SUMMARY REPORT
IODIZED SALT COVERAGE STUDY 2010
Conducted Across Eight States in India
FOREWORD

India is one of the countries which has accepted iodine deficiency as a national public health problem and resolved to ensure the provision of iodized salt to its population. On the recommendation of the Central Council of Health in 1984, the Government of India took a policy decision to iodize the entire edible salt in the country by 1992. This program started in April 1986 in a phased manner, and in 1992 it was renamed as the ‘National Iodine Deficiency Disorder Control Program’ (NIDDCP). In 1985-86, the production of iodized salt in India was 0.7 Million Metric Tons (MMTs) and in the first two decades saw a seven fold increase in production. In 2008-09, India produced about 5.2 MMTs of iodized salt, of which more than half was pouched in one kilogram packets (i.e. mostly retail packaging).

Although the progress in production of iodized salt has been impressive on the quantity front, it fell short on the issue of quality. According to the National Family and Health Survey (NFHS) 3 undertaken in 2005-06, only 51% of the population consumed salt that is adequately iodized i.e. containing 15 parts per million (ppm) of iodine at the household level. The consumption of iodized salt is much higher in urban areas (72%) in comparison to rural areas (41%), leaving the most vulnerable and socio-economically disadvantaged segments of the population at a greater risk.

Universal Salt Iodization (USI) is envisioned to be achieved through cooperation of multi-sectoral agencies. These include the Ministry of Health and Family Welfare, Ministry of Commerce and Industry, Ministry of Railways and Ministry of Human Resource Development, other concerned departments, and supported by many partners to address the problem of Iodine Deficiency Disorders (IDD) through the salt iodization program in India. UNICEF, WHO, Indian Coalition for Control of Iodine Deficiency Disorders (ICCIDD), the Micronutrient Initiative (MI), World Food Programme (WFP) and Global Alliance for Improved Nutrition (GAIN), are a consortium of agencies that closely work with the Salt Commissioner’s Office and supplement its efforts to increase the production and consumption of iodized salt in India.

The NFHS 3 study took place in 2005 when Government of India had just reinstated its ban on sale of non-iodized salt for edible purpose. Gujarat which is the largest salt producing state had experienced a massive earthquake in 2001 which severely damaged its salt production capacity. NFHS 4 was planned to be initiated in 2010, however, there is a delay in the survey. In the meanwhile, in 2010, the Salt Commissioner’s office, together with MI, UNICEF, WHO and GAIN held consultations on the consumption patterns of iodized salt in the country and decided to commission a study to estimate consumption in the rural households in eight states in India. These eight states, during NFHS 3 had reported lesser consumption of iodized salt than the national average. The salt samples were collected from 9,600 rural households across 960 clusters spread over 8 major states in India, namely, Andhra Pradesh, Karnataka, Tamil Nadu, Orissa, Madhya Pradesh, Rajasthan, Uttar Pradesh and Uttrakhand, and tested in the ICCIDD laboratory using titration method. I am confident that this study will provide the current scenario on salt iodization in India and will serve as a tool to further guide the salt iodization program in a focused manner.

April 05, 2011

S. Sundaresan
Salt Commissioner
Dr. Chandrakant S. Pandav
(M.B.B.S., M.D., M.Sc., FNASM, FIAPSM, FIPHA)

Message

Iodine Deficiency Disorders (IDD) is the leading cause of preventable mental handicap worldwide. Children born in iodine deficient areas have on an average 13.5 Intelligence Quotient (IQ) lower as compared to children born in iodine sufficient area. IDD is a significant health problem in India. Every year nearly 13 million children are born in India unprotected from the brain damage caused by iodine deficiency.

India launched National Goitre Control Program (NGCP) addressing iodine deficiency disorders in 1962. NGCP was renamed National Iodine Deficiency Disorders Control Program (NIDDCP) in 1992. The household level consumption of adequately iodised salt in India was only 51 per cent as per National Family Health Survey III (NFHS III) carried out in 2005-2006. There has been remarkable progress in terms of capacity to produce iodised salt in India during last five years. The country currently produces 54 million tons of iodised salt (2008-09) against total requirement of 52 million tons. The present study assesses the current rural household coverage of adequately iodized salt and factors affecting it. The result of the study will be of immense help to the stakeholders of USI in identifying the bottlenecks of the program and in designing future interventions.

Dr. Chandrakant S. Pandav
Professor & Head
India has a long history in the extraction and use of salt. This universally consumed condiment has played a vital role in the country’s psyche for thousands of years, including during the struggle for independence. We continue this commitment to improve the lives of Indians through our efforts to effectively iodize the salt that they consume.

While the proportion of adequately iodized salt in India faltered between 1999 and 2005 - with only half the population consuming adequately iodized salt - the findings of the Salt Iodization Coverage Evaluation Study 2010 demonstrate a new momentum in the quest for USI. There is an encouraging trend in the use of adequately iodized salt at the household level in the eight States studied. It reflects some of the positive changes that have been made in India’s salt industry in recent years, including better production, refining and iodization practices, improvement in salt quality and packaging, effective monitoring of iodine levels from production to consumption and a growing consumer awareness - resulting in an overall improvement in access to adequately iodized salt by hundreds of millions of people.

Working with the Salt Department of the Government of India, State Governments, salt producers and processors - especially those serving the most vulnerable, the Micronutrient Initiative remains committed to support the achievement of the goal of USI in India. We still have much work to do but the results of this study provide the direction and impetus to realize that goal.

M. G. VENKATESH MANNAR
President, Micronutrient Initiative
India is one of the very few Asian countries which has recognized the importance of addressing IDD by supplying iodized salt to its endemic population as early as the nineteen sixties. In 1992, it was made mandatory that salt produced for human consumption has to be adequately iodized. However, despite the best of efforts the results of NFHS 2 & 3 shows that there is around 49% population in India who still consume inadequate non-iodized salt.

Mirroring the rapid growth in all sectors in India, the last 5 years has also seen rapid growth in the production capacities of salt and during the year 2009-10, India produced more than 5.2 MMT of iodized salt and out of which close to 2.6 MMT was packed in smaller packets. Trend suggests that salt pouches in smaller packets has better levels of iodine in it.

The Micronutrient Initiative has been working closely with the Government of India to assist them in achieving Universal Salt Iodization (USI) by 2012. We work with small scale salt processors to initiate or improve their quality control mechanisms and we also provide technology upgradation to assist in the production of adequately iodized salt.

The “Salt Iodization Coverage Evaluation Study 2010” was carried out as a joint initiative of stakeholders under the guidance of Salt Commissioner’s Office to ascertain the levels of household level salt iodization in eight major states in India. I am confident that the findings of the study will help policy makers and program managers to design its program which will lead to ensure USI in India.

MELANIE GALVIN
Regional Director, Asia
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1. INTRODUCTION

1.1 A review of Universal Salt Iodization Program

Iodine Deficiency Disorders (IDD) remains a significant public health problem in over 50 countries. Over one and a half billion people worldwide are still not consuming adequately iodized salt and are, as a result, not protected against IDD. It has been estimated that 200 million people in India are exposed to the risk of IDD and more than 71 million suffer from goitre and other forms of IDD. The salt iodization program was introduced in India in 1962 as the National Goitre Control program. At that time, a very limited quantity of iodized salt was being produced in the public sector (about 0.14 lakh MTs). In 1983, the Government of India opened up iodized salt production to the private sector by making iodization of salt for edible purposes mandatory. In 1992 the program was renamed as the National Iodine Deficiency Disorders Control Program (NIDDCP) to reflect the spectrum of disorders, including goiter, that occur due to iodine deficiency.

According to the NFHS 3 conducted in 2005 - 2006, roughly half the country consumed salt which is iodized especially the poorest, most vulnerable and those who live in rural areas and have very little access to iodized salt. During NFHS 3, eight states evidenced consumption of iodized salt at much below the national average. In 2010, the Salt Commissioner, MI, UNICEF, WHO and GAIN held consultations on the situation of the use of iodized salt across the eight states in India and decided to commission a fresh study in order to estimate consumption of iodized salt in rural households in eight states in India. The total population of these states put together was more than 50.5% of the country’s population and the states selected were those that had indicated iodization levels lower than the national average during NFHS 3.

1.2 Study methodology

The study was conducted across eight states in India i.e. Rajasthan, Uttar Pradesh, Uttarakhand, Madhya Pradesh, Orissa, Andhra Pradesh, Tamil Nadu and Karnataka. The salt samples were collected from rural households and retailers and wholesalers of salt of respective areas were interviewed to know consumer behavior on salt purchase. The sample size chosen was 1,200 rural households per state - 9,600 households across eight states; 1,872 retailers and 478 wholesalers were interviewed. 120 primary sampling units (PSUs) (census villages) were chosen from each state and 10 rural households were selected from each PSU for collection of salt samples. In each PSU, two retailers dealing in edible salt were interviewed two wholesalers dealing in edible salt were interviewed in each district where the PSUs were located. Salt samples were collected from each rural household and tested using titration method at the ICCIDD laboratory in Delhi. 10% households were revisited by ICCIDD team in order to ensure that salt samples were collected adequately. Apart from socioeconomic data, information on a number of issues relating to quality, price and quantity, place of purchase and storage of salt were also collected.

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1 This sample size is adequate to provide estimates at 5% precision. A design effect of 3 was considered for calculating the sample size.
Table 1.1 Total population and % rural population in eight study states and India, 2001

<table>
<thead>
<tr>
<th>Name of the state</th>
<th>Total Population in millions</th>
<th>% to total population of India</th>
<th>% rural population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andhra Pradesh</td>
<td>76.21</td>
<td>7.4</td>
<td>72.7</td>
</tr>
<tr>
<td>Karnataka</td>
<td>52.85</td>
<td>5.1</td>
<td>66.0</td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>60.34</td>
<td>5.9</td>
<td>73.5</td>
</tr>
<tr>
<td>Orissa</td>
<td>36.80</td>
<td>3.6</td>
<td>85.0</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>56.50</td>
<td>5.5</td>
<td>76.6</td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>62.40</td>
<td>6.1</td>
<td>56.0</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>166.20</td>
<td>16.2</td>
<td>79.2</td>
</tr>
<tr>
<td>Uttarakhand</td>
<td>8.49</td>
<td>0.8</td>
<td>74.3</td>
</tr>
<tr>
<td>8 State aggregate</td>
<td>519.814</td>
<td>50.5</td>
<td>73.5</td>
</tr>
<tr>
<td>India</td>
<td>1,028.74</td>
<td>100</td>
<td>72.2</td>
</tr>
</tbody>
</table>
1.3 Socio-economic profile of respondents / households

- The socio-economic characteristics of the surveyed households reflect the overall social and economic composition of rural households in the eight states.
- The mean average age of the head of the household from amongst the households surveyed is 48 years.
- 93.1% of the households had males as heads of family and 6.9% were females.
- The average family size is 5.3.
- 89.7% of households were Hindus and 8.9% Muslims.
- 47.9% of households belonged to the Other Backward Castes, 21.9% were Scheduled Castes and 8.2% were Scheduled Tribes.
- The educational attainments of the head of the households were low. 39.8% had no education, 25% had less than class 8 education, 12.2% had completed class 10 and only 10.2% had completed class 12 and above.
- 38.3% households lived in pucca/semi pucca houses, only 15.9% had water taps in residences and 24% had own flush toilet. More than 58.1% practiced open defecation.
- 78.4% had electricity.
- Half of the people in rural areas are still agriculturists - 53.8% owned land but mostly small holdings under 6 acres and 46.2% did not own land.
- Those who did not own land worked mainly as either farm (19.5%) or non-farm (40.1%) wage labourers.
- Most of the ration cards were owned by Below Poverty Line / Antodaya families.
2. IODINE CONTENT OF EDIBLE SALT AT HOUSEHOLD LEVEL IN RURAL AREAS OF EIGHT STATES

The measurement of iodine content of salt in rural areas of eight states is the main objective of the study. For the purpose of this study, the iodine content of salt has been categorized in three classes – Zero parts per million (ppm), Inadequately Iodized Salt (>0 to <15 ppm) and that conforming to recommended standard (≥ 15 ppm). The results have also been compared with NFHS 3 estimates conducted in 2005-06.

Fig: 2.1 Increase in presence of adequately iodized salt at household level:
A comparison between NFHS 3 and Iodized Salt Coverage Study 2010

- The use of adequately iodized salt in rural households has increased across all states. The 8 state averages have gone up from 27% during NFHS 3 to 47.2% during the 2010 study.
- The highest increase was evidenced in Uttarakhand, followed by Orissa, Rajasthan, Andhra Pradesh and Madhya Pradesh.
- Tamil Nadu and Uttar Pradesh have also reported modest increases.
- Use of iodized salt has gone up significantly in rural areas in states which were previously considered to be problem states. The amount of inadequately iodized salt at the household level has increased and the amount of non iodized salt has dropped dramatically.
2.2 Iodine content in edible salt at HH levels - Andhra Pradesh

Percentage of households by level of iodine in salt - Andhra Pradesh

- Andhra Pradesh is one of the southern states which performed badly during NFHS 3. The Iodized Salt Coverage Study 2010 shows that the availability of adequately iodized salt at the household level has improved from 20.3% during NFHS 3 to 46.9%.
- Inadequately iodized salt has gone up slightly from 32.4% in NFHS 3 to 35.7%.
- There is a dramatic reduction in non iodized salt from 47.3% in NFHS 3 to only 17.4%.

2.3 Iodine content in edible salt at HH levels - Karnataka

Percentage of households by level of iodine in salt - Karnataka

- The Iodized Salt Coverage Study 2010 shows that in Karnataka the availability of adequately iodized salt at the household has improved from 27.6% in NFHS 3 in 2005-06 to 35.4% in 2010.
- Inadequately iodized salt has gone up significantly from 25.2% in NFHS 3 to 53.2%
- There is dramatic reduction in non iodized salt from 47.2% in NFHS 3 to only 11.4%
2.4 Iodine content in edible salt at HH levels - Madhya Pradesh

The Iodized Salt Coverage Study 2010 shows that the availability of adequately iodized salt in Madhya Pradesh has improved substantially from 25.5% in NFHS 3 in 2005-06 to 44.8% in 2010.

Inadequately iodized salt has also improved substantially from 22.9% to 41.3% during the last five years.

Non iodized salt has reduced drastically from 51.6% in NFHS 3 to 13.8%.

2.5 Iodine content in edible salt at HH levels - Orissa

The Iodized Salt Coverage Study 2010 shows that the availability of adequately iodized salt at the household in Orissa has almost doubled from 32.4% in NFHS 3 in 2005-06 to 59% in 2010.

Inadequately iodized salt has also partially reduced from 40.1% to 38% during last five years.

Non iodized salt has reduced drastically from 27.4% in NFHS 3 to only 3%.
2.6 Iodine content in edible salt at HH levels - Rajasthan

The Iodized Salt Coverage Study 2010 shows that the availability of adequately iodized salt at the household in Rajasthan has improved substantially from 29.2% in NFHS 3 in 2005-06 to 50.2% in 2010.

- Inadequately iodized salt also improved radically from 25.1% to 40% during last five years.
- Non iodized salt has reduced drastically from 45.7% in NFHS 3 to only 9.8%.

2.7 Iodine content in edible salt at HH levels - Tamil Nadu

The Iodized Salt Coverage Study 2010 shows that the availability of adequately iodized salt in Tamil Nadu has improved from 30.6% in NFHS 3 in 2005-06 to 41.9% in 2010.

- Inadequately iodized salt has also improved from 24% to 43.3% during last five years.
- Non iodized has reduced drastically from 45.4% in NFHS 3 to only 14.8%.
2.8 Iodine content in edible salt at HH levels - Uttar Pradesh

- The Iodized Salt Coverage Study 2010 shows that the availability of adequately iodized salt at households in Uttar Pradesh has improved partially from 27% in NFHS 3 in 2005-06 to only 35.4% in 2010
- Inadequately iodized salt also increased partially from 45.3% to 56.7% during last five years
- Non iodized salt has reduced substantially from 27.7% in NFHS 3 to only 7.9%

2.9 Iodine content in edible salt at HH levels - Uttarakhand

- The Iodized Salt Coverage Study 2010 shows that the availability of adequately iodized salt at households in Uttarakhand has improved substantially from 32.8% in NFHS 3 in 2005-06 to 64.1% in 2010
- Inadequately iodized salt also reduced partially from 30.4% to 29.7% during last five years
- Non iodized salt has reduced drastically from 36.8% in NFHS 3 to only 6.2%
The use of adequately iodized salt in rural households has increased across all states. It has gone up from 27% to 47.2% compared to NFHS 3. The highest increase is in Uttarakhand, followed by Orissa, Rajasthan, Andhra Pradesh and Madhya Pradesh.

The reason for households consuming salt with poor level of iodization in Uttar Pradesh and Madhya Pradesh is due to use of large crystal salt (Baragada/ Poda). On the contrary, Uttarakhand has shown a remarkable improvement in household consuming salt with adequate iodization due to their preference for crushed, packed salt over Baragada/ Poda salt. Hence, there is a need for Salt Commissioner’s Office to monitor the iodization level at the time of dispatch and by Food Safety Standard Authority of India (FSSAI) at the time of sale of salt from retail shops.

The primary reason for marginal improvement in the consumption of adequately iodized salt in Karnataka is due to continued preference towards consumption of crystal salt which is inadequately iodized.

In the eight states covered under this study, 10.5% households in rural areas consume salt with no iodine and 42.2% households consume salt with inadequate iodine. On the contrary, only 35.4% households in rural areas in Karnataka and Uttar Pradesh, and 41.9% in Tamil Nadu consume adequately iodized salt.
3. CONSUMER BEHAVIOUR ON PURCHASE AND USE OF SALT

This section of the study deals with consumer behavior for salt; such as type of salt purchased, sources of purchase, quantity purchased, price paid and willingness to pay for better quality of iodized salt by the respondents. This information can help guide programs to maximize consumption of iodized salt by households.

3.1 Type of Salt

Table 3.1: Percentage of households using type of edible salt and level of iodization across 8 states / type of salt

<table>
<thead>
<tr>
<th>States</th>
<th>Packaged crushed salt</th>
<th>Packaged crystal salt</th>
<th>Loose crystal salt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andhra Pradesh</td>
<td>51.5</td>
<td>22.8</td>
<td>25.7</td>
</tr>
<tr>
<td>Karnataka</td>
<td>21.3</td>
<td>52.6</td>
<td>26.1</td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>68.6</td>
<td>4.7</td>
<td>26.7</td>
</tr>
<tr>
<td>Orissa</td>
<td>65.9</td>
<td>6.3</td>
<td>27.8</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>86.6</td>
<td>7.2</td>
<td>6.1</td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>31.4</td>
<td>58.6</td>
<td>9.9</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>48.9</td>
<td>1.2</td>
<td>49.9</td>
</tr>
<tr>
<td>Uttarakhand</td>
<td>84.5</td>
<td>0.0</td>
<td>15.5</td>
</tr>
<tr>
<td>Combined- 8 States</td>
<td>57.3</td>
<td>19.2</td>
<td>23.5</td>
</tr>
<tr>
<td>Iodine content of &lt; 15 ppm</td>
<td>28.4</td>
<td>76.0</td>
<td>93.3</td>
</tr>
<tr>
<td>Iodine content of &gt; 15 ppm</td>
<td>71.7</td>
<td>24.0</td>
<td>6.8</td>
</tr>
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</table>

- 57.3% of the households in the rural areas of the eight states use packaged crushed salt, though the results are skewed across the states.
- Most people in Rajasthan (86.6%) and Uttarakhand (84.5%) use packaged crushed salt. Rajasthan is a salt producing state and it is interesting to note that majority of even rural people have shifted to packaged crushed salt with only small numbers buying crystal salt—packaged or loose.
- The total number of households purchasing packaged crystal salt is 19.2%. But a high number of households - 58.6% in Tamil Nadu and 52.6% in Karnataka use packaged crystal salt.
- It is interesting to note that the use of loose crystal salt, like in Rajasthan, is also low in Tamil Nadu, which is a major salt producing state. So, consumers in Tamil Nadu have shifted from loose crystal salt to packaged crystal salt.
- The biggest user of loose crystal salt is Uttar Pradesh. Nearly half the rural people of Uttar Pradesh use loose crystal salt (perhaps the Baragara salt coming from Gujarat) and therein lies the major challenge to the salt iodization program in India.
• 71.7% of packaged crushed salt is adequately iodized. Packaged crystal and loose crystal salt have very low levels of samples which are adequately iodized (24.0 and 6.8 per cent respectively).

3.2 How much salt do people buy at a time?

The study collected information on the packet size of the salt the household had purchased to cook their last meal. Here, the packet size purchased assumes significance because generally the salt packed in smaller packets have better iodization level. Some of the important observations are:

• 58.2% of people across the states bought their salt in 1 kg packets
• Only in Andhra Pradesh and Rajasthan, 76.2% and 91.1% of people bought salt in ½ kg packets
• In all the other six states, including Uttar Pradesh, people bought salt in 1 kg packets

3.3 Where do people buy salt?

The study collected information on the source of purchase of salt. There were important variations across the eight states in the purchase sources:

• 72.4% of the households in these 8 states (mostly Uttar Pradesh, Uttarakhand, Rajasthan, Madhya Pradesh and Karnataka) purchased salt from neighborhood kirana stores. Kirana stores are generally small neighborhood grocery stores selling loose and unbranded packaged grocery items owned by individuals at the village level.
• 14.4% households purchased their salt from general stores. General stores sell grocery and other items and are more up-market than kirana stores.
• Only 3.9% of the households reported purchasing salt from Public Distribution System (PDS) shops. PDS as a source of salt varied from 0.7% in Rajasthan to 5.8% in Uttar Pradesh and 16.5% in Tamil Nadu. The PDS as a system works well in Tamil Nadu. Hence, the purchase of salt as an essential item is also through the PDS. This is important as the neediest households probably buy their essential items from the PDS.
• 9.3% of households bought salt from other sources traveling salesmen, weekly bazaars etc.
• Tamil Nadu is the only state where people purchased their salt from all the four sources in sizeable numbers.
Table 3.2  Source of purchase of edible salt in Iodized Salt Coverage Study 2010

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<tr>
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<td>76.0</td>
<td>93.3</td>
</tr>
<tr>
<td>Iodine content of &gt; 15 ppm</td>
<td>71.7</td>
<td>24.0</td>
<td>6.8</td>
</tr>
</tbody>
</table>

3.4 How do people store salt?

Earlier studies have suggested that people store their salt in open pots resulting in loss of iodine to the wet and humid atmosphere. Surprisingly, however, this study reveals that people stored their salt well.

- 84.3% of the people stored their salt in containers with lids
- 18% stored salt in the same pouch in which they bought it
- Only 8% stored it in a container without a lid
- Only 8.3% stored it in sacks/ bags
3.5 What do people think of the quality of salt they buy?

- 68.3% of the people thought that the salt they buy is of good quality, 30.8% thought that it is of average quality and only 1% thought it was poor quality salt.

- Of all the important attributes that people ascribe to salt, “Tastes good” seemed to be the most important (52%) followed by “Whiteness” (48%), “Looks attractive” (17.7%) and “Packaged/branded” (15.9%).

- Whiteness seemed to be most critical in Andhra Pradesh while it seemed the people of Uttar Pradesh did not really care about the colour of salt. This may be a result of the fact that the rural people of Uttar Pradesh may never have seen better quality of salt as perhaps they only consume big crystal Badagada salt.

- In the view of the consumers from Rajasthan, Madhya Pradesh and Uttar Pradesh, salt has to taste good and that is the most important attribute in assessing the quality of salt.

- Tamil Nadu, Andhra Pradesh, Orissa and Uttarakhand have a slight preference for packaged branded salt, while this was not an issue of concern in Rajasthan. Only 2.1% responded that packaging/branding is important. This is at variance with the fact that 86.6% of the households surveyed in Rajasthan use packaged crushed salt.

- Iodization of salt as an important attribute to the quality of salt is highest in Rajasthan (33.9%), followed by Uttarakhand (23.9%) and Madhya Pradesh (19.4%).

- Recognizing iodization as an important characteristic is lowest in Karnataka, Uttar Pradesh and Orissa.

In essence, one may conclude that iodization is not the quality uppermost in people’s minds when buying salt.

3.6 Awareness about Iodized Salt

Fig 3.1: Percentage of respondents aware about Iodized Salt
Table: 3.2 Availability of iodized salt in households by awareness of iodized salt

<table>
<thead>
<tr>
<th>States</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andhra Pradesh</td>
<td>63.2</td>
</tr>
<tr>
<td>Karnataka</td>
<td>41.9</td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>58.1</td>
</tr>
<tr>
<td>Orissa</td>
<td>72.0</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>54.8</td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>45.1</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>40.6</td>
</tr>
<tr>
<td>Uttarakhand</td>
<td>65.3</td>
</tr>
<tr>
<td>Combined- 8 States</td>
<td>55.1</td>
</tr>
</tbody>
</table>

- 57.8% of people were aware of iodized salt. Of which 55.1% had iodized salt in the household.
- There is high awareness in Uttarakhand, followed by Tamil Nadu, Rajasthan, Uttar Pradesh and Madhya Pradesh. But this awareness is not matched by availability / consumption of iodized salt particularly in Uttar Pradesh and Tamil Nadu. The reason could be that iodized salt is not available locally.
- In Karnataka 50.7% of the people know about iodization. However, only 35.4% of the households had iodized salt in Karnataka. 53.2% of the salt has less than adequate iodine in the salt and 11.2% of salt had no iodine at all.
- The higher the knowledge / awareness about iodized salt, the greater is the presence of iodized salt in the household. The awareness is at the level of the head of the household.
- 42.2% of the households were not aware of iodized salt. Still 36.4% had iodized salt at home.
3.7 Knowledge about the effects of iodine deficiency in human body

- There is fair knowledge about the effects of iodine deficiency on the human body.
- 62% of the people knew iodine deficiency results in goiter
- The awareness levels were as follows:

<table>
<thead>
<tr>
<th>State</th>
<th>Awareness Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orissa</td>
<td>81.7%</td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>77.0%</td>
</tr>
<tr>
<td>Uttarakhand</td>
<td>67.2%</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>62.6%</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>61.9%</td>
</tr>
<tr>
<td>Karnataka</td>
<td>55.5%</td>
</tr>
</tbody>
</table>

- Knowledge about goitre is slightly lower in Tamil Nadu at 47.1%, the lowest being Andhra Pradesh where only 39.7% of the people know that iodine deficiency causes goitre.
- Other than goitre, 35.4% of the people knew that iodine deficiency causes “less mental development and diminished intelligence” and 32% knew that iodine deficiency can result in “less physical development / stunted growth”.
- 62.4% of people in Karnataka, the highest amongst all the states, knew that iodine deficiency results in less mental development and diminished intelligence. Yet the consumption of iodized salt in one of the lowest in Karnataka. Clearly there is a gross mismatch here - either iodized salt is not available or salt is not associated with iodization.
- 70.3% of people in Andhra Pradesh knew iodine deficiency can result in less physical development / stunted growth, but only 39% knew it leads to goitre.
3.8 Price of edible salt

Table 3.3: Price Paid (in rupees) by households to purchase 1 kg of edible salt by states

<table>
<thead>
<tr>
<th>States</th>
<th>Packaged crushed salt</th>
<th>Packaged crystal salt</th>
<th>Loose crystal salt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andhra Pradesh</td>
<td>10</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Karnataka</td>
<td>9</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>7</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Orissa</td>
<td>8</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>7</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>8</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>9</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Uttarakhand</td>
<td>10</td>
<td>NA</td>
<td>5</td>
</tr>
<tr>
<td>Combined- 8 States</td>
<td>8</td>
<td>6</td>
<td>5</td>
</tr>
</tbody>
</table>

Note: In Rajasthan 8 HHs had obtained the edible salt from PDS in free of cost

- The average price paid for one kilogram of packaged crushed salt is Rs. 8. It is highest at Rs.10 in Andhra Pradesh and Uttarakhand and lowest at Rs. 7 in Madhya Pradesh and Rajasthan.

- It is surprising to note that in Tamil Nadu, a salt-producing state, a kilogram of packaged crushed salt is Rs.8 and crystal salt both packaged and loose sell at the same price of Rs. 6 per kilogram. The reason for this may be due to higher costs of salt production.

- Loose crystal salt is Rs. 5 per kg and packaged crushed salt is Rs. 9 per kg in Uttar Pradesh and Karnataka. This may be the reason why loose crystal salt sells more in Uttar Pradesh.

- In Orissa, the packaged crushed salt sells at Rs. 8 per kg and crystal salt packaged and loose sells at Rs. 4 per kg. But price has not adversely affected the consumption of packaged crushed salt in Orissa which is at 65.9%.
3.9 What are people willing to pay for better quality salt?

The respondents were asked whether they were ready to pay more for better quality salt and if so how much.

Figure 3.2 Percentage of respondents ready to pay more for better quality of edible salt by states

- Most of the respondents perceived better quality as either salt “tasting good” or “white in color”.
- Only 12.6% of the respondents perceived iodized salt to be an attribute of good quality salt. The highest was in Rajasthan at 34%, Uttarakhand at 24% and Madhya Pradesh at 19%.
- 72.4% of the respondents across all eight states were willing to pay more for better quality of salt. This was highest in Karnataka (96.4%), Rajasthan (88.3%), Andhra Pradesh (82.8%), and Tamil Nadu (80.5%). However, the same was lowest in Uttar Pradesh (42.3%) and Uttarakhand (48.3%).

Table 3.4 Percentage of respondents ready to pay the maximum amount for 1 kg of better quality edible salt by states

<table>
<thead>
<tr>
<th>States</th>
<th>&lt; Rs. 5/-</th>
<th>Rs. 5/- to &lt; Rs.10/-</th>
<th>Rs. 10/- and above</th>
<th>Base</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andhra Pradesh</td>
<td>0.6</td>
<td>48.6</td>
<td>49.4</td>
<td>994</td>
</tr>
<tr>
<td>Karnataka</td>
<td>1.1</td>
<td>84.9</td>
<td>13.4</td>
<td>1,157</td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>4.1</td>
<td>72.2</td>
<td>23.7</td>
<td>811</td>
</tr>
<tr>
<td>Orissa</td>
<td>5.0</td>
<td>68.6</td>
<td>24.4</td>
<td>874</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>3.9</td>
<td>74.7</td>
<td>21.2</td>
<td>1,059</td>
</tr>
<tr>
<td>Tamilnadu</td>
<td>1.7</td>
<td>64.8</td>
<td>33.5</td>
<td>966</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>0.4</td>
<td>72.3</td>
<td>22.0</td>
<td>508</td>
</tr>
<tr>
<td>Uttarakhand</td>
<td>0.0</td>
<td>43.2</td>
<td>54.6</td>
<td>580</td>
</tr>
<tr>
<td>Combined- 8 States</td>
<td>2.2</td>
<td>67.4</td>
<td>29.2</td>
<td>6949</td>
</tr>
</tbody>
</table>
3.10 People willing to pay maximum amount for iodized salt

- 67.4% of the respondents were willing to pay between Rs. 5 and less than Rs. 10/- for a kilogram of salt and 29.2% said they were willing to pay more than Rs. 10.

- In Karnataka 96.4% of the households had said that they would be willing to pay more for better quality salt. Of this 84.9% said that they would be willing to pay between Rs. 5 and Rs. 10 for better quality salt. 13.4% said that they would be willing to pay more than Rs. 10.

- Similarly in Rajasthan, 88.3% of the people had said that they would be happy to pay more of which 74.7% said they would pay between Rs. 5 to less than Rs.10 and 21.2% said that they would be willing to pay more than Rs. 10.

- In Andhra Pradesh 82.8% of people were willing to pay more of which nearly 50% each were willing to pay between Rs. 5 to Rs. 10 and above Rs. 10.

- In Tamil Nadu 80.5% of households were willing to pay more of which 64.8% were willing to pay between Rs. 5 to Rs. 10 and 33.5% over Rs. 10.

- Orissa and Madhya Pradesh were not far behind in the number of people who said they would be willing to pay more at 72.8% and 67.6% of which 68.6% and 72.2% were willing to pay between Rs. 5 to Rs.10 and nearly a quarter of those were willing to pay more than Rs. 10.

Table 3.5 Level of iodine content in edible salt by source of salt, price, type and texture of salt (8 states)

<table>
<thead>
<tr>
<th>Source of purchase of edible salt</th>
<th>0 to &lt;5 ppm</th>
<th>5 to &lt;15 ppm</th>
<th>15 to &lt;30 ppm</th>
<th>30 to &lt;50 ppm</th>
<th>50 ppm and above</th>
<th>Bsse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kirana store</td>
<td>31.8</td>
<td>20.8</td>
<td>24.7</td>
<td>21.2</td>
<td>1.5</td>
<td>6,954</td>
</tr>
<tr>
<td>General store</td>
<td>26.0</td>
<td>19.0</td>
<td>26.1</td>
<td>26.9</td>
<td>2.0</td>
<td>1,379</td>
</tr>
<tr>
<td>PDS</td>
<td>15.7</td>
<td>22.5</td>
<td>35.1</td>
<td>23.3</td>
<td>3.4</td>
<td>377</td>
</tr>
<tr>
<td>Other sources</td>
<td>46.7</td>
<td>25.4</td>
<td>15.4</td>
<td>12.2</td>
<td>0.5</td>
<td>890</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Price paid for 1 kg of edible salt</th>
<th>0 to &lt;5 ppm</th>
<th>5 to &lt;15 ppm</th>
<th>15 to &lt;30 ppm</th>
<th>30 to &lt;50 ppm</th>
<th>50 ppm and above</th>
<th>Bsse</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;5 Rs.</td>
<td>62.3</td>
<td>26.6</td>
<td>65</td>
<td>4.2</td>
<td>0.5</td>
<td>1,346</td>
</tr>
<tr>
<td>5 to &lt;10 Rs.</td>
<td>37.1</td>
<td>24.7</td>
<td>23.2</td>
<td>13.8</td>
<td>1.2</td>
<td>5,187</td>
</tr>
<tr>
<td>10 Rs. and above</td>
<td>8.3</td>
<td>11.0</td>
<td>34.3</td>
<td>43.9</td>
<td>2.5</td>
<td>2,689</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of edible salt purchased</th>
<th>0 to &lt;5 ppm</th>
<th>5 to &lt;15 ppm</th>
<th>15 to &lt;30 ppm</th>
<th>30 to &lt;50 ppm</th>
<th>50 ppm and above</th>
<th>Bsse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packaged Crushed</td>
<td>11.4</td>
<td>17.0</td>
<td>36.3</td>
<td>33.2</td>
<td>2.2</td>
<td>5,505</td>
</tr>
<tr>
<td>Packaged Crystal</td>
<td>50.5</td>
<td>25.5</td>
<td>13.9</td>
<td>8.8</td>
<td>1.3</td>
<td>1,842</td>
</tr>
<tr>
<td>Loose Crystal</td>
<td>65.9</td>
<td>27.4</td>
<td>4.2</td>
<td>2.4</td>
<td>0.2</td>
<td>2,253</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Texture of salt (observed by laboratory)</th>
<th>0 to &lt;5 ppm</th>
<th>5 to &lt;15 ppm</th>
<th>15 to &lt;30 ppm</th>
<th>30 to &lt;50 ppm</th>
<th>50 ppm and above</th>
<th>Bsse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refined</td>
<td>5.8</td>
<td>12.6</td>
<td>39.0</td>
<td>40.4</td>
<td>2.3</td>
<td>4,043</td>
</tr>
<tr>
<td>Powdered</td>
<td>25.7</td>
<td>28.8</td>
<td>29.0</td>
<td>15.0</td>
<td>1.6</td>
<td>1,641</td>
</tr>
<tr>
<td>Crystal</td>
<td>61.0</td>
<td>26.6</td>
<td>7.5</td>
<td>4.2</td>
<td>0.7</td>
<td>3,916</td>
</tr>
</tbody>
</table>
• In Uttarakhand and Uttar Pradesh 48.3% and 42.3% of people were willing to pay more of which more than 50% were willing to pay more than Rs. 10 and the rest between Rs. 5 to Rs. 10 in Uttarakhand. In Uttar Pradesh 72% of the people were willing to pay between Rs. 5 to Rs. 10 and the rest above Rs. 10.

3.11 Cross sectional analysis corroborates many of the findings:

• 72% of the households bought their salt from Kirana stores. 52.6% of this salt had less than 15 ppm iodine in it.

• 55% of the salt bought in general stores had adequate iodine in it.

• 61.8% of the salt bought in PDS had adequate iodine, but a very insignificant number of households bought their salt though PDS.

• 72.1% of the salt bought through vendors, salesmen had inadequate iodine.

• Nearly 89% of salt bought for less than Rs. 5 had inadequate iodine. However, only 14% of the households reported buying salt at this price.

• 56% of people paid Rs. 5 to 10 for a kilogram of salt and 61.8% of this salt had inadequate iodine. The implication is that most of the people were paying more money for badly iodized salt. Most of the salt at this price bracket is being purchased in Tamil Nadu, Andhra Pradesh, and Karnataka. In Tamil Nadu there is no salt available at Rs. 5 per kilogram and in Andhra Pradesh and Karnataka only loose crystal salt is sold at Rs. 5 or less. The more expensive salt above Rs. 10 was adequately iodized as well. 87.2% of the salt above Rs. 10 had adequate iodine.

• 57% of households reported buying packaged crushed salt. But only 71.7% of this packaged crushed salt had adequate iodine. That is only 41.1% of people who bought packaged crushed salt had adequate iodine. It seems that they were paying more for what they thought was good quality salt.

• 23.5% people bought loose crystal salt and 93% of this salt had less than adequate iodine.

• 19% people bought packaged crystal salt and 76% of this salt had less than adequate iodine.

• Not all packaged crushed salt is refined. 41.1% of the households bought refined salt, as observed in the laboratory whereas 57% of households bought packaged crushed salt. 81.7% of this refined salt had adequate iodine. So, not all 100% of refined salt is iodized either. This is somewhat surprising. From this it appears that some crushed unrefined salt is also being iodized adequately.

• Even though salt may be in packets still there is more crystal salt than powdered, as observed in the laboratory.

• As observed in the laboratory 51.8% of the salt had adequate iodine levels.
4. OTHER INDICATORS DETERMINING AVAILABILITY OF IODIZED SALT AT HOUSEHOLD LEVEL

4.1 Education and use of iodized salt

- The head of the household is the most important person who takes decisions in the household. Households have been categorized according to the educational level of the head of the household and were cross analyzed with the availability of iodized salt at the household.

- Availability of adequately iodized salt was highest (59%) in those households where the heads of households have completed 10th standard or above.

- It is reduced to 50% where the educational level was below 10th standard.

- It is further reduced to 38% if the heads of households were illiterate. This variation is quite similar across the states.

- The above analysis indicates that there is a positive correlation between educational levels and availability of adequately iodized salt at the household level.

4.2 Economic status of households and use of iodized salt

The households were stratified into five economic groups based on wealth indices - poorest, poor, middle, rich and richest. In the combined analysis of eight states it was observed that the percentage of households having adequately iodized salt is highest (64.7%) in the richest wealth index category and lowest (36.2%) in the lowest wealth index category. Little variation was observed in the middle three categories. So, it can be concluded that economically better off sections are more likely to have iodized salt at the household. The poorest households, as in all situations are the most vulnerable and do not have iodized salt at home.

Table 3:6 Level of adequately iodine content in edible salt as per economic status by states

<table>
<thead>
<tr>
<th>Wealth Index</th>
<th>Andhra Pradesh</th>
<th>Karnataka</th>
<th>Madhya Pradesh</th>
<th>Orissa</th>
<th>Rajasthan</th>
<th>Tamil Nadu</th>
<th>Uttarakhand</th>
<th>Uttara Pradesh</th>
<th>Combined 8 States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poorest</td>
<td>29.5</td>
<td>42.1</td>
<td>33.6</td>
<td>51.2</td>
<td>37.5</td>
<td>34.3</td>
<td>23.4</td>
<td>45.2</td>
<td>36.2</td>
</tr>
<tr>
<td>Poor</td>
<td>27.5</td>
<td>25.5</td>
<td>39.8</td>
<td>50.3</td>
<td>47.1</td>
<td>35.1</td>
<td>30.7</td>
<td>52.8</td>
<td>38.8</td>
</tr>
<tr>
<td>Middle</td>
<td>48.1</td>
<td>24.6</td>
<td>48.9</td>
<td>56.1</td>
<td>49.7</td>
<td>35.8</td>
<td>41.6</td>
<td>46.3</td>
<td>42.5</td>
</tr>
<tr>
<td>Rich</td>
<td>47.6</td>
<td>32.1</td>
<td>60.9</td>
<td>71.7</td>
<td>49.4</td>
<td>45</td>
<td>43.1</td>
<td>63.5</td>
<td>49.3</td>
</tr>
<tr>
<td>Richest</td>
<td>59.5</td>
<td>57</td>
<td>70</td>
<td>84.4</td>
<td>65.9</td>
<td>49.9</td>
<td>60.4</td>
<td>74</td>
<td>64.7</td>
</tr>
</tbody>
</table>
5. SALT TRADE

5.1 Practice of procurement and sale of edible salt by retailers

Salt trade like salt production is mostly in the private sector and is controlled by market forces. The retail trade was studied to see if there was any definite pattern emerging in terms of retailer and wholesaler behavior and what role the trade played in actively procuring and promoting iodized salt. 1,872 retailers were interviewed across eight states. Most of the retailers included in the study reported to be private shops (97%) whereas 3% were ration / fair price shops. A miniscule number were co-operative stores. An average of 238 shops was studied across each state. The study revealed:

- Most retailers are privately owned shops across the states
- Most retailers procure salt from general wholesalers particularly in Orissa, Karnataka, Uttarakhand and Andhra Pradesh
- The other common procurement source is from locally based merchants / vendors followed by wholesalers who deal only in salt.
- Most of the retailers reported dealing primarily in packaged crushed salt. Uttar Pradesh had the lowest proportion of retailers selling packaged crushed salt. Uttar Pradesh had the largest number of retailers selling loose crystal salt. Tamil Nadu had the highest proportion of retailers selling packaged crystal salt.
- Packaged crushed salt is most expensive and loose crystal salt is the cheapest. Whatever the type of salt the selling price varies only between Rs. 1.25 and Rs. 1.33 more than the purchase price. The sale margin therefore is most in loose crystal salt, and the lowest in packaged crushed salt.
- Most retailers have 10-50 households purchasing salt from them. This is highest in Uttarakhand. In Andhra Pradesh 42.5% of retailers reported that they had over 75 households buying salt every month. The volume of business per retailer is more in Andhra Pradesh. The maximum profit per month, assuming each household buys a kilogram of salt a month may be around Rs. 10 to Rs. 100 per retailer
- Across eight states 47.8% of people asked for packaged crushed salt. This is the lowest in Karnataka, a shocking 3.8% followed by Tamil Nadu, Uttar Pradesh and Uttarakhand.
- Uttar Pradesh is the only state where retailers reported consumers asking for loose crystal salt. In Uttarakhand people asked for a brand more than any other state and also by price. Karnataka is the only state where people asked for “any salt” more than by any other attribute.
- Those who were not stocking packaged crushed salt were asked whether they would be willing to keep iodized salt. The response except in Rajasthan and Madhya Pradesh was lukewarm. When asked the reasons for this, most retailers quoted low demand as a reason. The sample size however was very small.
- Across all states more than 78.3% of retailers said they had seen promotional campaigns for iodized salt the most prominent medium being TV, followed by radio and newspaper advertisements. The field functionaries played a very small role in being the source of information to the retailers.
5.2 Practice of procurement, storage and sale of edible salt by wholesalers

The wholesale trader is the most critical link in the procurement, storage and sale of iodized salt. While margins are very critical to a trader, if traders can be educated both about the criticality of adequately iodized salt to health and well being of people and the legal requirements of selling only iodized salt, a major breakthrough can be achieved in the sale of adequately iodized salt.

- 60% of the wholesalers were wholesale cum retail outfits. This was most prominent in Tamil Nadu (83%) followed by Madhya Pradesh and Uttar Pradesh.

- For 45% of retailers the most common source of procurement of salt is from general wholesalers dealing with salt and other products. In Orissa and the three southern states this is the most common source.

- Supply of salt by wholesalers or a company at doorstep is most common in Uttarakhand, Rajasthan, Uttar Pradesh and Karnataka.

- Wholesalers dealing exclusively in salt are the third most common source of procurement. This is most common in Uttar Pradesh at 57% of wholesalers purchasing salt from other “Exclusively Salt” wholesalers.

- 20% of wholesalers purchase their salt locally from merchants and vendors, though this was quite small in other states.

- Nearly 100% of wholesalers across states deal in packaged crushed salt.

- 98% and 96.3% of wholesalers in Karnataka and Tamil Nadu also deal in packaged crushed salt.

- 64.8% of wholesalers in Uttar Pradesh and 44% in Karnataka deal in loose crystal salt, followed by 27% in Andhra Pradesh and 15.4% in Uttarakhand. It was 10% and lower in the other states.

- Margins for the wholesaler are the highest in loose crystal salt at 24% and lowest in packaged crushed salt at 12.5%. Packaged crystal salt fetches a margin of 19.7%.

- 37% of wholesalers cater to 10 to 50 retailers. This is highest in Tamil Nadu, Madhya Pradesh and Uttar Pradesh. 34.7% sell to over 100 retailers in Karnataka, Andhra Pradesh and Orissa. 17% reported 75-100 retailers purchase salt from them. This is highest in Andhra Pradesh, Uttarakhand, Uttar Pradesh and Karnataka.

- 94% of wholesalers reported seeing campaigns on iodized salt. An overwhelming 97.1% cited TV as the source of seeing such campaigns. 100% of wholesalers reported seeing TV campaigns on iodized salt in Orissa, Rajasthan and Uttarakhand.
6. CONCLUSIONS

• The use of iodized salt in rural areas in the eight study states has increased as compared to NFHS 3. There has been substantial improvement in the states of Uttarakhand, Orissa, Rajasthan, Andhra Pradesh and Madhya Pradesh.

• The Iodized Salt Coverage Study 2010 shows that the availability of adequately iodized salt at household in Uttar Pradesh has improved partially from 27% in NFHS 3 in 2005-06 to only 35.4% in 2010. Increase in the consumption of iodized salt in Uttar Pradesh is critical for the success of the salt iodization program in India.

• The study observed that the packaged crushed salt is better iodized than packaged crystal/ loose crystal salt.

• Price is not a deterrent for purchase of better quality salt. However, iodized salt has been perceived by very limited number of respondents as one of the attributes of good quality salt.

• The higher the educational level and economic condition of the head of the household, the higher is the likelihood of consumption of adequately iodized salt.

• Retailers and wholesalers make more margins by sale of loose crystal salt.

7. RECOMMENDATIONS

• Advocacy at high levels in the state of Uttar Pradesh and Karnataka for ensuring that only adequately iodized salt, preferably crushed and packaged should be sold in the state.

• Advocacy in Gujarat and Tamil Nadu at higher levels to ensure that there is compliance of norms for production of iodized salt which includes monitoring and inspection by the Salt Commissioner’s office in all salt producing states especially Gujarat and Tamil Nadu.

• Better monitoring by Food Safety Standard Authority of India (FSSAI) at receiving states particularly in Uttar Pradesh, Karnataka, Andhra Pradesh and Madhya Pradesh.

• Introduction of better technologies for crushing and refining Baragara/ Poda salt.

• Integrated package of communication activities aimed at wholesalers, retailers and consumer with intensive social mobilization activities for a period of at least three years.
SUMMARY REPORT
IODIZED SALT COVERAGE STUDY 2010

Conducted Across Eight States in India

For any suggestions or queries regarding the report, please contact

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