

**MEASUREMENT OF ECO-EFFICIENCY FOR PULP AND PAPER
PRODUCTION IN MYANMAR**

MAUNG MAUNG THANT

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MAUNG MAUNG THANT 4837461 ENIE/M

M.Sc. (INDUSTRIAL ECOLOGY AND ENVIRONMENT)

THESIS ADVISORS: KITIKORN CHARMONDUSIT, Ph.D. (CHEM.TECH), ACHARA
USSAWARUJIKULCHAI, Ph.D. (CIVIL.ENV.ENGINEERING), SUWIN
APICHARTPATTANASIRI, Ph.D. (METALLURGY AND MATERIALS)

ABSTRACT

Current situation of industry and business sectors in Myanmar is one in which natural resources are being threatened by development activities. Therefore, it is expedient that stake-holders and the government measure the level of eco-efficiency for each industry and business sector. In this research, the eco-efficiency of the pulp and paper industry in Myanmar was measured by using the key indicators such as raw material consumption, energy usage, total waste output, water consumption and greenhouse gas emissions for the pulp and paper production process.

This study was carried out by using quantitative methods for data analysis of the production, consumption and emissions from 2001 to 2005. The results revealed that the level of economic and environmental performance using the eco-efficiency ratio for each fiscal year has decreased since 2002 and factory tried to increase the level of eco-efficiency again in 2005. There was the positive aspect that factory could optimize the waste utilization by transferring lime mud to the cement factory in the last two fiscal years. The analysis pointed out the root causes which led to the losses of material, energy and water consumption and discussed how to conserve those utilities.

The study indicated that if the factory reduces the losses by applying of good house keeping and waste recovery methods, well supervision and preventive measures, optimizing the water recovery and reuse system, and the level of eco-efficiency will increase in the future.

According to the eco-efficiency concept and measurement, all of the stake holders can determine the actual conditions and find out the weak points and maintenance methods to decrease the environmental burden. Further, the management can incorporate the eco-efficiency as one of its environmental policies which needs to be implemented strictly to stimulate creativity. Finally, all types of factories and businesses can use the eco-efficiency concept as a powerful tool in organizations' environmental management systems which include both stakeholders and policy makers.

KEY WORDS: PULP AND PAPER PRODUCTION / ECO-EFFICIENCY RATIO /
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