

RESEARCH ARTICLE

Rural Women Involvement at Solar Salt Industries in Bhavnagar, Gujarat

Mayuri Banerjee Bhattacharya*, Upaddhay SC and Arvind Kurmar

Salt & Marine Chemicals, CSIR- Central Salt and Marine Chemicals Research Institute, India

Abstract

Traditional salt mining in the Gujarat state of India is a pivotal source of livelihood for unskilled labour with low or no education. Salt industries both large scale and small scale provide employment to rural populations. Traditional salt manufacturing process or technique is simple yet unique. Hence, salt industries employ the large proportion of men and women migrated from rural to semi-urban regions of the state.

Study design: An Observational study was conducted in 14 organized salt industries located in the vicinity of Bhavnagar. Socio economic and demographic profile and health morbidities were recorded in the study. Focus group discussion was also conducted to understand the availability of income, agriculture, personal hygiene, and sanitation, workplace security, social assurance.

Result: Research illustrates that women worker from rural India faces various challenges and disparities. Field investigation describes that multiple factors like early marriage, lack of education, low source income, larger families to support, and dependency on agriculture, force them to migrate and work in salt industries. Rural women in Gujarat migrate from villages to nearby cities and zones where salt production is done. The salt farmers of Bhavnagar spend nearly 8 months in salt cultivation, later; the majority of them continue their agriculture while some migrate to the different place for construction work. Mean age of the female workers during the study period was 30 ± 12.8 years and 26 % workers reported that they were below 18 years during the time of their marriage was. The mean marriage age of women work was 16 ± 3.4 years. A significant proportion (73.4%) of female workers was illiterate (no formal education). Furthermore, 77.3% female workers live in labour shed area and only a few workers live in the salt colony provided by the employer. More than half of workers have (54.8%) are exposed to salt mining works for less than 5 years. Female workers also suffer from various occupational health morbidities.

Conclusion: Salt industries are the source of employment and livelihood for many rural women due to the simplicity of the work. Salt industries provide income to many unskilled labours as the majority of small and large-scale solar salt industries depends on low wage contract labours for salt production. Rural women in salt industries require assurance in terms of wage, employment, and housing.

Keywords: Semi urban regions; Salt mining, Socio economy; Demography; Early marriage; Rural; Lack of education; Low source income; Larger families; Dependency on agriculture

Introduction

International United Nation global statistics reveal that only 50% of women in developing world contribute to labour workforce. In developing, countries majority of women age between 25-54 years are working as the labour and over the past two decades, legislative bodies instituted various laws in favour of women workers [1]. International Labour Organization (ILO) report on global employment trend for women illustrates, that the women workers in industrial world experience multiple disadvantages. In addition to gender inequality and gender wage disparities, the women workers suffer from migration crisis, poverty, poor work environmental condition, unemployment, insecure earning, triple burden (family, work, and children) [2]. India is the second most populated country in the world with 1.31 billion people and it is expected that by 2024 the population of India will surpass the population of China [3]. The gigantic population of India is anticipated to provide large labour and consumer market.

Nearly 47 % labour depends on agriculture of which more than 60% still live in rural India [4].

Indian women have an enormous contribution to productive work required for the industrial development of the country [5]. Indian female labour force contributes to informal and formal sectors preferably known as unorganized and organized work. Unskilled women worker with low literacy builds national's economy through agriculture work, construction, and manufacturing work [7]. However, majority women in rural India have limited scope in terms of employment due to lack of resources, low education, poverty, inter or intra-state regulation of rules and regulation as well as extreme rigidity in

Correspondence to: Mayuri Bhattacharaya, Salt & Marine Chemicals, CSIR- Central Salt and Marine Chemicals Research Institute, Bhavnagar-364002, India. Email: banerjeemayuri7[AT]gmail[DOT]com, bhattacharya[DOT]mayuri08 [AT]gmail[DOT]com, mayurib[AT]csmcri[DOT]org

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daily wage or income [8]. Moreover, the rural women of Gujarat traditionally depend on agriculture and salt manufacturing to sustain their livelihood. Small-scale organized as well as un-organized salt industries support unskilled women though daily wage in correlation to production.

The most pioneer research institute MS Swaminathan Research Foundation (MSSRF) conducted house to house field investigation to assess the life of salt workers in Tamil Nadu. The research found that salt workers are the marginalized population with low socioeconomic status and live in the midst of poverty, malnutrition. Furthermore, salt workers also, suffer from anemia, vitamin and iodine deficiencies [9]. Similarly, as per Bharwada [10] study report, in salt industries, worker's families are employed in contract basis and there is lack of basic amenities, poor housing condition, no social security, no health security and low income which is having a cumulative effect on their overall socio-economic and health status. Various social-epidemiological studies have revealed that salt workers suffer from multiple health issues like ophthalmic disorders caused due to irritation by direct exposure to sunlight and salt dust on eye mucosa. Furthermore, dermatological problems occur due to skin contact with brine solution as well as dermal irritation caused by fine salt particles suspended in the air penetrates into injuries and cuts. A cross-sectional study was conducted in salt manufacturing site of Rajasthan [11]. The research reported that salt workers are exposed to concentrated brine solution and inhale salt dust for prolong the duration of time making them more vulnerable. Furthermore, the same study described that use of personal protective equipment's (PPE) was low and there is lack of motivation regarding PPE use among salt. The present study conducted a field investigation to understand the life of rural women working in the salt industries of Bhavnagar Gujarat.

Research Objectives

- i. To assess the socio-economic and occupational health status of rural women engaged in solar salt industries.
- ii. To study the impact of solar salt works on rural women worker's life.

Methods and Materials

Observational field research was conducted for 5 months from October 2017 to February 2018 among female workers in salt manufacturing. The primary phase of salt production begins with early winters (October or November), where women prepare the salt pans spread in acres for the saline water accumulation.

Study Area

Women workers in salt farms located in the vicinity of the Bhavnagar city located in Bhavnagar district of Gujarat. The strategic location of Bhavnagar is in the tidal zone of Gulf of Khambhat. The temperature, rainfall, wind velocity as well as salinity of seawater and soil favour salt manufacturing in Bhavnagar region of Gujarat. On an average, 45-60 tons of salt is produced per acre of land.

Study Design

Observational field investigation majority of quantitative data to assess the social profile was collected through structured questionnaire. Furthermore, for the qualitative data focus group discussion (FGD) was conducted with female workers.

Study Population

Female workers working in salt works from more than one year and age above 15 years were included in the study. The female gave consent to participate in the field research and survey were included in the study. Fourteen different organized salt industries covered in the field study of which one salt farms was the experimental unit of CSIR-CSMCRI (Council of Scientific and Industrial Research-Central Salt Marine Chemical Research Institute) which was established in the year 1954 and inaugurated by the First Prime Minister of India.

Sample Size

75 women were selected randomly from 14 different organized salt industries. In each salt industry, nearly 10-15 women workers are employed on the daily wage and contractual basis for 7 to 8 months.

Data Collection Tools and Technique

Pre-tested structure questionnaire modified as per the local setting were used. In socio-economic and demographic profile age, marital status, family type, family size, social class, educational level, individual income, family income, type of housing during salt cultivation were recorded. In occupational history section, daily working hours, duration of work experience in salt and details of agriculture crop grown is recorded. In the health survey post monsoon outbreak of malaria, dengue, and diarrhoea was reported. Health examination was also conducted. Women worked participated in group discussion, wherein each group 10- 15 female were kept. In focus group discussed various issues related to work, pay, hygiene, sanitation, and consumption of tobacco, health care service during pregnancy and childbirth were recorded.

Data Analysis

Quantitative data were analyzed by using SPSS, where data is reported in the graph. Qualitative data open-ended questions were asked, answers repeated with maximum frequency was recorded as well as repored, multiple pictures of labour shed and salt workers colony were taken, video recording was also collected and later analysis of each recording was done.

Result

In the field survey, 75 female workers from different organized salt industries participated. Research data illustrated that the average age of the female workers in the salt manufacturing was 30 ± 12.8 years. The majority (49.3%) of female workers belongs to age between 15-25 years. Women in their reproductive age start their struggle to earn their livelihood. The average ages of the female workers at the time their marriage was 16 ± 3.4 years. More than 26.6% of rural women in salt industries informed that

they were married at the young age below 18 years. A similar proportion of women workers stated that they are unable to recall their age during the marriage. The greater proportion of female workers (73.3%) are married and migrated with their family in search of employment. Additionally, 73.4% of female workers were illiterate, had no formal school education, moreover only 9.3% and 17.3% female workers had education up to primary and middle school level. Thus the preference for salt works is justifiable, as salt industries provide employment to the majority of illiterate and unskilled labours. The female workers migrate with their family, usually, husband and children accompany them. A significant proportion of female workers (33.3% and 56%) live in either nuclear family or in joint family types. In some case entire family work in the salt field which includes members from the paternal and maternal side. They stay in the vicinity of salt farms for minimum 8-7 months. The average income of the family is 6000 Rupees per month (less than 100 dollars per month) [Table 1].

Female salt workers live in two different type of housing. During salt cultivation season they live in labour shed area or salt workers colony for 7 to 8 months. Once salt works is over and their contract ends they migrate to their native village. During salt cultivation season, majority of salt workers (77.3%) live in labour shed migratory settlement, whereas 10.6% and 12 % live in their pucca (made of bricks and cement) and kutcha hut (made of mud, wood, straw and leaves). However, in their native village significant proportion of salt workers (46.4% and 30.6%) have their own pucca hut. Majority of the female salt worker (54.8%) have salt work exposure for less

Variables	Sub-Category	Frequency (%)
Age (in Years)	15-25	37 (49.3)
	25-35	16 (21.3)
	35-45	12(16.1)
	45-55	6 (8.0)
	Above 55	4 (5.3)
Age (during marriage in years)	Below 18	20 (26.6)
	Above 18	35 (46.8)
	Do not remember	20 (26.6)
Marital Status	Single	17 (22.7)
	Married	55 (73.3)
	Widowed	3 (4.0)
Educational Status	No formal education	55 (73.4)
	Primary School (up to 4 years)	7 (9.3)
	Middle School (5-9 years)	13 (17.3)
Family Type	Single member	2 (2.7)
	Nuclear Family	25 (33.3)
	Joint Family	42 (56.0)
	Extended Family	6 (8.0)

Table 1: Social and Occupational Profile of Female Salt Workers (N=75).

Variables	Sub-Category	Frequency (%)
Types of Housing (during 8 months of salt cultivation)	Pucca Hut (Own)	8 (10.6)
	Pucca Hut (Rented)	-
	Kutcha Hut (Own)	9 (12.0)
	Kutch Hut (Rented)	-
	Pucca House (Own)	-
	Pucca House (Rented)	-
	Kutcha House (Own)	-
	Labour Shed/ Labour Quarter	58 (77.3)
Types of Housing (Off-seasons-4 months)	Pucca Hut (Own)	35 (46.4)
	Pucca Hut (Rented)	3 (4.0)
	Kutcha Hut (Own)	23 (30.6)
	Kutch Hut (Rented)	2 (2.6)
	Pucca House (Own)	4 (5.3)
	Kutcha House (Own)	8(10.6)
Duration in Salt works	Below 5 years	41 (54.8)
	5-15 years	19 (25.3)
	16-25 years	7 (9.3)
	26-35 years	4 (5.3)
	Above 35 years	4 (5.3)
Daily working hours	8 Hours	54(72.0)
	10 Hours	7 (9.3)
	12 Hours	14 (18.7)

Table 2: Types of Housing and Occupational History (N=75).

than 5 years, on the other hand 25.3% have 5to 15 years of work experience. Significant proportion of the female workers (72%) has 8 hours of work daily, besides this more than 18 % female workers work for 12 hours daily [Table 2].

Major Occupational Health Morbidities in Salt Industries

Women workers in the salt industries exposed to various work environmental hazards. To gather information of occupational health symptoms structured questionnaire format was used. Additionally, general health examination was conducted and all the symptoms were recorded watchfully. [Figure 1] describes about proportion of occupational health morbidities among female workers in solar salt industries. 56% of female worker have various ophthalmic symptoms (redness, itching, watering, pale conjunctiva, Bitot's spot, blurring of vision), 65% have dermatological problems (rash, redness, itching, dryness, scaling, blisters, fissure, wounds). The significant proportion (45%) of salt workers suffers from musculoskeletal problems (knee pain, joint pain, low back pain, pain in upper and lower extremities, shoulder pain) [Figure 1].

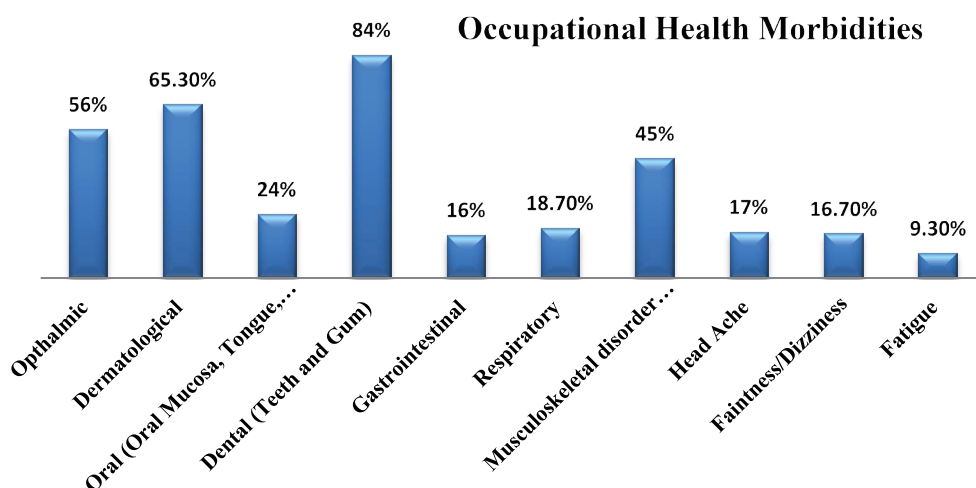


Figure 1: Occupational Health Morbidities among rural women in solar salt industries.

Impact of Solar Salt Works on Rural Women Worker's Life

Solar salt industries depend on labours for preparation of salt pans, the collection of water, extraction of salt heaps and later loading and transportation of the salt. Maximum salt production starts during the peak summer when the ambient temperature is above 40 degrees. More than 78% women workers do not possess any agriculture land; moreover, 19 % workers have their own agriculture land (less than 1 Acre). Additionally, only 3% of women workers have landed more than 5 Acres. Even if, they have large land they do not perform agriculture due loss in productivity of the land. Hence, the rural women involved in solar salt industries of Bhavnagar depend on salt work for income and employment.

Solar Salt Works a Definite Source of Income for Rural Women Workers

India is the third largest salt producing nation and Gujarat is the largest salt producing state in the country. More than 70% of salt in India is produced in Gujarat. Salt production in Gujarat is distributed in 5 zonal regions. Salt is either produced from seawater evaporation or from sub-soil brine. In Gulf of Kutch 60 to 80 tons of salt is produced per acres of land, whereas, in Gulf of Khambhat the salt production is slightly lower 40-45 tons per acres. The rural women workers engaged in salt production migrate with their family. The women workers are hired on contractual basis for 8 months. The payment depends on the amount of salt produced per ton by each worker's family. During major salt production phase (summer season) they receive higher payment, as the amount of the daily production per ton increases significantly.

Initially, they receive payment on the daily basis. Majority of women workers (60%) receive 250-300 Rs as daily wage. 36 % of them receive less than 200 Rs as daily wage and only 4 % women workers get more than 300 Rs pay daily. The daily wage also depends on daily working hours and years of experience in salt works. The rural women mentioned that salt works are a definite source of income as agriculture work

depends on the land productive capacity. Women workers also mentioned that though they have agriculture land yet they migrate in search of other works because their land has lost its crop production capacity due to increase in salinity of the soil. Some workers also informed that they grow wheat, maize, barley, groundnut and cottonseed. The crops grown by the rural women are mainly for the family consumption, they do not sell those crops in the market.

Safety Assurance in the Solar Salt Works as Compared to Other Industries: Self Protection in Work

The solar salt works located in Bhavnagar, 93.3% of rural women migrated from nearby villages. However, 6.7% workers migrated from other states (Chhattisgarh, Rajasthan, Bihar, Jharkhand, Uttar Pradesh and Himachal Pradesh). The migratory women workers mentioned that Gujarat is the safe place to work and they also get decent pay for their work. Furthermore, the women workers revealed that salt works are safe when compared to building and construction works. Though they are exposed to various hazards like high temperature, heat, mixed salt dust, concentrated brine, yet they preferred to work in salt industries. The rural women mentioned that salt work is simple and less complicated require no skill when compared with other industrial works. They also mentioned that for 7-8 months they stay in labour shed area where the majority of workers migrated from the same villages in groups. Hence safety at the workplace is assured. None of the women workers use the personal protective equipment. They use a cotton scarf to cover their head and full sleeve shirts to cover their body. They prefer to work barefoot or sometimes they wear slippers.

Personal Hygiene and Sanitation at the Workplace: Utilization of Government Health Care Services

Prime Minister of India launched "Swachh Bharat Mission" on 2nd October 2014 to promote cleanliness, use of toilets and construction of toilets in the urban and rural area. In salt works only 12 % women had toilets facilities, of which 4% have toilets inside their home and 8 % have common toilets, built outside

the home. Majority of the women in salt works practice open defecation. Of 14 organized salt works only 3 salt industries have toilets facilities in working zone. Only 2 labour shed area for migratory workers settlement have common toilets but none of the women workers use those toilets. The reason was no water facilities, no door and lack of cleanliness. Apart from this, the women mentioned that from childhood they have never used toilets so they introvert regarding the use of toilets. In addition, rural women workers were asked about the use of sanitary pads during the menstrual day. The majority (87.2%) of the rural women has the knowledge of commercially available sanitary napkins yet none of them use that napkin. Women workers use cotton cloths during menstrual days. Among 75 women workers, 5 women workers were pregnant. They visit the nearby primary health centre (PHC) for antenatal care and checkup. Like other women, salt workers also receive monetary benefits from Gujarat government. They receive 6000 Rupees under pregnancy aids, however more than half of the women workers are unaware of such schemes. Majority of women workers mentioned that they went district hospital located in Bhavnagar during childbirth and delivery.

Right to Work without Social Discrimination: No Assurance to Social Security

About 98% workers in solar salt works follow Hinduism whereas only 2% follow Islam and Jainism. On investigating on the social position of rural women in salt works of Bhavnagar, it was revealed that 88% belongs to OBC (Other Backward Class), 7% of the worker belongs to scheduled tribes (ST). Greater part the tribal migrated from Chhattisgarh, Jharkhand, and Bihar. The worker belongs to OBC are called as 'Kodi' caste whereas the tribal belong to 'Gond' tribe. Women workers mentioned that they work with full freedom in salt industries and never faced any kind of social discrimination. Women workers mentioned that though they live in labour shed area with lack of basic amenities however they are safe in their work place with compared to other contractual work.

Conclusion

Salt is an integral part of the life for the people of Gujarat. Traditional salt industries of Gujarat support rural women workers through employment and safe work. The rural women workers prefer to work in salt industries as compared to agriculture and construction work. Though worker has various problems related to contract labour, migration, lack of basic amenities and low wage, still they consider salt work as their traditional work. The SWOT analysis presented by Indian Salt Manufacturing Association (ISMA) stated that the strength of salt industries is that salt works provide employment to the unskilled and illiterate worker because of the simplicity of the solar salt works. Rural women depend on salt works for 8 months of the years later during rainy season majority of the women workers have no the alternate work or income source. Rural women in salt works have low education and

depend on salt to earn their livelihood. At a young age, the work strenuously in salt industries but later with progression with age their work capacity reduces and hence their economic conditions also deteriorate.

Recommendation

Women in salt industries need better education, skill development, security in terms of wage and employment, labour colony with toilets and sanitation facility. The most important is school and daycare centers for their children. Provision for food for work should be given to the women workers and their family. NGO, labour welfare board, Salt association, state and central agencies should give women salt worker's recognition for work and they should also receive monetary benefits scheme.

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Conflict of Interest

None

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Figure 2: Women Workers in Solar Salt works in Labour Colony.



Figure 3: Solar Salt Works CSIR-CSMCRI.



Figure 6: Labour Shed (Housing during salt Cultivation Season).



Figure 4: Women Workers in Salt Pan (Initial Phase).

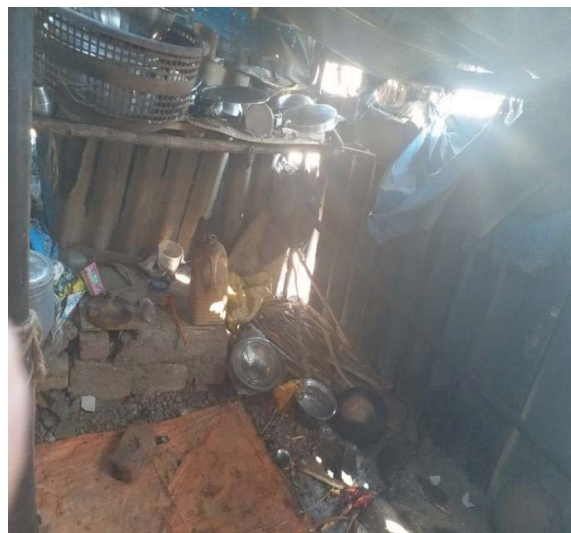


Figure 7: Cooking Place.



Figure 5: Heap of Salt (Final Phase).



Figure 8: Young Girls working in Salt Washery.



Figure 9: Salt Refinery.

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