



Occupational health hazards of tea garden workers of Hajua and Marangi tea estates of Assam, India

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Abstract

Occupational Health Hazards refer to the potential risks to health and safety of workers in their workplaces. Tea garden workers are susceptible to a number of hazards in their workplaces due to physical, biological, mechanical, chemical and psychosocial factors. The present paper tries to examine the occupational health hazards faced by the tea garden workers of Hajua Tea Estate of Sibsagar District and Marangi Tea Estate of Golaghat District in Assam. Factors such as income, educational levels of the workers, availability of medical facilities in the tea gardens, hygiene and sanitation, general awareness and perception about the different occupational health hazards have been taken into account while arriving at the findings of the study. It has been found from the study that the tea garden workers are educationally lagging behind, health facilities are not adequate and safety measures are lacking. This has resulted in a number of work-related accidents and the workers are found to suffer from a number of health problems.

The study has been conducted mainly with the help of primary data collected with the help of a questionnaire. Altogether 72 workers, both male and female of Hajua Tea Estate and 140 workers of Marangi Tea Estate have been surveyed by Random Sampling Method. In addition, secondary information has been collected from sources such as books, journals and the Internet.

Keywords : Accidents, Hygiene and sanitation, Medical facilities, Occupational health hazards.

1. Introduction

Occupational health aims at prevention of disease and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations. The Joint ILO/WHO Committee on Occupational Health, gave the following definition. "Occupational Health should aim at the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations, the prevention among workers of departures from health caused by their working conditions; the protection of workers in their employment from risks resulting from factors adverse to health; the placing and maintenance of the worker in an occupational environment adapted to his physiological and

psychological equipment, and, the adaptation of work to man and of each man to his job" (ILO/WHO, 1995). One of the basic aims of occupational health is to provide a safe 'occupational environment' in order to safeguard the health of the workers and to step up industrial production.

Occupation and health are closely related. The occupational environment of the worker cannot be separated from his domestic environment. Both are complementary to each other. Stress at work may disturb his domestic life just as stress at home may affect his work (Park, 2005).

Tea is consumed in about 100 countries and India is the largest producer and consumer of tea in the world (Baroowah, 2006). Assam is the

largest tea producing state in India and contributes about 60 per cent of the total production of India (Sen, 2008). Tea is an important agro-industry of Assam, which contributes immensely to the state's economy (Griffiths, 1967).

The present study tries to find out the occupational health hazards of tea garden workers of Hajua Tea Estate in Sibsagar District and Marangi Tea Estate in Golaghat District of Assam. (Figure - 1).

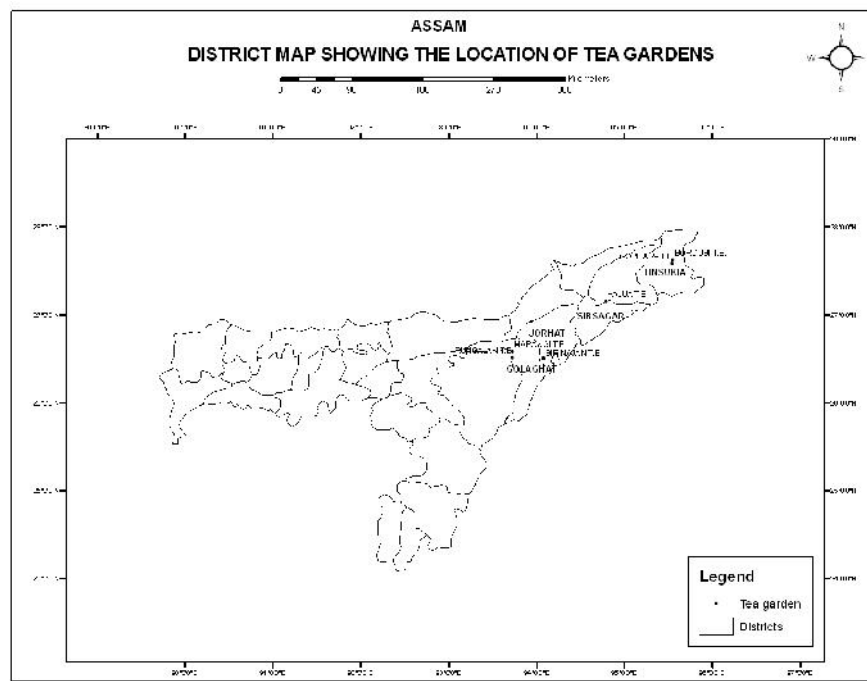


Figure - 1 : Map of Assam (India) showing the location of Hajua and Marangi Tea Estates

2. Objectives

The objectives of the study are as follows :

- to find out the vulnerability of the tea garden workers to various health problems,
- to find out the various occupational health hazards faced by the workers of the surveyed tea estates,
- to find out the effects of the health problems of the workers upon their occupational and social lives, and
- to suggest measures for mitigating the occupational health hazards of the tea garden workers.

3. Methodology

The study has been mainly conducted with the help of a questionnaire prepared for the purpose. Queries relevant to the theme under study has been included in the questionnaire like income pattern, housing conditions, source of

drinking water, health and safety measures available to the workers of Hajua and Marangi tea estates, health problems of the workers, etc. The services of a medical practitioner was utilized to assess the medical health of the tea garden workers,

Altogether 72 workers from Hajua Tea Estate and 140 workers from Marangi Tea Estate were selected by Random Sampling Method. Data has also been collected by conducting group discussion with field officials and supervisors and by interacting with the management of the two estates. Secondary information on the subject has been collected from sources such as books, journals and the Internet. The additional information has been thoroughly examined only to build up a strong perspective towards examining the topic. Looking from various angles enables a range of views to be considered in critically analyzing the topic under study.

The data collected through the questionnaire has been analyzed and appropriate statistical methods and techniques including bar diagrams, column diagrams, pie charts have been used wherever possible for interpreting the findings of the study.

4. Analysis and Discussion

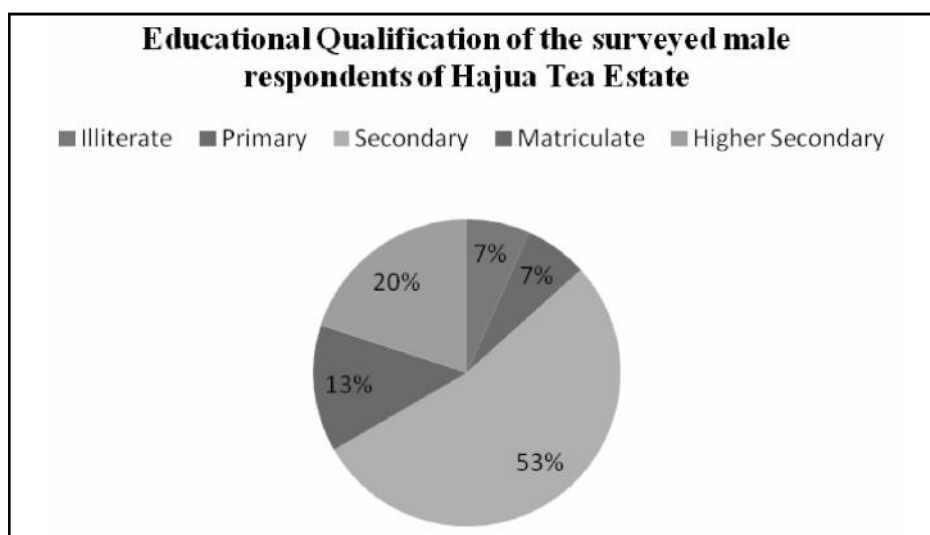
The occupational health hazards of tea garden workers of Hajua and Marangi tea estates can be gauged by the social and economic facilities available to them such as wages, housing facilities, etc., by the health facilities available in

the tea gardens, safety measures adopted in their working environments, etc.

4.1 Socio-economic settings of the workers of Hajua and Marangi Tea Estates

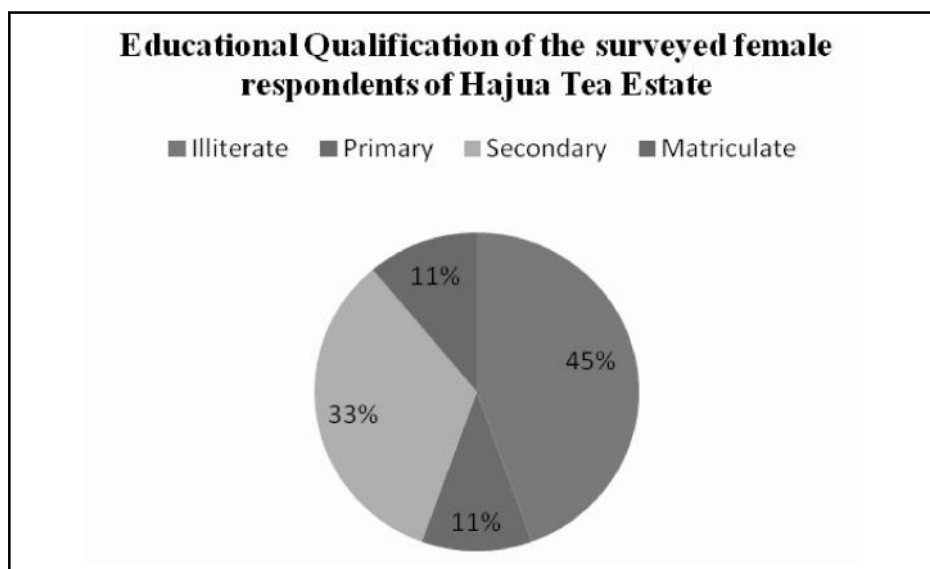
4.1.1 Educational qualification

Most of the workers of Hajua and Marangi Tea Estates are not highly educated with many of them being illiterate. It is seen that the male workers of Hajua Tea Estate are comparatively more educated compared to those of Marangi Tea Estate. (Figure - 2 up to Figure - 4).



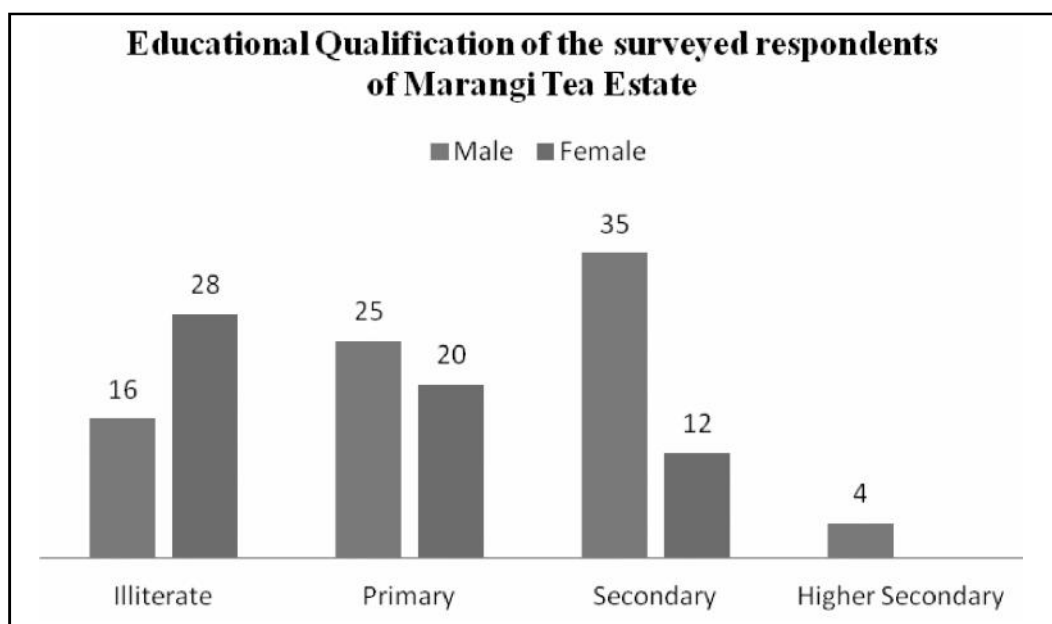
Source : Primary Survey, 2011

Figure - 2



Source : Primary Survey, 2011

Figure - 3



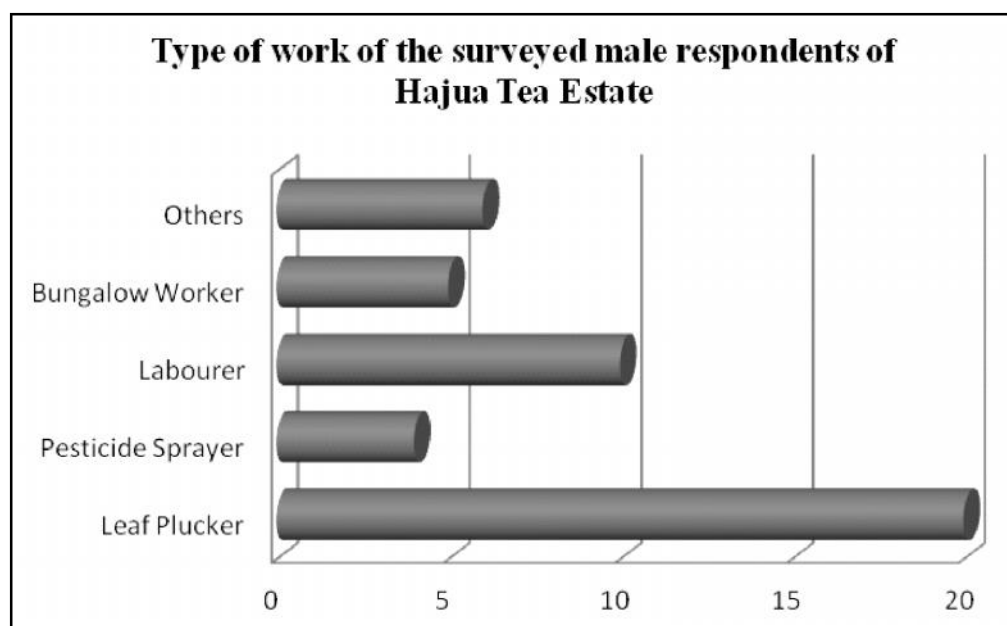
Source : Primary Survey, 2011

Figure - 4

4.1.2 Nature of work

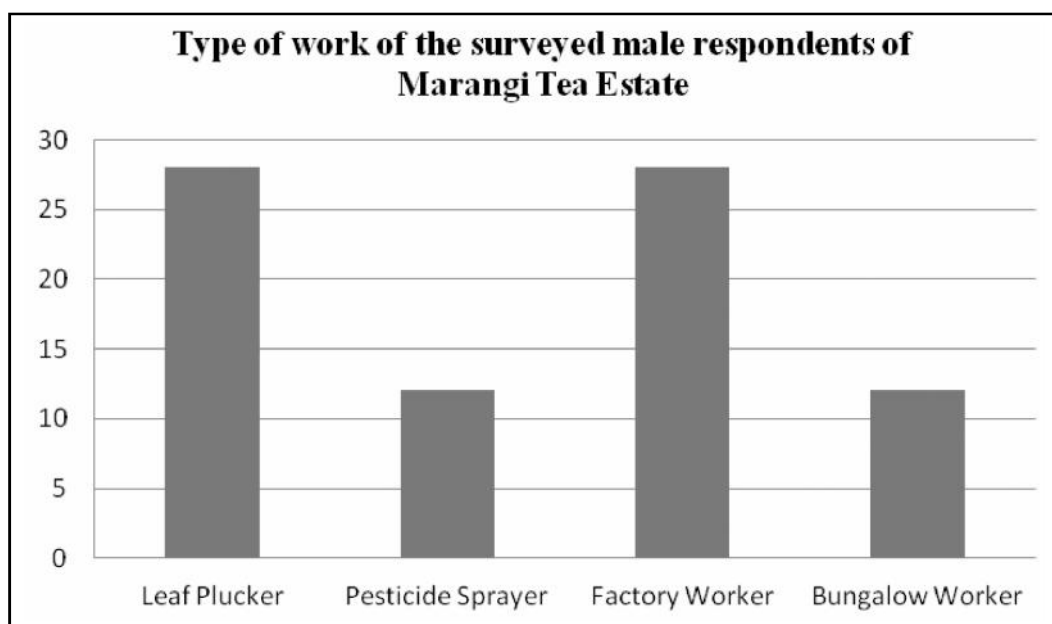
More than two-thirds of the surveyed respondents are permanent workers at Hajua Tea Estate while more than half of the workers of Marangi Tea Estate are temporary workers. The surveyed workers are engaged in various types of work, as leaf pluckers, pesticide sprayers, workers of

the tea factory located inside Marangi Tea Estate, bungalow workers working as cook, servant, chowkidar, labourers, etc. All the surveyed female workers of Marangi Tea Estate and 88.88 per cent of Hajua Tea Estate are leaf pluckers, while 11.12 per cent are engaged in other activities. All the surveyed pesticide sprayers are male (Figure - 5, Figure - 6)



Source : Primary Survey, 2011

Figure - 5



Source : Primary Survey, 2011

Figure - 6

4.1.3 Income : The surveyed temporary and permanent workers earn Rs. 400/- per week (Rs. 57.14/- per day) in Marangi Tea Estate while temporary workers earn Rs. 54.86/- per day and permanent workers from Rs.1300/- onwards per month depending on the nature of work in Hajua Tea Estate. Temporary workers work for 6-7 months in a year. Earnings of the surveyed permanent workers of both the tea estates have been calculated after provident fund deductions.

4.1.4 Housing : The permanent employees of Hajua Tea Estate and Marangi Tea Estate are provided with quarters which are Assam Type houses. The temporary workers of both the estates live in their own Kutcha houses.

5. Health and Sanitation facilities available at Hajua and Marangi Tea Estates

Tea workers, like any other industrial workers are prone to accidents at work. Therefore, readily available medical and emergency services help in giving prompt medicine and treatment to the workers.

5.1 Health Facilities : Marangi Tea Estate has a hospital inside the tea garden manned by a

doctor, a nurse and two compounders. An Out Patient Department (OPD) is also available in the hospital.

Hajua Tea Estate does not have a garden hospital. All sick workers are referred to the nearby parent hospital located in Khumtai Hajua Tea Estate 6 km away which has a 30- bedded hospital manned by a Senior Medical officer, 3 pharmacists, 4 nurses and 5 dressers. Permanent workers of the two estates get free medicines while the temporary labourers get free treatment and medicine if they fall sick while they are working in the tea estate. There are six member groups known as Mother's Club in Hajua Tea Estate consisting of permanent female workers who are trained by UNICEF in the tea estate itself on health and hygiene and cleanliness. They campaign door-to-door two days per week educating the workers about the demerits of liquor consumption, benefits of living in clean surroundings and about the drawbacks of absenteeism from work.

5.2 Sanitation facilities : Most of the surveyed workers of Hajua Tea Estate have sanitary latrines while all the workers of Marangi Estate have pit latrines. Drainage system in

the labour lines is poor and sullage water pass out of the houses through narrow drains cut in the ground in both the tea estates. Overflow of water into the nearby areas creates breeding grounds for mosquitoes and germs (Bhadra, 1997).

5.3 Hygiene : Hygiene influences the health of a population. The surveyed respondents wash their face and brush their teeth daily. They use tooth brushes or twigs of trees to brush their teeth. They cannot afford to use soap regularly for washing purpose. More than 90 per cent of the surveyed respondents of Hajua Tea Estate and more than 75 per cent of the workers of Marangi Tea Estate drink boiled water to ward off water-borne diseases.

5.4 Using mosquito nets : The climate of Assam is highly receptive to malaria transmission (Dev *et al.*, 2006). Using mosquito nets helps in preventing malaria. More than 90 per cent of the surveyed workers of Hajua and 75 per cent of the surveyed workers of Marangi Tea Estates use mosquito nets while sleeping.

5.5 Visiting doctor when sick : When the workers of the surveyed tea estates fall sick, they usually visit the garden doctor or doctors and pharmacists available in nearby pharmacies and hospitals. But the study has revealed that about 23 per cent of tea garden workers of Marangi Tea Estate visit 'bez' or traditional doctors who prescribe traditional medicine.

6. Occupational Health Hazards faced by the workers of Hajua and Marangi Tea Estates

Tea garden workers are susceptible to numerous occupational health problems as already stated above. Some major occupational health hazards faced by the surveyed workers are stated below :

6.1 Physical Hazards : A number of respondents of Hajua and Marangi Tea Estates report feeling some form of inconvenience in their working environments on account of heat, cold, rain, light, noise, vibration, etc. (Table-1, Table- 2).

Table - 1 : Physical hazards faced at work by the workers of Hajua Tea Estate.

Category	Male	P. C.	Female	P. C.
Heat	06	08.33	10	13.89
Cold	03	04.17	08	11.11
Rain	10	13.89	09	12.50

Source : Primary Survey, 2011

Table - 2 : Physical hazards faced at work by the workers of Marangi Tea Estate.

Category	Male	P. C.	Female	P. C.
Heat	32	40.00	4	6.67
Cold	24	30.00	8	13.33
Rain	12	15.00	20	33.33
Noise	32	40.00	0	0.00
Vibration	36	45.00	0	0.00

Source : Primary Survey, 2011

6.2 Mechanical hazards : Some mechanical hazards faced by the workers of the surveyed tea estates are stated below (Table - 3, Table - 4).

Table - 3 : Mechanical Hazards faced at work by the workers of Hajua Tea Estate.

Category	Male	P. C.	Female	P. C.
Cuts	15	33.33	9	33.33
Injuries	18	40.00	11	13.58
Sprains	16	35.56	10	37.03

Source : Primary Survey, 2011

Table - 4 : Mechanical Hazards faced by the workers of Marangi Tea Estate.

Category	Male	P. C.	Female	P. C.
Cuts	8	10.00	0	00.00
Injuries	4	5.00	0	00.00
Sprains	8	10.00	8	13.34

Source : Primary Survey, 2011

6.3 Biological Hazards : Tea garden workers are susceptible to a number of biological hazards like insect bite, fungal infections and malaria, among others. 11.11 per cent of the surveyed workers of Hajua Tea Estate and 20 per cent of the surveyed workers of Marangi Tea Estate have suffered from insect bites while working in the tea gardens. Besides, 6.67 per cent of the surveyed male workers and 11.11 per cent of female workers of Hajua Tea Estate have been found to have suffered from malaria, while about 1 per cent of male and female workers of Marangi Tea Estate have been found to have suffered from malaria.

6.4 Chemical Hazards : None of the surveyed workers of the two tea estates have been found to have been affected by chemical hazards such as dermatitis, eczema, ulcers, among others.

6.5 Psychosocial Hazards : Psychosocial health of the tea garden workers is also influenced by their overall occupational health conditions. Psychosocial workplace characteristics related to stress and work frustration may be due to health outcomes, the balance between a worker's efforts and the rewards (e.g., pay, recognition, status, prospects of promotion, etc.) received for his or her work, and the extent to which supervisors (Pun et al, 2003) and co-workers are supportive. Other psychosocial characteristics include work stability, service conditions, job satisfaction, welfare conditions in the tea estates, etc. (Park, 2005).

Job satisfaction of the surveyed tea garden workers of Hajua and Marangi Tea Estates are stated below (Table - 5).

Table - 5 : Job Satisfaction among the surveyed tea garden workers.

	Hajua	Tea	Estate		Marangi	Tea	Estate	
Category	Male	P. C.	Female	P. C.	Male	P. C.	Female	P. C.
Very much satisfied	23	51.11	15	55.56	15	18.75	18	30.00
Just satisfied	16	35.56	10	37.04	35	43.75	24	40.00
Not so much satisfied	04	08.89	02	07.40	20	25.00	10	16.67
Not at all satisfied	02	04.44	00	00.00	10	12.50	08	13.33

Source : Primary Survey, 2011

It is seen that more than 50 per cent of the surveyed tea garden workers of Hajua Tea Estate and more than 24 per cent of the workers in Marangi Tea Estate are very much satisfied with their jobs. The higher satisfaction levels among the workers of Hajua Tea Estate may be on account of most of them being permanent workers

enjoying better medical, housing and other benefits (Table - 5).

7. Health problems faced by the surveyed tea garden workers

The surveyed tea garden workers of Hajua and Marangi tea estates report facing some health problems which are stated below (Table - 6, Table - 7).

Table - 6 : Health Problems faced by the respondents of Hajua Tea Estate.

Category	Male	P. C.	Female	P. C.
Body pain	16	35.56	11	40.74
Anaemia	10	22.22	12	44.44
High B.P.	05	11.11	02	07.40
Respiratory diseases	15	33.33	04	14.81
Cough	05	11.11	00	00.00
Headache	06	13.33	04	14.81
Malaria	03	06.67	03	11.11
Abdominal Disorder	04	08.89	02	07.40
Chest Pain	06	17.77	00	00.00

Source : Primary Survey, 2011

Table - 7 : Health Problems faced by the respondents of Marangi Tea Estate.

Category	Male	P. C.	Female	P. C.
Body pain	19	23.75	29	48.33
Anaemia	5	6.25	23	38.33
High B.P.	5	6.25	0	00.00
Respiratory diseases	3	3.75	1	01.67
Cough	4	5.00	0	00.00
Headache	3	3.75	5	08.33

Source : Primary Survey, 2011

8. Causes of vulnerability of the tea workers to various occupational health hazards

General awareness and perception about occupation hazards are low among the tea garden workers because of illiteracy and also because they live in isolated surroundings with few contacts with the urban milieu (Bhadra, 1997). The main causes of vulnerability of the surveyed workers of Hajua and Marangi Tea Estates to occupational hazards are stated below :

- The workers cannot afford a nutritional diet because of low wages and fall prey to diseases easily (van der Wal, 2008).
- Temporary workers get fewer social benefits like medical care, housing, educational facilities for their children, etc.
- Pesticides are often sprayed without proper protection. Protective gear is also not provided to the workers while operating machines in the tea garden factory of Marangi Tea Estate, thus resulting in cuts and bruises.
- Intoxication among the tea garden workers is a common phenomenon. More than 80 per cent of male workers of both the tea estates and 29.63 per cent and 40 per cent female workers of Hajua and Marangi Tea Estates respectively drink rice beer.
- Around 70 per cent of the male workers of both the tea estates smoke and/or chew

tobacco while 33.33 per cent surveyed female tea garden workers of Hajua and 16.67 per cent female workers of Marangi tea estates chew tobacco which is injurious to health.

9. Effects of occupational health hazards upon the occupational and social lives of the tea garden workers

Ill-health of the tea workers on account of occupational health hazards like physical hazards, chemical hazards, biological hazards, mechanical hazards and psychological hazards may result in a host of physical and psychosocial problems.

- Effects of physical hazards like vibration may result in fatigue, irritability, headache, spinal disorders, etc.
- Hearing continuous high decibel sounds in the tea factory may lead to irritability, headache, hearing impairment, etc. Insect bites, cuts, injuries and other accidents along with other occupational diseases cause pain, weakness and discomfort to the workers.
- Among the surveyed tea garden workers, 15 (33.33 per cent) male and 16 (59.26 per cent) female workers respectively of Hajua Tea Estate have remained absent from work during the past one year on account of injuries and illnesses, resulting in loss of income; while 50 (62.50 per cent) male and

54 (90 per cent) female workers respectively of Marangi Tea Estate have remained absent from work during the past one year on account of the same.

- Among the surveyed tea garden workers of Hajua Tea Estate, 17.78 per cent and 14.81 per cent of the male and female workers respectively suffer from work frustration. Among the surveyed tea garden workers of Marangi Tea Estate, 18.75 per cent and 16.67 per cent of the male and female workers respectively suffer from work frustration.
- Stress experienced at the workplace may result in fatigue, anxiety, irritability or depression. It may spillover to their homes and may be one of the causes of domestic violence, heavy drinking, etc. It is seen that domestic violence is prevalent among 40 per cent and 22 per cent workers of Hajua and Marangi tea estates respectively.

10. Suggestions for improving the occupational health of the tea garden workers of Hajua and Marangi Tea Estates

Some suggestions for improving the occupational health conditions of the tea garden workers of Hajua and Marangi Tea Estates are as stated below :

- Educational facilities for the tea garden workers should be improved. There is a primary school in each of the surveyed tea estates. The tea garden workers should be made aware of the importance of formal education upon one's future.
- Income of both permanent and temporary workers should be increased so that they can lead comfortable and hygienic lifestyles and invest more in health and education.
- The tea garden workers should be made aware of the importance of the health benefits of drinking safe drinking water, of using mosquito nets while sleeping, of keeping their surroundings clean and free from dirt and stagnant water. The walls and machinery of the tea factory at Marangi Tea Estate should be kept clean, machines should be fenced off and the floors, stairs and means of access should be of sound construction (Indian Tea Association, 1991).
- Protective clothing like gloves, masks, helmets, etc. should also be provided to workers working inside the tea garden factory at Marangi Tea Estate. Spraying and fumigating the residential areas with insecticide from time to time will reduce the number of mosquitoes and flies. Tea garden workers can be provided with umbrellas and 'japi', the traditional Assamese cap to protect them from the heat and rain.
- Proper training regarding handling of tools and machines should be given to workers before operating the factory machines.
- Utmost precaution should be taken while spraying chemicals so that the workers are not exposed to hazardous chemicals. Protection equipment such as goggles or face shields, chemical-resistant gloves, aprons, boots and respirators should be provided.
- Injuries to the lower back resulting from lifting heavy goods are common among tea workers (35 per cent surveyed workers of both the tea estates suffer from it). Mechanical devices such as vacuum lifts can aid in reducing heavy lifting tasks. Assigning more than one worker to a heavy lifting task can help reduce the chances of back injury.
- Rotation of duties can be done to minimize the ill-effects of workers working in the factory at Marangi Tea Estate and the pesticide sprayers working in both the surveyed tea estates.
- The tea garden workers' health should be promoted by providing information and making them aware of health issues and encouraging them to make physiological, mental and social choices that improve their health (IGNOU, 2009).
- The two main laws for compensating occupational diseases and accidents, ie, the Workman's Compensation Act and the

Employees State Insurance (ESI) should be enforced in both the tea estates. The Plantation Labour Act, 1951, should be enforced so that the physical, social and emotional/psychological securities of the workers are not compromised by the owners of the tea gardens in the name of earning more revenue.

- Health facilities should be further improved in both the tea estates. More health employees like doctors, nurses and pharmacists should be appointed at Marangi Tea Estate, which is a big tea estate. Health awareness camps and facilities for periodic health check up of the employees of both the tea estates should be provided.
- Rehabilitation of sick and disabled tea garden workers should also be taken care of by the authorities of the tea estates.
- The workers like to be recognized for their work and are susceptible to the effects of love, recognition, rejection, job satisfaction, rewards and discipline (Park, 2005). As such, the master-servant relationship existing in the tea estates should be gradually done away with.

11. Conclusion

The study has revealed that the tea garden workers of both Hajua and Marangi Tea Estates of Assam have a long way to go in terms of mitigating the occupational health hazards.

Prevention and control of occupational health hazards among the workers can be done by regular environmental monitoring including exposure to chemical, biological, mechanical and physical agents in their work environments. Providing economic benefits will help in boosting the morale of the workers thereby improving their physical and mental health. The present health status of the tea garden workers can be improved through better hygienic practices, environmental sanitation, creating health awareness and nutritional intervention and overall improvement of socio-economic conditions of the population (Medhi, *et al.*, 2006).

Under the Plantation Labour Act, 1951, employers are required to provide ration, fuel, housing, maternity benefits and free medical treatment to the workers, appoint welfare officers, make primary education compulsory for all and have crèches where there are more than 50 women employees. Although some of the above benefits are available to the workers of the two surveyed tea estates, some of them are not applicable in the case of temporary workers who constitute a considerable proportion in the surveyed tea estates, as already stated. The tea garden authorities of both Hajua and Marangi tea estates have to be more sensitive to the socio-economic needs of the workers so that there is an overall improvement in occupational health, thereby mitigating the health hazards to the greatest possible extent.

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