus is on the learning capability of children. These messages are spread through Angawadi workers (community nutrition and child development workers), Auxiliary Nurse and Midwives (ANM),

Figure 1. Iodized salt production in India





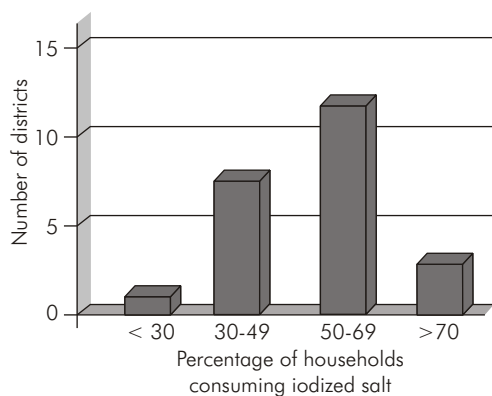
Women Self-Help Groups, and, most importantly, through schools. Collaboration with consumer organizations is also a powerful intervention being used in different parts of the country. Partnership was formed with the Federation of Consumers' Associations in South India for the promotion of the sale of iodized salt at retail outlets and its consumption. This has resulted in an increase from 21% to 53% in household availability of iodized salt in this region.

Creating pressure groups to promote iodized salt

In Uttar Pradesh, the largest state of India, 80% of salt marketed in the state is controlled by 340 wholesalers spread across 15 districts. To increase availability of iodized salt in the state, a local NGO has frequent interactions with these traders to ensure its availability. Frequent sensitization meetings are held with salt traders. Their salt is tested and immediate feedback given to them on the iodine content of their consignment. This is an effective approach: after one year, the proportion of school children with adequately iodized household salt in Uttar Pradesh increased from 15% to 25%.

Working at retail outlets in the state of Tamil Nadu, the Federation of Consumers' Association (FEDCOT) acts as a pressure group to encourage retailers to offer only iodized salt for human consumption (see box). As a result, the number of brands on the market containing no iodine significantly decreased. Reproductive and Child Health (RCH) surveys and measurement of iodine content in household salt were carried out in 26 out of the 29 districts in the State. In 2002/2003, only 22% of households were consuming adequately iodized salt; since then, there has been a significant increase in households using adequately iodized salt, in all districts (Figure 2).

Figure 2. Iodized salt use in the State of Tamil Nadu, India



Strengthening monitoring

This component of the IDD elimination program needs to be revisited and strengthened. There is a considerable quantity of salt which carries a label of being iodized while in reality it is not. This makes consumers vulnerable. To date, the main quality control system captured only iodized salt transported by rail. However, due to a recent hike in rail freight costs, increasing quantities of salt are being transported by road. This is now more economical for distances less than 1,600 km. Until now, salt transported by road has not been subject to quality control.



A school lunch containing iodized salt provided by the Mid Day Meal Scheme in Karnataka State



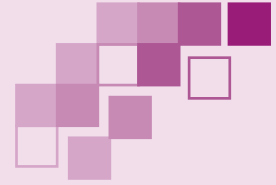
A strong monitoring system is a key to success. The existing plan to certify quality of salt for its iodine content before loading into railway wagons needs to be improved. A system for the quality control of salt transported by road is urgently needed. Finally, it is important to strengthen control at the production and wholesale level, and to get policymakers and program managers to support this new plan.

Making iodized salt available to the lower socio economic levels of society

India has a large social welfare scheme for child development, the Integrated Child Development Services (ICDS). The ICDS is designed to ensure, among other goals, adequate nutrition to children living Below the Poverty Line (BPL). Altogether, the program reaches >30 million children <6 y-old, through more than a half million centers in the country. The scheme provides one meal a day for every BPL child. In many regions, advocacy with central and state governments has made iodized salt use compulsory for meals in this program. Likewise, to promote education, the government is providing one meal a day to children attending school, through the Mid Day Meal scheme. This program is also presents a good opportunity to provide iodized salt.

The Public Distribution System (PDS) is an elaborate network of Fair Price Shops set up to ensure availability of essential commodities at an affordable price to BPL families. There are 470,000 FPS in India, and these offer a ready-made distribution scheme to take iodized salt to the remotest areas in the country. As a result of an advocacy push, the central government has sent out directives. Several state governments are now distributing iodized salt through PDS at a low, subsidized price (Chattisgarh, Tamil Nadu, Gujarat, Rajasthan, Andhra Pradesh, Karnataka), and use of iodized salt in mid-day meal schemes and ICDS is now mandatory.

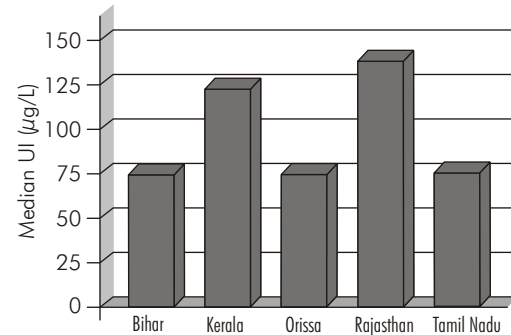
These initial efforts, to use the ICDS and PDS to ensure the poorest communities understand the importance of iodine and provide access to affordable iodized salt, are commendable. This strategy, as well as the program of using iodized salt in the mid-day meal scheme, needs to be taken to scale. It would be a major step towards universal use of iodized salt - a goal that India has repeatedly committed itself to achieving.



Strengthening partnerships to accelerate progress

To accelerate progress toward achieving the goal of USI in India, UNICEF is spearheading a partnership with WHO, the World Food Program, ICCIDD, and the Micronutrient Initiative (MI). It is expected that this inter-agency partnership will take the initiative and the leadership in the formation of a National Coalition for Universal Salt Iodization in India. ICCIDD, MI and UNICEF have jointly conducted several tracking studies on the elimination of IDD through USI in various states. To date, studies have been completed in five states (Figure 3). A study is planned for Uttar Pradesh in early 2006; this is the most populous state in India with 160 million inhabitants.

Figure 3. Urinary iodine concentrations in children in five States of India



In Tamil Nadu, consumers want their children to be healthy and intelligent

FEDCOT is the Federation of Consumer Organisations in Tamil Nadu, India. In collaboration with UNICEF, it started a campaign in 2004. Its objectives were to:

- Create awareness about IDD
- Eradicate IDD from Tamil Nadu
- Encourage people in Tamil Nadu to demand iodized salt
- Educate salt retailers to sell only iodized salt for human consumption

FEDCOT launched their eradication of IDD program in 10 selected districts of Tamil Nadu from September 2004 to March 2005. The Salt Department, Government of India and the Government of Tamil Nadu simultaneously supported the program. The program is planned to cover all the districts in Tamil Nadu in three phases. FEDCOT's most potent weapon is "awareness creation", in consumers, traders and salt producers. Awareness creation is achieved through:

Awareness campaigns in schools and self-help groups

- 892 schools visited and 4,698 teachers motivated.
- Over 30,000 salt samples brought by students tested for iodine.
- 1,453 Self-help groups covered and 29,796 women motivated.
- 40% increase in turnover in Tamil Nadu Salt Corporation's sale of iodised salt.
- Surveys and a motivational campaign gained wide media publicity.

In addition:

- 6 district workshops: with 78 salt manufacturers/traders, health workers, panchayat and municipal leaders participating.
- District level training program for consumer activists in 10 districts.
- Surveys conducted: 11,472 shops were visited by their activists and samples tested.

cont. from page 14

Commissioner of India, Jaipur. The MI has commissioned a consultancy to study the salt production & distribution patterns in Tamil Nadu and provide a model framework that will determine the future strategy for KIO3 subsidy and can be replicated in other States.

Under the MI-ICCIDD collaboration, meetings have been held with several State Government Agencies including Civil Supplies Corporations to promote the marketing of iodized salt through PDS in these States. An IDD dissemination workshop was organized by ICCIDD in Orissa State. Training Sessions were conducted in coordination with UNICEF in Gujarat, Tamil Nadu, Andhra Pradesh and Rajasthan for small scale salt producers, on proper iodization techniques, plant maintenance and correct analytical procedures

ICCIDD has also been interacting with Salt Commissioner office to provide quality control assistance to the nodal laboratories of the Salt Department as well as training and capacity building of the officers of the Department.

Work Ahead

The KIO3 subsidy program is proposed to continue for the year 2006-07 and MI hopes to put in place an alternate viable system to ensure sustainability of this program. The MI-ICCIDD India collaboration is in the process of devising plan of action to improve coverage of iodized salt in non producing States. IDD dissemination workshops are envisaged in more States. MI is also keen to promote the concept of double fortification of salt with iron & iodine as a complementary strategy to tackle IDA & IDD.



Reaching the hundredth Monkey

In 1952, on the island of Koshima in Japan, scientists were providing monkeys with sweet potatoes dropped in the sand. The monkeys enjoyed the sweet potatoes but found the dirt unpleasant. One 18-month-old female found she could solve the problem by washing the potatoes in a nearby stream. This cultural innovation was picked up by various monkeys before the eyes of scientists.

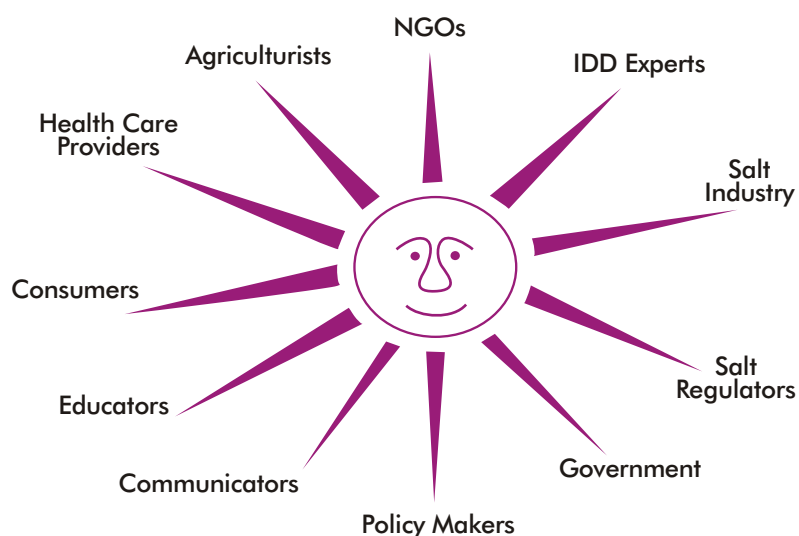
Between 1952 and 1958 all the young monkeys and some adults had learned this social improvement. Then something startling happened. One morning there were 99 monkeys who had learned to wash sweet potatoes. Then the hundredth monkey discovered it. And that's when it happened. By that evening, virtually every monkey in the tribe was washing the potatoes. But, most surprisingly, the habit then spontaneously jumped over the sea until colonies on other islands and on the mainland began washing their potatoes!

Thus when a certain critical number achieves awareness, the awareness can become universal. It also means that when only a limited number of people know of a new way, it may remain the property of only those people.

We at ICCIDD must ensure that a substantial proportion of our energy, our funds, our time are aimed at reaching the hundredth monkey.

आयोडीन युक्त नमक प्रतिदिन।
बुद्धि और स्वास्थ्य सुरक्षित हरदिन।।

**Daily consumption of Iodised salt
is a healthy habit**



Sustaining Elimination of IDD



Publishing any material in IQ+ Jagriti does not necessarily mean ICCIDD's endorsement of the views expressed therein or the results quoted.

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