

# Evaluating overall social and health status of salt workers in experimental salt fields at Bhavnagar, Gujarat, India

## Abstract

Experimental as well as operational salt field in India is labour driven and they still use traditional methods for salt production. Gujarat is largest salt producing state in India and Bhavnagar district have experimental salt field under Central Salt and Marine Chemicals Research Institute (CSMCRI) is a constituent research laboratory under Council of Scientific and Industrial Research (CSIR) India and Bhavnagar Government Medical College. Pilot survey was conducted at Kumharwada village in Bhavnagar, Gujarat on March 2015 to evaluate the existing social and health status of the workers depending on salt production to support their livelihood. The salt workers employed for more than 5 years as contractual manpower and on daily wages. Survey revealed that considerable proportion of workers employed in salt works is women as compare to the men. Workers had various occupational related health problems. They live with minimal source of income as well as there is lack of social and health security. Extensive field research with qualitative and quantitative investigation is needed in this region. In addition, there is need for awareness program regarding health and safety of the workers in this region.

**Keywords:** salt workers, work-environment, health, social status

Volume 5 Issue 3 - 2017

## Mayuri Banerjee Bhattacharya

MPH-Specialization in Environment and Occupational Health Head, Research and Development (Health and Safety), Leela's Foundation for Education and Health [NSDC Partner Institution], India

**Correspondence:** Mayuri Banerjee Bhattacharya, BDS, MPH-Specialization in Environment and Occupational Health Head, Research and Development (Health and Safety), Leela's Foundation for Education and Health [NSDC Partner Institution], India, Tel 07043431408, Email banerjeemayuri7@gmail.com

**Received:** January 01, 2015 | **Published:** March 16, 2017

**Abbreviations:** NIOH, national institute of occupational health; FGD, focus group discussion

## Background

Salt Industry in India is labour intensive and majority of the workers are unskilled workers. On an average about 1.11 lakhs labourers are employed daily of which more than 50% of the workers are working in Gujarat state begin the largest salt producer in India.<sup>1</sup> Developed countries like USA, Canada, Australia, France and Japan salt production is highly mechanized with whereas in India salt industry depends on labour intensive technology.<sup>2</sup> There are more unorganized sectors as compared to organized sectors. Considerable group of men and women intra-state and interstate migrant workers depend on salt industries for their livelihood. Workers are mostly they are daily wage laborers work on contract and sub-contract basis.<sup>3</sup> In traditional salt industries workers families are employed and there is lack of basic amenities, poor housing condition, no social security, no health security and low income have cumulative effects on their overall socio-economic and health status.<sup>4</sup> 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.<sup>5</sup> Respiratory problems like asthma, lung congestion are more common among the workers as their work-environment have high concentration of salt water, salt dust, and mixed dust. Apart from various health issues occupational work-environmental safety and personal safety is further compromised.

## Impact of salt works on worker's health

Various international and national research as well as field investigation suggested that prolonged exposures to salt fields work have numerous deleterious effects on health. A cross sectional study was conducted to assess work-related health related health problems among salt workers problems in salt workers of Rajasthan revealed that prevalence of ophthalmic symptoms was 60.7%, dermatological symptoms was 43.8% and other symptoms like headache, giddiness, breathlessness, muscular and joint pains were experienced by 52.1% salt workers. The same study also found that traumatic ulcers, dermatitis, muscular and joint pains, headache and giddiness were other more common symptoms observed among the salt workers. Majority of the salt workers suffered from ophthalmic problems. However the prevalence of hypertension was 12.0%.<sup>6</sup> Case control study conducted by NIOH (National Institute of Occupational Health) on 2104 subjects of which including 1549 salt workers working at different salt sites in the little Rann of Kutch and 555 control subjects from the nearby villages suggested that the prevalence of skin and eye symptoms were significantly higher among the salt workers. However, the mean systolic and diastolic blood pressure among different categories was comparable. A significant increase in urinary sodium excretion and serum pH was observed in salt production workers. Another, house to house survey was conducted at Vedaranyam to Kodikarai village in Chennai where salt workers reside. Nearly, 200 household participated in the survey. The investigation revealed that the All the workers have low socioeconomic status. Malnutrition, anaemia, vitamin and iodine deficiencies were significantly high among the salt workers. Furthermore, they suffered from poor vision, glare, pre-mature loss of vision, corneal growth and night blindness. Majority of the salt workers had musculoskeletal disorder like low

back pain, shoulder pain, joint pain. Other health related illness reported among them were chronic dermatitis (hands and legs), hypertension, breathlessness, asthma, cough and goitre among young girls & women involved in salt works.<sup>7</sup>

### Effects of salt works on socio-economic status

Apart from various health issues occupational work-environmental safety and personal safety is further compromised. Prime social issues highlighted by few NGO sectors working for salt farm workers are substance abuse, alcohol dependency, work place violence, low wage, poor nutrition status, illiteracy and domestic violence against women. As they live in remote areas thus access to the health care and utilization of health care services is also difficult for the salt workers especially, women workers.<sup>8</sup> A case study conducted at Magarini District in Kenya on salt farming where majority of inhabitant's main occupation is salt work. The purpose of the research was to understand environment issues and socio-economic problem emanated due to salt mining thus six operational salt farming companies and data collection techniques broadly engaged questionnaires. About 120 households and 12 relevant government institutions constituted the sample and multistage cluster sampling and snowball sampling techniques were utilized. Investigation further involved face to face interviews for collecting data from relevant government institutions, NGOs and salt farming companies' officials. Focus Group Discussion (FGD) was conducted with Human Rights interest groups in salt farming sector in Magarini District. The study has hi-lighted several social-cultural problems associated with the salt works. The major social problems where; poor standards of living, family conflicts, school drop outs for employment opportunities, human displacement, increased rate of immorality, increased cases of insecurity, poor working conditions, alcoholism, prostitution and child delinquency. Furthermore, 66% of the salt workers were considered to be living in absolute poverty as compared to national average which was 56%.<sup>9</sup>

### Pilot study report analysis

A short pilot survey was conducted in March 2015, at Kumbharwada village in Bhavnagar district of Gujarat with the support of CSMCRI-CSIR and Medical College of Bhavnagar. The survey revealed that the workers who work in the experimental salt field they live in the vicinity of the salt manufacturing unit. Hence, they are at the risk of double exposure during their work hours as well as in their home as their settlement built in the nearby working zone. However, some workers who work in the salt production area live in the village located 10km away from their work zone in such case workers are exposure to their work-environment for 8 to 10hours daily. Furthermore, some workers are intra-state migratory laborers with no permanent settlement. In addition to this, walk through survey of the work setting revealed that there are more female workers as compared to the male workers. All the workers are seasonal laborers. Majority of them where unskilled laborers whereas, few workers had 10 to 15years of experience thus they were categorized under semiskilled workers. Majorities of workers had no formal education and work as contractual manpower on daily wage basis. Salt production peak time is summer season mainly start from end of March to mid of July before monsoon. Salt workers strive in extreme hot condition involving strenuous manual labour. They work in various operational sections in salt production involve preparation of salt beds, extraction of salt, storing on platforms, gathering stack of heaps, loading into railway wagon/ motor trucks. Initial stage workers collect sea water from the cricks to reservoir which is further recollected in salt pans where brine is formulated by the workers. Evaporation of brine depends on climatic conditions. In

each salt pan at least 5-6 workers work involve in brine preparation and they work in extreme adverse condition and majority of them work bare foot. Later stage mature brine is transferred to the major pans where salt is formed. In the pilot survey, 37 workers participated both male and female. Health examination was conducted with the support of Bhavnagar Medical College doctor's team. All vitals sign The pilot survey revealed that almost all workers had oral abusive habit. Majority of the salt workers had musculoskeletal disorder (Joint, Knee, Shoulder Pain). Ophthalmic Problem such as Blurring of vision, refractory error, watering of eyes, week eye sight was high among the workers. General signs of anaemia were present among women workers. Furthermore, women workers also complained of abdominal pain and cramps as well as they had recurrent urinary tract problem. Workers are ignorant towards occupational health illness although, each workers are provided personal protective equipments (safety boots, goggles and hand gloves) yet they are not using any safety equipments during work.

### Conclusion

Salt workers are seasonal workers with marginal source of income. There is lack of social and health securities for salt workers. They are exposed to hazardous work-environmental factors and work in extreme climatic conditions. Workers also suffer from different occupational health condition as well as due to lack of education and awareness they pay no attention to these occupational health hazardous conditions. There is lack of motivation towards use of personal protective equipments. All the workers have oral abusive habits and poor personal hygiene. There salt workers settlements lack basic amenities like portable drinking water, toilets and waste management systems. Government as well as local NGO should pay attention towards the salt workers health and socio-economic status. They should be enrolling various skill development and alternate mode to livelihood.

### Acknowledgements

I am thankful to Dr Arvind Kumar, Mr. Sumit Kumar Upadhyay and Mr. Sourish Bhattacharya from CSMCRI-CSIR for guidance and support. I would like to extend my gratitude to Dr Atul Trivedi, form Department Community Medicine, Bhavnagar Medical College for arranging health examination camp for health for salt work in Kumharwada village in Bhavnagar, Gujarat, India.

### Conflict of interest

The author declares no conflict of interest.

### References

1. Government of India GOI. *Salt Industry in India*. India; 2014.
2. Government of India GOI. Salt Department Ministry of Commerce and Industry; 2014.
3. Yadava YS. *Socio-Economic Status of Workers in the Salt Industry in India: A Report*. India: Bay of Bengal Programme, Inter-Governmental Organisation; 2006.
4. Bharwada C, Mahajan V. *Yet to be Freed Agariyas' Lives and Struggle for Survival in the Little Rann of Kutch*. India: Report for National Consultation on Salt Workers; 2008.
5. National Institute of Occupational Health. *Prevention and Control of Occupational Health Hazards Among Salt Workers Working in Remote Desert Areas of Gujarat and Western Rajasthan*, India.

6. Sachdev R, Mathur LM, Haldiya KR, et al. Work-related health pr elated health problems in salt workers oblems in salt workers of Rajasthan, India of Rajasthan, India. *Indian Journal of Occupational and Environmental Medicine*. 2006;10(2):62–64.
7. Swaminathan S. *Rubbing salt into their wounds*. The Hindu; 2015.
8. Saline Area Vitalization Enterprise Ltd (SAVE). Study of Salt Workers- Agarias Kutch, Patan, Rajkot and Surendranagar district, Gujarat. A report for CARE India SNEHAL Project, India.
9. Ocholla OG, Bunyasi MM, Asoka WG, et al. Environmental Issues and Socio-economic Problems Emanating from Salt Mining in Kenya; A Case Study of Magarini District. *International Journal of Humanities and Social Science*. 2013;3(3):213–223.