

**" PINCH TECHNOLOGY " FOR OPTIMISATION  
OF PALM OIL MILL OPERATION**

**A project report presented in partial fulfillment of the  
requirements for award of Advanced Diploma in  
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## ABSTRACT

This field study applies energy, the reduced available work due to change in entropy, to enable enhanced energy use in heat recovery networks. In the process industry, many streams need to be heated or cooled. Heat exchangers and boilers are used to transfer heat between fluid streams. Process heat recovery networks use these arranged in series and parallel to salvage heat that would otherwise be wasted. Current industrial practice is to utilize techniques derived from the First Law of Thermodynamics to achieve an acceptable First Law thermal efficiency for the network. The irreversibilities inherent in energy transformation are not accounted for when applying only the First Law of Thermodynamics.

Pinch Technology has been used to formalize a methodology, based on the First Law of Thermodynamics, for the design of heat recovery networks. The Pinch Design Method locates the "Pinch Point" which is the minimum temperature difference separating the hot and cold streams.

This methodology rationalizes energy use over temperature intervals but does not directly address irreversibility, entropy or energy. With no more process flow data than is required for a First Law analysis, the Pinch Design Method can be applied.

This research is done to overcome and improve the efficiency of energy management in the processes system and section by using Pinch Technology and the utility system of palm oil mill . This working paper will report the outcome of the research on the palm oil processing section by using Pinch Technology and the utility system by using Thermodynamic Law.

It is a new approach to apply Pinch Technology in Palm Oil Industry and find the mill energy requirement. Thermodynamic Laws are used to analyze the efficiency of the turbine power generation from the utility system.

<b>CONTENTS</b>	<b>PAGES</b>
ACKNOWLEDGMENT	i
ABSTRACT	ii
CONTENTS	v
LIST OF TABLES	ix
LIST OF FIGURES	x
ABBREVIATIONS	xii
<b>CHAPTER ONE - INTRODUCTION</b>	
1.0 GENERAL	1
1.1 INTRODUCTION	2
1.2 OBJECTIVE	3
1.3 PRODUCTION AND EXTRATION OF PALM OIL	4
1.3.1 Composition of Fresh Ripe	4
1.3.2 Extraction of Palm Oil	
Sterilisation	6
Stripping	7
Digestion	7
Oil Extraction	9
Clarification and Purification	9
Depericarping	11
Mill Effluent Treatment	12