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## An appropriate manufacturing strategy model for the Thai food processing industry

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**AN APPROPRIATE MANUFACTURING STRATEGY  
MODEL FOR THE THAI FOOD PROCESSING  
INDUSTRY**

A thesis submitted in fulfilment of the requirements for  
the award of the degree

**DOCTOR OF PHILOSOPHY**

from

**UNIVERSITY OF WOLLONGONG**

by

**Chaitamlong Pongpattanasili**

**MEngSC ( UNSW)**

Faculty of Engineering

2004

## **DECLARATION OF ORIGINAL AUTHORSHIP**

The work contained in this thesis has not been previously submitted for a degree or diploma at any other University of higher education institution. The thesis contains no material previously published or written by another person except where due reference has been made.

Chaitamlong Pongpattanasili

24 August 2004

## ABSTRACT

Thailand is well recognised for its high potential as an agricultural country and major food supplier. It provides a major source of agricultural product and agricultural manufacturing based industries. The most important sector is the food processing industry. This area is the most important sub-sector in Thai industry. The value in exports in the year 2002 was approximately 14.4% of the country's total GDP. However, a high potential for growth still exists.

Food production in Thailand is based on local agricultural raw materials, comprising of fruit and vegetables, cereal and oils, fish and livestock and provides employment to 20 million people within the agricultural and food processing sector. This thesis discusses the characteristics of the Thai food processing industry and suggests an appropriate manufacturing strategy model is needed in order for it to achieve manufacturing excellence.

This study presents a classification of the Thai agricultural industry and compares one of its sectors, the agricultural manufacturing industry with another industrial sector viz. the electrical/electronic industry. The thesis investigates both industries contribution and reveals why the food processing industry is important for Thailand. After an overall analysis of the industry and its importance, the results of a survey of 350 food processing companies are compared, including characteristics of the Thai food processing industry, the focus of manufacturing strategies and the implementation of manufacturing practices.

Based on this, and in order to assist the Thai food processing industry to achieve manufacturing excellence, the thesis then develops an integrated model combining GMP, HACCP, TPM and TQM, and provides guideline for their implementation.

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Pongpattansasili C.

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### **List of Abbreviations**

ASEAN	Association of South East Asian Nation
BOI	Board of Investment (Thailand)
BOT	Bank of Thailand
CCP	Critical Control Point
DEP	Department of Export Division
DIP	Department of Industrial Promotion (Thailand)
FDA	Food and Drug Agency (Thailand)
FSCS	Food Safety Control System
GDP	Gross Domestic Product
GNP	Gross National Product
GMP	Good Manufacturing Practice
GHP	Good Hygiene Practice
HACCP	Hazard Analysis Critical Control Point
HRM	Human Resource Management
ISIC	International Standards of Industry Classification
ISO	International Standards Organisation
JIT	Just-in-Time
MMS	Maintenance Management System
NESDB	National Economic and Social Development Board (Thailand)
NSTDA	National Science and Technology Development Agency (Thailand)
PM	Preventive Maintenance
QA	Quality Assurance
QC	Quality Control
QCC	Quality Control Circles
QMS	Quality Management System
SMEs	Small and Medium Enterprise Sector
TDRI	Thailand Development Research Institute
TPM	Total Productive Maintenance
TQC	Total Quality Control
TQM	Total Quality Management
WCM	World Class Manufacturing
WIP	Work In Process

WM	Workplace Management
WHO	World Health Organisation
WTO	World Trade Organisation