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## Journey of Iodine Deficiency Disorders in India: Lessons learnt and the Way Forward

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### Introduction

Iodine deficiency disorders (IDDs) are the most common cause of preventable brain damage globally<sup>1</sup>. IDDs lead to an entire spectrum of diseases and disabilities including goitre, cretinism, hypothyroidism, brain damage, abortion, still birth, mental retardation, psychomotor defects, and hearing and speech impairment. The whole population of 1.27 billion in India is at risk of iodine deficiency disorders due to deficiency of iodine in the soil in the Indian sub-continent. Universal Salt Iodization (USI) is the key strategy for control of IDDs. In 1994, the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) Joint Committee on Health Policy recommended USI as a safe, cost-effective, and sustainable strategy to ensure sufficient intake of iodine by all individuals<sup>2</sup>. Salt iodization, which costs US\$ 0.05 per person per year and has a benefit-to-cost ratio of 81, has been identified by the Copenhagen Consensus Statement 2012 as being a priority for targeting hunger and malnutrition<sup>3</sup>. Household consumption of adequately iodised salt and urinary iodine estimation have been the most widely used parameters to assess iodine nutritional status<sup>1</sup> (Figure 1).

India has made impressive progress in the control of IDDs with the successful adoption and scaling up of USI. According to the National Iodine and Salt Intake (NISI) survey, 2014-2015, currently 78% of households in India are consuming adequately iodised salt<sup>4</sup>. However, there is still a significant percentage of the population who continue to consume inadequately iodised salt (14%) or nil iodine salt (8%). There is a need to reach the unreached population and cover the "last mile" of the USI success story of India. This calls for developing and implementing the "end game strategy" to accelerate, achieve, and thereafter sustain elimination of IDD in India.

The USI efforts in India currently focus on advocacy to expand support for the project, increasing the availability of adequately

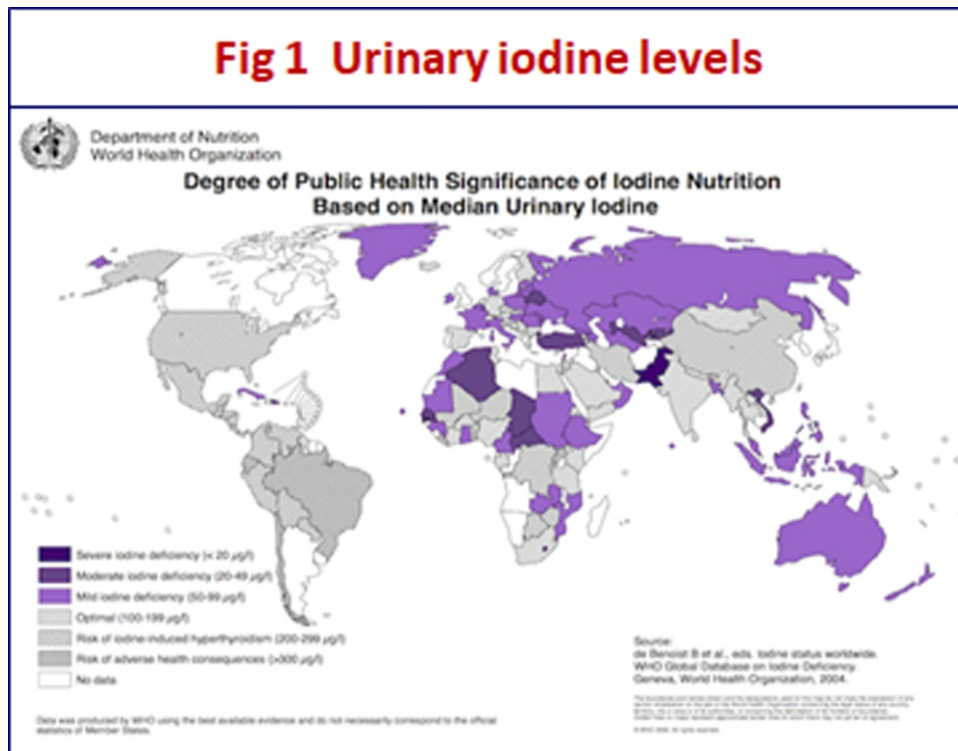
iodised salt, strengthening quality control at the production end, a web-based Management Information System (MIS) system for the salt department, inclusion of iodised salt as an essential commodity in the Public Distribution System and inclusion of iodised salt in all government feeding programmes. The Association for Indian Coalition for Control of Iodine Deficiency Disorders for USI has continued to serve as a platform for bringing key partners together for regular dialogues, high-level advocacy, and streamlined communication. It acts as a pressure group for timely action.

However, certain key challenges to the programme have recently arisen, threatening the current status and future progress. The Government of India (GoI) has initiated the process of winding up Salt Commissioners' Offices thus potentially destabilizing the regulatory system for monitoring of salt iodization at the production end. There has been a recent policy shift to increase the proportion of Central Government taxes that are passed on to the States. As a corollary to this, it is proposed to restructure centrally funded programmes in all the States. Currently the National Iodine Deficiency Disorders Control Programme (NIDDCP) is funded entirely by the Central Government, but its future is uncertain because there is an expectation that States should also contribute to it. Given that IDDs are a low priority for most of the States, intensive

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# Fig 1 Urinary iodine levels



advocacy at State level is required to convince them to contribute financially towards NIDDCP.

## Evolution of the IDD Control Programme in India

Salt iodization as an intervention to address goitre was first initiated in the United States of America (USA) and Switzerland in the 1920s<sup>5</sup>. In India, the effectiveness of salt iodization to control IDD was established by the landmark study in the Kangra valley in Himachal Pradesh from 1956 to 1972<sup>6</sup>. The clear message from the Kangra Valley Study led to the establishment of the National Goitre Control Programme (NGCP) in India in 1962<sup>7</sup>. Under this programme, the promotion of consumption of iodised salt by populations in the endemic areas was the key strategy for control of goitre programme. With the emergence of new evidence, the programme was modified and renamed as National Iodine Deficiency Disorders Control Programme (NIDDCP) in 1992. In the same year, the GoI advised all States to ensure mandatory salt iodization for human consumption under the provisions of the Prevention of Food Adulteration (PFA) Act, 1954. This was done pursuant to the advice of the Central Committee for Food Standards. Further amendments were carried out in the PFA Act in 1997 to ban the sale of non-iodised salt for direct human consumption throughout the country<sup>8</sup>. In the year 2000, the ban on the sale of non-iodised salt for human consumption was lifted<sup>9</sup>, but was reinstated in 2005 after sustained advocacy<sup>10</sup>. Recently, in the year 2011, the Supreme Court of India and a committee established under its direction upheld the scientific basis of mandatory salt iodization for the control of IDD<sup>11</sup>. In the same year, regulations were notified under the Food Safety and Standards Act, 2006, which has replaced the PFA Act 1954, banning the sale of non-iodised salt for direct human

consumption<sup>12</sup>.

The evolution of the IDD Control Programme in India can be divided into four phases.

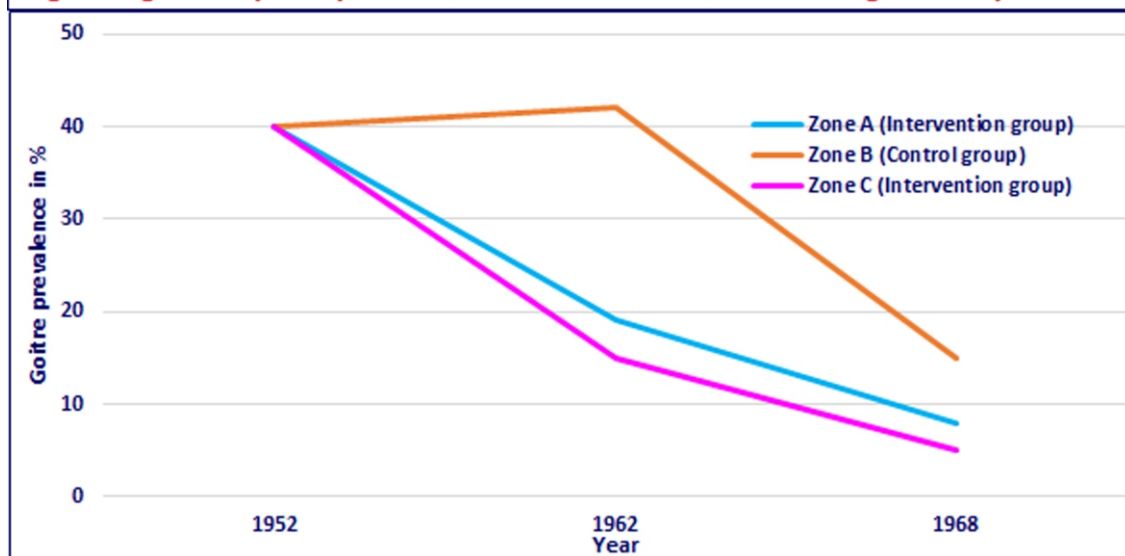
### *Phase 1: Scientific research leading to the launch of the programme (1956-1983)*

The useful findings of the Kangra Valley study led to the establishment of the NGCP in 1962 at the end of the second Five-Year Plan<sup>13</sup> (Figure 2). The focus of the NGCP was on districts that were endemic for IDDs. During this period, only 12 salt iodization plants were established, all in the public sector, with a total annual production of 0.2 million tonnes (mT). This was estimated to be only 15% of the requirement. During this phase, NGCP remained a low-priority health programme, because of its area-specific approach and a false perception that IDDs were merely a mild cosmetic problem restricted to the Himalayan region.

### *Phase 2: From goitre to IDD (1983-2000)*

New scientific evidence emerged from India and abroad, showing the significant impact of iodine deficiency on early brain development, cognition, and learning abilities of children<sup>14</sup>. The whole country was shown to be endemic for IDDs and very high prevalence rates for neonatal hypothyroidism were reported from some parts<sup>15</sup>. In 1983, at the Annual Meeting of the Central Council of Health, it was decided that all edible salt in India would be iodised by the year 1992. The private sector was allowed to setup salt iodization units<sup>16</sup>. In the light of these developments, the programme was modified in 1992 and renamed as NIDDCP with a renewed focus on USI. In 1997, the GoI notified a national ban on

**Fig 2 Kangra Valley Study and reduction in Total Goitre Rate during the study duration**



the sale of non-iodised edible salt. Because of these measures, the production of iodised salt rose from 0.2 mT 1986 to 4.4 mT in 2000<sup>17</sup>. National Family Health Survey (NFHS) 2 conducted in 1998-99 showed that the household consumption of iodised salt also increased, with 49% of all households consuming adequately iodised salt [15 parts per million (PPM)]<sup>18</sup>.

#### *Phase 3: Lifting the ban on sale of non-iodised salt (2000-2005)*

The ban on the sale of non-iodised salt for human consumption was lifted in September 2000<sup>19</sup>. Some of the factors responsible for this action were (i) the price differential between iodised and non-iodised salt; (ii) IDD being viewed as a problem affecting only a small section of the society; (iii) difficulties faced by salt producers under the PFA Act, 1954; (iv) politics and economics of liberalization in terms of the programme being labelled as run by multinational aid agencies and companies; and (v) the principle that people should be given a choice between consuming iodised salt or common salt. This policy change caused a decline in iodised salt production to 4.1 million tons in 2003 and resulted in a drop in the household coverage of iodised salt. The first national survey carried out after lifting of the ban was District Level Household Survey 2 carried out in 2002-2003. The survey reported household coverage of iodised salt had steeply declined to 30%. However, the ongoing advocacy efforts to increase household access to iodised salt did result in some improvement in household use of iodised salt. NFHS 3 conducted in 2005-2006, showed that the household access to adequately iodized salt increased to 51%<sup>21</sup>.

The lifting of the ban and consequent decline in household coverage with adequately iodised salt spurred the scientific community to undertake the task of generating scientifically valid information to address this challenge. An IDD survey conducted by the International Council for Control of Iodine Deficiency Disorder (ICCIDD) in seven states during the period 2000-2006 reported that IDDs remained endemic in these states. None of the states or Union

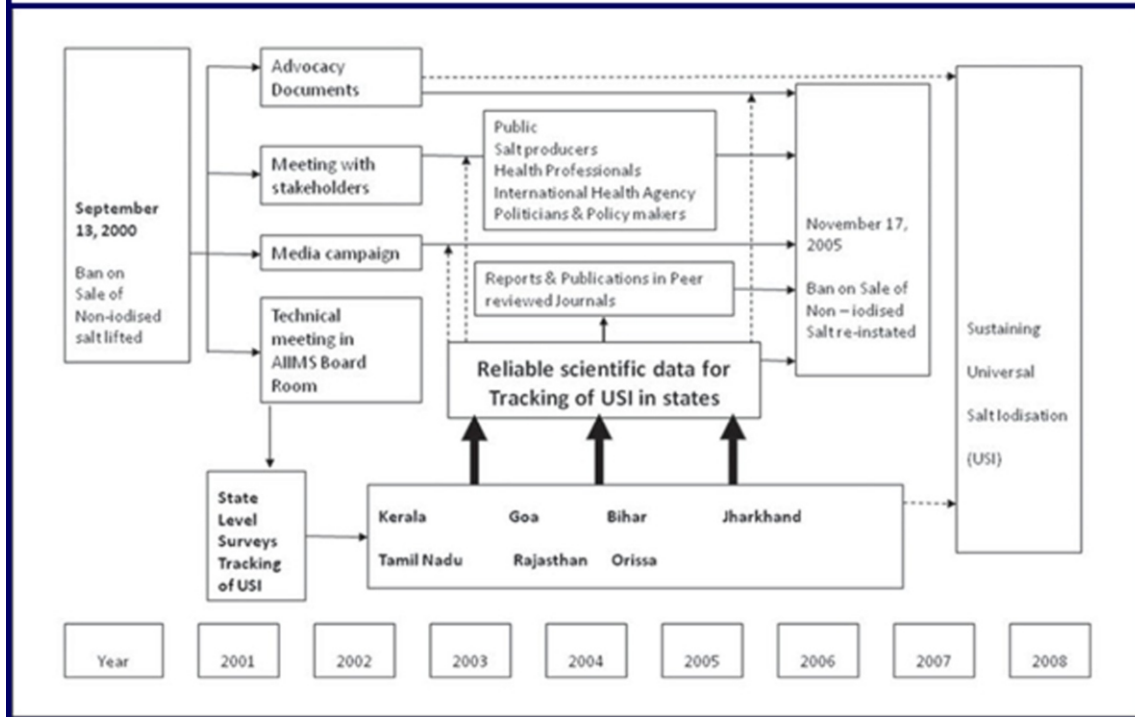
Territories was found to be free of IDDs. Intense advocacy was carried out involving all key stakeholders to address the claims made against the policy of USI (Figure 3).

#### *Phase 4: Reinstatement of ban on sale of non-iodised salt and consolidation of sustainable elimination of IDDs (Since 2005)*

In 2004, as a result of sustained advocacy and generation of evidence, the Core Advisory Group on Public Health and Human Rights of the National Human Rights Commission was asked to critically examine the public health consequences of lifting the ban on mandatory iodised salt for human consumption. The Core Advisory Group recommended that the USI is a public health need which should be implemented throughout the country without any relaxation or exemption in the ban on sale of non-iodized salt for human consumption. Consequent to this, the ban on the sale of non-iodised salt was reinstated in 2005. In the NFHS 3<sup>21</sup>, conducted in 2005-2006, the coverage of households with adequately iodised salt had risen to 51% and in NFHS 4<sup>22</sup> (2015-16) it is 93.1% (Figure 4).

Partnerships were developed among stakeholders for sustained advocacy and pushing the agenda of sustainable elimination of IDDs. The National Coalition for Sustained Iodine Intake (NCSII) was established in 2006. The partners included government departments, office of the Salt Commissioner of India, academic institutions, research organizations, salt producers, bilateral and multilateral developmental organizations, and civil society groups. Small and medium scale salt producers were encouraged so as to ensure capacity building and to improve the quality of iodised salt. Various innovative business models including introduction of iodised salt in the Public Distribution System are also being implemented to increase coverage with iodised salt. This multi pronged approach with supply and demand side interventions led to a quantum jump in the household coverage for adequately iodised salt in India. The iodised salt production also increased to 6.2 million

**Figure 3: Sustained advocacy efforts during period 2000-2005 for re-instatement of the ban on sale of non-iodised salt**



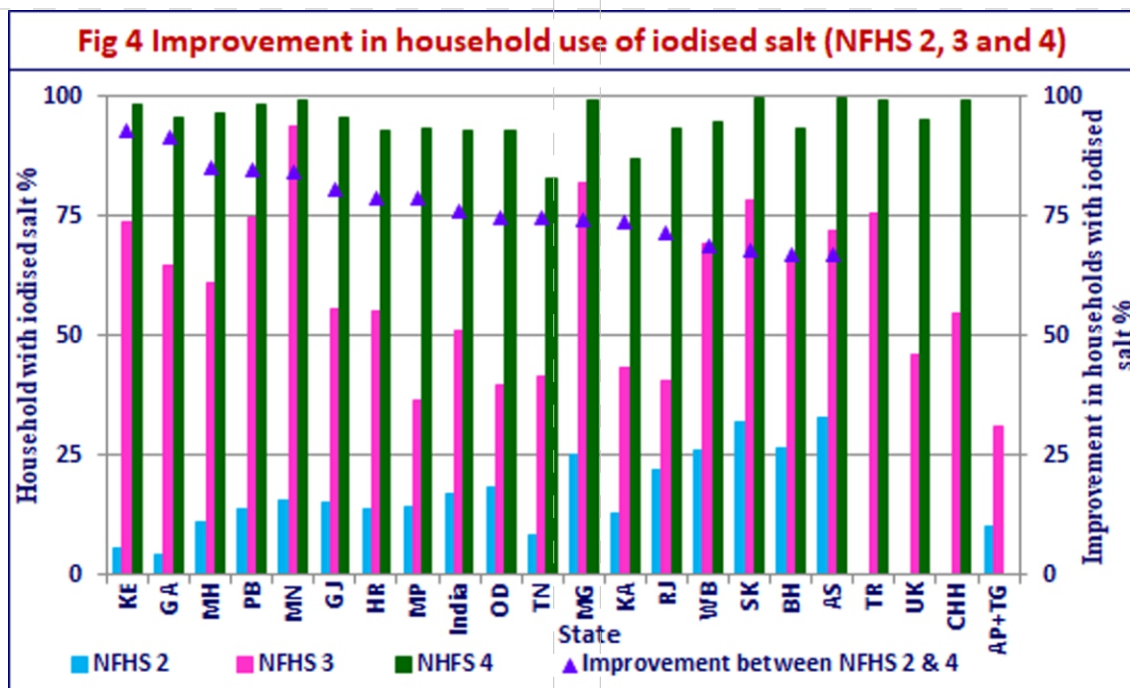
tons in the year 2014-2015. According to the National Iodine and Salt Intake (NISI) survey, 2014-2015, currently 78% of households in India are consuming adequately iodised salt. However, a significant percentage of the population continues to consume inadequately iodized salt (14%) or nil iodine salt (8%).

### Lessons Learnt

IDD control programme in India has been a success story in public health. We are within grasping reach of the target of USI, namely, greater than 90% household level coverage of adequately iodised salt. India has been at the forefront of global efforts in this area by contributing to research and programmes for the elimination of IDD. NGCP was one of the earliest national programmes dedicated to the elimination of IDD. The factors responsible for the successful evolution of IDD control programme in India may be relevant to the implementation of other health programmes in the country or even to other programmes related to the social sector. The experience and lessons learned may be useful to other countries as well. The following factors were critical for achieving success for the IDD control programme in India:

- Generation of regular, representative, and reliable scientific data - Such data are required at the state and national levels for development of effective and efficient policy and programmes and effective advocacy. From the Kangra Valley study (1956-72) to the National Iodine and Salt Intake Survey (2014-15), the generation of evidence has been an iterative process in India and has continually provided inputs for policy and programmes.

- Stakeholder analysis and development of partnerships - Development of partnership among various stakeholders viz. government institutions, academic institutions, international and national non-governmental organizations, civil society organizations, and salt producers helped in sustaining efforts towards achieving USI and elimination of IDD.
- Institutional continuity and mentorship for achievement of sustainability - Active involvement of the All India Institute of Medical Sciences, New Delhi in the IDD control programme provided institutional continuity and allowed mentorship for generations of researchers and workers in the field of IDD.
- Addressing the value systems of the stakeholders - Neglect of "values" by the policy makers can lead to serious setbacks to programme implementation, as seen in the case of NIDDCP. Addressing these issues through sustained advocacy led to lifting of the ban on non-iodised salt and improvement in household coverage with adequately iodised salt.
- Legislation for achieving public health goals - The PFA Act 1954 and its successor, the Food Safety and Standards Act 2006 which prevents the sale of non-iodised salt for human consumption, were instrumental in creating an enabling environment for achieving USI in India.
- Involvement of private sector in public health efforts - Cooperation from the salt industry is one of the main factors in achieving high coverage with adequately iodised salt.



Engagement with medium and small scale salt producers and focus on improvement in quality of iodised salt through maintenance of quality assurance have been important reasons for improved household coverage with adequately iodised salt.

#### Current status

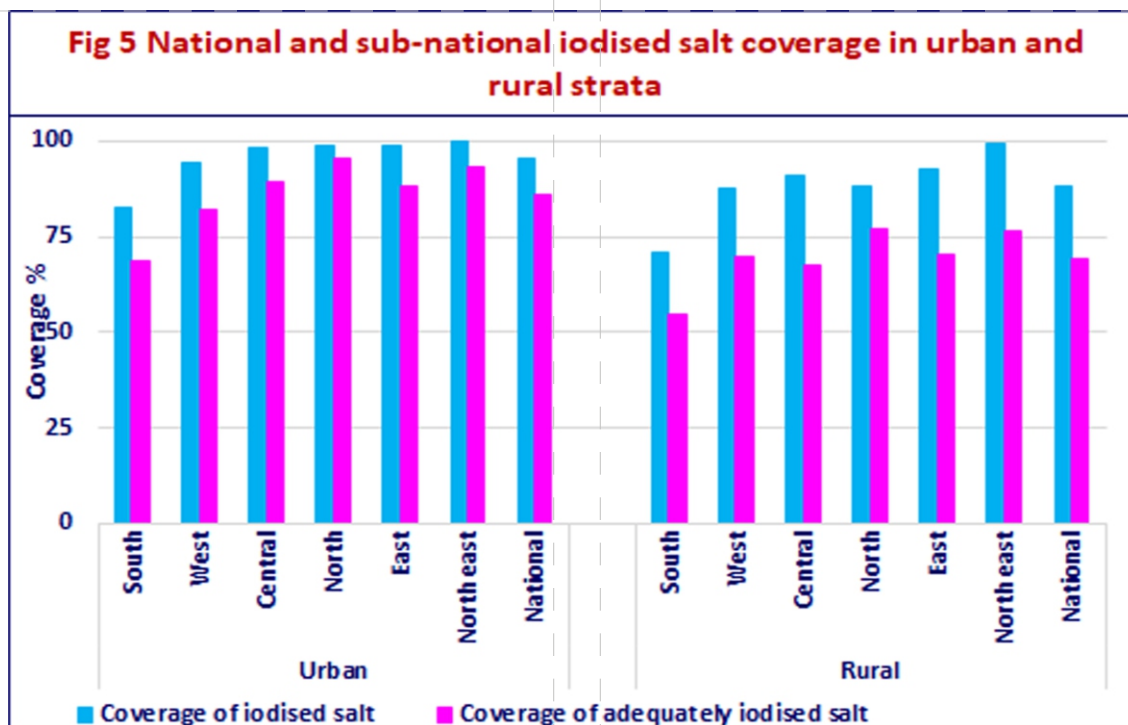
The results of recently concluded surveys have shown significant sub-national differentials in iodized salt coverage. National Iodine and Salt Intake Survey (NISI) 2014-15 reported the IDD status in India desegregated by geographical zones, rural-urban areas and socio-economic status. There was a 17 percentage point differential between urban and rural populations and 10 percentage point differential between deprived and non-deprived households (Figure 5). The south zone (adequately iodised salt coverage only 62%) of India comprising the states of Andhra Pradesh, Karnataka, Kerala, Tamil Nadu and Telangana, continues to have coverage below the national level. There is need to address these observed differentials if the country is to achieve USI in the near future.

The Key recommendation for ensuring sustainable elimination of IDD from India are as follows:

- **Accelerate, achieve and sustain USI**  
India is within striking distance of achieving USI and sustainable elimination of IDD. The need of the hour is to accelerate, achieve USI at national level and sustain the elimination of IDD.
- **Establishing partnerships at national and state levels to promote USI**  
Strong Government leadership and coordination among all stakeholders, which have been a cornerstone of the programme's success so far, should be maintained. The success of the National Coalition for Sustained Optimal Iodine

Intake(NCSOII) and USI coalitions in Bihar, Gujarat, Rajasthan and Uttar Pradesh highlights the key roles of all stakeholders in USI. These partnerships should be sustained, strengthened and, most importantly, replicated in other states as well. The initial stages of formation of district USI coalitions in 12 leading salt producing districts of the country (accounting for 90% iodised salt production) should also be accelerated.

- **Consolidation, modernisation and mechanisation of the salt industry**  
The salt industry in India has undergone rapid modernisation and mechanisation in the past few decades and has been one of the key drivers of success of the USI programme. There is further need to consolidate, modernize and mechanise the salt industry to ensure the availability of good quality, affordable, adequately iodised salt across India.
- **Strengthening quality assurance of salt iodisation at production level**  
Experience across the globe and in India has shown that strengthening quality assurance of salt iodisation at the point of production is the most efficient way to achieve and sustain USI. There is a need to strengthen quality assurance at production facilities in India particularly in the southern states.
- **Strengthening enforcement of regulations dealing with mandatory salt iodisation**  
The provisions of the Food Safety and Standards Act (FSSA), 2005, regarding mandatory iodisation of all edible salt needs to be implemented with zero tolerance for non-compliance. The significant augmentation of infrastructure and human resources under the Act needs to be optimally harnessed to ensure stringent implementation of the provisions of the Act. The success achieved in special campaigns on salt iodisation by a few



states in India (UP, Bihar, and Gujarat) needs to be replicated in other states of the country.

- **Strengthening the supply chain of iodised salt**

The non-availability of good quality affordable salt due to supply chain bottle necks may be partly responsible for the zonal differences in the iodised salt coverage. Reforms in iodised salt transportation policy are required to facilitate availability of good quality, affordable iodised salt in all regions of the country.

- **Universalization of iodised salt in the PDS**

There have been several successful pilot programmes of making available as well as generating demand for low cost, good quality adequately iodised salt through PDS in the country. This approach should be universalised across the country to reach the most marginalised populations.

- **Advocacy to increase awareness of the linkage between iodine nutrition and brain development**

A Behaviour Change Communication (BCC) strategy focussing on promoting awareness regarding the linkage between iodine nutrition and iodised salt needs to be developed and implemented (In conjunction with salt processors and distributors by including messages on packaging and advertising materials).

- **Conduct periodic national and sub national (regional and state) USI surveys**

The 2014-15 national survey highlighted the differentials in iodised salt coverage across zones, rural-urban and socio-economic strata. It is important to conduct sub-national and state level USI surveys to build on this new evidence base so as to further understand the determinants of these differentials and

to develop a strategy to address them.

- **Establishing a network of production centres and consumer-end laboratories**

The existing system for quantitative estimation of iodine content of salt needs to be strengthened. It includes the Salt Commissioner Office Laboratory and Salt producer's laboratories at the production end, and the FSSAI and state IDD cells at the consumer end. The novel experiment to establish laboratories for quantitative analysis of salt iodine levels by salt traders (INAKS, Bihar) and in state medical colleges (USI laboratories in UP and Bihar) should be replicated in other states of the country as well.

- **Ensuring optimal iodine nutrition in pregnant women**

Though the survey was not powered to estimate iodine intake by pregnant women, the findings of the survey do provide an indication that the iodine status among pregnant women is sub-optimal. There is a need to undertake research on ascertaining iodine intake in pregnant women in India and to develop appropriate strategies to ensure achieving optimal iodine nutrition for them.

- **Focus on salt producing districts of India**

Production and distribution of good quality iodised salt are critical determinants for universal household coverage with adequately iodised salt. Only three states of India account for more than 90% of the iodised salt production; and in these 3 states 10 districts account for more than 95% of production of iodised salt. Iodised salt from these salt producing areas is transported by rail or roadways depending upon several factors. With the winding up of the Salt Commissioner's Office, the production end monitoring of the salt transported by railways is

also likely to be affected. The salt transported by road continues to be sub-optimally regulated, as no focal agency is responsible to ensure its quality. The district level USI Committees headed by the District Magistrates can be a possible option to ensure optimal regulation of salt iodization in these identified districts. However, past experience has been insufficient to give pointers with respect to constituting and operationalizing these district USI committees.

- **Harmonization of salt iodisation and salt reduction strategies**  
The survey shows high levels of per capita salt intake in the country. The salt intake estimates in surveys for women of reproductive age (WRA) should be used for tracking the progress of the salt reduction strategy in the country. The salt intake and iodine intake estimates of the survey will be useful for developing a strategy for harmonization of salt iodisation and salt intake reduction in the country.

### Conclusion

The IDD control programme is one of the success stories of public health in India. The current 92% household level coverage of iodised salt in India, of which 78% is adequately iodised salt, is a huge achievement. The USI programme in India is in a critical phase and its success needs to be sustained to prevent slip backs. The Government and all partner agencies are striving to develop an "end game strategy" to cover the last mile towards achieving USI. Different Government agencies including NITI Aayog and Food Safety Standard Authority, India (FSSAI) are collaborating to achieve USI at the earliest. There is a need to ensure synchronization among all key stakeholders for developing an action plan for achieving the "the last mile" and also to ensure ownership of the time bound action plan by one of key stakeholders, preferably NITI Aayog. Achieving sustainable elimination of IDD's will require coordinated efforts; what is required now is a "mission approach" with effective and efficient coordination amongst all stakeholders to achieve the goal of IDD control in the very near future and sustain it thereafter.

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### References

1. World Health Organization, United Nations Children's Fund, International Council for Control of Iodine Deficiency Disorders. Assessment of iodine deficiency disorders and monitoring their elimination: A guide for programme managers, 3rd ed. Geneva: WHO; 2007. p. 1
2. World Summit for Children-Mid Decade Goal: Iodine Deficiency Disorders. UNICEF-WHO Joint Committee on Health Policy. Geneva, United Nations Children's Fund, World Health Organization (JCHPSS/94/2.7); 1994.

3. Hoddinott J, Rosegrant M, Torero M. Challenge Paper: Hunger and Malnutrition. Copenhagen Consensus Centre. Copenhagen. (2012). Available from : <http://www.copenhagenconsensus.com/Projects/CC12/Research/HungerMalnutrition.aspx>. [Last accessed on 2013 Mar 13].
4. Chandrakant S Pandav, Kapil Yadav, Harshal R Salve, Rakesh Kumar, Akhil D Goel and Arijit Chakrabarty. High national and sub-national coverage of iodised salt in India – evidence from first National Iodine and Salt Intake (NISI) Survey 2014-2015. Public Health Nutrition. doi:10.1017/S1368980018002306. (Accepted for publication)
5. Kimball OP. History of the prevention of endemic goitre. Bull World Health Organ 1953;9:241-8.
6. Soodh SS, Deo MG, Karmarkar MG, Kochupillai N, Ramchandran K, Ramlingaswamy V. Prevention of endemic goitre with iodised salt. Bull World Health Organ 1973;49:307-12.
7. Pandav CS, Kochupillai N, Karmarkar MG, Nath LM. Iodine deficiency disorders in India: Review of control measures. Indian Pediatr 1986;23:325-9.
8. Gazette of India. Ministry of Health and Family Welfare. GSR 670 (E) 1997. New Delhi; 27 November, 1997.
9. Gazette of India. Ministry of Health and Family Welfare. GSR 716(E) 2000. New Delhi. 13 September, 2000.
10. Gazette of India. Ministry of Health and Family Welfare. GSR 670(E) 2005. New Delhi. 17 November, 2005.
11. Supreme Court of India. Civil Writ Petition No. 80/2006 (2011). Academy of Nutrition Improvement and Ors.Vs. Union of India. Available from: <http://judis.nic.in/supremecourt/CaseRes1.aspx>. [Last accessed on 2013 Mar 4].
12. Food Safety and Standards Authority of India (2011). Food Safety and Standards (Prohibition and Restriction on sales) Regulation, 2011; New Delhi.
13. Pandav CS, Kochupillai N, Karmarkar MG, Nath LM. Iodine deficiency disorders in India: Review of control measures. Indian Pediatr 1986;23:325-9.
14. Qian M, Wang D, Watkins WE, Gebiski V, Yan YQ, Li M, et al. The effects of iodine on intelligence in children: A meta-analysis of studies conducted in China. Asia Pac J Clin Nutr 2005;14:32-42.
15. Kochupillai N, Pandav CS, Godbole MM, Mehta M, Ahuja MM. Iodine deficiency and neonatal hypothyroidism. Bull World Health Organ 1986;64:547-51.
16. Pandav CS, Kochupillai N, Nath LM. National policy on endemic goitre--harbinger of national policy on nutrition. Indian J Pediatr 1984;51:277-82.
17. Salt Commissioner of India. Annual Report 2000-2001, Office of the Salt Commissioner of India. Salt Department, Ministry of Commerce and Industry, Government of India, Jaipur; 2001.
18. International Institute for Population Sciences (2000). National Family Health Survey (NFHS-2) 1998-99: India. Mumbai: IIPS; 2000.
19. Gazette of India. Ministry of Health and Family Welfare. GSR 716(E) 2000. New Delhi. 13 September, 2000.
20. International Institute for population Sciences (IIPS). District Level Household Survey (DLHS-2), 2002-04: India. Mumbai: IIPS; 2006.
21. International Institute for Population Sciences. National Family Health Survey (NFHS-3) 2005-06: India. Mumbai: IIPS; 2007
22. International Institute for Population Sciences. National Family Health Survey (NFHS-4) 2015-16: India. Mumbai: IIPS; 2017

## NUTRITION NEWS

NIN Centenary Year: The National Institute of Nutrition, Hyderabad, is celebrating its centenary year (2017-18) with several activities under the theme “Empowering the nation through nutrition”.

At the close of the Centenary year, NIN is organising the Second International NIN Centenary Conference with the theme “Aligning food systems for healthy diets and improved nutrition”. The conference will take place from 11<sup>th</sup> to 13<sup>th</sup> November, 2018 at the NIN Auditorium, Hyderabad, India.

Three pre-conference workshops will also be organized

1. FAO/INFOODS training workshop on “Food Composition”
2. IUNS Task Force Workshop on “Sustainable diet through indigenous food system”
3. Workshop on “Writing and publishing scientific papers”

The details of the conference can be accessed from the website: [www.ninindis.org](http://www.ninindis.org)

**NSI Conference:** The Golden Jubilee Conference of the Nutrition Society of India (50<sup>th</sup> Annual Conference) will be held at National Institute of Nutrition, Hyderabad from 15<sup>th</sup> to 17<sup>th</sup> November, 2018. The theme for the conference is “India’s Transition from Food Security to Nutrition Security”.

The following are the highlights of the conference:

- Two pre-conference workshops will be organized on 15<sup>th</sup> November, 2018
  1. WORKSHOP-I: ABC of Enteral and Parenteral Nutrition. Dr. Sarath Gopalan, Deputy Director, Nutrition Foundation of India, will coordinate the workshop.
  2. WORKSHOP-II: Sports Nutrition [Parallel sessions]
- 41<sup>st</sup> Gopalan Oration on “In search of modifiable susceptibility to diabetes in Indians: Story of a hungry Indian fetus” by Prof C.S. Yajnik, Director - Diabetes Unit, King Edward Memorial Hospital, Pune (15<sup>th</sup> November, 2018);
- 42<sup>nd</sup> Gopalan Oration on “50 years of dietary fibre” by Professor John H Cummings, Emeritus Professor of Experimental Gastroenterology, University of Dundee, School of Medicine, United Kingdom (16<sup>th</sup> November, 2018);
- 30<sup>th</sup> Dr Srikantia Memorial Award Lecture on “Food and Nutrition Security as Fundamentals of Human Development: National Perspective International Agenda” by Dr Biplab K. Nandi, Senior Food and Nutrition Officer (Retd), FAO Regional Office for Asia and the Pacific, Bangkok, Thailand and President, Society for Nutrition, Educational and Health Advancement (SNEHA), Kolkatta (16<sup>th</sup> November, 2018);
- 9<sup>th</sup> Dr. Rajammal P Devadas Memorial Award on Maternal Nutrition and Placental Programming: Implications for Long Term Health” by Dr Sadhana Ramachandra Joshi, Professor and Head, Mother and Child, Interactive Research School for Health Affairs (IRSHA), Bharati Vidyapeeth Deemed University, Pune. (17<sup>th</sup> November, 2018);

- Debate on “Inclusion of Millets in Supplementary Feeding Programmes for Children”;
- Symposia on “Leveraging Agriculture for Nutrition”;
- Junior & Senior Young Scientists Award Sessions;
- Free Communication Sessions - Oral and Poster presentations;
- Exhibition - Food industry / Analytical equipments.

The details of the conference can be accessed from the website: [www.nutritionfoundationofindia.org](http://www.nutritionfoundationofindia.org)

## FOUNDATION NEWS

The year 2018 is a very important one for the nutrition research community in India. The National Institute of Nutrition, Hyderabad is celebrating its centenary; Dr. C. Gopalan “The Father of Nutrition Science in India” is celebrating his birth centenary, and the Nutrition Society of India, is celebrating its Golden Jubilee.

To commemorate these significant events, the Indian National Science Academy is bringing out a thematic issue of the Proceedings of the Indian National Science Academy on “Dual Nutrition Burden in India: challenges and opportunities”. The issue carries articles contributed by eminent nutrition scientists to document:

- elimination of severe forms of under-nutrition and nutritional deficiencies and reduction in moderate under-nutrition,
- persistence of chronic moderate under-nutrition and anaemia
- rising trends in the prevalence of over-nutrition and obesity in all age groups in India.

The strategies for the prevention, detection and management of both under- and over-nutrition which will enable the country to achieve the nutrition targets of the Sustainable Development Goal by 2030 are discussed in these articles.

Dr. Prema Ramachandran, Director, Nutrition Foundation of India is the Guest Editor for this issue. NFI has contributed two research articles and one review article for the issue.

The Nutrition Foundation of India (NFI) will be celebrating its Foundation Day on 26.11.2018. Dr Mahtab S Bamji, Retired Director Grade Scientist, National Institute of Nutrition, Hyderabad, and currently INSA Emeritus Scientist, Dangoria Charitable Trust, Hyderabad, will deliver the C Ramachandran Memorial Lecture at NFI C Ramachandran Lecture Hall.

To celebrate 100<sup>th</sup> birthday of Dr C Gopalan, Nutrition Foundation of India is organising the “Dr C Gopalan Centenary Symposium” on 27.11.2018. The theme of this national symposium is “India’s Tryst with SDG Nutrition Targets”. The symposium is being organised in collaboration with the National Academy of Medical Sciences, and will be held in the Kamla Raheja Auditorium, NAMS House, New Delhi. Eminent scientists from different parts of the country will be participating in the symposium and delivering lectures on various aspects of this important theme. The Symposium will be transmitted live to other academic institutions through National Knowledge Network; participants from these centres will be able to interact with the speakers at NAMS auditorium live and in real time.