

RICE MILL OWNERS' ATTITUDES TOWARDS IMPLEMENTING NEW PROCESS AND PRODUCTIVITY IMPROVEMENT TECHNIQUES

A.K. Kulatunga¹, T.M.R. Dissanayake², H.M.A.P. Rathnayake² and A. Lufthi¹

¹*Department of Production Engineering, University of Peradeniya,* ²*Institute of Post-harvest Technology, Anuradhapura*

Introduction

Rice is the staple food for many centuries in Sri Lanka. The scale of rice milling has gradually increased from domestic level de-husking operation to large scale mills over the years. Rice Processing Plants in Sri Lanka can be categorized in to three main types: (1) Traditional Rice Processing Plants (2) Semi-modern Rice Processing Plants (3) Modern Rice Processing Plants, depending on the machinery used. Both raw and parboiled rice are processed in these rice milling plants. The process steps and machinery used for these three categories increase from traditional to modern plants (Rice Processing Research & Development Centre, 2007).

Modernization of this industry took place recently with the introduction of new machinery from various loans and supports schemes offered by the government to increase the production and to reduce the cost of production whilst maintaining the quality of the products. However, still this industry operates without proper products and process standards. Furthermore, the operational cost of this industry remains high mainly due to poor productivity. Therefore mill owners find it difficult to earn enough profits and to sustain in the global and local economic conditions with fix paddy and rice price scenario. Furthermore,

due to rapid industrialization presently central environmental authority has imposed stringent regulations for all the industries including rice milling to minimize industrial pollution.

Sustainability of this industry greatly depends on its ability to rapidly response to prevailing issues. However, this solely depends on mill owners' attitudes towards acquiring new process improvement and productivity improvement techniques and to get changed their views on environmental conservation. Therefore, this research is carried out to investigate mill owner's attitudes towards process and products productivity enhancement, environmental conservation and their willingness towards adapting some of the modern techniques used in other manufacturing sectors to overcome the issues raised previously. Lean Manufacturing, Cleaner Production and environmental management concepts (Roy et. al, 2006), were selected as benchmark techniques for this investigation. Rest of the paper presents the methodology adapted for the investigation, results followed by discussion and conclusions.

Methodology

Required information was categorized into sub areas and subsequently most appropriate mode of collecting those information was selected. Three

main strategies were used to collect the data for the investigation. Field visits (FV) were used to collect the existing level of practicing level of the mills. Questionnaire (QS) was prepared to cover the detailed information needed from the owners. In addition, face to face discussion (DC) sessions were carried out in order to gether owners views of the issues raised before and possible techniques which can be adapted to overcome problems highlighted previously. The schematic representation of the data collection and investigation process is given in Figure 1. Table 1 provides mode of data collection against different sub areas in the matrix form. Majority of rice mills were selected in following districts: Polonnaruwa Anuradhapura, Ampara and few other places also selected for this survey. Altogether 28 mills / owners were considered for this survey.

Table 1. Data collection matrix

Focus Area	FV	QS	DC
Operating information			
Existing level Production information	X		
Operating hours		X	
Difficulties faced	X	X	X
Owners details			
Education level		X	
source of Investment		X	
Knowledge about industry		X	
Keeness about environment		X	X
Interests towards new concepts		X	X
Employee information			
Employment status		X	
Working hours		X	
Welfare facilities	X	X	

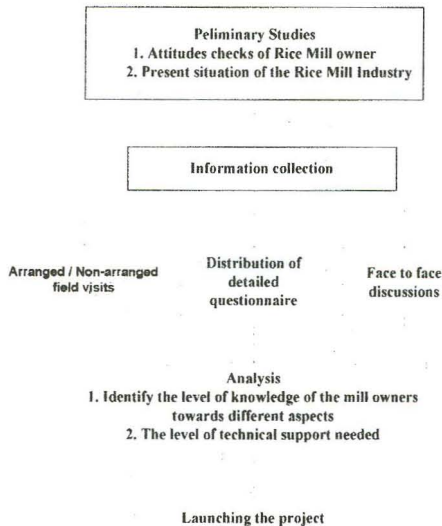


Figure 1. Schematic representation of the methodology

Results and Discussion

The nature of the business, scale, investment type and production related information of surveyed mills are summarized in Table 2.

Table 2. Summary of rice mills, existing production, investment and type of ownership

Factors	
Single Owner mills	95%
Source of investment (bank loans)	90%
Type of rice (raw/parboiled)	85%/15%
Average working hours	7 hours
Daily production	300-10000kg
Level of education (O/L or above)	69%

The characteristics related to attitudes of the mill owners towards new techniques to overcome the problems faced by them currently, are presented in summary form in Table 3.

Table 3. Owners' attitudes towards adapting new techniques

Characteristics	%
Willingness to adapt new techniques	74%
Concern about the environment	65%
Willingness to participate in workshops	75%
Will to consider worker suggestions	50%
Production Visualization	55%

The percentages of table 3, reveals that majority of the mill owners shown their willingness to adapt new techniques to overcome existing issues in the industry. Furthermore, owner's attitudes towards process visualization and promoting workers suggestions to solve the problems were investigated and only 50 % showed interest towards them since they have negative feelings about the workers suggestions and presently workers are not groomed to come up with their own suggestions. Some of them even scared to expose production information to workforce and to visitors. Furthermore majority of the mill owners did not show interest to reduce excessive amount of water usage since cost incurred presently for that is considerably low when compared to other inputs. Finally, it can conclude that majority of mill owners are willing to adapt modern techniques and main reasons behind this are pressure from market and from present environmental regulations and mill owners are well

aware that they will have darker future if they are not quickly responsive current issues.

References

- Roy P., Shimizu N., Shiina T, Kimura T. (2006). "Energy consumption and cost analysis of local parboiling processes", *Journal of Food Engineering* 76: 646-655
- Rice Processing Research & Development Centre, 2007 (Present Institute of Post -Harvest Technology).