ENERGY SAVING POTENTIAL IN SELECTED SMALL AND MEDIUM SCALE INDUSTRIES OF SRI LANKA

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DECLARATION OF THE CANDIDATE AND SUPERVISOR

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ABSTRACT

The research was carried out with the aim of identifying energy utilization performances and energy saving potential of rice mills and coconut oil mills (Copra mills) mostly used in SMEs. Ten enterprises from each industry category in Godakawela Divisional Secretary's Area of Rathnapura District were studied as the sample. Data were collected by means of field survey, discussion, questionnaire, and electrical data logging.

Specific Energy Intensity and possible energy saving potential were used as the major indicators to ascertain the technological performance. Possible benefits were analyzed not only in view of entrepreneur, but also in energy utilities and national perspective.

The results revealed that Specific Energy Consumption (SEC) for rice mill and coconut oil mills are varying from10 kWh/t to 25kWh/t and from 50 kWh/t to 150 kWh/t respectively. To run industries at a minimum range within the above values, it correct capacity of machines has to be selected and maintained at the best performance level. Identified saving potentials from this study was around 50%. Especially in the smallest capacity machinery' specific energy consumption was very high. The main topics to be addressed in order to achieve the possible saving are improving raw material quality, machinery maintenance and selection of correct capacity machinery. Further potential in energy saving could be achieved by shifting to high efficient motors and cost saving through shifting to the most suitable tariff structure saving up to 3% and 4% respectively. Deficiency in knowledge on latest technology and the entrepreneurs' awareness on energy and energy saving potentials are the main barriers that hinder the energy utilization performance in SMEs.

To save energy from SMEs and to develop this sector, the main suggestions are to identify the energy bench mark for each industry, to develop energy efficient performances of electric motors, and to introduce new technologies and energy saving guide lines for the SMEs.

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LIST OF ABBREVIATIONS

Abbreviation	Description
APO	Asian Productivity Organization
BEE	Bureau of Energy Efficiency
CB	Central Bank
CEB	Ceylon Electricity Board
DCS	Department of Census and Statistic
DS	Divisional Secretariat
ESCO	Energy Services Company
GDP	Gross Domestic Product
LECO	Lanka Electricity Company
SEC	Specific Energy Consumption
SLSEA	Sri Lanka Sustainable Energy Authority
SME	Small and Medium Enterprises
SPP	Simple Payback Period

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