

SUMMARY REPORT
IODIZED SALT COVERAGE STUDY

Conducted Across Eight States in India 2010



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1. Introduction

1.1 A review of Universal Salt Iodization Programme

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 programme. A very limited quantity of iodized salt was being produced in the public sector (0.14 lakh MTs). In 1983, the Government of India opened up iodized salt production to the private sector by making salt iodization mandatory for edible purpose. In 1992 the programme was renamed as the National Iodine Deficiency Disorders Control Programme (NIDDCP) to reflect the spectrum of disorders that occur due to iodine deficiency and not just goitre.



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The production and consumption of iodized salt in India has increased considerably over the years. India produced more than 5.2 MMT of iodized salt during 2008-09. According to

National Family Health Survey III conducted in 2006 roughly half the country consumes salt which is iodized. While this is a vast number of people, the people who are poorest and most vulnerable and those who live in rural areas have very little access to iodized salt. In NFHS III there were eight states where the consumption of iodized salt was listed as much below average as compared to the rest of the country. In 2010, the Salt Commissioner, Micronutrient Initiative, 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 new study in order to estimate use of rural household level iodized salt in eight states in India. The household level iodization level in these states was lower than the national average during NFHS III (2005-06) and total population of these states put together was more than 50.5% of the country population.

1.2 Study methodology

The study was conducted across eight states of Rajasthan, Uttar Pradesh, Uttarakhand, Madhya Pradesh, Orissa, Andhra Pradesh, Tamil Nadu and Karnataka. India in 2010 by AC Nielsen at rural households and retail / wholesale sellers of salt. The sample size chosen was 1,200 households per state. 9,600 households across eight states, 1,872 retailers and 478 wholesalers were interviewed. 120 PSUs (census villages) were chosen from 8 states and 10 households were selected from each PSU for collection of salt samples. Salt samples were collected from each household and tested by 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 questions relating to the quality, price, quantity and place of purchase, storage of salt were also collected.

Fig: 1.1

Geographical Coverage

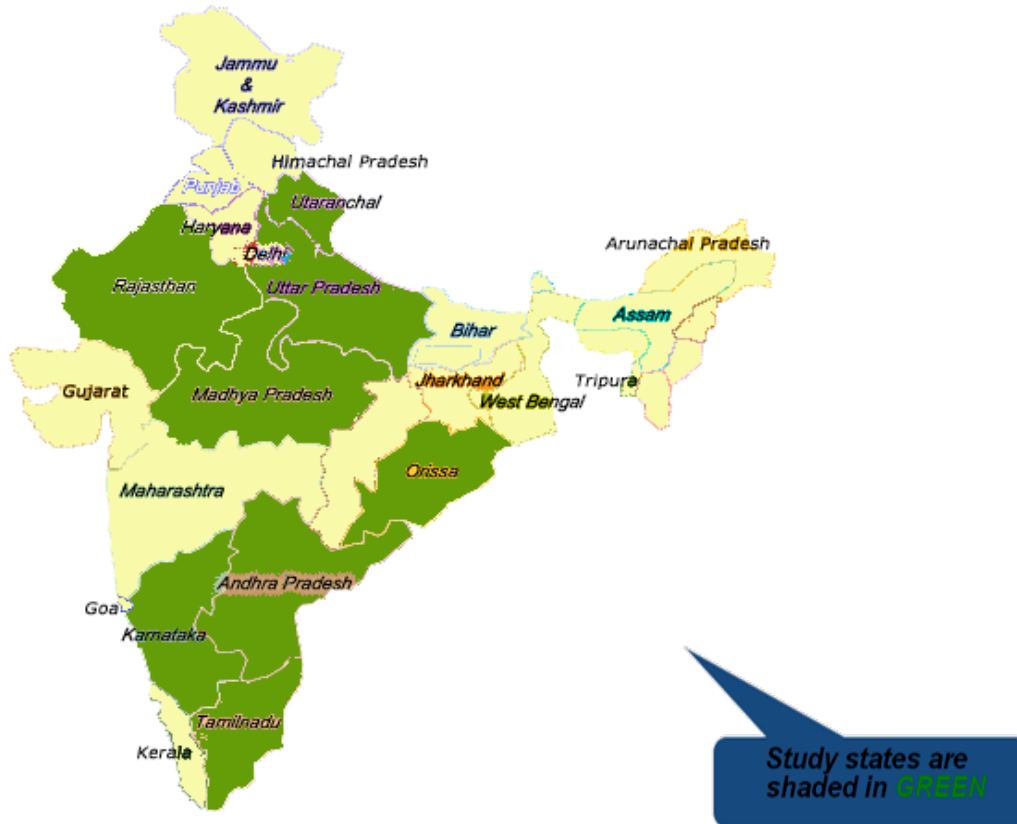


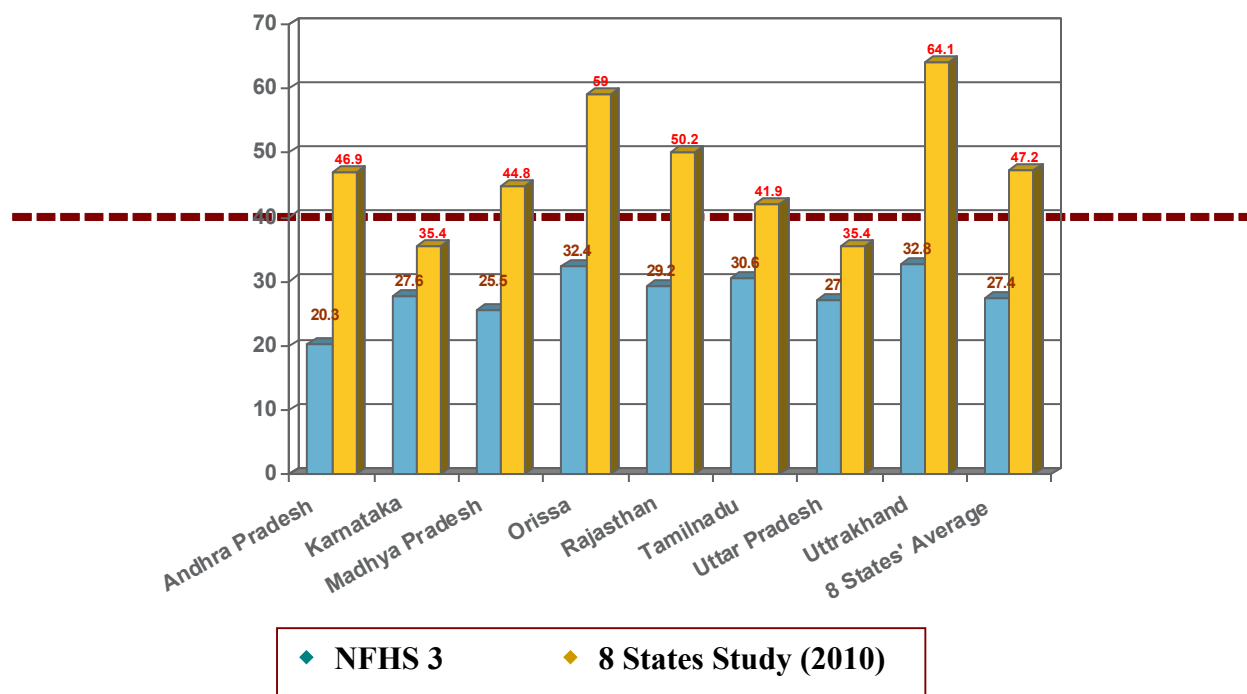
Table: 1.1 Socioeconomic profile of respondents/ households

Name of the state	Total Population in millions	% to total population of India	% Rural
Andhra Pradesh	76.21	7.4	72.7
Karnataka	52.85	5.1	66.0
Madhya Pradesh	60.34	5.9	73.5
Orissa	36.80	3.6	85.0
Rajasthan	56.50	5.5	76.6
Tamil Nadu	62.40	6.1	56.0
Uttar Pradesh	166.20	16.2	79.2
Uttarakhand	8.49	0.8	74.3
8 State aggregate	519.814	50.5	73.5
India	1,028.74	100.0	72.2

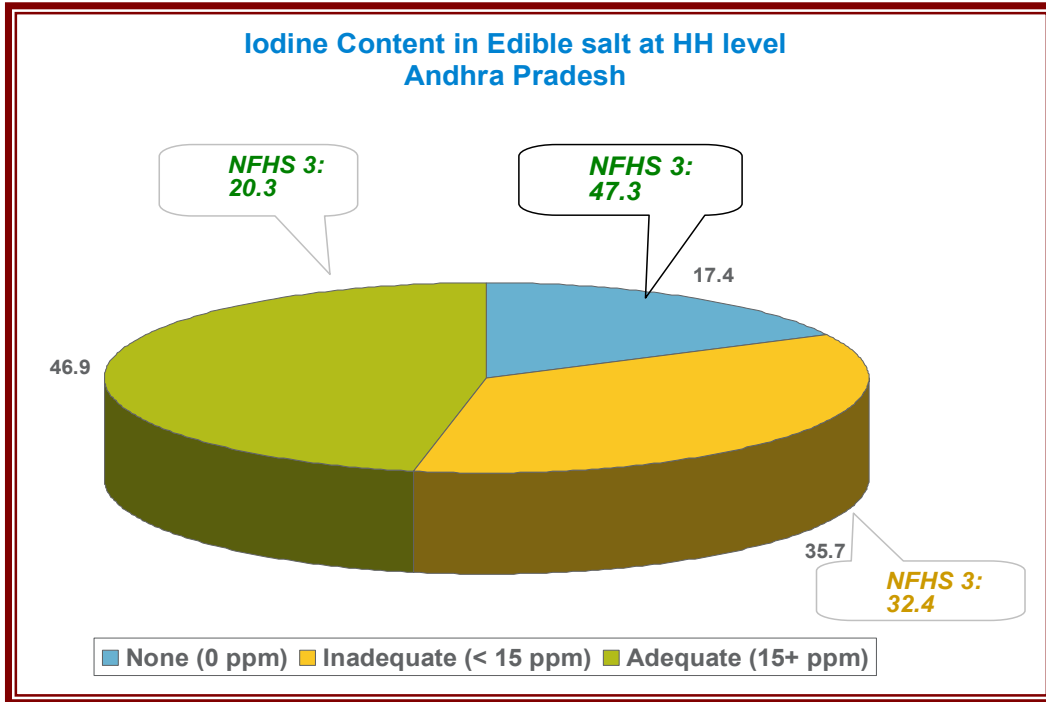
- *The mean average age of the head of the household from amongst the households surveyed is 48 years.*
- *93.1 % of the households were male headed and 6.9% female headed.*
- *The average family size is 5.3.*
- *89.7 of households were Hindus and 8.9 % Muslims.*
- *47.9 % of households belonged to the 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% with less than class 8 education, 12.2% having completed 10 and 11 and only 10.2 % having completed class 12 and above.*
- *The households in the sample were clearly poor. 38.2% / 38.3 % lived in pucca / semi pucca houses, only 15.9% had water taps in residences and 24% had own flush toilet. More than 58.1% used the field / bush for toilet facilities.*
- *Surprisingly however 78.4 % had electricity – the pucca / semi pucca houses accounting for electricity availability.*
- *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 as farm or non farm wage labourers at 19.5% and 40.1% respectively.*
- *Rearing of livestock is also an important side livelihood.*
- *Most of the ration cards were owned by Below Poverty Line / Antodaya families.*

2. Quality of salt at the household level Clearly all households use salt. Salt is an item found even in the poorest household. The kind of salt that families had, the quality of the salt in terms of texture, condition, storage and level of iodization is the primary concern of this study. The type of salt and the amount of iodine in the salt across the eight states is analysed state by state.

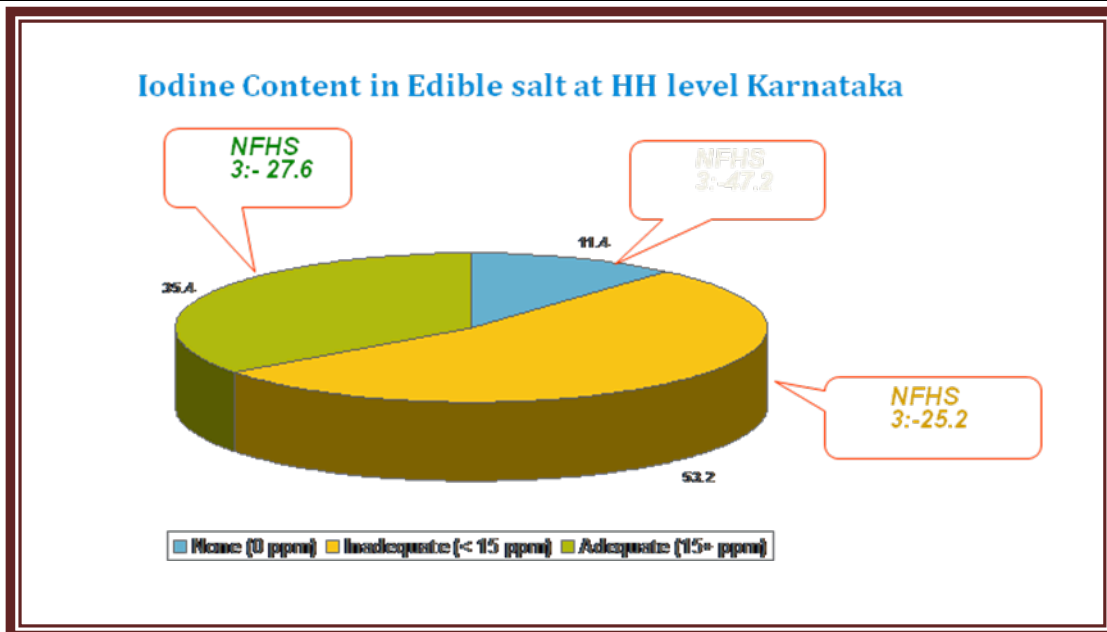
**Fig: 2:1 Increase in Presence of adequately iodized salt at Household level
A comparison between NFHS III and Iodized salt study 2010**



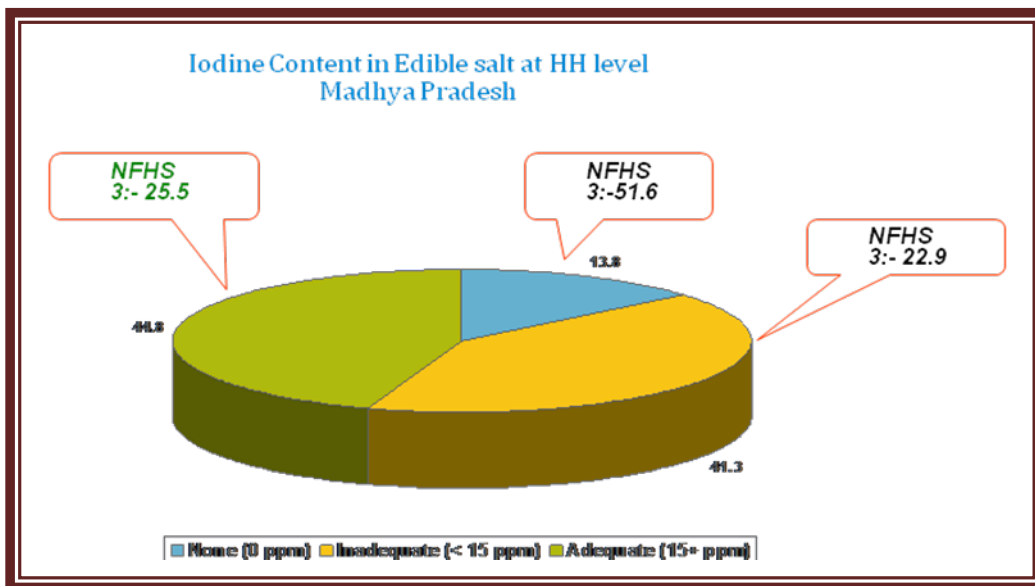
- The use of iodized salt at the rural household level has increased across all states. It has gone up from 27% to 47.2 % compared to NFHS 3.
- The highest increase is in Uttarakhand, followed by Orissa, Rajasthan, Andhra Pradesh and Madhya Pradesh.
- Tamil Nadu and Uttar Pradesh have also reported modest 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.



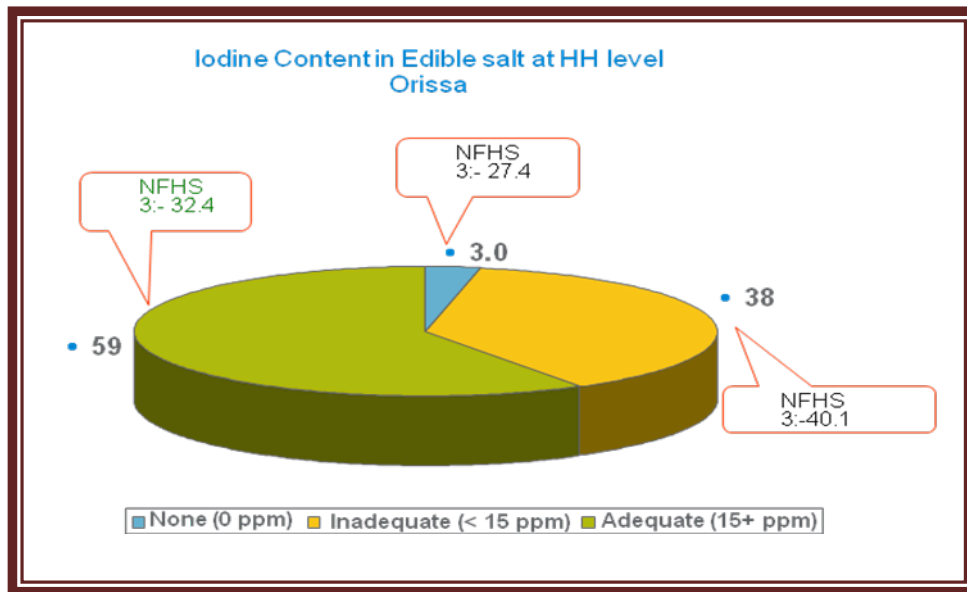
- Andhra Pradesh is one of the southern states which performed badly in NFHS III. The Iodized Salt Coverage Study 2010 shows that the availability of adequately iodized salt at the household has improved from 20.3% in NFHS III to 46.9%.
- Inadequately iodized salt has gone up slightly from 32.4% in NFHS III to 35%.
- There is a dramatic reduction in Non iodized salt from 47.3% in NFHS III to only 17.4%.



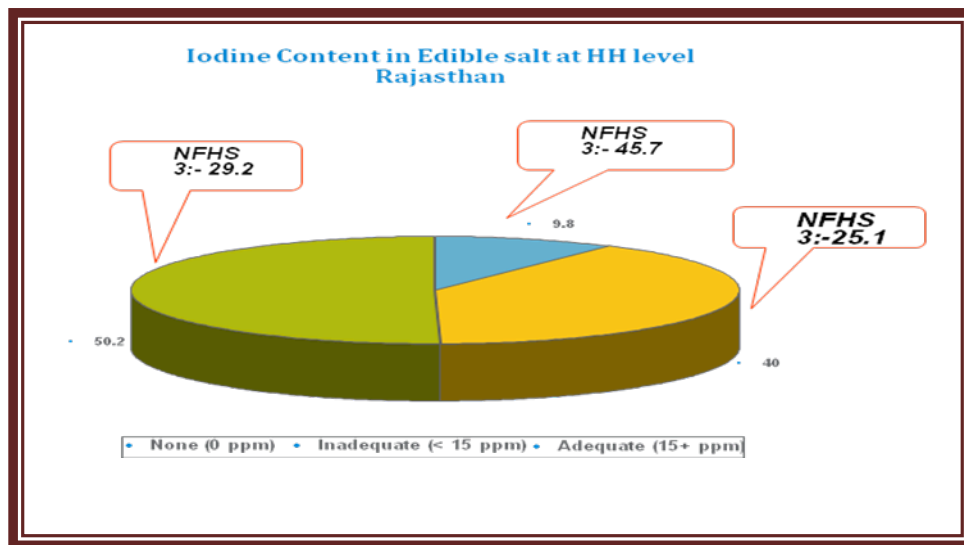
- The Iodized Salt Coverage Study 2010 that in Karnataka the availability of adequately iodized salt at the household has improved from 27.6% in NFHS III in 2005-06 to 35.4% in 2010.
- Inadequately iodized salt has gone up slightly from 25.2% in NFHS III to 53.2%
- There is a dramatic reduction in Non iodized salt from 47.2% in NFHS III to only 11.4%



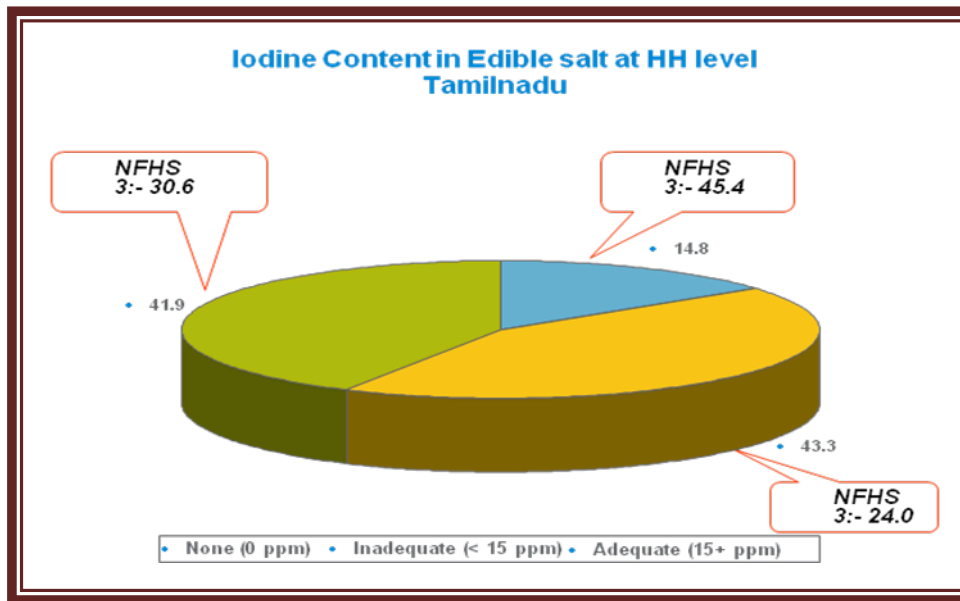
- The Iodized Salt Coverage Study 2010 shows that the availability of adequately iodized salt in Madhya Pradesh has improved substantially from 25.5% in NFHS III in 2005-06 to 44.8% in 2010
- Inadequately iodized salt also improved substantially from 22.9% to 41.3% during last five years
- Non iodized salt has reduced drastically from 51.6% in NFHS III to only 13.8%



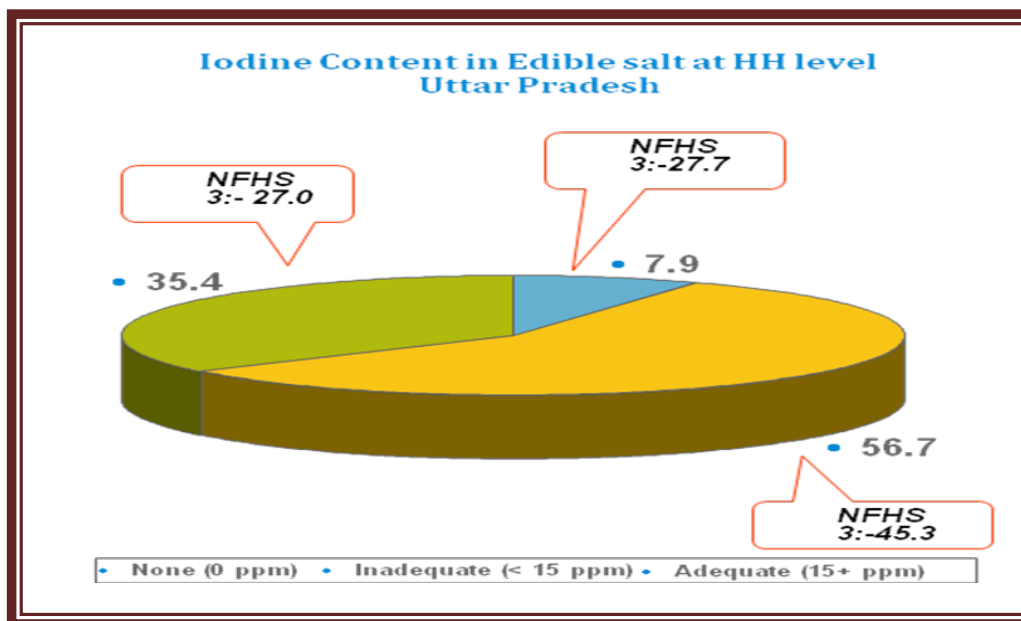
- The Iodized Salt Coverage Study 2010 shows that the availability of adequately iodized salt at the household in Orissa has almost doubled from 32.4% in NFHS III in 2005-06 to 59% in 2010
- Inadequately iodized salt also partially reduced from 40.1% to 38% during last five years
- Non iodized salt has reduced drastically from 27.4% in NFHS III to only 3%



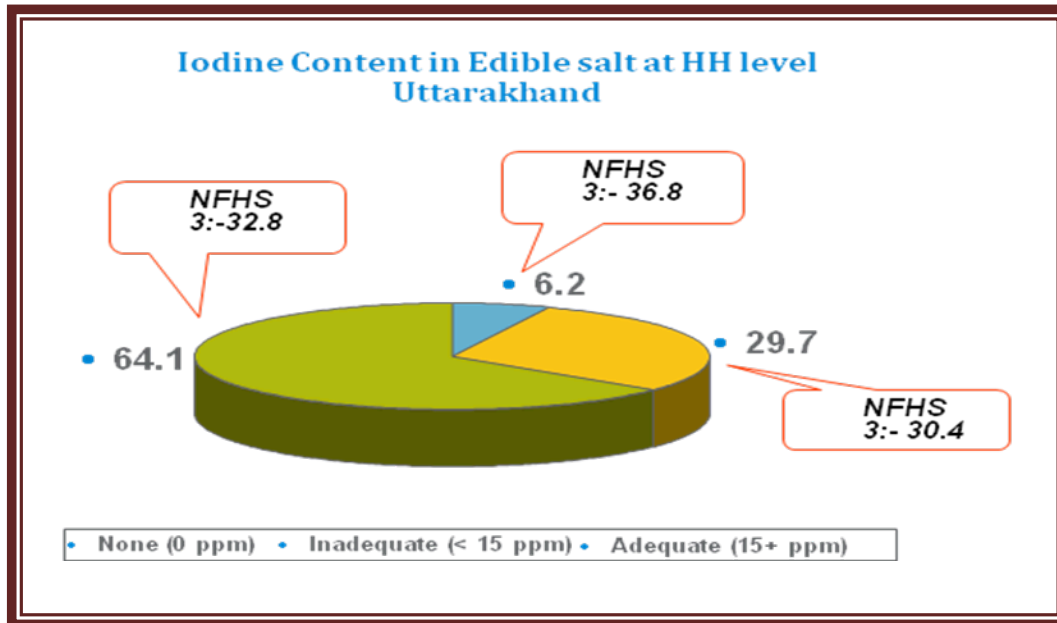
- The Iodized Salt Coverage Study 2010 shows that the availability of adequately iodized salt at the household in Rajasthan has improved substantially from 29.2% in NFHS III in 2005-06 to 50.2% in 2010
- Inadequately iodized salt also improved radically from 25.1% to 40% during last five years
- Non iodized salt has reduced drastically from 45.7% in NFHS III to only 9.8%



- The Iodized Salt Coverage Study 2010 shows that the availability of adequately iodized salt in Tamil Nadu has improved from 30.6% in NFHS III in 2005-06 to 41.9% in 2010
- Inadequately iodized salt also improved from 24% to 43.3% during last five years
- Non iodized has reduced drastically from 45.4% in NFHS III to only 14.8%



- 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 III 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 III to only 7.9%



- The Iodized Salt Coverage Study 2010 shows that the availability of adequately iodized salt at household in Uttarakhand that has improved substantially from 32.8% in NFHS III 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 III to only 6.2%

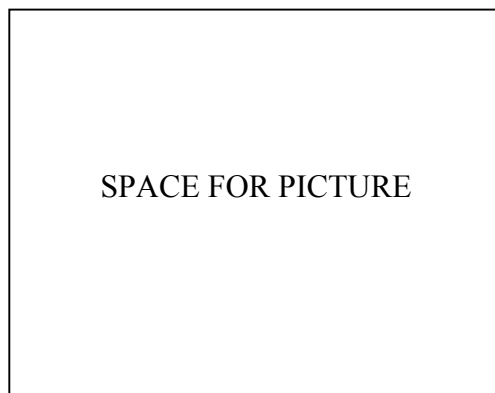
3. Consumer behavior of Salt

This study included a section on the consumer behavior of salt such as type of salt purchased, source of purchase, quantity purchased, price paid and willingness to pay for better quality of salt as perceived. This provides information to guide programs to maximize utilization 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.

States	Packaged crushed salt	Packaged crystal salt	Loose crystal salt	Base
Andhra Pradesh	51.5	22.8	25.7	1200
Karnataka	21.3	52.6	26.1	1200
Madhya Pradesh	68.6	4.7	26.7	1200
Orissa	65.9	6.3	27.8	1200
Rajasthan	86.6	7.2	6.1	1200
Tamil Nadu	31.4	58.6	9.9	1200
Uttar Pradesh	48.9	1.2	49.9	1200
Uttarakhand	84.5	0.0	15.5	1200
Combined- 8 States	57.3	19.2	23.5	9600
< 15 ppm	28.4	76.0	93.3	4965
> 15ppm	71.7	24.0	6.8	4634



- Of the 9,600 households **57.3% 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 Tamilnadu and 52. % 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 Tamilnadu, which is a major salt producing state. So **people of Tamilnadu 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 UP use loose crystal salt--- perhaps the Baragara salt coming in from Gujarat and therein lies the major challenge to the salt iodization programme in India.
- 10.5% households in rural areas in the eight states consume salt with no iodine and 42.2% households consume salt with inadequate iodine. .
- Only 35.4% households in rural areas in Karnataka and UP, and 41.9% in Tamilnadu, consume adequately iodized salt --- the lowest among the eight states.
- There is a positive correlation between packaged crushed salt and the quality of iodization. **71.7 of packaged crushed salt seemed to be adequately iodized.**

3.2 How much salt do people buy at a time?

- It was observed that **58.2% of people across the states bought their salt in 1 kg packs.**
- Only in **Andhra Pradesh and Rajasthan, 76.2% and 91.1% of people bought salt in ½ kg packs.**
- All the other six states including **UP most importantly people bought salt in 1 kg packs.**

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 source of purchase of salt

- 72.4 per cent of the households in these 8 states purchased salt from neighborhood kirana stores. Kirana stores as a source of salt was more in UP, Uttarakhand, Rajasthan, MP and Karnataka.
- Kirana stores are generally are small neighborhood grocery stores selling loose and non branded 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. They 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 Tamilnadu. Hence the purchase of salt as an essential item is also through the PDS. This is important as the neediest households will probably be buying their essential items from the PDS.
- 9.3 % of households bought salt from other sources --- could be traveling salesmen, weekly bazaars and so on.
- 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 the 8 states, 2010.

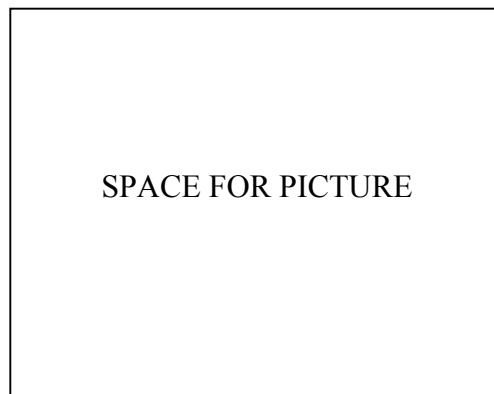
States	Kirana Store	General Store	PDS	Others
AP	57.1	22.2	2.4	18.3
Karnataka	78.6	19.3	0.9	1.2
MP	82.2	2.0	1.6	14.2
Orissa	65.2	18.1	1.2	15.5
Rajasthan	83.8	7.5	0.7	8.0
Tamilnadu	38.4	29.4	16.5	15.7

UP	88.5	4.5	5.8	1.2
Uttarakhand	85.6	12.0	2.3	0.1
Total	72.4	14.4	3.9	9.3

3.4 How do people store salt?

It has been normally been believed in the past that people store their salt in the open and that is one of the primary reasons for iodine getting leached away from the salt into the atmosphere. But surprisingly it was seen that people stored their salt well.

- 84.3 % of the people stored their salt in containers with lids.
- 18% of the people stored it in the same pouch in which they bought it.
- Only 8% stored it in a container without a lid.
- 8.3% of the people stored it in sacks/ bags



3.5 What do people think of the quality of salt they buy?

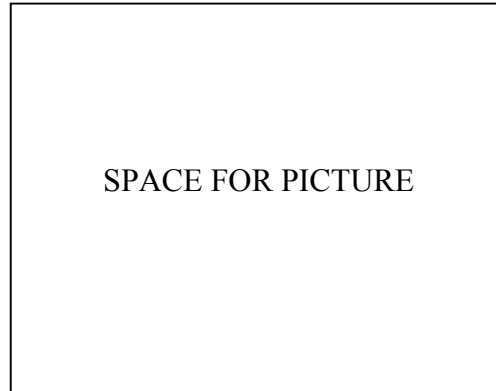
- 68.3 % of the people thought mostly that the salt they buy is of good quality.
- 30.8 % thought that the salt they buy is of average quality and only 1% thought it was poor.
- Of all the important attributes that people ascribe to salt
“Tastes good” (52%) seemed to be the most important followed by

“Whiteness” 48%

“Looks attractive” 17.7%

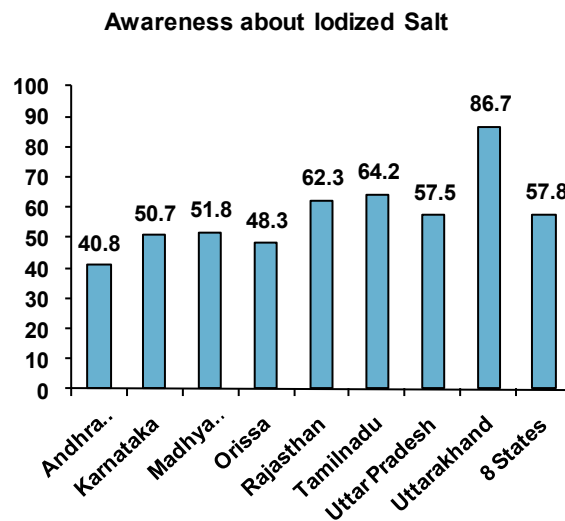
“Packaged/branded” 15.9%

- Whiteness seemed to be most critical in Andhra Pradesh while it seemed the people of UP did not really care how the salt looked—not surprising, used as they are to Bargara salt . The rural people of UP may never have seen better quality of salt.
- Rajasthan, Madhya Pradesh and Uttar Pradesh say that salt has to taste good and that is the most important attribute in assessing the quality of salt.
- Tamilnadu, Andhra Pradesh, Orissa and Uttarakhand have a slight preference for packaged branded salt,
- In Rajasthan they do not really seem to care---only 2.1% say 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 characteristic is highest in
 - Rajasthan - 33.9%
 - Uttarakhand 23.9
 - Madhya Pradesh 19.4%
- Recognizing iodization as an important characteristic is lowest in Karnataka, UP and Orissa.
- **A conclusion can be drawn that iodization is not an important quality that is uppermost in people’s minds or something that they should be sure of or look out for, when buying salt.**



3.6 Awareness about Iodized Salt

Fig 3: 1 Percentage of respondents aware about Iodized Salt by states



- **57.8% of people were aware of iodized salt.**
- There is high awareness in Uttarakhand, followed by Tamil Nadu, Rajasthan, UP and Madhya Pradesh. **But this awareness is not matched by availability / consumption of**

iodized salt particularly in UP 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.

Table: 3.2 Availability of iodized salt in household by awareness of iodized salt

States	Yes	
	%age	Base
Andhra Pradesh	63.2	490
Karnataka	41.9	608
Madhya Pradesh	58.1	622
Orissa	72.0	580
Rajasthan	54.8	747
Tamil Nadu	45.1	770
Uttar Pradesh	40.6	690
Uttarakhand	65.3	1041
Combined- 8 States	55.1	5547

- 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.
- 57.8 % of the households were aware of iodized salt. Of which 55.1% had iodized salt in 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 the body

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

Orissa	81.7%
Madhya Pradesh	77.0%
Uttarakhand	67.2%
Uttar Pradesh	62.6%
Rajasthan	61.9%
Karnataka	55.5%

- Knowledge of the people about goitre is slightly lower in Tamilnadu 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

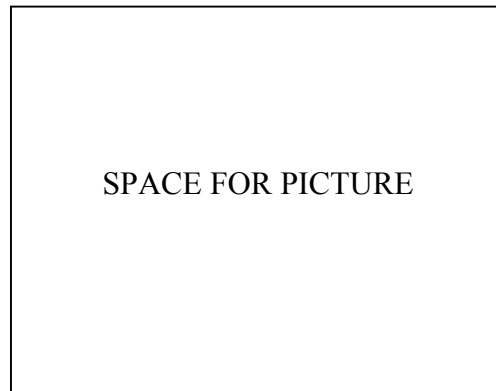
Table: 3.3 Price Paid (in Rs.) by Households to Purchase 1 KG of Edible Salt by States

States	Packaged Crushed Salt	Packaged Crystal Salt	Loose Crystal Salt	Base
Andhra Pradesh	10	5	4	1200
Karnataka	9	7	5	1200
Madhya Pradesh	7	4	4	1200
Orissa	8	4	4	1200
Rajasthan	7	5	3	1192
Tamil Nadu	8	6	6	1200
Uttar Pradesh	9	5	5	1200
Uttarakhand	10	NA	5	1200
Combined- 8 States	8	6	5	9592

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

- The average price paid for one kilo of packaged crushed salt is Rs.8. It is highest at Rs.10 in AP and Uttarakhand and lowest at Rs. 7 in MP and Rajasthan.

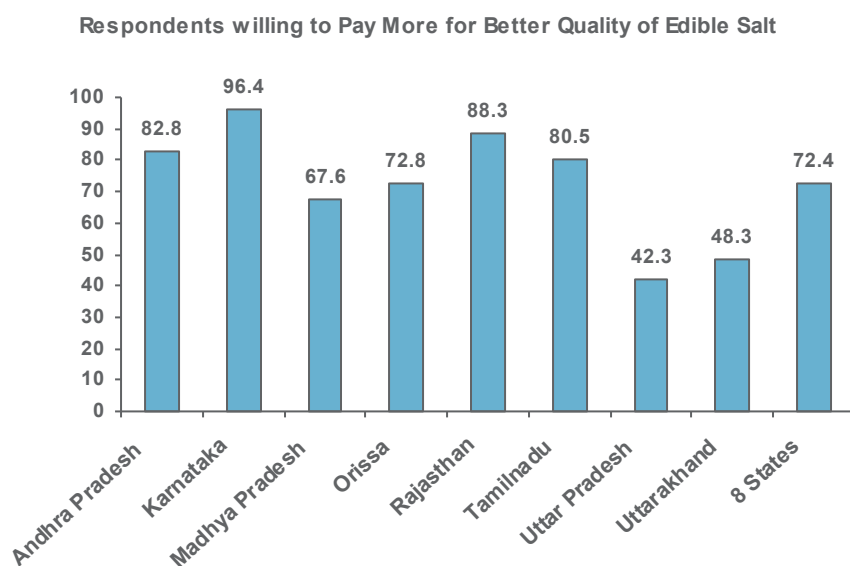
- It is surprising to note that in Tamilnadu, a salt producing state, a kilo of packaged crushed salt is Rs.8 and crystal salt both packaged and loose sell at the same price of Rs.6 per kilo. The reason for this may be due to higher costs of salt production.
- Loose crystal salt is Rs.5 and packaged crushed salt is Rs.9 in UP and Karnataka. This may be the reason why loose crystal salt sells more in UP.
- In Orissa also the packaged crushed salt sells at Rs.8 and crystal salt packaged and loose sells at Rs.4. But price has not adversely affected the consumption of packaged crushed salt in Orissa 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.



- 72.4% of the people across all states said that they were willing to pay more for better quality of salt. Better quality as defined by people is either “taste’s good” or “whiteness”.
- This was highest in Karnataka (96.4%), Rajasthan (88.3%), Andhra Pradesh (82.8%), and Tamil Nadu (80.5%).
- In Orissa it was 72.8% and Madhya Pradesh 67.6%.
- It was lowest in UP (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

States	< Rs.5	Rs.5 to < Rs.10	Rs.10 and above	Base
Andhra Pradesh	0.6	48.6	49.4	994
Karnataka	1.1	84.9	13.4	1157
Madhya Pradesh	4.1	72.2	23.7	811
Orissa	5.0	68.6	24.4	874
Rajasthan	3.9	74.7	21.2	1059
Tamilnadu	1.7	64.8	33.5	966
Uttar Pradesh	0.4	72.3	22.0	508
Uttarakhand	0.0	43.2	54.6	580
Combined- 8 States	2.2	67.4	29.2	6949

3:10 People willing to maximum amount for iodized salt

- 67.4% of the people said that they were willing to pay between Rs. 5 and less than Rs. 10 and 29.2% said they were willing to pay more than Rs.10.
- **In Karnataka 96% 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-less than Rs. 10 for better quality salt. 13.4% said that they would be willing to pay more than Rs. 10.
- Similarly in Rajasthan **88.25% of the people had said that they would be happy to pay more** of which 74.7% said they would pay between Rs5-< Rs.10 and **21.2% said that they would be willing to pay more than Rs.10.**
- In Andhra Pradesh 82% of people were willing to pay more of which nearly **50% each were willing to pay between Rs. 5-< Rs.10 and above Rs.10.**
- In Tamilnadu 80.5% of households were willing to pay more of which **64.8% were willing to pay between Rs.5 < 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% and 67.5% of which 68.6% and 72.2% were willing to pay between Rs.5-< Rs.10 and nearly a quarter of those were willing to pay more than Rs.10.
- In Uttarakhand and UP 48% and 42% 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-< Rs.10 in Uttarakhand.** In UP **72% of the people were willing to pay between Rs.5-< Rs.10 and the rest above Rs. 10**

Table 3:5 Level of Iodine Content in Edible Salt by different category (8 states)

		0 to <5 ppm	5 to < 15 ppm	15 to <30 ppm	30 to < 50 ppm	50 ppm and above	Base
Source of purchase of edible salt	Kirana store	31.8	20.8	24.7	21.2	1.5	6954
	General store	26.0	19.0	26.1	26.9	2.0	1379
	PDS	15.7	22.5	35.1	23.3	3.4	377
	Other sources	46.7	25.4	15.4	12.2	0.5	890
Price paid for 1 kg of edible salt	<5 Rs.	62.3	26.6	6.5	4.2	0.5	1346
	5 to < 10 Rs.	37.1	24.7	23.2	13.8	1.2	5187

	10 Rs. and above	8.3	11.0	34.3	43.9	2.5	2689
Type of edible salt purchased	Packaged Crushed	11.4	17.0	36.3	33.2	2.2	5505
	Packaged Crystal	50.5	25.5	13.9	8.8	1.3	1842
	Loose Crystal	65.9	27.4	4.2	2.4	0.2	2253
Texture of salt (observed by laboratory)	Refined	5.8	12.6	39.0	40.4	2.3	4043
	Powdered	25.7	28.8	29.0	15.0	1.6	1641
	Crystal	61.0	26.6	7.5	4.2	0.7	3916

3. 11 Cross sectional analysis corroborates many of the findings:

- 72% of the households bought their salt in Kirana stores. 51.8% 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 through 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.
- 54% of people paid Rs 5-10 for a kilo 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 Tamilnadu, Andhra Pradesh, and Karnataka. In Tamilnadu there is no salt at Rs. 5 per kg and in Andhra and Karnataka only loose crystal salt is sold at Rs. 5 or less. The more expensive salt above Rs. 10 was iodised 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—they were paying more for what they thought was good quality salt.
- 23.5% of people bought loose crystal salt and 93% of this salt had less than adequate iodine.

- 19% of 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 iodised either. This is somewhat surprising. From this it appears that some crushed unrefined salt is also being iodised 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 class or above.
- It reduced to 50% where the educational level was below class 10.
- It 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.



SPACE FOR PICTURE

4.2 Wealth index and use of iodized salt

The households were stratified into five groups--- lowest, second, middle, fourth and highest. In the combined analysis of eight states it was observed that the percentage of HH having adequately iodized salt is highest (62%) in the highest wealth index category and lowest in the lowest in the lowest wealth index category. But not much variation was observed in the middle three categories. So we can include that economically better off classes 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.

5. Salt Trade: Who sells salt to whom?

5.1 Practice of procurement and sale of edible salt by retailers

Salt trade like 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 consumer behaviours and what role the trade played in actively in procuring and promoting iodized salt. 1872 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.
- 2. Most retailers procure salt from general wholesalers particularly in Orissa, Karnataka, Uttarakhand and Andhra Pradesh
- Next most 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. Tamilnadu 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. 1.33 and 1.25 more than the purchase price. The profits therefore are most in loose crystal salt, and the lowest in packaged crushed salt. So the poor are paying proportionately more for their 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 profit per month assuming each household buys a kilo of salt a month may be around Rs. 10- 100 maximum 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 Tamilnadu Uttar Pradesh, Uttarakhand...

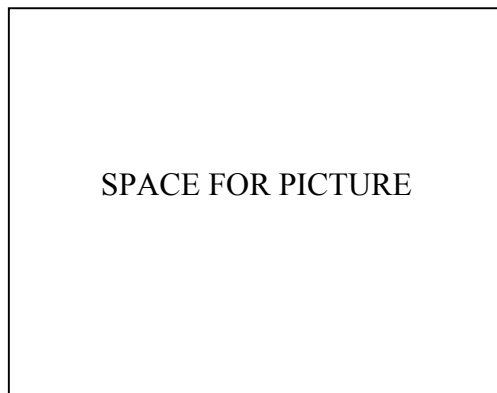
- Uttar Pradesh is the only state where retailers reported consumers asking for loose crystal salt. In Uttarakhand people asked for a brand more than any other state and also by price. Karnataka is the only state where people asked for “any salt” more than by any other attribute.
- Those who were not stocking packaged crushed 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 animals 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 MP and UP.
- 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 3 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 UP 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% in Karnataka and Tamilnadu **also** deal in packaged crushed salt.
- 64.8% in UP and 44% in Karnataka deal in loose crystal salt, followed by Andhra Pradesh (27%.) and Uttarakhand at 15.4%. 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 sell to 10 – 50 retailers. This is highest in Tamilnadu, MP and UP. 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 AP, Uttarakhand, UP 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 availability of iodized salt at rural areas in the eight study states has increased in the last five years.
- The availability of iodized salt has gone up in all states though in a varying manner.
- Dramatic improvements in consumption of iodized salt as compared to the NFHS data are seen in Uttarakhand, Orissa, Rajasthan, Andhra Pradesh and Madhya Pradesh in that order. However overall consumption of adequately iodized salt is still only 48.3% across the eight states in the rural areas.
- A majority of packaged crushed / refined salt has more iodine than packaged crystal / loose crystal salt.
- Price is not a deterrent to buying better quality salt. Many people across states are willing to pay more for better quality salt.
- People mostly buy their salt from Kirana stores.
- The higher the educational level of the head of the household the more likely that the household will be consuming iodized salt.
- The higher the household is in the wealth index the more likely that they will be consuming iodized salt. This may be because the household is buying better quality salt in the form of packaged crushed salt.
- Retailers and wholesalers make more margins in loose crystal salt. If there is no consumer awareness they would prefer to sell crystal salt as they make more money.
- Exclusive salt wholesalers can be seen more in UP which is a problem area. More money is involved in the trading of loose crystal salt in UP and this is a major deterrent to packaged refined / crushed salt. Increase in the consumption of iodized salt in UP is critical for the success of the salt iodization programme in India.

7. RECOMMENDATIONS

- Advocacy at high levels in the state of Uttar Pradesh, Karnataka for insisting that only adequately iodized salt ,preferably crushed / refined and packaged should be sold in the state will put pressure on manufacturers / traders in Gujarat and Tamilnadu, to crush, refine, package and adequately iodize it.
- Advocacy in Gujarat at high levels to make sure that there is compliance regarding, crushing, refining, packaging and iodizing salt being sent out to other states.
- Better monitoring and inspection by the Salt Commissioner's office in Gujarat and Tamilnadu.
- Better monitoring at receiving states particularly UP, Karnataka, Andhra Pradesh and Madhya Pradesh.
- Introduction of better technologies for crushing and refining Baragara salt.
- Campaign aimed at Wholesalers / Retailers regarding salt testing and selling iodized salt.
- Integrated package of communication activities aimed at the consumer with intensive social mobilization activities for a period of three years.
