



सत्यमेव जयते

# REVISED POLICY GUIDELINES ON NATIONAL IODINE DEFICIENCY DISORDERS CONTROL PROGRAMME

Revised Edition- October 2006



IDD & NUTRITION CELL  
DIRECTORATE GENERAL OF HEALTH SERVICES  
MINISTRY OF HEALTH & FAMILY WELFARE  
GOVERNMENT OF INDIA  
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## FOREWORD

Iodine Deficiency Disorders (IDD) is an important Public Health of the world today.

Iodine is an essential micronutrient required for normal body growth and mental development. Nutritional Iodine Deficiency reckons its impact right from development of the foetus to all ages of human beings. It could result in abortion, stillbirth, mental retardation, deaf-mutism, squint, dwarfism, goitre, neuromotor defects etc. Iodine deficiency thus, directly affects human resource development which in turn greatly influences the human productivity as well as national development.

There is an increasing evidence of widespread distribution of environmental iodine deficiency not only in the Himalayan region but also in the plains, riverine areas and even the coastal regions. Surveys conducted by various Institutions in the country have revealed that out of 324 districts surveyed in 28 States and 7 Union Territories, 263 districts are endemic to iodine deficiency disorders where the prevalence is more than 10 per cent. About 1.5 billion population of the world is at risk of iodine deficiency disorders, out of which more than 200 million are in India alone

Most of the disorders of Nutritional Iodine Deficiency except certain types of goitre are irreversible and permanent in nature. However, they can be easily prevented before they occur by regular consumption of iodated salt. The production capacity of iodated salt is 124 lakh tonnes per annum against the requirement of 50 lakh tonnes for human consumption.

National Iodine Deficiency Disorders Control Programme (NIDDCP) is being implemented in order to prevent, control and eliminate these disorders and to provide assistance to the States for setting up IDD Cell and IDD monitoring laboratories for ensuring quality control of iodated salt and for monitoring urinary iodine excretion. Surveys of IDD and health education activities are also supported through the Programme.

I am glad that Nutrition & IDD Cell of the Directorate General of Health Services is bringing out the publication entitled "Revised Policy Guidelines on National Iodine Deficiency Disorders Control Programme". This contains various aspects of iodine deficiency disorders control programme, new IDD survey guidelines, laboratory methods for analysis of salt and urine, collection and dispatch of iodated salt and urine samples from districts to IDD monitoring laboratory, proforma for monthly report etc. I am sure that this publication will be extremely helpful in providing guidelines for effective implementation of the National Iodine Deficiency Disorders Control Programme in the country and the monitoring of compulsory iodization of salt for the direct human consumption with effect from 17th May, 2006.



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## PREFACE

Nutritional iodine deficiency is a geochemical environmental problem.

Iodine Deficiency Disorders (IDD) continue to pose a serious threat to the health, well-being, economic productivity and advancement of several hundred million people throughout the world. The sad reality is that people living in iodine deficient environment and consuming only locally grown food suffer from reduced mental abilities and are at a considerable risk of producing cretins as offsprings. All these conditions have profound implications for the individual and the family and impose significant economic burden on the community at large.

IDDs have been in existence since centuries yet continue to be a major problem in our country. Their effect is hidden and profound. These disorders are not fatal hence have not attracted the desired public attention. It is now known that one out of every five people in our country lives in identified iodine deficient areas and is at the risk of being affected by IDDs. Surveys conducted by the Directorate General of Health Services, State Health Directorates, Indian Council of Medical Research, Health Institutions etc. have clearly demonstrated that not even a single State/UT is free from the problem of iodine deficiency disorders.

IDDs are caused by lack of iodine in diet and can range from goitre, mental retardation, physical sub-normalities neuromotor defects etc. The majority of these disorders are permanent and incurable. However each one of them is completely preventable. Iodated salt consumed daily offers complete

protection against all IDDs. The average consumption of iodated salt per person per day is about 10 grams which is a moderate amount.

Our country is self-sufficient in production of iodated salt, having a capacity of 124 lakh tonnes per annum. 824 private iodated salt manufactures have been permitted by the Salt Commissioner, Ministry of Industry. The production of common salt in the country is more than 200 lakh tonnes per annum. At present the annual requirement of iodated salt for the entire population of the country is about 50 lakh tonnes per annum and the production during the year 2005-06 was 49.83 lakh tonnes.

National Iodine Deficiency Disorders Control Programme (NIDDCP) formerly known as National Goitre Control Programme (NGCP) is being implemented from 1962. The Central Council of Health and Family Welfare in 1984 decided to implement compulsory iodisation of salt for human consumption in the entire country. The Programme started in a phased manner with effect from 1st April, 1986.

Revised Policy Guidelines on National Iodine Deficiency Disorders Control Programme have been prepared, based on the Policy decisions taken so far and after a through discussions held among the experts of country including the Indian Council of Medical Research, All India Institute of Medical Sciences (AIIMS), New Delhi, Institute of Nuclear Medicine and Applied Sciences (INMAS), Delhi, Directorate of Health Services of States and Union Territories, International Experts from World Health

Organization (WHO), United Nations International Children's Fund (UNICEF), at the National workshop on National Iodine Deficiency Disorders Control Programme (NIDDCP) held at Vigyan Bhavan, New Delhi in February 2004. Further, the efforts made by Shri R.L. Mathur, Research Officer (IDD) and other staff members of IDD and nutrition cell of the Directorate in the preparation of the revised policy guidelines on NIDDCP are highly appreciated.

The instant booklet on the revised Policy Guidelines on NIDDCP gives complete information about the major achievements made so far and various aspects of the Programme in respect of new IDD survey guidelines suggested by the Indian Council of Medical Research, monitoring of iodine content of salt at production and consumption level, District level collection and dispatch of iodated salt and urine samples for IDD Monitoring Laboratory,

staff sanctioned for IDD Cell and Monitoring Laboratory of States/UTs, staff sanctioned for salt Commissioner's Organization, Information, Education and Communication (IEC) strategies, etc. It is hoped that this revised booklet may be helpful in implementation of National Iodine Deficiency Disorders Control Programme (NIDDCP) in order to achieve the goal set up under the Programme.

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# IODINE DEFICIENCY DISORDERS

## Introduction

Iodine is an essential micro nutrient. It is required at 100-150 micrograms daily for normal human growth and development. The disorders caused due to deficiency of nutritional iodine in the food/diet are called Iodine Deficiency Disorders (IDDs).

Iodine Deficiency Disorders are a worldwide major public health problem. These affect a large segment of populations in all continents of our planet and have been with us from generation. As per information available, more than 1.5 billion people all over the world are at risk of IDD.



## Spectrum of IDD

Goitre is only the tip of the iceberg. Iodine deficiency results in physical and mental retardation. It affects people of all ages, both sexes and different socioeconomic status. It could result in abortion, stillbirth, mental retardation, deaf-mutism, dwarfism, squint, cretinism, goitre of all ages, neuromotor defects, etc. The various disorders associated with iodine deficiency are shown in annexure-1

## Magnitude of IDD in the Country

In our country, it is estimated that more than 200 million people are at risk of IDD,

while the number of persons suffering from goitre and other iodine deficiency disorder is above 71 million. The surveys conducted by the Central and State Health Directorates, Indian Council of Medical Research (ICMR) and Medical Institutes have clearly demonstrated that not even a single State/Union territory is free from the problem of IDD. Sample surveys have been conducted in 28 States and 7 Union Territories which have revealed that out of 324 districts surveyed so far, 263 districts are IDD endemic i.e. the prevalence of IDD is above 10 percent Annexure-II. There is significant reduction in visible goitre in the country.

## Iodine Deficiency Disorders and Human Resource Development

Iodine deficiency during pregnancy leads to decreased availability of iodine to the foetus. This, in turn, leads to the decreased synthesis of thyroxine, an essential hormone manufactured by the thyroid gland of the foetus. The decreased availability of thyroxine prevents the normal development of the foetal brain and body, a condition which at birth can be diagnosed with the help of sophisticated investigations and is known as Neonatal Chemical Hypothyroidism (NCH). Such foetal brain damage is permanent and irreversible and irrevocably limits intellectual growth in later years.



## Prevention is Better than Cure

It is a well established fact that with the exception of certain types of goitre, Iodine Deficiency Disorders are permanent and incurable. However, all these disorders can be easily prevented before they occur. The simplest method to prevent the broad spectrum of IDD is to consume iodated salt daily. This is the most effective and inexpensive mode to prevent IDD. The supply of iodated salt is to ensure availability of not less than 150 micrograms of iodine per person per day. Since salt is consumed by all everyday, the supply of iodated salt will ensure the availability of iodine for normal body function. The average consumption of iodated salt per person per day is about 10 gms. This consumption is in moderate amount.

## Control Programme

Realizing the magnitude of the problem, the Government of India launched a 100 per cent centrally assisted National Goitre Control Programme (NGCP) in 1962. In August 1992, the National Goitre Control Programme (NGCP) was renamed as National Iodine Deficiency Disorders Control Programme (NIDDCP) with a view to cover a wide spectrum of Iodine Deficiency Disorders like mental and physical retardation, deaf-mutism, cretinism, still-births, abortion etc

## Objectives

The important objectives and components of National Iodine Deficiency Disorders Control Programme (NIDDCP) are as follows:-

- 1 **Surveys to assess the magnitude of the Iodine Deficiency Disorders.**
- 2 **Supply of iodated salt in place of common salt.**
- 3 **Resurvey after every 5 years to assess the extent of Iodine Deficiency Disorders and the Impact of iodated salt**
- 4 **Laboratory monitoring of iodated salt and urinary iodine excretion.**
- 5 **Health education. & Publicity**

## Policy

It has been established that consumption of iodated salt is the best and simplest way to prevent and control IDD. Based on the recommendations of the Central Council of Health in 1984, the Government took a policy decision to iodate the entire edible salt in the country by 1992. The programme commenced in April 1986 in a phased manner. Since then our approach has been to enhance the production, demand and supply of iodated salt. The Central Government have issued the notification banning the sale of non-iodated salt for direct human consumption in the entire country with effect from 17th May, 2006 under the Prevention of Food Adulteration Act 1954.



## **Nodal Ministry**

The Ministry of Health & Family Welfare is the nodal Ministry for policy decisions on National Iodine Deficiency Disorders Control Programme (NIDDCP).

The Central Nutrition and Iodine Deficiency Disorders Cell at the Directorate General of Health Services (DGHS) is responsible for the implementation of NIDDCP in the country. The important activities being undertaken by the IDD Cell of the Directorate General of Health Services are as follows :-



- 1 Technical guidance to the States/UTs.**
- 2 Inter-sectoral co-ordination at Central level and maintenance of close liaison with the Ministry of Industry/Transport etc.**
- 3 Coordination of the various facets of NIDDCP in States/UTs**
- 4 Undertaking independent IDD surveys and monitoring in various States/UTs.**
- 5 Imparting training to the State Health Personnel, involved in NIDDCP.**
- 6 Collection, compilation and analysis of relevant data from**

**States/UTs with a view to render more effective and meaningful advice.**

- 7 Monitoring of the quality control of iodated salt at production level through the Salt Commissioner and at the distribution and consumer level through the State Health Directorate.**
- 8 Monitoring the procurement and distribution of iodated salt in States/UTs.**
- 9 Managing the IEC activities at apex level.**
- 10 Managing the financial and other physical aspects of State level IDD Cells.**

The Salt Commissioner's Office under the Ministry of Industry is responsible for licensing, production and distribution of iodated salt to States/UTs. This office is also responsible for monitoring the quality of iodated salt at production level and the distribution of the same in the country.

The Salt Commissioner, in consultation with the Ministry of Railways, arranges for movement of iodated salt from the production centers to the States/UTs on a priority basis.

### **State/Union Territory IDD Cell**

Each State Government has an IDD Control Cell which carries out periodic surveys regarding the prevalence of IDD and reports to D.G.H.S., Ministry of

Health & Family Welfare. These State Cells coordinate with the Central IDD Cell at the Directorate General of Health Services. The State IDD cell is responsible for:

- 1 **Checking iodine levels of iodated salt with wholesalers and retailers within the State and coordinating with the Food and Civil Supplies Department.**
- 2 **The distribution of iodated salt within the State through open market and public distribution system.**
- 3 **Creating demand for iodated salt.**
- 4 **Monitoring consumption of iodated salt.**
- 5 **Conducting IDD surveys to identify the magnitude of IDD in various districts.**
- 6 **Conducting training.**
- 7 **Dissemination of information, education and communication.**

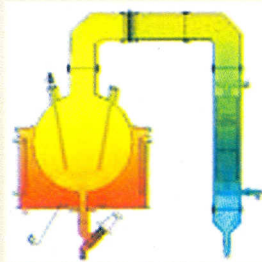


## **Achievements of the Programme**

Achievements made under the major components of the existing Programme from inception to date are as under:

- 1 **The policy regarding production of iodated salt has been liberalised, permitting production by the private sector. 824 private units have been licensed by the Salt Commissioner, out of which nearly 532 units have commenced production so far. These Plants have an annual production capacity of more than 124 lakhs MT against the present requirement of 50 lakh MT for the entire country.**
- 2 **The annual production of iodated salt was raised from 5 lakhs MT in 1985-86 to 49.83 lakh MT in 2005-06. This is expected to further rise to 50 lakh MT in the near future.**
- 3 **The Salt Commissioner, in consultation with the Ministry of Railways, arranges for the transportation of iodated salt from the production centers to the consuming states under priority category 'B'; a priority second to that of Defence.**
- 4 **To ensure the use of iodated salt the Central Government has issued the notification banning the sale of non iodated salt for direct human consumption in the country with effect from 17th May, 2006 under the Prevention of Food Adulteration Act 1954.**

- 5 Standards for iodated salt have been laid down under the prevention of Food Adulteration Act, 1954. These stipulate that the iodine content of salt at the production and consumption levels should be at least 30 and 15 ppm respectively.
- 6 Realizing the importance of iodine deficiency in relation with human resource development, NIDDCP has been included in the 20 Point Programme of the Prime Minister.
- 7 For effective monitoring and the proper implementation of the NIDDCP, the States and UTs have been advised to establish an IDD Control Cell in their State Health Directorates. The Central Government provides cash grants for this purpose. Presently, 31 States/UTs have established such Cells.
- 8 Cash grants are also provided by the Central Government for health education and publicity campaigns to promote the consumption of iodated salt.
- 9 The Nutrition and IDD Cell of the Directorate General of Health Services in association with the state level IDD Cell is conducting IDD surveys in all States and Union Territories and is imparting training to the recruited staff of States/UTs for the same. The state Governments are financially supported for undertaking such surveys.
- 10 A National Reference Laboratory for the monitoring of IDD has been set up at the Bio-chemistry and Biotechnology division of the National Institute of Communicable Diseases, Delhi, for training medical and paramedical personnel and monitoring the iodine content of salt and urine.
- 11 Four regional IDD monitoring laboratories at the National Institute of Nutrition Hyderabad for South, All India Institute of Hygiene & Public Health, Kolkata, for East & North East, All India Institute of Medical Sciences New Delhi for West and National Institute for Communicable Diseases, Delhi for North have been declared for imparting training to both medical and para medical personnel, monitoring the iodine contents of salt and, urine conducting Thyroid Function Tests (TFT) under the programme for the region.



- 12 Each State has been sanctioned one IDD monitoring laboratory for the monitoring of iodine content of salt and urinary iodine excretion which are the most effective tools for the proper implementation of the Iodine Deficiency Disorders Control Programme. The presence of trained manpower in management of IDD monitoring will greatly help in the smooth functioning of these laboratories. 21 States/UTs have established such laboratories
- 13 For ensuring quality control of iodated salt at consumption level, testing kits for 'on the spot' qualitative testing have been distributed to all the District Health Officers in endemic States for consumer level awareness about the presence of iodine in iodated salt.
- 14 For review of the technical aspects of NIDDCP, a Programme Implementation Committee under the chairmanship of Director General of Health Services has been constituted.
- 15 Since the NIDDCP encompasses integrated efforts of a large number of disciplines, the focus of programme activities has now shifted from a solely medical effort to multi-disciplinary participation. To ensure meaningful inter-sectorial coordination and other administrative actions, a Central Steering Committee has been set up under the chairmanship of the Secretary (Health & Family Welfare).

## Infrastructure for National Iodine Deficiency Disorders Control Programme at Central and State/UT level.

National Iodine Deficiency Disorders Control Programme at the Central level is being managed by Adviser (Nutrition) of the Directorate General of Health Services. An independent Nutrition & IDD Cell has been created under the Deputy Asst. Director General (IDD) with support of Research Officer (IDD) assisted by a team comprising a Technical Assistant, a Junior Investigator, Field Assistants, Field Attendants, a computer and other Ministerial staff.

For the effective implementation of NIDDCP, it was decided to establish independent IDD Control Cells in each State/UT Health Directorate during the Seventh Five year plan in phased manner. The objectives of the scheme are to supplement the resources of the States/UTs for augmentation of the staff and facilities of prototype material for supporting health education activities for the promotion of consumption of iodated salt under NIDDCP, for the effective control of Iodine Deficiency Disorders.

## Financial Assistance Pattern to States/UTs

Financial assistance is being provided to all the states/UTs in form of quarterly advance release of funds w.e.f. 2002-03 for various components under the programme.



## IDD cell

The pattern of staff for the IDD Control Cell at the State Health Directorate eligible for Central assistance shall be as follows:

Technical Officer (IDD)	one	Rs.6500-10500
Statistical Assistant	one	Rs.4500-7000
LDC/typist	one	Rs.3050-4590

The provision for salaries in respect to the staff to be provided under the scheme has been calculated on the basis of the pay scales as applicable to the Central Government employees as per Vth Pay Commission scales. The States/UTs have been advised to adopt the pay scales as applicable in their own States/UTs for identical posts.

During the VIII<sup>th</sup> Five Year Plan, it was also decided to set up IDD Monitoring Laboratories in each State with a view to effectively monitor the quality of iodated salt and the content of iodine in urine samples.

## IDD Monitoring Lab

For this purpose the state Governments have been provided with Central financial assistance for the following staff:

Laboratory Technician	one	Rs. 4000-6000
Laboratory Assistant	one	Rs.3200-4900

In addition, a contingent grant is also being provided for the maintenance of the laboratories.

## Health Education & Publicity

A grant for conducting health education activities in regional languages is being provided to IDD Control Cell under NIDDCP

## IDD Surveys

Financial assistance of Rs 25000 per district is being provided to State/UT IDD Control Cells for conducting surveys for assessing the magnitude of goitre and other IDD. The guidelines for IDD survey are given in Annexure -III

## Grant to Salt Commissioner's Organizations

The Ministry of Health & Family Welfare is providing financial grants to the Salt Commissioner's Organisation for the running and maintenance of nine quality control laboratories at the production level of iodated salt. The details of the staff are at Annexure-IV

## Current Status of Iodated Salt Production

Salt can be iodised with potassium iodide (KI) or potassium iodate (KIO<sub>3</sub>). However, the latter is preferred in our country's conditions, as it is very stable and its melting point is 530°C.

When potassium iodate is used as iodising agent, the salt is called iodated salt.

The target and achievement of production of iodated salt from 1986 to date are given below:

## Production of Iodated Salt (in lakh MT)

Year	Target	Achievement
1986-87	7.00	7.73
1987-88	12.00	16.87
1988-89	22.00	22.00
1989-90	26.00	22.56
1990-91	40.00	25.04
1991-92	50.00	26.21
1992-93	50.00	28.34
1993-94	50.00	29.27
1994-95	50.00	29.22
1995-96	50.00	38.03
1996-97	50.00	41.00
1997-98	50.00	40.23
1998-99	50.00	40.17
1999-2000	50.00	46.16
2000-2001	50.00	45.35
2001-2002	50.00	41.89
2002-2003	50.00	36.38
2003-2004	50.00	42.32
2004-2005	50.00	46.10
2005-2006	50.00	49.83

## Standards of Iodated Salt

The standards for iodated salt under the provisions of the Prevention of Food Adulteration Act and the rules prescribed there under are as follows:

Iodated salt means a crystalline solid, white, pale pink or light grey in colour, free from visible contamination such as clay, grit and other extraneous adulterants and impurities. It shall conform to the following standards, namely:

Moisture	Not more than 6.0% by weight of the sample salt
Sodium Chloride	Not less than 96.0% by weight on dry basis
Matter insoluble in water	Not more than 1.0% by weight on dry basis
Matter soluble in water other than Sodium Chloride	Not more than 3.0% by the weight on dry basis

### Iodine content at:

a. Manufacturing Level	Not less than 30 parts per million (ppm) on dry weight basis
b. Distribution level	Not less than 15 parts per million on dry weight basis.

Provided that table iodated salt may contain aluminum silicate as an anticaking agent to an extent of 2.0% by weight.

Provided further that the total matter insoluble in water in such cases shall not exceed 2.2% and sodium chloride content on dry basis shall not be less than 97.0% by weight.

## Packing of Iodated Salt

The iodated salt manufacturers have been directed to pack iodated salt only in HDPE or polythene-lined jute bags of permitted capacity i.e. 50 Kg for bulk

quantity and in polythene pouches of 500 gms /1000 gms for retail packing with the following legend on it:

- \* Name of manufacturer
- \* Month and year of packing
- \* Iodine content (when packed)
- \* Net weight
- \* Batch number



### **Safety of Iodated Salt Consumption**

The minimum suggested dose of iodine supplementation is 100-150 µg per day to prevent the occurrence of IDD. In Japan, the average per capita daily intake of iodine has been reported at 1000 µg. This is 10 times more than the recommended intake of iodine in our country. As per the WHO report, a safe daily intake of iodine should be in between a minimum of 50 µg and a maximum of at least 1000 µg. Since iodine, when taken in a large quantity, is easily excreted through the kidney into urine, the consumption of iodated salt is absolutely safe for each and everyone.

### **Measures Taken for Improving Quality of Iodated Salt**

- \* Training of Laboratory Technician of IDD Monitoring Laboratories of States/UTs.
- \* Prescribing the labelling standards for iodated salt.
- \* Establishment of Iodated Salt Test Laboratories at different production centres in the country.

- \* Discouraging the production of large crystals of Bargara salt for edible use which cannot be iodated uniformly.
- \* Sensitizing iodated salt manufacturers about their role in quality monitoring.

### **Intersectoral Coordination Committee**

- \* A Central Steering Committee under the Chairmanship of the Secretary, Health & Family Welfare has been constituted with an overall objective of reviewing existing policy on combating IDD and formulating a plan of operation.
- \* A Programme Implementation Committee under the chairmanship of the Director General Health Services, has also been constituted to assess implementation status, monitoring and evaluation of the programme.
- \* Appropriate representation has been made from all relevant sectors on both the Committees with the Adviser (Nutrition) as Convener.

## Information, Education and Communication (IEC)

To intensify the IEC activities, a communication package having the following highlights has been finalized:-

- \* Radio/TV spots have been prepared and their broadcast/telecast is being carried out.
- \* A 10 minutes video film on IDD has been prepared and is being distributed to the States.
- \* Pamphlets have been developed for distribution to States & UTs.
- \* Posters depicting the various facets of IDD manifestation have also been prepared.
- \* Salt Testing Kits for the qualitative testing of iodated salt to show presence of iodine are being used for creating awareness among people, including those living in remote, rural areas and urban slums.
- \* IEC activities have also been intensified in coordination with the Song & Drama Division, Directorate of Field Publicity DAVP Doordarshan & AIR with a view to promote the consumption of iodated salt among the masses.

## Laboratory Monitoring of NIDDCP

There are three levels of Laboratory Monitoring of the NIDDCP. The primary level is the estimation of the iodine content of salt by the titration method. The details of the titration method are shown in Annexure-V.

The secondary level of monitoring is the estimation of urinary iodine excretion for the bio-availability of iodine. The details of the procedure for estimation of iodine in urine sample are shown in Annexure-VI.

The tertiary level of laboratory monitoring is the neonatal scanning for thyroid stimulating hormones.

## Problems /Constraints

The major problems /constraints of the programme are as follows:-

- \* *Need for establishing IDD Control Cells in the remaining States/UTs.*
- \* *Slow progress in setting up of IDD Monitoring Laboratories for estimation of iodine content of salt by the titration method and urinary iodine excretion in the remaining States/UTs.*
- \* *It is necessary to improve the enforcement of quality control of iodated salt supplied to the consumer by the State/UT Governments by allocating more resources and deploying trained manpower.*
- \* *Completion of IDD surveys in remaining districts.*
- \* *Greater emphasis is required to be given to the creation of awareness about IDD and consumption of iodated salt for prevention of IDD.*
- \* *Intensive training of medical/paramedical personnel is required for the implementation of NIDDCP.*

## Goal

The Government's goal of NIDDCP is to reduce the prevalence of iodine deficiency disorders below 10 per cent in the entire country by 2012 A.D



Foetus	Abortions
	Still births
	Congenital Anomalies
	Increased Perinatal Mortality
	Increased Infant Mortality
	Neurological Cretinism
	mental deficiency
	deaf mutism
	spastic diplegia
	squint
Neonate	Myxedematotous Cretinism
	dwarfism
	mental deficiency
	Psychomotor defects
Child and Adolescent	Neonatal Goiter
	Neonatal Hypothyroidism
Adult	Goitre
	Juvenile Hypothyroidism
	Impaired mental function
	Retarded physical development
Adult	Goitre with its complication
	Hypothyroidism
	Impaired mental function

**Prevalence of IDD and status of NIDDCP in  
Different States/UTs of India**

**Annexure-II**

**Statement showing the number of Districts surveyed & found endemic**

<b>State/UT</b>	<b>Total. Districts</b>	<b>Distt. Survey</b>	<b>Endemic</b>	<b>IDD Cell</b>	<b>IDD LAB</b>
Andhra Pradesh	23	12	11	Yes	No
Arunachal Pradesh	11	11	11	Yes	Yes
Assam	23	18	14	Yes	No
Bihar	37	14	14	Yes	No
Chhatisgarh	16	2	2	No	No
Goa	2	2	2	Yes	No
Gujarat	25	16	8	Yes	Yes
Haryana	19	11	10	Yes	Yes
Himanchal Pradesh	12	10	10	Yes	Yes
Jammu & Kashmer	15	14	14	Yes	No
Jharkhand	18	9	8	NO	No
Karnataka	27	20	6	Yes	Yes
Kerala	14	14	12	Yes	Yes
Madhya Pradesh	45	14	14	Yes	No
Maharashtra	35	29	21	Yes	Yes
Manipur	9	8	8	Yes	Yes
Meghalaya	7	4	4	Yes	Yes
Mizoram	8	3	3	Yes	Yes
Nagaland	8	7	7	Yes	Yes
Orissa	30	8	7	Yes	Yes
Punjab	17	3	3	Yes	No
Rajasthan	31	4	4	Yes	No
Sikkim	4	4	4	Yes	Yes
Tripura	4	3	3	Yes	Yes
Tamil Nadu	29	29	18	Yes	Yes
Uttar Pradesh	71	29	23	Yes	Yes
Uttranchal	13	9	9	Yes	Yes
West Bangal	18	5	5	Yes	No
Andaman & Nicoba Islands	2	2	2	Yes	No
Chandigarh	1	1	1	Yes	Yes
Daman & Diu	1	1	1	Yes	Yes
Dadar & Nagar Haveli	1	1	1	Yes	Yes
NCT Delhi	1	1	1	Yes	No
Lakshadweep	1	1	0	No	Yes
Pondicherry	4	4	2	No	No
<b>Total</b>	<b>582</b>	<b>324</b>	<b>263</b>		

## Guidelines for District IDD Survey

### Survey Method

The IDD survey at the District may be conducted by using the method of Population Proportionate to Size ( PPS ) sampling in the age group of 6- 12 years children.

### OPERATIONAL MANUAL FOR DISTRICT IDD SURVEY

Selection of villages / wards by PPS

Get the list of villages/ wards alongwith the population for the latest census. The data are available for all districts of the country on CD from Registrar General Office.

Using the list of villages/wards , prepare the following table

S.No	Name of villages/wards	Population	Cumulative population
1.			
2.			
3.			
4.			
5.			

A sample of 30 villages/wards has to be selected from the district. The method of sampling to be used is PPS systematic sampling which involves the following steps;

Total population of the district

$$\text{Sample size} = 30 \text{ villages/wards}$$

$$\text{Calculation of sampling interval} = \frac{\text{Total population}}{30} = K$$

Selection of random start form 1 to K say 'r'

Selected random numbers  $r, r+k, r+2k, \dots, r+29k$

A sample of 90 children ( 45 Boys & 45 Girls ) of age group of 6-12 years from the school and out of school /household of selected village/ward has to be selected as explained below:

Suppose in the selected village the enrolment rates are

Boys = 70%

Girls = 60%

The allocation of sample would be as under:

	Boys	Girls
School	32(70%)	27 (60%)
Out of School	13(30%)	18 (40%)
Total	45	45

Suppose in the selected village the enrolment rates are:

Boys =40%

Girls =30%

Then, the allocation of sample of 45 boys and 45 girls to be selected form school and Out of school would be as under:

	Boys	Girls
School	18(40%)	13(30%)
Out of School	27 (60%)	32(70%)
	45	45

In another example, suppose in the selected village, the enrolment rates are:

Boys=30%

Girls=20%

Then the allocation of sample would be as under:

	Boys	Girls
School	14(30%)	9(20%)
Out of School	31(70%)	36(80%)
	45	45

Similarly, suppose in the selected village the enrolment rates are:

Boys =60%

Girls =40%

Then, the allocation of sample would be as under

	Boys	Girls
School	27(60%)	18(40%)
Out of School	18(40%)	27(60%)
	45	45

**Suggestion:** The issue of selection of equal number of boys and girls in the sample was raised and it was clarified that the same has been considered necessary as many times results are required by gender.

## **Selection of sample of children from school**

After allocation of total samples to schools and out of school, the next step relates to selection of sample of children from the school

In the example considered earlier, a sample of 18 boys has to be selected out of those in the school, this has to be allocated to various primary classes preferably in equal proportion. If the number of classes is 5 then the sample would comprise of selecting 3 children each from class 1 and 2 and 4 children each from classes 3, 4 & 5. The sample from each of the classes could then be taken from the attendance register out of those present in the class on the date of the survey using systematic sampling

**Example:** Suppose number of boys present in class 1 is 10. List all the boys in class and assign them serial numbers from 1-10. Since three boys are to be selected from Class 1, draw a random number between 1 and 3 using random number table. Let it be 2. Thus second boy in the list is selected in the sample and subsequently adding 3 twice to the number 2 the remaining two boys in the sample would be numbered 5 and 8 in the list. Follow this process for selecting boys from class 2.

Enlist and assign serial numbers to all the boys in class 3, 4 and 5 separately. Since four boys each from class 3, 4 and 5 are to be selected, draw a random number between 1 and 4. Suppose the number

drawn is 3. Select the 3rd boy from list prepared for Class 3. Add 4 three times to 3 and select the remaining three boys numbered 7, 11 and 15 in the list. Thus the four boys selected in the sample from class 3 are numbered 3, 7, 11 and 15. Continue the same process to select four boys each from class 4 and 5.

**Suggestion:** It was pointed out that the primary school survey may not cover 12 year old children and hence it was suggested to cover the shortfall of 12 year old children in the household/ out of school survey.

Similar method has to be followed for selection of girls from the school.

For selected children, then the assessment for goiter has to be done.

## **Selection of sample of children from the village/ ward (out of school children)**

It is assumed that the children out of the school will be of similar socio-economic background in the village/ward. For the selection of the sample therefore following two alternatives are proposed:

In the example considered a sample of 27 out of school children from the village/ward has to be selected. This has to be first allocated into various age groups approximately equal. In the present case, it would be five children in the age groups 6, 7, & 8 and 6 children in the remaining age groups. Then with a random start in the

village, a cluster of children in the specific age groups could be selected by visiting the household next to the random start following right hand rule. The process has to be continued till the sample of required size from different age groups is selected.

1. Alternatively the sample required size from different age groups could be selected using systematic sampling if the frame of the household having children in different age groups is available or could be prepared.

The short fall of children 11-12 year not available in the school should be covered in the household survey.

**Suggestion:** The issue of covering all age groups 6 to 12 in equal proportion was also debated. This was also considered necessary as at times results are needed by age groups for each sex at least at the state level.

### **Selection of random start**

Identify the lane/ sub lane gullies, mohallas tollas etc.

Select one of these random.

In the selected lane/sub-lanes, mohallas, etc. out of the houses, select 1 with random sampling. This is the random start for the survey.

**Suggestion:** It was suggested to include some illustration for selection of random Start in the village/ward.

### **Selection of sample of household from the village/ward for salt sample.**

Every 5th child selected in the earlier steps for goiter survey should be covered for collection of salt samples by visiting the corresponding houses.

### **Selection of the sample of children from the village/ward for UIE.**

For UIE every alternate child out of those selected earlier step for salt sample has to be taken for collection of sample.

NOTE: If the school enrolment rate/attendance in the village is 90% then the sample may be restricted to school mainly. Alternatively, if the enrolment/attendance rate is low at 10% then the household approach may only be used.

### **Techniques of Examination**

From the clinical point of view, the diagnosis of goitre is based entirely on inspection and palpation of the neck. The position taken by the examiner in relation to the person being examined is a matter of personal choice. Some workers face the subject and usually palpate the isthmus and lobes with two thumbs, the fingers of both hands being spread around the lateral side of the neck. Other workers stand at one side of the subjects, the side depending on whether they are right handed or left handed. The palpation is done with the first or the first and second fingers. The examiner should be so positioned that his eyes are

approximately at the level of the subject's neck. This means that in case of young children, the examiner must be seated. When assessing the visibility of an enlarged gland it is important that the subject keeps the head steady so that the eyes and the external aural meatus are on a plane.

To assist in palpation, it is frequently desirable to depress the subject's chin to relax the neck muscles. At the commencement of palpation, the isthmus should first be located and then the thumbs or fingers should move laterally to identify the lobes and assess their size.

In people with a short neck, a part or the whole thyroid gland may be hidden by the sternum; this occasionally makes diagnosis difficult.

Nodules should be noted and recorded separately.

### **Classification of Goitre**

Most classifications distinguish between different grades of goitre and broadly between visible and palpable goitre and record the presence or absence of nodules. Visible goitres, as a general rule, indicate a moderate to severe deficiency of iodine of a relatively long duration and thus tend to be more common among older people. Their presence in children suggests a severe deficiency of iodine. Similarly, nodules are likely to be present to a significant degree only in areas of marked deficiency of iodine for a very long period. Palpable goitres have a special significance in the assessment of

the control programme e.g. salt iodization programme.

As per a recent WHO publication (1994), the previous five grades of goitre namely Grade 0, 1A, 1B, Grade 2 and Grade 3 have been classified into three Grades as Grade 0, Grade 1, and Grade 2. The detailed description of each Grade is given below:

### **Grade Description**

**Grade 0:** No palpable or visible goitre/no goitre.

**Grade 1:** A mass in the neck that is consistent with an enlarged thyroid, that is palpable but not visible, when the neck is in normal position. It moves upward in the neck as the subject swallows. Nodular alteration (s) can occur even when the thyroid is not enlarged/goitre palpable but not visible.

**Grade 2:** A swelling in the neck that is visible when the neck is in a normal position and is consistent with an enlarged thyroid when the neck is palpated/goitre visible and palpable.

### Statement Showing Prevalence Rate of Goitre Among Male/Female of All Age Group

Age Group (Years)	Sex	Total Examination	Grades of Goitre			Total Cases Goitre (1 <sup>st</sup> +2 <sup>nd</sup> )	per centage (%)
			0 Grade	1st Grade	2nd Grade		
6	Male						
to	Female						
7	Total						
8	Male						
to	Female						
9	Total						
10	Male						
to	Female						
11	Total						
12	Male						
	Female						
	Total						

**Endemic District:** The district is declared as endemic district if the total goitre rate is above 5% in the children of the age group 6-12 years surveyed.



## **IDD Prevalence Indicators and Criteria for Classifying IDD as a Significant Public Health Problem**

### **Severity of Public Health Problem**

<b>Indicator</b>	<b>Mild</b>	<b>Moderate</b>	<b>Severe</b>
<b>Goitre Grade &gt; 0</b>	<b>5-19.9%</b>	<b>20-29.9%</b>	<b>&gt;_30%</b>
<b>Median UIE (Microgram/l)</b>	<b>50-99</b>	<b>20-49</b>	<b>&lt;20</b>

**Statement Showing Various Staff Sanctioned Under the Salt Commissioner's Office under NIDDCP for Maintaining Quality Control of Iodated Salt at Production Level**

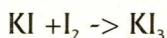
S. No.	Designation	No .of Post	Scale of Pay
1.	Dy. Salt Commissioner	1	Rs. 12000-16500
2.	Asstt. Salt Commissioner	2	Rs. 10000-15200
3.	Superintendent of salt	2	Rs. 6500-10500
4.	Accountant	1	Rs. 6500-9000
5.	Sr. Chemist (Gr.B)/ Dy. Supted of Salt	9	RS. 5500-9000
6.	Assistant	1	Rs. 4500-7000
7	Chemical Asstt.	12	Rs. 4500-7000
8.	Steno. Gr. C	1	Rs. 4500-7000
9.	Computer Operator	1	Rs. 4500-7000
10.	Steno. Gr. D	1	Rs. 4000-6000
11.	Lab.Asstt.	8	Rs. 4000-6000
12.	LDC	1	Rs. 3050-4590
13.	Drivers	2	Rs. 3050-4590
14.	Watch & Ward	9	Rs. 2550-3200
15.	Group 'D'	4	Rs. 2550-3200
	<b>TOTAL</b>	<b>55</b>	

## Analysis of Iodine Content of Iodated Salt (Based on IS: 7224-1985)

The Iodine content of iodated salt is estimated by a process called iodometric titration. Iodometry deals with the titration of iodine liberated in a chemical reaction.

### Principle

The principle is that iodine is liberated by adding sulphuric acid to a solution of iodated salt. Potassium iodide solution is added to keep the iodine in a dissolved state. Iodine liberated is then titrated with sodium thiosulphate. Starch is used as an internal indicator.



### (a) Preparation of Standard Solution and Reagents

1. Sodium thiosulphate solution  
(0.005 N) AR Grade.

Dissolve 1.24 gms of Sodium Thiosulphate in one litre of double distilled water. Store in a cool dark place.

2. Standard potassium iodate solution  
(0.005N)

Dissolve 0.635gms of  $\text{KIO}_3$  in one litre of double distilled water. Store in a dark bottle.

3. Sulphuric acid  
(2N)

Add 5.56 ml of concentrated sulphuric acid to distilled water slowly and make up the Solution to 100 ml.

4. Potassium iodide  
(KI-10%)

Dissolve 10 gm of Potassium iodide in 100 ml of water

5. Take 1 gm of starch and prepare a slurry in 50 ml water. Add this slurry slowly to 50 ml of boiling water

## (b) Standardisation of Sodium Thiosulphate Solution

1. Sodium thiosulphate solution is to be standardized with standard potassium iodate solution to determine its exact normality.
2. Take 0.1 N thiosulphate solution in a burette.
3. Pipette out 25 ml of 0.1 N standard potassium iodate in a conical flask. Add 1 to 2 ml of 2 N  $\text{H}_2\text{SO}_4$  and 5 ml of KI.
4. Titrate the solution (liberated iodine) against sodium thiosulphate till the solution becomes pale yellow in color.
5. To this, add about 1 ml of starch. The solution turns deep purple.
6. Add thiosulphate solution drop by drop from the burette till the purple colour completely disappears. Standardize 0.005 N sodium thiosulphate using 0.005 N  $\text{KIO}_3$  in the same way. Normality of sodium thiosulphate is calculated as follows:

$$\text{Volume of } \text{KIO}_3 (V_1) \times \text{Normality of } \text{KIO}_3 (N_1) = \text{Volume of } \text{Na}_2\text{S}_2\text{O}_3 (V_2) \times$$

$$\text{Normality of } \text{Na}_2\text{S}_2\text{O}_3 (N_2)$$

$$\text{Normality of sodium thiosulphate } N_2 = \frac{V_1 \times N_1}{V_2}$$

## (c) Determination of Iodine Content

1. Take 10 g of iodated salt and dissolve it in about 50 ml of water.
2. Add to this solution 1 ml of 2N sulphuric acid and 5 ml of 10% potassium iodide solution. The solution turns yellow in colour.
3. Close the flask with the stopper. Keep the flask in dark (i.e. in a closed cupboard) for about 10 minutes.
4. Titrate this solution with thiosulphate taken in the burette till the solution becomes pale yellow in colour.
5. To this, add about 1 ml of starch. the solution now turns deep purple.
6. Add thiosulphate drop by drop from the burette till the purple colour completely disappears.

7. The number of ppm of iodine in the salt samples is calculated as follows:

$$\text{Iodine ppm} = \frac{R \times 100 \times 1000 \times 0.127 \times N}{6}$$

6

Where R is the reading (Volume) of thiosulphate used, 100 is to convert the reading for 1000g of salt and 1000 is to convert gram of iodine to milligram of iodine 0.127 is the weight of iodine equivalent to 1 ml of normal thiosulphate solution, N is normality of thiosulphate solution (which is 0.005N in the above example) and 6 is to arrive at the value that corresponds to 1 atom of iodine liberated.

(If the value is not divided by 6 the 5 atoms of iodine liberated from the KI added will also be included in the final result)

To convert the iodine in terms of  $\text{KIO}_3$  (Potassium iodate) multiply the iodine ppm with 1.685.

To simplify the calculations, multiplying the constant factors, we can express the potassium iodate content in the salt by the following formula :

$$\begin{aligned} \text{KIO}_3 \text{ ppm} &= \frac{R \times N \times 100 \times 1000 \times 0.127 \times 1.685}{6} \\ &= R \times N \times 3566.6 \end{aligned}$$

For further easy reference a ready reckoner is prepared to show the iodine content (in ppm) corresponding to the burette reading of  $\text{Na}_2\text{S}_2\text{O}_3$  solution. This ready reckoner is given in the table.

### Precautions

1. *The starch solution must be added near the end point of the titration, when very little iodine is left and the solution turns to faint yellow colour. If starch is added earlier, the iodine starch complex becomes very strong and reacts too slowly with sodium thiosulphate resulting in false reading.*
2. *The titration should be done in a comfortably cool room because iodine is volatile and sensitivity of the starch solution indicator diminishes as the temperature rises.*
3. *Potassium iodide is used because of low solubility of iodine. The liberated iodine forms an unstable complex  $\text{KI}_3$ . A few minutes should be allowed before titration since the rate of reaction between iodide ions and the oxidant is slow.*
4. *The reaction mixture should be kept in dark before titration because light accelerates a side reaction in which iodide ions are oxidised to iodine by atmospheric oxygen.*
5. *Starch solution should be prepared fresh every day because it cannot be stored.*
6. *Sodium thiosulphate if stored for more than a week should be standardised using potassium iodate.*

**Table : Calculation of Iodine Content of Salt in Parts per Million (ppm) from Burette Reading**

<b>Burette reading</b>	<b>PPM</b>	<b>Burette reading</b>	<b>PPM</b>
0.0	0.0	2.6	27.5
0.1	1.1	2.7	28.6
0.2	2.1	2.8	29.6
0.3	3.2	2.9	30.7
0.4	4.2	3.0	31.7
0.5	5.3	3.1	32.8
0.6	6.3	3.2	33.9
0.7	7.4	3.3	34.9
0.8	8.5	3.4	36.0
0.9	9.5	3.5	37.0
1.0	10.6	3.6	38.1
1.2	12.7	3.8	40.2
1.3	13.8	3.9	41.3
1.4	14.8	4.0	42.3
1.5	15.9	4.1	43.4
1.6	16.9	4.2	44.4
1.7	18.0	4.3	45.5
1.8	19.0	4.4	46.6
1.9	20.1	4.5	47.6
2.0	21.2	4.6	48.7
2.1	22.2	4.7	49.7
2.2	23.3	4.8	50.8
2.3	24.3	4.9	51.9
2.4	25.4	5.0	52.9
2.5	26.5	5.1	54.0

Recent awareness that several hundred million people, mainly in developing countries, are affected by iodine deficiency has greatly increased the demand for evaluating its severity in a given population. Such evaluation can be done by measuring thyroidal radioactive iodine up take in the field but this approach cannot be used in the field for reasons of equipment safety, cost, standardization and availability of isotope. Another suitable method is the measurement of iodine in urine sample.

### Available Methods

Available methods of iodine estimations are

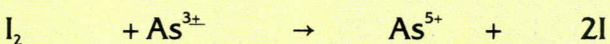
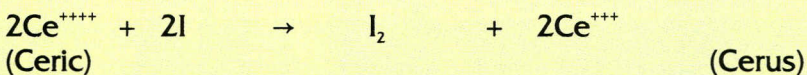
- (1) Titration by thiosulphate and
- (2) The Sandell Kolthoff reaction.

The former lacks sensitivity and is inadequate for the measurement of iodine in urine. The latter is the method of choice.

### Principle

There are two major steps in the estimation of urinary iodine. The first step involves the destruction of the organic content in the sample by either alkaline fusion (dry ashing) at high temperatures or by digestion with mixture of strong acids (wet digestion) at relatively low temperature. In the second step, the inorganic iodine left over in the ashed material is estimated by a suitable method. The most common method used for the micro determination of iodine is based on its catalytic property in a cerate- arsenite mixture. Briefly the reduction of  $Ce^{4+}$  to  $Ce^{3+}$  change the optical absorbance, and the progress of the reaction is monitored by discolouration of Ceric ammonium sulphate. The rate of this colour change depends upon the amount of iodine present and is in inverse ratio. It can be measured by a colorimeter, and the amount of iodine in the urine analysis can be calculated by comparison with a standard solution of known iodine content.

The proposed mechanism of the above reaction is as follows;



The catalytic co-efficient of the reactions dependent on the concentration of  $H_2SO_4$ , Concentration of chloride in the reaction mixture, temperature and the reaction time.

**The process of mineralising iodine to perform the Sandell- Kolthoff reaction is a must. There are two ways of mineralising iodine:**

- (1) Dry ashing and (2) Wet digestion.

Dry ashing requires a muffle furnace, is done in an alkaline medium and is very expensive while wet digestion is done in a strong acid medium. The temperature of the former is around 600°C and of the latter is around 150°C. The loss of iodine and the cost of the instruments are low in the wet digestion method.

### **Urinary Iodine Estimation by the Wet Digestion Method ( Sandell-Kolthoff)**

There are many methods available for the destruction of the organic component of the sample, but the one described here is used commonly for its simplicity and convenience.

#### **Reagents**

1. Perchloric acid 70% (AR Grade)
2. Vanadium pentoxide ( $V_2O_5$ ) CDH Grade. Dissolve 250 mg of  $V_2O_5$  in 25 ml 3.6N  $H_2SO_4$  (concentrated sulphuric acid diluted 10 times).
3. Arsenite Reagent: AR Grade. Dissolve 1.135 gms of sodium metarsenite and 1 gm of sodium chloride in 200 ml of water. Add 46 ml of concentrated sulphuric acid and make up the volume to 500 ml with double distilled water.
4. Cerate Reagent: AR Grade. Dissolve 5 gm of ceric ammonium sulphate in about 200 ml of double distilled water and add 135 ml of concentrated sulphuric acid and make up the volume to 500 ml with double distilled water.

#### **Procedure**

1. 100 microliter of sample (urine) and standards are taken in glass tubes.
2. 2 ml of perchloric acid (70%) is added to all tubes.
3. 150 microliter of Vanadium pentoxide is added to all tubes and mixed well.
4. All tubes are then kept in sand bath at 160°C (in a hot air-oven) for 45 minutes.
5. Remove all tubes from the oven, cool and add 2ml of Arsenite reagent to all tubes.
6. Place the test tube stand with test tubes in a water bath at 48°C and allow it to stabilise.
7. Add 1 ml of cerate to all the tubes at 30 second interval. Read at a wave length of 420 nm in a calorimeter at 30 second interval

**Note:** The assay time is 25 minutes, so a maximum of only 50 tubes can be run in one assay



**Working Standard:** 5  $\mu\text{g}$ , 10  $\mu\text{g}$ , 15  $\mu\text{g}$ , & 20  $\mu\text{g}/\text{dl}$  of iodine

## **Factor Influencing the Rate of Reaction**

### **Temperature**

The sensitivity of reaction increases with the increase in temperature and is best achieved at a temperature of 48-50°C. But temperature above 56°C should be avoided as there is create reduction even without iodine as catalyst.

### **Reaction time**

A time period of 25 minutes is generally employed.

### **Note**

As the method adopted is very tricky, the following precautions are a must:

1. All water and glassware used should be iodine free.
2. Glassware to be used should be kept in chromic acid for 24 hours, then thoroughly rinsed with tap water and then with double distilled  $\text{H}_2\text{O}$  (while distilling,  $\text{KMnO}_4$  is added in the distillation flask). Final rinsing is done with methanol.
3. Reagents used should be iodine free and also mercury free as these interfere with Sandell-Kolthoff reaction
4.  $\text{V}_2\text{O}_5$  used should always be of same lot.
5. Use only electronic graded  $\text{H}_2\text{SO}_4$ .

## Collection, Dispatch and Analysis of Iodated Salt Samples

- \* 50 samples to be collected per month per district.
- \* Out of 50 samples, 25 samples from rural households, 15 samples from urban households, 7 samples from rural retailers and 3 samples from urban retailers should be collected with proper label.
- \* The amount of an iodated salt sample should be about 100 gms for loose iodated salt kept in polythene pouch and a whole packet for packed iodated salt.
- \* These samples will be brought to the District level monitoring lab for analysis of iodine content.
- \* Out of the 50 samples collected, the Medical Officer will send 10% samples to the States level IDD Monitoring Lab for quality control.
- \* A compiled report of iodated salt analysis will be furnished to the Central IDD Cell of DGHS through State Programme Officer every month.
- \* Besides the above analysis of iodated salt by IDD District Monitoring Laboratory, each Food Inspector, under Prevention of Food Adulteration Act, will collect at least two samples of iodated salt every month for detailed analysis under the Act and take appropriate measures as desired therein.

**Collection, Dispatch and Analysis of Urine Samples**

- \* 25 samples to be collected and dispatched to the State level IDD monitoring lab per district per month.
- \* The samples to be collected from 25 childrens of 6-12 years age group (both sexes) in cleaned, screw- capped bottles of 15-20 ml capacity.
- \* From each individual, single casual urine sample (3-5 ml) are to be collected on the spot for estimation of UIE.
- \* After collecting the sample, few drops of Toluene ( A.R. Grade) should be added to make a complete layer.
- \* These samples should preferably be despatched to the lab on the same day.
- \* Each sample should be numbered together with relevant details.
- \* A monthly report of the analysis will be made available to the Central IDD Cell of the DGHS through the State Programme Officer.

**Monthly Report of National Iodine Deficiency Disorders Control Programme by States/UTs**

- \* Magnitude of the problem (results of surveys ).
- \* Quantity of iodated salt supplied to each district.
- \* Whether the IDD Control Cell has been set up or not, and the current status.
- \* Whether a state Level Co-ordination Committee has been set up to review the progress made under the programme. If so, when was the programme last reviewed, a copy of the constitution of the Committee if not already sent.
- \* Problems, if any, in obtaining the required quantity of iodated salt.
- \* Whether a plan for conducting surveys in the unsurveyed districts has been drawn up. If so the present position.
- Health education activities on IDD carried out in the State. A copy of photocopy material be furnished, if not as ready sent.
- \* Expenditure incurred during the month.
- \* Progressive expenditure.
- \* Number of iodated salt sample analyzed.
- \* Number of urine samples analyzed for iodine excretion.
- \* Whether training programme organised, if so, the details thereof.
- \* Any other relevant information.

## Quarterly Progress Report indicating the Financial and Physical Progress under the National Iodine Deficiency Disorders Control Programme (NIDDCP)

	Financial Year	Quarter				
	Advance released for the quarter					
<b>Items of Expenditure</b>	Actual Expenditure					
<b>IDD Control Cell</b>						
Pay Scale						
Technical officer						
Statistical Asstt						
LDC/ Typist						
<b>IDD Monitoring Lab</b>						
Lab Technician						
Lab Assistant						
	Names of Districts					
<b>Health Education &amp; Publicity</b>						
<b>Surveys/Resurvey</b>						
<b>Total Expenditure during the Quarter</b>						
Progressive Expenditure						
<b>Physical Achievements</b>						
1. No. of salt samples collected	<table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <td colspan="2" style="border-bottom: 1px solid black; padding: 5px;">No. of Samples found</td> </tr> <tr> <td style="padding: 5px;">Confirming</td> <td style="padding: 5px;">Not Confirming</td> </tr> </table>		No. of Samples found		Confirming	Not Confirming
No. of Samples found						
Confirming	Not Confirming					
2. No. of urine samples collected						
3. Health education activities		Details				
4. Survey/ Resurveys		Details				
5. Any other significant activity						

## Abbreviation

NIDDCP	-	National iodine Deficiency Disorders Control Programme
UIE	-	Urinary Iodine Excretion
IEC	-	Information, Education & Communication
µg,	-	Microgram
ml	-	Mili litre
dl	-	Deci litre
µl	-	Micro litre