

## THE STATUS OF SALT INDUSTRY IN INDIA

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**Abstract-** The art of salt making in India has been carried on, from the time, immemorial. In India, manufacturing of salt along with sea coast in Bengal, Bombay, Madras and the Rann of Kutchch, flourished as cottage industry for centuries. In his book "Early History of Bengal" Mr. F.H. Manhan gives a passage 'Arthasastra'- a book dealing with the history of Mauryan period (300 B.C), which says that salt manufacture was even that distance date supervised by a state official designated 'lavandhyaksa' (*Head of Salt*). During the British regime the indigenous salt manufacturing in certain region of the country was so much suppressed that the local Salt Producer lost their lively hood due to closure of their self employed units. During 1924, in Gujarat a big salt works was established. Since then Indian Salt Industry not lagged behind in production of salt. Salt production touched two million tons by 1947. Now, salt production of India is 17.5 to 19 million tons per annum since last three years and India is the 3<sup>rd</sup> biggest salt manufacturer of the World. 'Indian salt Industry' is going global by adopting modernization / mechanization. About 4.0 million tons salt is up graded in washing plants to the purity of about 99.5% on dry basis. This salt is exported and consumed by local Chlor-Alkali Industry. Now Mechanization and Modernization of major salt works is under full progress. The consumption of iodized salt for edible purpose is 4.9 million tons per annum; there are 52 refineries and three giant vacuum salt plants. Indian salt industry is ready to meet the growing demand of salt for edible and industrial use. Recently, Govt. allotted about 40,000 Hectares of land for development of salt works and salt by-product industry mainly for export.

**Introduction & history-** The salt is basic raw material for many chemical industries and essential commodity for human consumption. The history of Indian Salt production can be traced back to the dawn of human civilization. In ancient times when seawater evaporated in pits, white layer was formed and it was found tasty and people started consuming it. The white layer was nothing but 'Salt'. This was the beginning of civilization as well it was the beginning of salt production. Salt

has a long and intriguing history. It has shaped civilizations from the very beginning, and story is a glittering, often surprising part of the history of mankind. A substance so valuable it served as currency, influences the establishment of trade routes and cities, provoked and financed wars, secured empires and inspired revolutions. As the time advanced uses of salt increased and the method producing salt also become a very important process. In modern times salt

has about 14000 known uses from food to industry to de-icing. Presently, about 120

nations are actively engaged in salt production.



Primitive Method of brine lifiting-using bullocks pair.

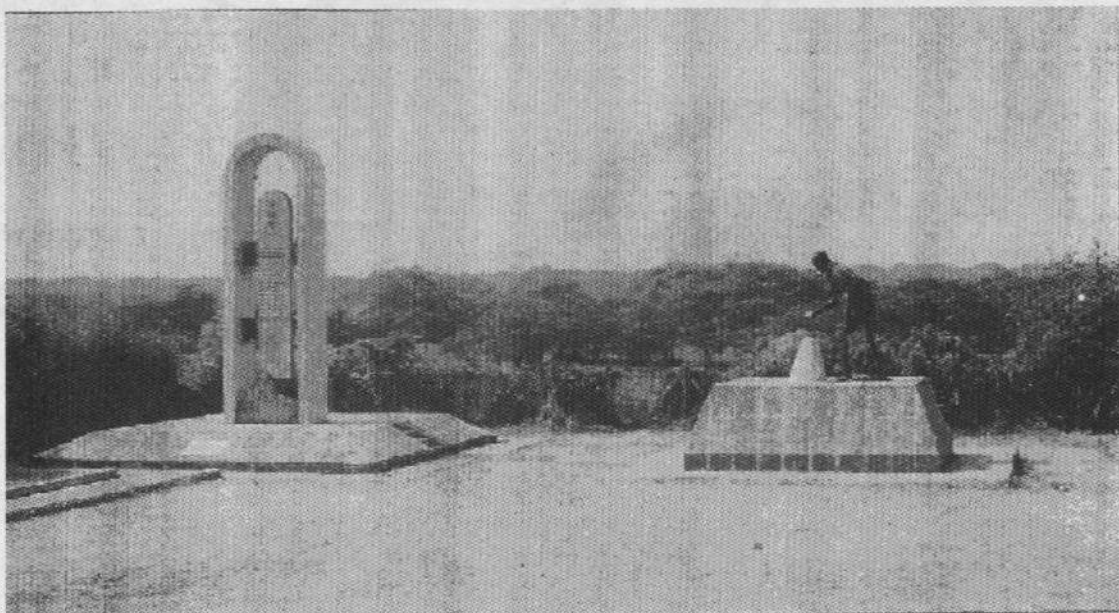




**Salt harvesting by self employed labour**

The art of salt making in India has been carried on from the time immemorial. In India manufacturing of salt along with sea coast in Bengal, Bombay, Madras and the Rann of Kutchch, flourished as cottage industry for centuries. In his "Early History of Bengal" Mr. F.H. Manhan gives a passage '*Arthasastra*'- a book dealing with the history of Mauryan period (300 B.C), which says that salt manufacture was even at that distance supervised by a state official designated '*lavandhyaksa*'. '*Lavan*' means salt and '*Adhyaksa*' means head. That means head of the salt. At that time salt business was carried on under a

system of licenses granted on the payment of fixed fees or part of the part of the output. In India salt played a very important role to give independence to our nation from British Kingdom. Dandi march is famous in the history, Mr. MK Gandhi used salt as powerful weapon to get independence. Mr. Gandhi and his 78 companions set out from '*Sabarmati Ashram*'. Ahmedabad, to walk 386 KM to Dandi. On April 6, 1930 Gandhiji picked up a fistful of salt and declared '*With this, I am weakening the foundation of the British Empire*'. This created panic and freedom struggle gathered momentum.



**The Salt Memorial marks the site where Gandhiji broke the Salt Act.**

During the British regime the indigenous salt manufacturing in certain region of the country was so much suppressed that the local Salt Producer lost their lively hood due to closure of their self-employed units, on the other hand salt was imported on the pretext that Indian Salt is black. This challenge was accepted by Indians and a best salt works was designed not only for human consumption but also for industrial use in 1924 at Tata Chemicals, Mithapur. Since then, Indian Salt Industry not lagged behind in production of salt. Salt Production touched about two millions tons by 1947.

#### **Present Status-**

Now "Salt" is a central subject in the Constitution of India and appears as Item No.58 of the Union list of the 7<sup>th</sup> Schedule. The Salt dept. headed by The Salt Commissioner of India. The Salt Department is under the Ministry of Commerce and Industry. The duty on salt was abolished from 1<sup>st</sup> April 1947. For administrative purposes, the 5 Regions viz. Gujarat Region, Chennai Region, Mumbai Region, Kolkata Region, Rajasthan Region, implement the policies of the Salt Department. There are salt dept. laboratories in all regions to help salt manufacturers to maintain quality of salt. At state level, the development of industry and welfare of salt workers is being looked after by Industry Commissioner and labour

dept.

The Indian Salt Manufacturers Association is an apex body of Indian salt manufacturers.

There is "Central Salt and Marine Chemicals research Institute" at Bhavnagar in Gujarat. Their main function is to help salt industry through their research work. This institute was established in 1956. In addition to R & D work.

**"Indian salt industry is going global"**- Salt production of India is 17.5 to 19 million tons per annum and India is the third largest salt manufacturer of the World after China and USA. Out of this about 4.0 million tons salt is washed in mechanized washing plants and up graded to the purity 99.5% for Indian Chlor-Alkali industry and for export... The major quantity of washed salt is exported to Qatar, Japan and other countries and consumed by Indian chlor-alkali industry. The salt washing plants are increasing day by day and quality is also improving in general.

Recently Govt. of Gujarat allotted about 40,000 Hectares of land to entrepreneurs for the development of salt works and salt by-product industry mainly for export. The development of most modern and mechanized salt works and by-products plants are in full progress. Salt consumption in India for industries has touched 9.35 million tons per annum during 2007-08.



### SALIENT FEATURES OF SALT INDUSTRY

		2005-06	2006-07	2007-08
1	<b>Total area assigned for</b>			
	Acres :	538748	542066	549170
	<b>Salt Production</b>			
	Hectares :	218020	219460	222336
2	<b>Area under Salt</b>			
	Acres :	307100	321471	323257
	<b>Cultivation :</b>			
	Hectares :	124277	130150	130873
3.	<b>Production (Lakh Tonnes)</b>			
	Public Sector	2.78	3.99	3.99
	Private Sector	168.94	158.94	157.20
	Co-operative Societies	17.97	16.05	17.26
	<b>Total</b>	<b>189.69</b>	<b>178.98</b>	<b>178.45</b>
4.	<b>Distribution (Lakh Tonnes)</b>			
	i) Human Consumption :	60.94	57.73	50.65
	ii) Export :	29.76	18.98	18.93
	iii) Industries :	87.36	86.17	93.50
	<b>Total</b>	<b>178.06</b>	<b>162.88</b>	<b>163.08</b>
5	<b>Stock at the end of year (Lakh Tonnes)</b> (As on 31st March)	<b>59.05</b>	<b>62.31</b>	<b>52.94</b>
6	<b>IODISED SALT (Lakh Tonnes)</b>			
	Production :	49.84	51.55	49.62
	Supplies (Indegenous) :	48.27	49.5	48.64
		<b>Units</b>	<b>No.</b>	<b>Capacity ('000 MT)</b>
7	<b>No. of Iodisation Plants/Refineries</b>	<b>Plants :</b>	<b>753</b>	<b>8025.00</b>
		<b>Refineries :</b>	<b>52</b>	<b>4391.80</b>
8	<b>Receipts (Rs. in Lakhs)</b>			
	i) Cess Collection :	294.68	279.70	287.26
	ii) Misc. :	141.53	204.10	7727.62
	<b>Total</b>	<b>436.21</b>	<b>483.80</b>	<b>8014.88</b>
8	<b>Expenditure (Rs. in Lakhs).</b>			
	i) Administration :	1012.98	1091.13	1178.6
	ii) Labour Welfare & Development works :	178.60	165.30	125.8
	iii) Ex-gratia :	243.93	509.90	45.7
	<b>Total</b>	<b>1435.51</b>	<b>1766.33</b>	<b>1350.1</b>
9	<b>Namak Mazdoor Awas Yojana (Rs. in Lakhs)</b>	<b>500.00</b>	<b>1049.69</b>	<b>21.29</b>
10	<b>NIDDCP (Admn.) - Plan (Rupees in Lakhs)</b>	<b>98.78</b>	<b>105.60</b>	<b>111.31</b>

Reference salt dept. (Govt. of India) annual report 2007-08

वर्ष 1947 से 2007-08 तक देश में नमक उत्पादन  
SALT PRODUCTION IN THE COUNTRY  
FROM 1947 TO 2007-08

('000 MT)

YEAR	PRODUCTION	YEAR	PRODUCTION
1947	1929.8	1978	6693.5
1948	2374.8	1979	7037.0
1949	2075.8	1980	8007.4
1950	2661.9	1981	8923.2
1951	2776.1	1982	7308.4
1952	2868.9	1983	7004.8
1953	3213.2	1984	7652.9
1954	2758.6	1985	9874.9
1955	3025.2	1986	10111.5
1956	3317.6	1987	9899.5
1957	3670.1	1988	8311.5
1958	4195.7	1989	9870.3
1959	3177.9	1990	12398.0
1960	3435.5	1991	12394.6
1961	3480.6	1992	13552.8
1962	3886.1	1993	13727.8
1963	3544.1	1994	12344.2
1964	4646.8	1995	12544.0
1965	4119.3	1996	14466.1
1966	4521.5	1997	14251.1
1967	4488.2	1998	11964.4
1968	5043.7	1999	14452.7
1969	5173.4	2000	15651.3
1970	5588.2	2001	14284.0
1971	5426.1	2002	17879.2
1972	6517.1	2003	14882.4
1973	6860.2	2004	14761.2
1974	5912.9	2005-06	18969.0
1975	5842.9	2006-07	17898.2
1976	4076.4	2007-08	17845.2
1977	5328.5		

Ref. Salt Dept. (Govt. of India) Annual report



**Salt Harvesting in a Salt Works in Gujarat  
(Courtesy Jakhau Salt Works)**

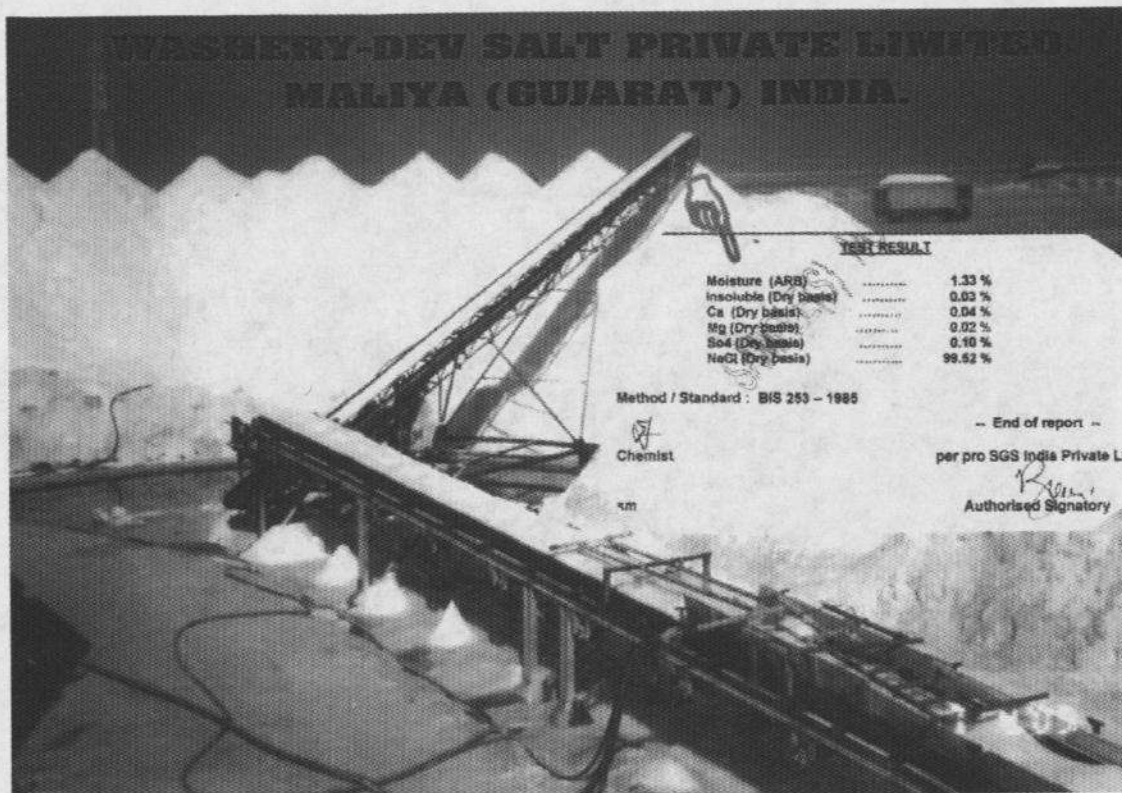
- During last five years more than 15 Salt Washing plants have come up to meet requirement for high purity salt for Industry & export.
- Now, few Salt Works are fully mechanized with washing plants and they have achieved the following quality-
  1. Sodium Chloride (NaCl)  
% 96.50 - 97.50 ( on wet basis)
  2. Moisture (H<sub>2</sub>O)  
% 01.50 - 03.00
  3. Calcium (Ca)  
% 00.03 - 00.05
  4. Magnesium (Mg)  
% 00.02 - 00.03
  5. Sulphate(SO<sub>4</sub>)  
% 00.10 - 00.15



6. Insoluble  
% 00.01 - 00.03

- The price of above salt, having purity 99.5%, after taking into consideration washing losses, stevedoring and other logistic expenses with marginal profit

is about 20 USD per ton on FOBT basis. At present this quality salt is available in limited quantity but availability is increasing very fast as more and more washing plants are coming up.



**“Dev Salt” at Maliya- is the biggest supplier of this area for industrial grade high purity salt to Chlor-Alkali industry.**

- Majority of small salt works are still having manual operations, but large salt works have adopted not only mechanization but also latest technology of deep charging, series feeding etc. Their yield as well as quality has improved considerably in last five years. The process of deep charging in brief explained here. Higher column of brine helps in growth of microorganisms. The higher column also gives more dark color shade to brine. This helps to absorb more heat in brine; finally this increases the rate of evaporation. The microorganisms also help to seal the

small leakages/seepages. Thus loss of valuable brine decreases. In deep charging average yield increases by 15%, due to-

1. Increase in temperature
2. More wave actions
3. Growth of micro organisms

The crystal of salt become rectangular, bigger cubical type semi solid; where as in shallow charging it is hollow type. This helps to improve the quality of salt also in deep charging. (for detail please refer to paper of Jhala D.S. Deep Charging of Solar Crystallizers 8th World Salt Symposium, in The Hague during May, 2000 V.2 page 1293-94)



### **Edible Salt-**

- Indian salt industry is meeting the challenge of supplying iodized salt to entire country. The production of iodized salt is now 5.1 million tons as against the consumption of 4.9 million tons. There are 805 iodization plants, with a capacity of 12.4 million tons per annum but many of them are not working. There are 52 salt refineries located in the states of Gujarat, Tamil Nadu, Uttar Pradesh, and Rajasthan. In addition to above there are three giant vacuum salt plants of capacity one million tons.
- Other varieties of edible salt consumed in India are Iron Fortified Salt, Double Forfeited Salt. A new product "Health Salt" Containing micronutrients iodine, iron, folic acid, has also come up near Chennai in Tamil Nadu.

### **Salt based Industry-**

- There are four giant Soda Ash factories in India total production of Soda Ash is about 2.5 million tons per annum and in addition there are large nos. of Caustic Soda & Chlorine industries. The Salt based Industry is concentrated more in Gujarat. Total

Salt consumption for Industries is 93.5 million tons annum.

- India is a net exporter of Soda Ash and emerging as a significant regional player. The current low per capita Soda Ash consumption also shows tremendous growth potential over next few years. Unlike to world average of 56% consumption of Soda Ash by the glass industry, the Indian glass industry only consumes 25%. The major share is used by Indian detergents industry.

- Soda Ash uses in glass & detergents is 65%
- There is good opportunity to increase export
- Low per capita consumption leaves a lot of potential to be tapped

Despite the steep drop in duty rates over the years, the industry has been able to effectively compete with imports and is geared up for further reductions.

**कास्टिक सोडा एवं सोडा एश का विगत आठ वर्षों में उत्पादन**  
**PRODUCTION OF CAUSTIC SODA AND SODA ASH DURING LAST EIGHT YEARS**

(Lakh Tonnes)

Year	Soda Ash	Caustic Soda
2000-01	19.65	15.62
2001-02	18.75	15.71
2002-03	21.38	16.15
2003-04	22.38	17.35
2004-05	23.46	18.09
2005-06	22.22	19.39
2006-07	20.47	19.93
2007-08	21.06	21.60

Source : Alkali Manufacturers' Association of India, New Delhi.  
(Lakh=100000)

**Potential for the Growth of Salt Industry-**

- India has very long coast line and out of that Gujarat Coast line is of 1600 Kms
- In Gujarat in addition to existing salt industry lot of Land available along the side of coast for developing more salt works.
- Climatic conditions are suitable for salt industry.
- Easy availability of skilled labours
- Good administration of our Govt. and their Corporation.
- Our low cost of production
- Govt. supports for critical infrastructure facilities.
- Minor Ports have loading capacity 5000 tons /day to 20000 tons /day in mid stream loading where as big port

like Kandla have achieved the av. rate of loading of 25000 tons / day. We have a big advantage that ships of the capacity from 5000 tons to 100,000 tons could be loaded at our ports. There is potential for developing more ports as per requirement. In south India there is also a big port, Tuticorin close to salt manufacturing area.

- Now only 20% industries have gone for mechanization and modernization, 50% from balance can also go immediately.

Average annual yield of salt works is only 100 tons per hectare. This can be increased to 300 tons by adopting modernization.



**नमक का निर्यात  
EXPORT OF SALT**

(Quantity in '000 tonnes)

YEAR	QUANTITY OF SALT EXPORTED	YEAR	QUANTITY OF SALT EXPORTED
1949	149.3	1978	63.0
1950	138.1	1979	91.0
1951	76.1	1980	109.8
1952	296.7	1981	229.9
1953	298.7	1982	330.8
1954	232.7	1983	486.5
1955	249.3	1984	251.9
1956	312.3	1985	447.2
1957	445.2	1986	433.0
1958	296.8	1987	431.2
1959	344.5	1988	549.5
1960	448.6	1989	605.8
1961	158.4	1990	666.1
1962	164.7	1991	572.9
1963	267.6	1992	406.6
1964	357.7	1993	605.4
1965	330.8	1994	472.6
1966	386.9	1995	516.4
1967	449.8	1996	546.7
1968	617.8	1997	531.1
1969	621.3	1998	406.9
1970	479.0	1999	828.8
1971	319.3	2000	1056.8
1972	435.9	2001	1613.5
1973	394.3	2002	1365.9
1974	308.8	2003	1222.4
1975	491.3	2004	2204.4
1976	466.9	2005-06	2976.4
1977	410.2	2006-07	1897.5
		2007-08	1893.1

## Opportunities-

- Export Market- 1) Qatar  
2) Malaysia 3)  
Philippines) Japan 5)  
China 6) Vietnam 7)  
Indonesia 8) Nepal
- India's location is very  
suitable to supply salt to  
China, Japan, and  
Middle East and to other  
Asian countries.
- India has potential to  
increase productivity as  
well as quality.
- Available manpower.
- Wind Power-largest  
coastal line of Gujarat  
has potential to Generate  
5000 MW through Wind  
Energy. The Salt  
Industry can make use of  
this energy jointly  
through associations.
- Availability of good  
major and minor ports as

well as of good anchor  
points.

- To grab the developing  
market of Middle East.

## Conclusion-

- India's salt production can be  
increased considerably by  
achieving average yield of 300 tons  
per hectare and by developing  
available large areas in Gujarat.
- Salt quality required to be  
improved in general in all sectors  
small and big to feed good quality  
salt to Indian Chlor-Alkali  
Industries as well as for export.
- Salt Industry has very good future  
hence new entrepreneurs should  
grab this opportunity.

**Key words- Solar salt,  
Civilization, immemorial,  
Mechanization,  
Modernization**

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**Information of presenting author- Mr. D.S. Jhala**

Mr. Jhala Is the Chairman "Dev Salt Private Limited" which has production capacity one million salt productions and leading salt consultant, he is also the Director Hotel Golden Crown P. Ltd and the president of NMCT. He was nominated by Govt. of India as member of the Central Advisory Board (SALT). He is immediate past president of ISMA, the apex body of Indian salt manufacturers. His other contribution to salt fields are- As MC Chamber of Commerce Jamnagar, Gujarat Regional Advisory Board (Salt), Advisory Committee Central Salt & Marine Chemicals Research Institute (SM&CRI) Bhavnagar, Member Environment Committee of Federation of Indian Chamber of Commerce and Industry New Delhi.

Jhala has 40 years rich experience in salt and bromine industry. He developed many salt works and put up the biggest bromine plant of country.

He contributed papers as under-

1. Two papers on salt to "8<sup>TH</sup> World Salt Symposium" in The Netherlands during May 2000.
2. Two papers for Asian salt Forum at Beijing (China) and headed Indian delegation in Asian Forum.
3. One paper in International Salt Conference at Ahmedabad (India) 2006.
4. Two papers to '1<sup>st</sup>' & '2<sup>nd</sup>' International conference on Ecological Importance of Solar salt works" Greece 2006 and Mexico 2009.