Existing Facilities on Health, Welfare and Safety in Coffee Plantation and Prevailing Occupational Risks & its Impact on Health of Tribal Workers in the plantation of Araku Valley Mandal, Visakhapatnam District of Andhra Pradesh

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Abstract
In Andhra Pradesh state of India, Coffee cultivation occupies a place of superiority in the Araku valley mountains, it has a suitable climate for coffee plantation and there are 91 percent of tribal people residing in this area and majority of the tribal are depending upon agriculture related activities, among these agricultural actives plantations plays a predominant role and generating employment to many of the tribal people. This paper reveals about the Existing Facilities on Health, Welfare and Safety in Coffee Plantation and Prevailing Occupational Risks & its Impact on Health of Tribal Workers in the plantation of Araku Valley Mandal, Visakhapatnam District of Andhra Pradesh. This is an empirical study based on primary data and secondary data collected through a well-structured Schedule. The study would highlight the welfare, health and safety and the impact of occupational risks on health among the tribal workers in plantations of araku valley of Visakhapatnam District.

Key Words: Coffee Cultivation, Agricultural activities, Plantation, Health, Welfare, Safety and tribal Workers

Introduction
Coffee is one of the most important agro-based industries in India and India is one of the major coffee producing and consuming countries in Asia, accounting for about 2% of the global area and has an average share of about 4% of the world production and 3% of the International trade (Hermann A. Jürgen Pohlan & Marc J. J. Janssens). Coffee is not just one of the oldest crops it is also one of the major plantation crops in India providing large revenue to the country. India has been identified by the International Coffee Organization as one of the big coffee producing countries where there is a good potential for consumption expansion. Coffee plantation is the most labor-intensive sector in the rural economy, more than general agriculture where some farm operations are mechanized.

In Andhra Pradesh, Araku Valley is famous for coffee in terms of variety of taste that is world famous, which is also the area considered for the present study. However, irrespective of different states the Coffee plantation in India is labour intensive in nature as a result of which it accommodates a greater number of plantation workers for various activities in the coffee plantation. Often these workers are being ignored, the owners are not considering many times they are provided with low wages, their living conditions, working conditions and social status and government also fails to reach out to these workers. Most specifically the Plantation workers in Andhra Pradesh have no sufficient and efficient statutory measures and institutional mechanisms for their protection. Steps have been taken by the respective governments both at the national and state levels to protect their rights.
However, over the years there has been lot of changes that have taken place. These changes have brought gradual improvement in the lives of tribal workers of coffee plantation in the Araku Valley region. Even then these tribal coffee plantation workers are not untouched under certain grounds, they are still deprived of facilities under certain grounds, there is still a lack of awareness in terms of laws and schemes that are applicable to them, even today their literacy levels are low and even today the plantation workers are largely ignored and often excluded and economically exploited. All these things need to be taken into consideration to make them grow and contribute more to the coffee plantation industry. Because the success of coffee plantation does not depend only on climatic conditions or on physical or chemical composition but it also depends upon the efforts take by these coffee plantation workers most specifically the tribal coffee plantation workers in the Araku valley region.

**Labour in the Coffee Plantations**

Coffee cultivation is a highly labour intensive agricultural activity. 65% of the total cost of cultivation is accounted for by the labour costs in India whereas in Brazil due to high mechanization, the labour costs account for 35 to 40 percent. Labour is required throughout the year; the annual requirement per hectare being 400 man-days for Arabica variety and 300 man-days for Robusta. There is mutual interdependent relationship between the planters and the workers. The plantation owners depend on the work force to maintain their plantations in a productive and profitable state. The workers depend on the owners to meet their basis needs such as housing, credit, welfare besides providing gainful employment. A distinct feature of coffee plantation labour is they earn a regular income throughout the year. Low scope for mechanization, does not threaten their job security (*Annual Report by Coffee Board, 2017*).

**Problems of Coffee Plantation Workers**

The scientific management of coffee plantations has provided enough work to the workers in the estate itself, in the small estates where Robusta plants are mainly grown; the planters find it difficult to provide employment to the labourers in all the days of a week. It is therefore, a problem to the planters to maintain labour force reasonably adequate for the bay season and save from under-employment in the slack season.

Spraying is the most hazardous in the coffee plantations while spraying and preparing solution worker comes into contact with the mixture of copper sulphate and calcium carbonate which is injurious to the skin. There is also the possibility of workers inhaling these harmful chemical solutions while spraying. To some extent, these dangers can be lessened by providing the workers with glove, goggles and protective clothing. In majority of the coffee plantations, these protective measures are not supplied to the workers. Workers are also not keen on protecting themselves because they are not fully aware of the dangers involved in coming into contest with these solutions.

Some of the operations such as weeding, digging and gleaning require sitting and crawling under the pleats. In the monsoon season leaches are found on the coffee plantations which coolly and quietly suck the blood and thereby the vitality of the workers. The blood they lose by this way may not be regained at all. To avoid the attack of these blood-sucking animals, workers should be provided with gumboots (*Setty A. S., 1958*).
Occupational Health and Safety of Workers in Coffee Plantations

Workers in coffee plantations or farms face some occupational health and safety (OHS) issues. The most significant of these are injuries from cutting tools and machinery; hearing impairment from noisy machinery; musculoskeletal injuries; health problems from pesticide exposure; respiratory issues from coffee dust; high levels of sun exposure; snake and insect bites; long working hours and stress (ILO, 2004). Coffee plantations use agro-chemicals such as pesticides, insecticides, fungicides to control coffee rust and pests like coffee berry borer. While most of these pesticides are considered hazardous to a worker's health when used without proper personal protection equipment (Anu Kultalahti, 2016). Headaches, dizziness, sweating and tremors are some of the main symptoms of acute toxicity (Danwatch, 2016). Although not considered foolproof, use of appropriate personal protection equipment (PPE) can minimize risks associated with pesticide spraying. But in developing countries like India, PPE usage is low because it can be expensive, may at times be unsuitable to wear in a tropical climate, and workers are not trained or have low levels of awareness.

Review of Literature

Raja J.A. & Krishna Veni V. (2017) analyzed that the tea plantation and production sectors have to be monitored by the government constantly. The laborer laws have to be implemented in all the small- and large-scale tea industries in the district. The tribal tea labourers has to enrolled in trade unions and their socio economic conditions have been uplifted by initiating them to concentrate on their children education. The government has to monitor whether any human rights violations are witnessed in the workplace of the tribal tea labourers. The government has to inspect not only the production units but also the tea estates. Tea estates are the places where there are more possibilities for human rights violations. Health and safety measures have to be inspected by the labour welfare departments and the labourers have to be educated about the safety measures. Tribal people never prefer to be a part of the society. Majority of the tribes resides within their settlements in the forest regions. Their study has been conducted to bring out their problems and issues faced in their day to day life.

Mohd Juman Hussan (2015) conducted a study of QWL of tea plantation workers in Bangladesh. A sample of 100 workers from two regions was interviewed to study the impact of job-related factors on QWL. The job related factors chosen by the researcher included wages, canteens, health care facilities, accommodation, education facilities, decision making, working schedule, relationship with supervisors, training facilities and job security. The study showed that the workers are dissatisfied with almost all the work related factors considered except for working schedule, relationship with supervisors and job security where they reported low levels of satisfaction. The researcher concluded that all the factors selected for the study have an impact on the quality of work life of tea workers and in the plantations where the study was conducted, the workers have reported low quality of work life. Wages are low, food rations provided are not sufficient and malnourishment exists, absence of secondary schools in the tea gardens, health care facilities and accommodation facilities are far from satisfactory, absolutely no involvement in decision making and inadequate training facilities are the major observations, which have led to the poor QWL.
Objective of the Study

- To study the welfare facilities in coffee plantation of Araku Valley, Visakhapatnam District.
- To study the Health & Safety Measures in coffee plantations of Araku valley.
- To study the Occupational risks & its impact on health of Tribal Coffee Plantation workers in the coffee plantation of Araku valley.

Need for the Study

As Araku valley is one of the highest coffees producing areas in the state of Andhra Pradesh and the people residing in this region are mostly tribes and they depend mostly on agricultural activities. The agricultural activities prevailing in this region is mostly coffee plantation, pepper and millets. Among all these the coffee plantation is mostly carried out so the requirement for Tribal workers is accelerating day by day but they are hardly taken care off. Tribal people depended upon the forests for their livelihood. Now their main source of livelihood is wage labour in the coffee plantations and farmlands. Employment is seasonal, working environment in plantation is very much rigid and apart from daily wage, they do not receive any social security benefits from employers. Poverty and ill health are endemic to these communities of working people. There is well-entrenched social discrimination practiced against tribal people and their status on human development indicators like infant mortality, enrolment in schools, per capita income are far below that of the other communities in the district.

This has generated a need for the study for this segment of population. Thus, the present study will focus on these tribal workers in the Araku valley district of Visakhapatnam. Very limited studies have been conducted on the tribal workers in plantation and their common and unheard problems in Andhra Pradesh state of Visakhapatnam district. Out of which a little has been worked out in Araku valley. As Araku valley is one of the highest coffee producing areas in the state of Andhra Pradesh the requirement for Tribal workers is accelerating day by day. Hence, the present study is intended to investigate the Welfare facilities, Health and Safety measures at work place, Occupational Risks & its Impact on Health of Tribal workers with special reference to Araku valley Coffee plantation of Visakhapatnam district as very few studies were made in this area. Thus, the current study will be extremely beneficial to the Tribal workers community as a whole since knowing the situation of these workers in the informal sector the government can advance to take some effective and creative steps for the overall improvement of this trodden and discarded workforce.

Scope of the Study

The present study is confined to the tribal coffee plantation workers employed in Araku Valley, Visakhapatnam district. The present study focuses on the Welfare facilities, Health and Safety measures at work place, Occupational Risks & its Impact on Health of tribal coffee plantation workers with reference to the above said study area. The data was specifically collected from the tribal workers who are working in the Coffee Plantations in Araku Valley, Visakhapatnam using two stage sampling method.
Method of Study

The present study is a survey method. Survey method is used to elicit appropriate and reliable information including the responses of the sample respondents from Coffee Plantations of Araku Valley Mandal, Visakhapatnam.

Universe & Sampling

This study related to Welfare facilities, Health and Safety measures at work place, Occupational Risks & its Impact on Health of tribal workers in who are working in coffee plantation in tribal area of Visakhapatnam District are considered since Araku Valley Mandal is producing highest amount of quality coffee. The research is concentrated on the tribal workers working in the coffee plantation situated in Araku Valley only. As per 2011 census it is observed that there are 169 villages existing in Araku Valley Mandal. Out of those 169 villages it is observed that the coffee plantations exist only in thirty-five villages. Keeping the time, money, manpower and other difficulties in approaching and eliciting information from the tribal people, only 50 percent of those 35 villages i.e. 17.5 approximately 18 villages are selected using systematic Sampling Method (Every alternative village/ coffee plantation were selected).The total no. of coffee plantation workers existed in these eighteen selected coffee plantation villages are about 5812 in number (at the time of survey), these 5812 workers sometimes move from one plantation to another plantation but ultimately the total is more or less same. As this is high in number, it is decided to collect information from 10 percent of those workers selected using purposive sampling method from each plantation. These purposively selected workers together give 581. However, besides the care taken by Researcher, 33 schedules are discarded, as they are not completely filled. This gives 548 completely filled schedules selected through two-stage sampling. The first stage is selection of 50 percent coffee plantation villages and the second stage is 10 percent selection of coffee plantation workers existing in all the eighteen coffee plantation villages selected in first stage.

Data collection and study instrument

The study is mainly based on primary data. Secondary data has been procured to substantiate the primary data. To seek the opinions of the respondents from the coffee plantations a structured schedule covering the Welfare facilities, Health and Safety measures at work place, Occupational Risks & its Impact on Health of the respondents.

Data Analysis

The attempt has been made, to analyze and understand the perceptions of sample respondents with respect to their Welfare facilities, Health and Safety measures at work place, Occupational Risks & its Impact on Health in coffee plantations, Araku Valley, Visakhapatnam. The information collected from the sample respondents has been systematically analyzed through Simple Percentile Method. Below is the description of Welfare facilities, Health and Safety measures at work place, Occupational Risks & its Impact on Health attributes of Tribal Coffee Plantation workers in Araku Valley, Visakhapatnam of the present study.

<table>
<thead>
<tr>
<th>Opinion</th>
<th>Drinking Water</th>
<th>Clean hygienic Conditions</th>
<th>Latrines cum Bath rooms</th>
<th>Proper Sitting</th>
<th>Rest Interval</th>
<th>Can bring infants while at work</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>299</td>
<td>54.6</td>
<td>548</td>
<td>100</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>No</td>
<td>249</td>
<td>45.4</td>
<td>0</td>
<td>0</td>
<td>548</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>548</td>
<td>100</td>
<td>548</td>
<td>100</td>
<td>548</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 1: Distribution of respondents basing on the Welfare facilities provided at the workplace.
Table 1 is on the welfare facilities that are provided at workplace of the respondents. Around 55 percent of them are having accessibility of drinking water and all of them are in the opinion that they are working in clean hygienic conditions. The most important condition is that no one is having latrine cum bath room facilities at the work place. Around 87 percent of them felt that they have proper sitting place and almost all of them are happy with the rest intervals they have at the workplace. Nearly 44 percent of the respondents felt that the facility for bringing their infants at the work place while working is existing.

Table 2
Distribution of respondents basing on their opinion towards the facilities provided for health and safety at the work place

<table>
<thead>
<tr>
<th>Opinion</th>
<th>Frequent medical check up</th>
<th>Emergency service</th>
<th>Accident treatment</th>
<th>Snake bite referral service</th>
<th>First aid</th>
<th>Blood test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Res</td>
<td>%</td>
<td>Res</td>
<td>%</td>
<td>Res</td>
<td>%</td>
</tr>
<tr>
<td>Yes</td>
<td>114</td>
<td>20.8</td>
<td>51</td>
<td>9.3</td>
<td>496</td>
<td>90.5</td>
</tr>
<tr>
<td>No</td>
<td>434</td>
<td>79.2</td>
<td>497</td>
<td>90.7</td>
<td>52</td>
<td>9.5</td>
</tr>
<tr>
<td>Total</td>
<td>548</td>
<td>100</td>
<td>548</td>
<td>100</td>
<td>548</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 2 is on the health facilities and safety measures provided by the owner of the plantation at workplace. From this, it can be observed that, only one fifth of them are getting frequent medical checkup and less than 10 percent of them are in the opinion that they are having emergency health services. Majority of them (90.5 percent) felt that they are having accidental treatment and almost all of them said that snake bite referral services are available. Around 71 percent of them are getting first aid facility in case of any accident occurs. The facility of Blood test is provided to only one fifth of them.

Table 3
Distribution of respondents basing on the Occupational Risks & Impact on their Health

<table>
<thead>
<tr>
<th>Risks &amp; Impact on Health</th>
<th>Opinion</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Respondents</td>
<td>%</td>
</tr>
<tr>
<td>Ligament problems</td>
<td>237</td>
<td>43.2</td>
</tr>
<tr>
<td>Body &amp; limb pains</td>
<td>242</td>
<td>44.2</td>
</tr>
<tr>
<td>Snake bites</td>
<td>451</td>
<td>82.3</td>
</tr>
<tr>
<td>Lung problems due to Chemical fertilizers</td>
<td>105</td>
<td>19.2</td>
</tr>
<tr>
<td>Skin diseases</td>
<td>385</td>
<td>70.3</td>
</tr>
<tr>
<td>Arthritis</td>
<td>200</td>
<td>36.5</td>
</tr>
<tr>
<td>Leech bites</td>
<td>141</td>
<td>25.7</td>
</tr>
<tr>
<td>Wasp bites</td>
<td>548</td>
<td>100</td>
</tr>
<tr>
<td>Wild animals threat</td>
<td>463</td>
<td>84.5</td>
</tr>
<tr>
<td>Age related health problems</td>
<td>154</td>
<td>28.1</td>
</tr>
</tbody>
</table>

Table 3 is on the occupational risks and its impact on health of the respondents. It is observed from the table that, the most repeated out of the ten risks and its impact on health risk is snakebites, skin disorders, Wasp bites and wild animal threat. In addition to the ligament problems, body & limb pains and Arthritis are also prevalent among respondents with varying percentage between 36 to 44.

Findings of the Study

With regard to the welfare facilities that are provided at the work place it is found that more than half of the respondents are provided with drinking water facility, all of them stated that they work in a clean hygienic conditions, however none of them is having latrine cum bathroom facility, majority of them feel that they are provided with sitting facility and all of them agreed that there exists rest intervals for all of them.
The respondents' opinion on health and safety measures at the workplace, the study reveals that majority of them do not receive any frequent medical checkup, a vast majority of them do not receive any emergency services but they receive accident treatment and all of them receive snake bite referral service and for most of them first aid facility is provided but for most of them blood test is not done.

With regard to the occupational risks and its impact on health it has been identified that out of several problems all of them encounter with wasp bites and majority of them face the problem due to snake bites, skin diseases and wild animals’ threat. Other than these, they also face the problems relating to Ligament problems and body & limb pains and a considerable number of them suffer with arthritis, age related problems and so on.

**Conclusion**

The present study is one of the neglected areas among the unorganized sector of tribal workers exclusively on plantation in the area of Araku valley which got the recognition throughout the globe from the present study, it enlightens the Welfare facilities, Health and Safety measures at work place, Occupational Risks & its Impact on Health of the Tribal Coffee Plantation Workers.

This study will be useful to the farmers, large and small growers, processors, researchers and policy makers, and would serve as a base for further study related to labourers and Coffee plantation.

**References:**

5. Anu Kultalahti (2016), Brewing up a sustainable coffee supply chain, The social responsibility of coffee roasters and private label coffee in Finland, Finnwatches’s Decent work research programme and Supply Change project, Finland, p 38-39.