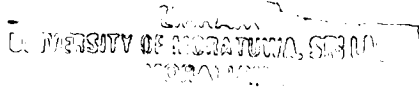
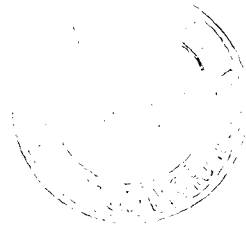


LB/DON/69/03

FEASIBILITY STUDY OF A COGENERATION PLANT USING SAWDUST

By

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This Thesis was submitted to the Department of Mechanical Engineering of the University of Moratuwa in partial fulfillment of the requirements for the Degree of Master of Engineering in Energy Technology

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DECLARATION

I hereby declare that this submission is my own work and that, to the best of my knowledge and behalf, it contains no material previously published or written by another person nor material, which to substantial extent, has been accepted for the award of any other academic qualification of a university or other institute of higher learning except where acknowledgment is made in the text.



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ABSTRACT

Feasibility study of a cogeneration plant using saw dust was carried out. The selected site was the Associated Motor Ways Factory, Kalutara. The electrical energy demand and the thermal energy demand of the factory were assessed by carrying out an energy audit in the factory. The daily saw dust availability from the Moratuwa area was assessed by carrying out a site survey in the saw mills in this area. It was determined that the availability of saw dust would be sufficient to cater for the electricity and thermal energy requirements of the factory.

Economic analysis was carried out for the four basic scenarios of base electrical load matching, base thermal load matching, peak electrical load matching and peak thermal load matching. It showed that all the four scenarios are feasible with favourable economic parameters. Nevertheless there are merits and demerits among each of these scenarios and these were discussed reference to each scenario. Base electrical load matching showed the most favourable economics giving an IRR value of 34%.



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ACKNOWLEDGMENT

This research project was financed by the Ministry of Science and Technology under the Alternative Energy Division of the Ministry. I'm very much grateful to Eng. P G Joseph, Director, Alternative Energy Division of the Ministry of Science and Technology, for his initiation and efforts for allocating funds for the project, from the Ministry.

I would be very much grateful to Mr. M S A K Caldera, General Manager, Associated Motorways Limited, Nagoda, Kalutara, for consenting for the selection of the AMW factory for this study. I wish to express my deepest gratitude to Mr. Gamini Ekanayaka, Electrical Engineer, Mr. I H R Rathnasiri, Maintenance Engineer, and all the supporting staff, of the AMW factory, for their fullest support in conducting the energy demand survey in the factory.

I owe a word of thanks to Mr. H M Bandarathilake, Conservator of Forests, Forestry Department, Eng. Kularathna, Area Engineer, Lanka Electricity Company, Moratuwa, Mr. A K Dharmadasa, Divisional secretary, Moratuwa and Mr. A Gunasoma, Municipal Accountant, Moratuwa, for supporting in collection of details of sawmills and other relevant information.

I wish to thank Eng. D A U Daranagama, Project Management Specialist, USAID, Eng. K D C E Wickramarathne, Managing Director, Mechmar Lanka (Pvt.) Ltd., Mrs. Kuruwitaarachchi, Documentation Officer, Ministry of Power and Energy and Eng. Wimal Nadeera, Project Engineer, Energy Conservation Fund, for supporting for information on past cogeneration experience and power plant information.

I would like to thank Eng. D D A Namal, Head / Energy & Environmental Management Centre of the NERD Centre and all the subordinate staff for helping in different ways in carrying out the project.

This research project was carried out under the supervision of Dr. R A Attalage and Dr. K K C K Perera, Senior Lecturers, Department of Mechanical Engineering, University of

Moratuwa. I'm indebted to them, for the valuable guidance, kind-hearted co-operation and encouragement extended throughout the study. I would also be grateful to Dr. P D C Wijayatunga, Senior Lecturer, Department of Electrical Engineering, University of Moratuwa, for the guidance extended in Economics aspects of the project, and Dr. A G T Sugathapala, Department of Mechanical Engineering, for imparting knowledge on biomass energy conversion systems and related aspects.

This work would not have been materialized if not for the financial assistance provided by the Personnel Development Project of the Ministry of Science & Technology funded by the Asian Development Bank. I gratefully acknowledge the grant offered to me for my post-graduate programme.

Finally, I would appreciate everybody, who helped me in numerous ways in different stages of the project, which was of utmost importance in bringing out this effort a success.



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