CHAPTER-1

INTRODUCTION
1.1 Introduction

Rice is the most important crop of India and second most important one in the world. It is the staple food for more than 3 million people in Asia, the world’s most densely populated region and for hundreds of millions in Africa and Latin America. World area under rice cultivation is around 152 million hectares. With an average per hectare productivity of 3.88 metric tonnes, the global rice production is 628 million metric tonnes. India and China are the biggest rice producers in the world with a share of 32.12 per cent and 22.68 per cent of world production in 2006 respectively. With the largest share of 46.87 million hectares in the world paddy area, India ranks second in production next only to China. Paddy accounts for 36.8 per cent of the cultivated area and about 40 per cent of the total food grain production in the country. In some states of the country viz., Andhra Pradesh, Kerala and West Bengal, rice is a monoculture crop and the source of prosperity and livelihood of a majority of the population. Rice is the primary source of carbohydrates and protein besides, rice also contains small quantities of fat, ash, fiber and moisture. Vitamins and mineral are present largely in bran and germ. Its byproducts form important components of poultry and dairy feed.

Over 78 million tonnes of paddy are grown in India every year; to be thereafter processed by many rice milling units, small and big. Spread out all over the country were some 97,117 hullers, 6705 sellers, 9890 hullers cum sellers and 40513 modern rice mills during 2009-10. Paddy milling is designed to first split and then removes the coarse husk, and in doing so, some or all the bran and also the germ comes off. Such extensive polishing gives snow-white rice, which is in consumer demand.
Over the years, the total number of all types of rice mills has increased. Upto 2006-07, there were 1, 54,225 rice mills in India including hullers, sellers, huller-cum sellers and modern rice mills. (Kales et al., 1996) The byproducts which we get from paddy milling are rice bran and husk. The amount of rice bran is approximately five per cent of paddy processed. The rice bran is a per carp or outer cuticle layer that remains beneath the hull. It gets removed during the milling process. About two decades back, rice bran was considered almost a waste and hence most of it was burnt. It is now viewed to have high nutritive value. Being rich in protein and natural B-Vitamin, rice bran is used as a cattle feed. The rice bran processing has now gained momentum, with increasing consumer demand for bran oil, extracted from bran.

1.2 History of Rice Mills in India

Many of the rice processing units in India are of the traditional huller type and are inefficient. Modern rice mills are having high Capacity and are capital intensive, although efficient small modern rice mills have been developed. In the year 1968, a study was conducted by the group of officials and they pointed out that the overall supply of rice could be augmented substantially with additional yield obtained through modernization of the existing rice processing techniques. A number of studies were also undertaken and came out with the same findings. As a result, the policy of modernization of rice mills in India has since then pursued by the Government of India and various States within it. Thus, the industry has become fairly modernized and more important in economy of the country. Thus, with higher priority being given to paddy production programmes and the changing pattern of demand for rice, the milling industry has to adopt itself to the rice milling. Most of the small size mills are huller mills. Other various types are Battery of Huller mills,
Huller-cum-Sheller mills, Sheller mills and modern mills. The process for modernization of rice milling industry in the country was initiated in 1970 with a view to obtaining higher yields of rice and better quality of by-products such as bran and husk, suitable for edible oil/Industrial oil extraction and as a source of fuel respectively. As a first step towards modernization, the Rice Milling Industry (Regulation) Act 1958 and the Rice Milling Industry (Regulation and Licensing) Rules 1959 were amended. In the initial phase of modernization, shelters-cum-hullers and multiple hullers were brought under purview of modernization. However, keeping in view various problems involved in the modernization of single huller mills, units existing on 27.7.1984 have been exempted from modernization. This relaxation is not available to new single huller mills set up after the date, except to certain categories enumerated under the Act and the rules made there under. In view of the sustained efforts made by the Government, the number of modern/modernized rice mills has gone up from practically nil in 1970 to 41,513 in 2009-10. Also the quantity of rice bran processed for oil extraction has increased from 1.87 lakhs tones in 1970-71 to 43.50 lakhs tones in 2006-07. (Sukumar, R, Business today, special issue on performance of rice milling industries).

1.3 Importance of Rice Mills

Milling is the process where the rice grain is transformed into a form suitable for human consumption, therefore, has to be done with utmost care to prevent breakage of the kernel and improve the recovery. Brown rice is milled further to create more visually appealing white rice. After harvesting and drying, paddy is subjected to the primary milling operation which includes dehusking as well as the removal of bran layers (polishing) before it is consumed. In this process the rice which is obtained after milling is called raw rice. Another process through which rice is obtained after milling is called "Parboiling Rice." Nearly 60 per cent of the total rice produced in India is subjected to parboiling. Rice milling losses may be qualitative or quantitative in nature. Quantitative or physical losses are manifested by low milling
recovery while low head rice recovery or high percentage of broken kernel reflects the qualitative loss in rice grains. Rice has potential in a wide range of food categories. Besides having nutritional and medicinal benefits, the by-products of rice are equally important and beneficial. Byproducts from growing rice create many valuable and worthwhile products. The inedible parts which are discarded through the milling process and the edible part could be transformed into some of the following suggested products like rice husks, rice bran, broken rice, rice flour, rice milk, rice pudding, rice starch, rice straw. Rice is also used in beverage making, rice paper, rice glue, rice cakes, rice vinegar, rice soya milk and red yeast. Apart from every household, there are many bulk buyers like hospitals, caterers, restaurants, hostels, etc. With proper efforts, it is possible to enter into a long term contract with bi traders or contractors.

Rice production in India is an important part of the national economy. India is the second biggest rice producing country accounting for 20% of all world rice production. Rice is India's pre-eminent crop, and is the staple food of the people of the eastern and southern parts of the country. This country has the largest area under rice cultivation, as it is one of the principal food crops. It is in fact the dominant crop of the country and rice mill industry is the oldest and largest agro-based industry. Morbidity is common among the rice mill workers and their health is at risk. This made us to focus on the morbidity pattern and the working condition among the workers in rice mill. Rice production, processing and marketing constitute the biggest industry in the country. Indian rice milling industry is the oldest and largest agro – based industry. The cultivation of rice is usually carried out in irrigated “padi after harvesting, the rice is dried and milled and a large amount of dust is thereby generated. Rice cultivation is done in the irrigated fields. The crop is harvested, dried and milled. A large amount of dust is generated, especially during the milling activities. Rice mill workers are potentially exposed to organic and inorganic dusts and synthetic chemicals that may have adverse effects on
hematological parameters. Rice mill industry is the oldest and largest agro-based industry. Load handling, i.e. lifting and carrying heavy load of grain filled sacs is the major job component. One of the most common work-related injuries is the development of musculoskeletal disorders caused by heavy lifting and performing the task that required repetitive motions. This made us to study the prevalence of musculoskeletal disorder among the rice mill workers.

Work is physical work done by people, most especially in contrast to that done by machines, and to that done by working animals. It is most literally work done with the hands and, by figurative extension, it is work done with any of the muscles and bones of the body. For most of human prehistory and history, manual worker have been the primary ways that physical work has been accomplished. Mechanization and automation, which reduce the need for human and animal labour in production, have existed for centuries, but it was only starting in the 19th century that they began to significantly expand and to change human culture. To be implemented, they require that sufficient technology exist and that its capital costs be justified by the amount of future wages that they will obviate. Although nearly any work can potentially have skill and intelligence applied to it, many jobs that mostly comprise manual workers, such as rice mill workers, fruit and vegetable picking, manual materials handling, manual digging, or manual assembly of parts often may be done successfully by unskilled or semiskilled workers. Generally, rice is processed by traditionally and mechanically. The traditional method of husking paddy is disappearing, because it needs manual power. The traditional means of post-harvest operations are very slow and hazardous as well, particularly for workers health. Besides, over the centuries, the technologies of India have been being developed and many new technical methods also. Rice production follow some sequential process and milling is the most important part of production of rice from paddy. Rice processing operations include parboiling, drying, and milling. Workers are responsible for doing more laborious works drying and husking paddy and packing the husked rice into sacks. But the working
environment is neither conducive nor favorable to their health. Lives are also endangered in small-scale commercial rice mills due to use of risky, substandard and unrequited boilers furnaces. There is lack of knowledge and awareness regarding safety issues of workers in rice mills. Hence, it is important to improve of working environment and health status of mill workers through investigation of the environmental condition of rice processing systems. Against this backdrop, this study “the problems and prospects of rice mill workers in selected rice mills of Raichur district”. So this study was carried out to assess the status of the workers in rice processing activities at rice mills and to bring out the problems and constraints which are confronted by workers in rice-parboiling mills¹.

In most of the Rice Mills in Raichur district loading and unloading the sacs of paddy and rice are carried out mostly manually by the workers. Often, the workers have to adopt awkward postures to carry sacs of paddy and rice for loading into the truck. Working with heavy load in awkward posture leads to health problems, back pain and musculoskeletal problem. Most of them carry out rice milling on crude machinery emitting large amount of rice dust into the environment. Workers rarely use protective measures during the process. Of grain lifting, milling, drying, emptying the bags, drooping from hoofer to weight stations etc where large amount of dust is released in to the environment of the mill. Thus workers are potentially exposed to rice mill dust which is a heterogeneous substance that contains a number of contaminants including silica, fungi, bacterial end toxins, aflatoxins, mammalian debris and certain chemical additives such as pesticides and herbicides. This environment dusts a hazardous substance with respiratory sensitivity and workers exposed have been reported to exhibit a variety of clinical manifestation like asthma, chronic obstructive airway diseases, conjunctivitis, allergy, wheeze and febrile reactions etc. The present study was undertaken to problems of Rice Mill workers with respect to their nutritional status, workload, energy expenditure and musculoskeletal pain, posture, back pain related discomfort resulting out of
nature of work load in rice mills. The environment of Raichur district is hot, which reduces the working efficiency of labors. They have to work more than ten hours daily, though officially they supposed to work for eight hours. This is due to posture related discomforts which leads to the shortage of manpower and delays the production; hence available labors have to work more than ten hours. Till date very few report of ergonomic study on Rice Mill workers is available especially for Raichur district in Karnataka

1.4 Importance of the Study

The research studies present a picture of rice mill workers socio-economic conditions education, health conditions, welfare measures and distribution of residents according to place of origin and duration of residence. Piece meal efforts to improve the condition of rice mill workers in the past have brought about some improvement in the lives of the rice mill workers. The living conditions of rice mill workers are still far from satisfaction. Workers have been contributing significantly to the economy of any city by providing affordable work for formal as well informal sectors of the economy. There is no denying fact that workers have become an integral part of urbanization and in a way manifestation of overall socio-economic policies and planning in the country. Comprehensive information on the rice mill workers covering the different aspects of their life is essential for formulation of effective programmes and coordinated policies for improvement and rehabilitation of rice mill workers.

It is well known that the health status of the workers is greatly influenced by living condition they live in. their area congestion, homeless families, husk, air pollution, heaps of garbage, unhygienic working condition are all unique to urban environment and on steep slopes and lack of proper income becomes the major factor poor housing. The overall situation is too alarming. The degraded environment in which they live takes toll on the physical, mental and moral health of the rice mill workers. Lack of proper
living conditions of workers is vulnerable to diarrhea, typhoid, malaria and other such diseases. To improve the living conditions and better facilities pertaining to water, sanitation and health education should be provided. Poor hygiene and sanitation, lack of safe drinking water contribute to health problems of the Rice mill Workers health is essentially preventive medicine. Both have the same aim of prevention of disease and maintenance of the highest degree of physical, mental and social well-being of workers in all occupation. Workers health therefore is the application of preventive medicine in all places of employment. Ergonomics is the physiological link between the worker and his environment. This would have an effect on the worker’s body and the relative increase of discomfort in various parts of the body. It indicates the effects of varied working condition which led to the occurrence of health related problems. The various systematic problems that are investigated are respiratory systems, cardiovascular system and skin. The psychological problems are examined in terms of stress and sleep. Health problems in rice mill differ from one industry to another; it depends upon the nature of the industry. The health problems of some industries are very prominent. In the ongoing paragraph discuss the environmental condition and process which responsible in creating various health problems in different industries.

1.5 Concepts of Workers

Meaning of Work

Work is either paid or unpaid. Paid work is what most people associate with the term ‘work’. Most people in full-time employment work 5 days a week, although there has been an increase in the number of people working at weekends and part-time. In recent years, the ability to work flexible hours has grown in importance.

Many workers have experienced a decline in their amount of leisure time. This has resulted in less quality time devoted to relationships, but it has
probably contributed to an increase in personal wealth, and a relatively good economy².

- Work (project management), the effort applied to produce a deliverable or accomplish a task
- Creative work, a manifestation of creative effort, in copyright law
- House work, management of a home
- Manual work, physical work done by people
- Wage labour, relationship in which a worker sells labor and an employer buys it

Worker

Worker means a person (including any member of the sugar industry) employed in an industry for hired or reward, whether directly or through any agency, to do any work, skilled, unskilled, manual or clerical but does not include:

i) A worker employed in the industry or any mill.
ii) Any person employed in the industry primarily in a managerial capacity or
iii) Any person temporarily employed in the plantation in any work relating to the construction, development or maintenance of buildings, road, bridge or canals³.

1.6 Common Features Rice Mill Workers

Rice mill differs from the other with regard to milling process, labour characteristics, marketing, number of workers and organizational structure of the mill, there are some features common to almost all of them. For example, majority of rice mills operate within the framework of a bilateral contract between Rice Mill Workers Association (R.M.W.A) and the Rice Mill Owners Association. Therefore, in outlining the profile of an individual rice mill,
common features are imperative. We shall, therefore, briefly describe these common features in the following sub-sections.

1. **Job Specialization:** Job specialization in the rice mills is a result of tradition as well as a matter of contract between the union and the owners. As a result, men or women traditionally do many jobs. There is a kind of gender discrimination with regards to job distribution within the milling operations. Women are not allowed to enter the machine room giving evidence of male dominance in technical work. There is no opportunity or infrastructure to train women and unskilled workers. In *chital-based* or mixed type mills, women are mainly appointed for work on *chatal*. That includes the drying of paddy, spreading on the yard known as *pata*, frequent rolling or moving of paddy by a comb-like implement attached with a bamboo or stick locally known as *chiruni*, accumulation after drying, winnowing, cleaning of paddy etc. Besides *chatal* jobs, male workers perform all other skilled and machine work.

2. **Working Hours:** The length of the working day in all the rice mills is eight hours. Duty of workers more than eight hours is considered as overtime and paid accordingly. In exceptional case of a rice mill operating for 24 hours, there may be shift jobs. Usually such shifting of duty varies according to the nature of operation involved and arrangements are made in consultation with the labour union.

3. **Wage Structure:** There are 2 categories of workers in a rice mill - white collar and blue collar. The white collar workers are called gadi staff and are paid on a monthly basis. These gadi staff includes the office staff as well as those operating machines. The machine mistral has to be a skilled, person to determine for how long the paddy will be boiled etc, whereas the machine shramik do the actual jobs and are treated as blue collar workers. Cadiz staff, therefore, is not only the manager and accounts keeper, but also the boiler mistral and machine mistri, fireman, the cook and her/his helper and the night guard -even those who do not actually work in gadi or the office. In general,
white-collar workers are those who draw salaries on a monthly basis. The salaries of the manager and accountant vary from Rs 1,200 to 2,500 per month. The fireman earns Rs 1,090 and 30 kilogram of rice and the night guard earn Rs 1,500 and 30 kilogram of rice per month. The manual or blue-collar workers working on the chital as well as those in the machines are all paid on a daily basis. Their payments are Rs 33 and one kilogram rice and Rs 35 and one kilogram of rice daily respectively, implying a token difference in the total amount. This difference remains more or less constant. These amounts are subject to periodic changes under bilateral agreements between the owners and the workers' union. The workers who work at the boiler also receive Rs 35 and one kilogram of rice daily. Beside these, there are contract labourers whose payments are fixed by mutual agreement between the rice mill owner and the leader of contract labourers, the sardar. The wage rates of contract labourers for different kinds of jobs are fixed by the for all the rice mills. Contract laborers usually work as house coolies, vapouring the paddy (bhapai), boiling the paddy (seddho), weighing of rice (kasti), and loading and unloading of rice and paddy. The wage rates for these jobs are as follows: for weighing of 80 kilogram rice (one bag) - 41 paisa; for steaming of 60 kilogram paddy - 52 paisa; for boiling of 60 kilograms paddy - 54 paisa; for loading of 80 kilogram rice on the truck - 28 paisa. The payment of the sardar is determined by an average figure of total number of workers brought by him (including the sardar and cook, considered as two individual workers). He receives payment plus 5 per cent of the total workers payment per day.

4. Annual Leave with Pay: The workers who are engaged in chatal work enjoy 42 days' leave with pay annually. The workers working with machine usually enjoy 60 days' leave with pay annually. The machine mistri, night guard, pressure man as well as gadi staff usually enjoys 84 days' leave with pay annually. This variation occurs because of differences in status of these workers depending on their skill and workload.
5. Age of Retirement: The age of retirement of all rice mill workers is 58 years. This is in accordance with Government of India's rules. However, for illiterate mill hands, accurate age is difficult to ascertain and often workers much older than 58 can be found to be still working. Also, the union may intervene in specific cases where the worker is physically fit to work even after reaching 58 years of age and allow her/him to continue with the job.

6. Housing and Lodging: There is a free lodging arrangement for the majority of workers within the mill. This arrangement varies from mill to mill depending upon the availability of space and the economic condition of the owner. The number of workers using this facility may include small families or worker couples as well as outstation women workers. There is one room and verandah space allotment per family of worker. There is also a separate arrangement for sleeping in dormitories for two or three unmarried workers. They reside in a single room and arrange their cooking jointly. The gadi staffs that are single also reside within the mill's quarter but in a separate one, and get free food. Each worker (whether he/she resides in mill quarter or not) is usually supplied with kura free of cost as domestic fuel. Clearly, the rice mill owners try to ensure a steady supply of labour through these arrangements. These measures have also helped to improve the living conditions of workers.

7. Job Protection: All the rice mill workers have unionized under the banner. Their union has tried hard to set up a provident fund and adoption of a cheap Janata policy to insure against accidental deaths of rice mill workers. The mill owners deposit Rs 15 annually for a death benefit of Rs 25,000 for each worker's family. After 2002, this annual premium has increased to Rs 30 and the accidental benefit amount too has risen to Rs 100,000. The mill owners have also introduced a provident fund for the monthly paid staff since March 1989. At the time of retirement, the monthly-paid staff gets 15 days' payment per year of the total length of working years and others get 9 days' average payment per year for the entire duration of service. In case of an accident
during the duty hour, the owner would bear the expenditure for treatment of that worker. If the worker is unable to work after accident for some time, he/she will get 15 days' leave with pay. The women workers also enjoy maternity leave and maternity benefits.

8. Input-Output Ratio: In all dryer plus chatal based mills, the input and output ratio is more or less 100: 63. Out of 100 kilograms of paddy, rice production is approximately 63 kilograms of which approximately 5 kilograms are broken rice (khud), bran approximately 3. 5 kilograms, immature paddy (akra) 6-7 kilograms, coarse kura is about 3.5 kilograms and the rest is the fine kura (husk).

9. The Lack of Technology: The workers’ compensation industry is lagging behind other industries when it comes to the use of technology. When it comes to technological innovations, the health care industry’s advancements dwarf anything that’s developed in the workers’ compensation industry must start using technology and align itself with the rest of the health care system to avoid rising costs.

10. Common Problems: Of all the common problems faced by rice mills (except the Ma Tara rice mill, which has a smokeless chimney), the most acute are pollution related, that is air, water and sound pollution created by them. These problems of pollution often lead to objections by local residents.

1.7 Limitation of the Study:

The present research work is mainly based on the primary data collected through the simple respondents. Many rice mill workers have given poor responses to source question because of their lack of knowledge & illiteracy problems. Responses were in source cases approximate however, research have taken very cases to evaluate the evidence gathered from the interviews by a
continual cross checking to avoid the element at subjectivity in the responses. But still the element of subjectivity cannot avoid altogether.

The rice mill workers have found very large number in all over the study area but only limited numbers of workers have selected for the present research study because of time & resources constraints. Findings & suggestions in some states have based on the researcher own experience and gain during the field work. There for the personal limitation of the research will also need special mention.

The study like any other empirical study suffers from varied limitations owing to different reasons:

- The study was primarily based on a survey in the Raichur district, while as the rice mill has significant number of workers the sample taken for the study may not be representative of the whole universe.
- Another important limitation with research is that the Raichur district from which data is collected have been selected as per the convenience and therefore some of the major districts were not included in the sample space due to time and resource constraints.
- Some respondents showed little interest in filling the questionnaires and some respondents particularly in lower management had difficulty in understanding few questions and had to be assisted to fill respond to those questions which may have led some influence on the perception of these respondents.
- Despite these limitations, efforts were made that these limitations do not come in the way of arriving at an authentic conclusion. The sample selection was done very carefully to make the sample representative of the whole population. Further the respondents were guided thoroughly to understand the questions wherever they faced any difficulty.
- It was governed by principle of purposive sampling method which ensures the law of statistical regularity, stating that if on an average the
sample chosen is a purposive sampling one, the sample will have the same composition and characteristics as the universe.

1.8 Presentation of the Study:

In tune with the objectives set for the present study, present research work has been divided in eight chapters as listed below.

Chapter-I: It is an introductory chapter which narrates the statement of the problem. It deals with the importance of the study, limitation of the study and chapter scheme.

Chapter-II: This chapter attempt to trace out review of related literature concerning the present study and some of the studies with rice mill workers problems and Many studies have concentrated on the socio economic status of workers in the rice mill. The present review limits itself to status of workers which are relevant to the study. A review of literature was added to this study by referring to different journals and studies conducted by different individuals to show relevance to the study.

Chapter-III: The third chapter deals with the Research Methodology, objectives of the study, hypothesis of the study, need for the study, significance of the study, research methodology.

Chapter-IV: This chapter shows the profile of the study area.

Chapter-V: This chapter deals with results and discussion on data collected through the execution of questionnaires about socio-economic conditions of rice mill workers. Since the sample includes and an attempt has been made to compare the status with respect to each characteristic, viz., religion, marital status, role in the family, age, education, wage rate, family income, etc.

Chapter-VI: This chapter intends to embrace the working conditions of rice mill workers are presented.

Chapter-VII: This chapter intends to analysis the study about problems of rice mill workers, basic needs problems, Problems with employer, family problems, feel that working in rice mill, Health status and health affected problem due to the work suffering from skin diseases etc.
Chapter-VIII: This chapter intends to present the summary of findings of the present study. It also covers the suggestions to be initiated to resolve the problematic issues related to the rice mill workers in the study area. Hence, the summary of findings and suggestions constitutes the main theme of this chapter.
REFERENCES:


3. Timoothy J Lowe, Poul V Preckel; Decision technologies for Agri Business problems: A brief review of selected literature and a call for research; Manufacturing and Service Operations Management, Summer 2004, Vol. 6 No. 3; pp 201-208


