

**Sustainability of
Thailand's
Competitiveness**

Based in Bangkok since 2001, the **Research Institute on Contemporary Southeast Asia** (USR 3142 - UMIFRE 22 CNRS MAEE) focuses its activities on the political, economic, social and environmental evolutions of the eleven countries of the region. As a member of the network of research institutes of the French Ministry of Foreign Affairs and a Research and Service Unit of the French National Research Agency (CNRS), IRASEC has been tasked with the analysis of the major developments that affect, together or separately, Brunei, Burma, Cambodia, Indonesia, Lao, Malaysia, the Philippines, Singapore, Thailand, Timor Leste and Vietnam.

IRASEC promotes a variety of approaches by calling experts and specialists from all academic fields and teaming them up as required. Comparative approaches and transversal studies are favoured as much as possible. The institute endeavours to view and present each theme in its true historical and geographic dimensions.

IRASEC's research output consists of highly scientific synthetic works whose accessibility should not be restricted to experts only. The institute stresses the quality of presentation and didactic features of the books it offers to the public. It has developed a dynamic editorial policy with a variety of partners.

The **Institute of Southeast Asian Studies (ISEAS)** was established as an autonomous organization in 1968. It is a regional centre dedicated to the study of socio-political, security and economic trends and developments in Southeast Asia and its wider geostrategic and economic environment. The Institute's research programmes are the Regional Economic Studies (RES, including ASEAN and APEC), Regional Strategic and Political Studies (RSPS), and Regional Social and Cultural Studies (RSCS).

ISEAS Publishing, an established academic press, has issued more than 2,000 books and journals. It is the largest scholarly publisher of research about Southeast Asia from within the region. ISEAS Publishing works with many other academic and trade publishers and distributors to disseminate important research and analyses from and about Southeast Asia to the rest of the world.

Sustainability of Thailand's Competitiveness

The Policy Challenges

Edited by
Patarapong Intarakumnerd
and **Yveline Lecler**



IRASEC

INSTITUT DE RECHERCHE SUR L'ASIE DU SUD-EST CONTEMPORAINE
RESEARCH INSTITUTE ON CONTEMPORARY SOUTHEAST ASIA

BANGKOK



**INSTITUTE OF SOUTHEAST ASIAN STUDIES
SINGAPORE**

First published in Singapore in 2010 by
ISEAS Publishing
Institute of Southeast Asian Studies
30 Heng Mui Keng Terrace
Pasir Panjang
Singapore 119614

E-mail: publish@iseas.edu.sg
Website: <<http://bookshop.iseas.edu.sg>>

Co-published with
IRASEC
Research Institute on Contemporary Southeast Asia
29, Sathorn Tai Road
10120 Bangkok
Thailand
www.irasec.com

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the Institute of Southeast Asian Studies.

© 2010 Institute of Southeast Asian Studies

The responsibility for facts and opinions in this publication rests exclusively with the authors and their interpretations do not necessarily reflect the views or the policy of the publishers or its supporters.

ISEAS Library Cataloguing-in-Publication Data

Sustainability of Thailand's competitiveness : the policy challenges / edited by Patarapong Intarakumnerd and Yveline Lecler.

1. Industrial promotion—Thailand.
 2. Competition—Thailand.
 3. Thailand—Economic conditions.
 4. Thailand—Economic policy.
- I. Patarapong Intarakumnerd
II. Lecler, Yveline.

HC445 Z9I53S96 2010

ISBN 978-981-4279-47-5 (soft cover)
ISBN 978-981-4279-48-2 (E-book PDF)

This book is meant for educational and learning purposes. The authors of the book have taken all reasonable care to ensure that the contents of the book do not violate any existing copyright or other intellectual property rights of any person in any manner whatsoever. In the event the authors have been unable to track any source and if any copyright has been inadvertently infringed, please notify the publisher in writing for corrective action.

Typeset by Superskill Graphics Pte Ltd
Printed in Singapore by Utopia Press Pte Ltd

CONTENTS

<i>Preface</i>	vii
<i>Abbreviations</i>	ix
<i>Contributors</i>	xv
Introduction <i>Patarapong Intarakumnerd and Yveline Lecler</i>	1
Part I: Thailand's Industrial Development: General Views	
1. FDI in Thailand: The High Road to Industrial Diversification Revisited <i>David Hoyrup and Jean-Christophe Simon</i>	17
2. Catching Up or Falling Behind: Thailand's Industrial Development from the National Innovation System Perspective <i>Patarapong Intarakumnerd</i>	52
3. Industrial Upgrading and Educational Upgrading: Two Critical Issues for Thailand <i>Bruno Jetin</i>	78
Part II: The Roles of Institutions: Clusters and Industrial Estates	
4. Industrial Restructuring Policies in Thailand: Japanese or American Approach <i>Akira Suehiro</i>	129
5. The Role of Industrial Estates in Thailand's Industrialization, New Challenges for the Future <i>Natacha Aveline-Dubach</i>	174

Part III: Firms and Government New Initiatives:**The Industry Analysis**

6. Manufacturing and Management Systems of Japanese
Manufacturers in Southeast Asia: The Case of Automobile
Industry in Thailand 209
Shinya Orihashi
 7. The Textile and Garment Industry in Thailand:
The Technology and Education Upgrading Challenge 235
Audrey Baron-Gutty
 8. From Growth Based on Low Cost to Capability
Upgrading Policies: The Thai Hard Disk Drive Industry 274
Yveline Lecler
- Index* 319

PREFACE

This book is a product linked to a collective research project titled, “Industrial Clusters in Asia: Old Forms, New Forms”, funded by the French Ministry of Education and Research and the Region Rhône-Alpes Assembly (France) which brought together in the course of four years some twenty researchers and PhD students from France, Japan, China, Vietnam, and Thailand, under the coordination of two French research units of the University of Lyon: IAO (Institute of East Asian Studies, CNRS, ENS-LSH) and MODYS (World and Dynamics of Societies: CNRS).

An international workshop was held in Lyon from November–December 2006 where preliminary results were discussed, leading to the writing of a first, general collective book. To extend further and deepen the research on the Thai case, a complementary funding was proposed by the “Institut de Recherche sur l’Asie du Sud-Est Contemporaine” (IRASEC). The present book although integrating the issue of cluster which was at the core of the general research project it is based on takes a different approach while aiming to answer an important question for Thailand: Is its industrial development sustainable for the next decade? Most contributors were also engaged in the larger research programme, but some others have also been specifically included in because of their knowledge on relevant points that are central for Thailand but had not been given enough attention.

Before presenting the findings of this research, we would like to thank IRASEC, without which this book would not exist. We also want to express our gratitude to all persons who gave us time and helped us gather the necessary and up to date information: firms, administration executives, and university colleagues not involved in the project. They are too numerous to name here, but without them this book would not exist either. The opinions expressed in each chapter remain, however, the author’s.

After giving a general overview of Thai development in three main areas — foreign investments, national innovation system, and education — which point out strengths and weaknesses and also make recommendations, we discuss the role of Thai institutions before illustrating the general findings of the study of three major industries concretely. By doing so, we hope that this book will be useful not only to policymakers and executives involved in economic or industrial development, but also to researchers and students who want to learn more about Thailand and emerging countries.

Patarapong Intarakumnerd and Yoeline Lecler
February 2009

ABBREVIATIONS

AAT	AutoAlliance Thailand
AFTA	ASEAN Free Trade Area
AIT	Asian Institute of Technology
ASEAN	Association of Southeast Asian Nations
ATC	Agreement on Textiles and Clothing
BOI	Board of Investment
BOT	Bank of Thailand
BUILD	BOI Unit for Industrial Linkage Development
CAD/CAM	Computed Aided Design/Computed Aided Manufacturing
CDA	Cluster Development Agent
CELS	Centre of Education and Labour Studies
CEO	Chief Executive Officer
CIS	Commonwealth of Independent States
CNC	Computer numerically controlled
CNRS	Centre National de la Recherche Scientifique (National Centre of Scientific Research)
DIP	Department of Industrial Promotion
EE	Electrical and Electronic (industries)
EEL	Electrical and Electronics Institute
ENS-LSH	Ecole Normale Supérieure – Lettres et Sciences Humaines
EPZ	Export Processing Zone
EXIM	Export and Import (Bank of Thailand)
FDI	Foreign Direct Investment
FTA	Free Trade Agreement
FTI	Federation of Thai Industry
GATT	General Agreement on Tariffs and Trade

GC	Growth Contribution
GDP	Gross Domestic Product
GER	Gross Enrolment Rate
GFCF	Gross Fixed Capital Formation
GM	General Motors
GMS	Global Manufacturing System
GNP	Gross National Product
GPI	Gender Parity Index
HDD	Hard Disk Drive
HGA	Head Gimbal Assembly
HGSP	Hitachi Global Storage Products
HGST	Hitachi Global Storage Technology
HMMT	Honda Motor Manufacturing Thailand
HRM	Human Resource Management
HS	Harmonized System (nomenclature)
HSA	Head-Stack Assembly
HTTI	HDD Technology Training Institute
I/UCRC	Industry/university Collaborative Research Centre
IAO	Institut d'Asie Orientale (Institute of East Asian Studies)
IBRD	International Bank for Reconstruction and Development
ICs	Integrated Circuits
IDEMA	International Disk Drive Equipment and Material Association
IDF	Innovation Development Fund
IE	Industrial Estate
IEA	Evaluation of Educational Achievement
IEAT	Industrial Estate Authority of Thailand
IFC	Institute for Collaboration
IFCT	Industrial Finance Corporation of Thailand
ILO	International Labour Office
IMD	International Institute for Management Development
IMF	International Monetary Fund
IMMT	Isuzu Motor Manufacturing Thailand
IMT	Indonesia-Malaysia-Thailand (Growth Triangle)
IMT-GT	Indonesia-Malaysia-Thailand – Growth Triangle
IMV	Innovative International Multipurpose Vehicle

IRASEC	Institut de Recherche sur l'Asie du Sud-Est Contemporaine (Research Institute on Contemporary Southeast Asia)
IRD	Institut de Recherche pour le Développement (French Research Institute in Development Studies)
IRP	Industrial Restructuring Plan
IS	Innovation system
ISCED	International Standard Classification of Education
ISI	Import-Substitution Industrialization
ISMED	Institute for SME Development
ISO	International Organization for Standardization
iTAP	industrial Technology Assistance program
JETRO	Japan External Trade Organization
JICA	Japan International Cooperation Agency
JODC	Japan Overseas Development Corporation
JPPCC	Joint Public-Private Consultative Committee
KICOX	Korea Industrial Complex Corporation
KMUTL	King Mongkut's University of Technology Ladkrabang
KMUTT	King Mongkut's University of Technology Thonburi
LEPII	Laboratoire d'économie de la production et de l'intégration internationale (Research Centre in Economy of production and Regional Integration)
M and A	Mergers and Acquisitions
M/D	Import/domestic demand
MAI	Market for Alternative Investment
METI	Ministry of Economy Trade and Industry
MEXT	Ministry of Education, Culture, Sports, Science and Technology
MFAs	Multi Fibre Agreements
MITI	Ministry of International Trade and Industry
MMC	Mitsubishi Motors Corporation
MMRC	Manufacturing Management Research Center
MNC	Multinational Corporation
MODYS	Mondes et Dynamiques Sociales (Worlds and Dynamics of Societies)
MOI	Ministry of Industry
MOU	Memorandum of Understanding

MSCI	The Management System Certification Institute
MTEC	(National) Metal and Materials Technology Center
MVA	Manufacturing Value-Added
NAIC	New Agro-Industrial Country
NBC	New Basic Car
NCP	National Competitiveness Plan
NEC	New Entrepreneurship Creation
NECTEC	National Electronics and Computer Technology Center
NESDB	National Economic and Social Development Board
NFI	National Food Institute
NGO	Non-Governmental Organization
NIC	Newly Industrialized Country
NIDA	National Institute of Development Administration
NIEs	New Industrial Economies
NIEs	Newly Industrializing Economies
NIS	National Innovation System
NSO	National Statistics Office
NSTDA	National Science and Technology Development Agency
NUMMI	New United Motor Manufacturing Inc.
OBM	Original Brand Manufacturing
ODA	Official Development Assistance
ODM	Original Design Manufacturer
OEC	Office of the Education Council
OECD	Organization for Economic Cooperation and Development
OEMs	Original Equipment Manufacturers
Off-JT	Off the Job Training
OIC	Organization of Islamic Conference
OJT	On the Job Training
OPV	Observation Post Vehicle
OSPUE	Operating Surplus of Private Unincorporated Enterprises
OTOP	One Tambon One Product
PICS	Productivity and Investment Climate Survey
PISA	Programme for International Student Assessment
PPP	Purchasing Power Parity

PPV	Pick-up Passenger Vehicle
PR	Public Relations
PTT	Petroleum Authority of Thailand
R&D	Research and Development
RIS	Regional Innovation System
RTOs	Research Technology Organizations
S and T	Science and Technology Policy
SALS	Structural Adjustments Loans
SET	Stock Exchange of Thailand
SICGC	Small Industry Credit Guarantee Corporation
SIFC	Small Industry Finance Corporation
SITC	Standard International Trade Classification
SMEs	Small and Medium Enterprises
STI	Skill Technology Innovation
SUV	Sport Utility Vehicle
TAI	Thai Automotive Institute
TCC	Thai Chamber of Commerce
TFP	Total Factor Productivity
TGI	Thai-German Institute
TIMSS	Trend in International Mathematics and Science Study
TISI	Thailand Industrial Standard Institute
TLO	Technology Licensing Organization
TMC	Technology Management Center
TMEC	Thai MicroElectronic Center
TMT	Toyota Motor Thailand
TNCs	Transnational Corporations
TPI	Thailand Productivity Institute
TPS	Toyota Production System
TSP	Thailand Science Park
TTI	Thai Textile Institute
TV	Television
TVCA	Thai Venture Capital Association
UIL	University-Industry Linkages
UIS	UNESCO Institute for Statistics
ULC	Unit Labour Cost
UMR	Unité Mixte de Recherche (joint affiliated research unit)

UNCTAD	United Nations Conference on Trade and Development
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNIDO	United Nations Industrial Development Organization
VAT	Value-Added Tax
VC	Venture Capital
VCR	Video Cassette Recorder
WD	Western Digital
WEF	World Economic Forum
WTO	World Trade Organization
X/S	Export/domestic production
Y/K	Capital output ratio

CONTRIBUTORS

Natacha Aveline-Dubach joined the French National Center for Scientific Research (CNRS) in 1993, and became CNRS research director at the Institute of East Asian Studies in Lyon (ENS-LSH, CNRS, Lumière Lyon2 University). She currently holds the position of director of the CNRS regional office in Japan. She has spent more than eight years in Japan, and published various books on the globalization of property markets and its impact in Northeast Asia. Her recent research interests are in urban transport, regional land-use and cemetery development/funeral services in Asia.

Audrey Baron-Gutty is a PhD student in Political Science at the University of Lyon, Institute of East Asian Studies (ENS-LSH, CNRS, Lumière Lyon2 University). She has done research on regional development and educational issues, particularly in Thailand. She is now studying the impact of globalization on national educational and training policies. Supported by a scholarship from IRASEC, she has conducted extensive field work in Thailand (2007–2009).

David Hoyrup is consulting economist, formerly affiliated with LEPII-CNRS Grenoble. He conducted field research on economic growth in Southeast Asia and completed his doctoral dissertation on ASEAN emerging economies. He was post-doctoral fellow at IRASEC, Bangkok and contributed to several books on emerging Asian economies.

Patarapong Intarakumnerd is Lecturer at College of Innovation, Thammasat University. He was a project leader of Thailand's National Innovation System Study at the National Science and Technology Development Agency. He was previously a visiting fellow at the Centre of

Southeast Asian Studies at Kyoto University. His research interests include national innovation systems and clusters in developing countries, technology and innovation policies, the role of intellectual property right in economic development, university-industry linkages, and the strategies and evolution of latecomer firms.

Bruno Jetin is assistant professor in economics at Centre d'Économie de Paris Nord (CEPN, France). At the time this research was done, he was researcher at the Institut de Recherche pour le Développement (IRD, French Research Institute in Development Studies) affiliated to the Center for Education and Labour Studies (CELS, Chiang Mai University). His research areas are macroeconomics, applied industrial economics and labour economics in developing countries. He is now engaged in research on regional integration in Southeast Asia.

Yveline Lecler is presently Senior Research Fellow at Maison Franco-Japonaise (Tokyo), UMIFRE 19, and invited researcher at the Institute of Social Science, University of Tokyo, on a two years' leave from University of Lyon, Institute of Political Studies (IEP) and Institute of East Asian Studies (ENS-LSH, CNRS, Lyon2 University). She studied firms' agglomeration, SMEs, subcontracting and the international division of labour of Japanese firms, mainly in ASEAN. Her current research focuses on regional innovation policies and SMEs in Japan and Thailand.

Shinya Orihashi is Professor of Management at Tohoku Gakuin University. He is also Project Researcher at the Manufacturing Management Research Center (MMRC), University of Tokyo. He has studied the transfer of Japanese production and management systems, as well as the capability-building process at Japanese overseas subsidiaries. His major research field is Japanese automobile industries in Southeast Asia and in the rest of the world.

Akira Suehiro is Professor and Director of Institute of Social Science, University of Tokyo. His publications include *Family Business: The Agent of Late Industrialization* (2006, in Japanese) and *Catch-up Industrialization: The Trajectory and Prospects of East Asian Economies*. His current research interests are social security system in East Asia and new interaction between China and ASEAN.

Jean-Christophe Simon is senior economist at the Institut de Recherche pour le Développement (IRD, French Research Institute in Development Studies). He has worked for 25 years on development issues, currently as Research Fellow at UMR 201 Développement et Sociétés, and associated to LEPII-CNRS Grenoble. He has contributed to field research and public consultancy on overall planning, industrial development and entrepreneurship in African and East Asian countries. He currently teaches applied development economics at universities in Grenoble and Paris and contributes to research programmes on industrializing/emerging economies, climate change mitigation, and sustainable development.

INTRODUCTION

Patarapong Intarakumnerd and Yveline Lecler

The competitiveness of a country is not a given that lasts forever. Staying competitive requires continuous upgrading and, sometimes, even major transformation. Factors that used to underpin competitiveness in the past might turn to be ones reducing competitiveness in the future. Therefore, the ability of a country to learn to create new factors is very important for it to maintain its position in global competition. Thailand, which was once successful in catching up and competing with others, is now facing problems in maintaining its position and upgrading to the next stage of development.

COMPETITIVENESS, A KNOWLEDGE-BASED AND LEARNING ECONOMY, AND THE SIGNIFICANT ROLES OF INSTITUTIONS

A country's competitiveness and ability to catch up rely very much on its embedded "national" characteristics or so-called "national innovation system" or NIS. The roots of innovation systems (IS) concepts are based on Schumpeterian economics, which emphasize innovation and entrepreneurship, combined with the essence of Charles Darwin's evolutionary theory. The emergence of NIS concepts, particularly in industrialized countries in the northern hemisphere, can be traced back to the work of Lundvall (1988, 1992) on national systems of innovation or national policies of innovation, and other works (see Freeman 1987; Nelson 1988) started in the mid-1980s. NIS is an interactive system involving existing "institutions", private and public firms (either large or small),

universities and government agencies, which aimed at the production of science and technology within national borders. Interaction among these units may be technical, commercial, legal, social, and financial, and the goal of the interaction may be development, protection, financing, or regulation of new science and technology (Niosi et al. 1993).

Institutions should be understood as encompassing “the basic rules of the game”, the broad legal regime and the way it is enforced, widely held norms that constrain behaviour, and so on (North 1990). The norms, habits, and rules that are deeply ingrained in society play a major role in determining how people relate to one another, and learn and use their knowledge (Johnson 1992). The term “institutions” can also be associated with customs, and standard and expected patterns of behaviour in particular contexts (Hodgson 1988, 2006; Veblen 1899). The concept, therefore, covers both broad rules and governing structures that constrain behaviour, and the ways things are done. In an economy characterized by ongoing innovation and fundamental uncertainty, the institutional setting will have a major impact on how economic agents behave, as well as on the conduct and performance of the system as a whole.

One of the crucial institutions is the way firms interact with one another and with other players in innovation systems. Scholars and policymakers at present are quite interested in the geographical agglomeration of firms and the “cluster” concept. Studies of clusters have a long history. Alfred Marshall’s famous *Principles of Economics* in 1890 is a cornerstone in this literature although he used the label “industrial districts”. Marshall theorizes and emphasizes the dynamics of external economies associated with learning, innovation, and increased specialization. The research on districts reached a larger audience when Piore and Sabel (1984) published their seminal book, *The Second Industrial Divide*, and with the numerous works of Italian scholars (Beccatini 1990–92, among others). Nonetheless, it was the management guru Michael Porter who recently made the concept of cluster popular. According to Porter (1998), industrial clusters are geographical concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (for example, universities, standard agencies, and trade associations) that combine to create new products and/or services in specific lines of business. Clusters emerge and develop because geographical proximity among firms promotes interactive and collective learning and generates positive externalities for

participating actors. These benefits attract similar and related firms and other actors because they also want to participate in the interactive learning that takes place in these circumstances.

Today we are living in a world of globalization, where goods, services, capital, labour and information can move across national boundaries freer than before. We are also entering the era of the knowledge-based and learning economy. What is new in this era is neither information nor knowledge, which had been the core of economic activity since the industrial revolution in the eighteenth century. Still, knowledge is now the only meaningful factor in production. Other traditional factors in production, namely, natural resources, labour, and capital are secondary and can be obtained easily, as long as there is knowledge (Drucker 1993). However, knowledge can get obsolete very quickly. Therefore, what is important is not only “knowledge” in itself, but also the “learning” capability of an economy, that is, the ability to create, diffuse, and use new knowledge (Lundvall 2002).

In this era, NIS and its supporting institutions described above are obviously even more important than before. As stated by Lundvall, Intarakumnerd and Vang (2006), coping with globalization makes it necessary to understand the “historical” development of a country’s innovation system, learning capability, and policy formulation processes. The development and competitiveness of a nation are path dependent. History does really matter in determining the present and the future.

THAILAND: A COUNTRY IN A MAJOR TRANSITION?

Thai economic development was drastically accelerated during the second half of the 1980s and all through the 1990s. The Asian Crisis led to a deep recession in 1997 and a few years following that. However, recovery was rather quick and the country seems to be progressing again. The success of Thailand in the past relied on two factors: foreign direct investments (FDIs) and low-cost competition. Thailand began its industrialization process with an import substitution strategy in the 1960s and 1970s. During this era, FDIs were rather limited and focused only on producing consumer goods to replace foreign imports. But in the 1980s, a major policy change to an export-led industrialization strategy was initiated. The Board of Investment (BOI), for instance, gave attractive fiscal incentives to foreign investors. The Thai government also created modern infrastructure such

as “Industrial estates” first in the Bangkok Metropolitan Area. It then extended these facilities to more distant areas with the aim of wealth distribution. The result was a substantial increase in FDI in the second half of the 1980s and 1990s. Moreover, there was a positive change in terms of the development of agglomerations of firms in some provinces close to Bangkok such as Chonburi, Rayong, and Ayuthaya.

The underlying rationale behind the aforementioned FDI strategies is that it will automatically lead to the technological upgrading of local industries through the process of technology transfer from multinational corporations to local firms. Therefore, in the view of policymakers, this strategy should have led Thailand to successful industrialization and long-lasting competitiveness.

This is not really the case. Of course, foreign investors transferred technology to their subsidiaries. But this transfer often remained limited to production technologies. A number of subsidiaries progressively upgraded their production process technology and became able to assimilate and improve on these technologies eventually. However, most of them did not gain the knowledge to design or innovate new processes or products. In terms of the spillover impact to local firms, the situation is even worse. The transfer of technology, both embodied and disembodied, was substantially constrained within the boundaries of the network of MNCs’ subsidiaries. Also, the development of a pure, Thai supporting industry that the government was anticipating as a kind of by-product of attracting FDI did not work in Thailand as it worked in Singapore or in Malaysia for instance as far as electronics are concerned. In fact, even though there is no one single path or one best way to enhance capability building, it seems that if incentives are not put on the agenda of public policies, technology transfer remains limited to what corresponds to MNCs own strategies. Some, willing to go further, may successively transfer more up to date technologies, but even if there are some exceptions, few are transferring designing or research and development (R&D) capabilities (see, for instance, Hobday, Bessant, and Rush 2007).

The economic crisis in 1997 and the subsequent downturn of sectors that used to be exporting stars, such as textiles and garments, are the wake-up calls to policymakers that previous policies are no longer supportive in the new competitive paradigm. Labour costs, which underpin Thailand’s comparative advantage, have increased substantially. Thailand is, therefore, losing its competitiveness in attracting FDI to labour-intensive

industries. At the same time, unlike East Asian Newly Industrializing Economies (NIEs) such as Korea (Amsden 1989; Chang 1994; Kim 1997), Taiwan (Hou and Gee 1993), and Singapore (Wong 1996), it fails in upgrading its industries in the global value chain.

What appears equally important at present is the emergence of a “new” competitiveness paradigm. This “new” paradigm is needed because of two factors: first the expansion of globalization and the knowledge-based and learning economy, as mentioned earlier, and second the emergence of strong regional competitors. These factors were not so relevant in the 1980s and early 1990s, when Thailand was successfully catching up. Big countries having huge surplus labourers such as China and India, or even a smaller nation such as Vietnam, have now joined the global and regional competition and there is no way Thailand can compete against them using a low-labour-cost strategy. As a result, Thailand is at a crossroads, and can be considered an economy in transition. The level it has reached in terms of development is too high for it to pursue a strategy based on its former comparative cost advantage, but its capability achievements are still too low for it to become an advanced economy, unless it addresses its own weaknesses and develop new capabilities to seize new opportunities and overcome threats generated by the globalization process and the emergence of its new competitors.

OBJECTIVE, APPROACH, AND MAIN FINDINGS OF THE BOOK

The purpose of this book is to explore the strengths and weaknesses of Thailand’s industrial development and to point out what the challenges are that policymakers have to address to make this sustainable for the next decade and beyond. This book will not enter directly into theoretical debates concerning all the issues mentioned above, but will shed useful light on related aspects. All chapters will touch on these issues in one way or another.

To meet such an objective, the book will take a twofold approach: thematic and by industry. The study aims to identify the relevant issues that might be responsible for the difficulties Thailand has in increasing its international competitiveness, just like other Asian countries have done before when they reached the development level Thailand is now experiencing.

The main findings are as follows: Thailand has internal problems in pursuing an effective industrial upgrading strategy. First, its national innovation system is weak and fragmented. Actors such as government agencies, private firms, universities, research organizations, and so on are not so efficient in performing their supposed roles. For example, Thai private firms were not active in upgrading their technological capabilities. Unlike their counterparts in Japan and East Asia, their capabilities in reverse engineering and industrial design, which are the basis for technological learning of successful latecomer firms, are limited. Most policymakers subscribed to the so-called "linear model of innovation". They paid more attention to enhancing R&D capabilities of public organizations, namely universities and public research institutes, and hoped that these organizations would automatically transfer the results of R&D to the private sector. Equally important, actors in the innovation system here are not working together like a system, which leads to the enhancement of a country's competitive advantage.

Second, education is a major problem. Education in Thailand was designed to produce people who could work efficiently in production processes. It focused mainly on building workers' ability to work according to instructions given by their superiors or blueprints. Therefore, it was suitable for the period when the country's industry was in the early catching up phase and most local firms were either imitators of foreign products, or original equipment manufacturers (OEMs) of multinational corporations. When a country is attempting to move up the value chain and its firms are changing from imitators to innovators, the education system must be able to produce persons with creativity and high learning ability. This is unfortunately not the case in Thailand. The study shows that Thailand is losing part of its competitiveness because of a mismatch between increases in real wages and increases in labour productivity. The increase in the latter is lower due to Thailand's underachievement in education, compared with its Asian neighbours. Furthermore, the quality and quantity of science and engineering graduates here are inadequate. This is a serious problem for a country that aspires to be a learning and knowledge-based economy.

Last but not least, explicit and effective upgrading policy formulation and implementation are very much needed. In the Thai case, this has not happened. More strategic policies that try to strengthen the micro (firm-level) and meso (industry and cluster level) foundations of competitiveness

were initiated recently. But the implementation of these policies have largely been compromised and fallen by the wayside because of the lack of genuine political will and the vested interests of various political groups, including politicians who initiated those policies. The mindsets and understanding of policymakers in the middle and low levels can prohibit fruitful implementation of well crafted policies agreed at the higher levels. There are several examples along this line. For instance, the cluster concept initiated by top policymakers was understood and implemented differently by middle and lower rank bureaucrats and others. As a result, the introduction of the concept in Thailand, despite the good intention behind it, did not lead to a real change in terms of policy for upgrading industry. Policymakers have also capability problems in adjusting their policy in accordance with the fast changing global situation. Frequent political disruptions and short-lived governments are also major obstacles to the continuation of serious policy implementation.

The set of policy measures in Thailand is also limited. Unlike Japan and East Asian NIEs, most policy measures here are fiscal incentives. There are very few financial incentives such as grants and loans and, if any, ineffective. This is because the level of trust in Thailand is very low. Financial incentives, especially grants, are considered by policymakers as means that could possibly lead to nepotism and cronyism.

CONTENT OF THE BOOK

The book is divided into three separate, but connected parts. It will start with a broad review of the country's FDI, national innovation system, and industrial and education upgrading in general. After this overview, it will closely examine "specific" policies and strategies for industrial upgrading: industrial restructuring, and industrial estate policies and implementation. Finally, three case studies of the country's leading industrial sectors (automotive, textile and garment, and hard disk drive) will be provided to demonstrate Thailand's competitiveness clearly, and the evolution and effectiveness of Thailand's industrial upgrading at the sector level. A summary of each part and chapter is as follows:

Part I will provide a general view of Thailand's competitiveness, especially in terms of its industrial upgrading. The main focus will be on the three general factors shaping the country's competitiveness: foreign direct investment, national innovation systems, and education upgrading.

This part will provide the background for the rest of the book, which will focus more on key supporting elements of Thailand's competitiveness, namely the roles of institutions, strategies of firms, and government policies.

Chapter 1. David Hoyrup and Jean-Christophe Simon take a longitudinal approach on Thailand's foreign direct investment (FDI). They analyse historically, the relationship between the development process and the diversification of activities induced by foreign direct investment over the past four decades of Thailand's industrialization. They put emphasis on the interaction between growth, the international opening-up of the economy, and public policies. Their analysis of the impact of FDI on industrial development and sector diversification will describe the general landscape and point out weaknesses that will be further addressed in other chapters. Their conclusion is that although FDI inflows to Thailand remain strong, the country is facing serious challenges regionally from China and other Asian neighbours, and domestically by the inability of the state to formulate better supporting policies.

Chapter 2. Patarapong Intarakumnerd examines Thailand's industrial development from the national innovation system (NIS) perspective. He analyses whether the Thai NIS has helped the country catch up technologically with more advanced economies, or make the country fall behind others. He carefully investigates the evolution of roles and capability building of key actors, namely, the government, private firms, universities, knowledge intermediaries, financial markets, and institutions such as trust, entrepreneurship and so on. Moreover, the interactions among these actors and the process of systemic learning have been critically assessed. He illustrates that Thailand's national innovation system is in transition from one with a long-standing character of weak, fragmented, and slow-learning, to one that will be stronger, coherent, with more active learning. This happened because of two reasons. First, there has been a significant change in the behaviour of a key actor, the government. This change has brought about positive changes in other actors. Second, external factors, namely, the economic crisis of 1997 had cross-cutting effects on all actors in the system. It also induced changes. Nonetheless, these positive changes are just the "light at the end of tunnel". It remains to be seen over a longer time period whether they can create genuine and sustainable positive outcomes.

Chapter 3. Bruno Jetin provides a very critical analysis of the symbiotic relationship between Thailand's industrial upgrading and its

educational upgrading. Like others, he acknowledges that Thailand is in a very difficult and challenging position. Its more labour-abundant Asian neighbours can offer cheaper labour, and similar or even better tax incentives for attracting FDI. At the same time, developed countries are better equipped with much better knowledge, productive organization, and infrastructure. Education is one of the most important vehicles for getting the country out of this situation. However, its education system has both quantitative and qualitative problems due to several reasons such as social inequality, a shortage of skilled teachers, the lack of the promotion of creativity and critical thinking in teaching, especially in the scientific areas, and the absence of a long-term education policy and continuous and well executed education reform. As a result, the country fails to provide a supply of qualified scientists, engineers and other types of human resources for industrial upgrading and the strengthening of its national innovation system.

Part II focuses on the role of Thai institutions in the development process of industries. It aims to explain policies implemented to support industrial competitiveness, whether through the attraction of FDI, or the promotion of SMEs. Analysing the changes that have occurred in policies formulation, objectives, and strategic orientation, depending on the successive governments, and the related outcomes, this part shows how private interests or corporate strategies are increasing their domination; in other words, how the government is losing part of its autonomy.

Chapter 4. Akira Suehiro first analyses Thailand's industrial promotion policies before the Asian crisis. With this background in mind, he then concentrates on two major plans implemented after the crisis by the successive governments: the Industrial Restructuring Plan (IRP, 1997–2000) based on Japanese experience and assistance, which emphasizes the promotion of supporting industries and SMEs in priority industries, and the National Competitiveness Plan (NCP, 2001–06), relying on Porter's work which refers to American management textbooks and is based on the cluster approach. Comparing these two plans in relation to the national and international contexts that determined their orientation, he examines the process of policies formulation, their respective objectives and means, and the major players involved. While both plans aimed, albeit through different approaches, at promoting good cooperation between the government and the private sector, the lack of institutional framework and capacities to support the cooperation produced rather poor policy

outcomes. The dual-track policy of the Thaksin government and clusters implementation did not prevent local firms from being driven into labour-intensive or natural resources-based industries, while foreign firms increased their domination. Noting that the latter develop their activities in accordance with region-wide corporate strategies rather than with government industrial policies, A. Suehiro concludes that Thailand is losing its autonomy in policymaking and depends crucially on the corporate strategy of foreign firms. The country now has to improve its national competitiveness urgently at the microeconomic level, but also needs sound economic management at the macroeconomic level.

Chapter 5. Natacha Aveline examines the industrial estates policy of the Thai government which appears to be rather specific compared with those of other Asian countries. The Industrial Estate Authority of Thailand (IEAT), created in 1972 to regulate industrial development in close relation to environment protection, established industrial estates (IE) provided with modern infrastructure and a large range of services suited to foreign manufacturers' needs. This was attractive, but always led more to their concentration around Bangkok. The creation of IEs in more distant provinces was on the agenda, but the Asian crisis stopped the implementation of this. The Eastern Seaboard Development Plan gave a new impetus and led private entrepreneurs into getting interested and engaging in huge urban projects associated with IE creation. Considering that changes of policy with the Thaksin government which based its growth strategy on clusters did not led to the emergence of new forms of industrial agglomerations in IE, Natacha Aveline discusses the reasons Thailand could not achieve a rather balanced regional development like Korea did. Introducing the concept of Regional Innovation System, the chapter points out several elements such as, the cluster policy which Thailand relies more on an industry-wide approach than a geographical one; the lack of industry-specific policies until recently; or the weak urban framework, to explain comparatively why although IE still have a role to play, Thailand has difficulties relying on them to create true poles of innovation at the regional level.

Part III addresses transversally most of the issues already tackled in the two previous parts and chapters, taking an industry approach. Three relevant industries: automotive, textile and garment, hard disk drive (HDD), are studied in-depth. By emphasizing past developments and the present characteristics of each industry, taking into account a region-wide

dimension, the chapters aim at illustrating concretely what is now at stake for Thailand to ensure its future competitiveness, whether through firms' strategies or government policies. These illustrations finally confirm at an empirical level the main findings of former parts.

Chapter 6. Shinya Orihashi focuses on the automotive industry, comparing both the strategies of car manufacturers before and after the Asian Crisis, and the Japanese and American ones. Through the analysis of the evolution that has occurred, namely the shift from a local market dedicated production to an export-oriented one, he shows how Thai subsidiaries were forced to implement structural reforms to enhance their international competitiveness. This gave them the opportunity to change their positions within their parent companies' global strategy. The Asian Crisis finally served as an impetus for them to invest in human resources development, and to increase production and quality capabilities. Thanks to these changes, the industry grew rapidly, leading to some difficulties that appeared recently such as the shortage of supporting industries with local first-tier suppliers falling down to second-tier, the lack of an engineering workforce reactivating the staff mobility etc. The export oriented strategy, for its part, is threatened by the higher appreciation of the baht, and also by the emerging excess production capacity in China and the commencement of the China-ASEAN Free Trade Agreement which strengthens competition. But this might be also seen as a new chance for the Thai automotive industry to improve its capabilities further.

Chapter 7. Audrey Baron-Gutty investigates the textile industry's long history from its traditional rural forms of development to its urban concentration in specialized districts to exports. She emphasizes the role played in each period by different actors, depending on industrial policies changes and foreign multinationals' investments, which have made the Thai textiles and garments industry a heavyweight in the national economy, and exports sector. Focusing on the present situation which is characterized by a loss in competitiveness, she points out the relevant issues at stake: rising labour costs, the higher baht, utility costs increases in the Bangkok area where the industry is concentrated, a non-supportive financial system, a lack of industrial strategy, etc. Thailand is now unable to compete in world markets through costs, and the industry absolutely needs to move up the value chain and engage in more innovative, technical, and quality productions. After describing some measures taken at the policy level, such as the Chaiyaphum cluster programme, she concludes by stressing

the importance of long-term policies to promote research and enhance workers' capabilities in other words, defining a strategy articulating efficient and quality education and labour.

Chapter 8. Yveline Lecler takes a historical and region-wide approach to explain how Thailand recently became world number one in HDD production and exports. But to maintain such a position in the vertically integrated intraregional network that American and Japanese multinationals progressively built, at the very time when its comparative advantages are eroding, the country has to address new challenges: technology upgrading, supporting industry development, technician and engineers training. To succeed in having the whole value chain of HDD, including the most sophisticated components which are not yet produced, located in Thailand, the country is now turning to the building of more competitiveness-based advantages. The government has implemented new policies — for the first time sector specific, and correlating qualitative criteria — that are better for addressing the needs of both champion industries such as HDD, and foreign manufacturers involved. The HDD cluster programme recently launched is highly appreciated by firms, even though some doubts remain concerning the execution of actions decided, which are often too slow to be undertaken. Its detailed study shows that, although recent measures are going in the right direction, success will strongly depend on the ability of the country to catch up with its rivals by upgrading its education system, and linking industry and research institutions to innovate, without forgetting to upgrade the capabilities of Thai SMEs.

LIMITATIONS OF THE BOOK

It is our intention to cover all the important factors contributing to Thailand's competitiveness, but the book has limitations nonetheless. Firstly all chapters (with some exceptions) basically examine Thailand from 1960s onwards. There might be some phenomena which had happened before, which somehow affected the country's process of building up its competitiveness later, for example, the golden era of state enterprises in the late 1940s and 1950s. Secondly, some institutional factors have been neglected, for example, land reform (one of the major factors contributing to later success in the industrialization of Asian NIEs), the evolution of power relations among key actors (the royalty, bureaucrats, business people,

the middle class, and the poor), and some laws and regulations (competition laws, laws and regulations on metrology and standard, environmental protection, and so on) and logistic problems. Lastly the book, to a considerable extent, pays attention to the competitiveness of the manufacturing sector, although agriculture (including the agro industry) and services (tourism, health, restaurants, and so on) are the competitive strength of Thailand. We certainly acknowledge these limitations. Nonetheless, most of them have been largely studied and published elsewhere and they are beyond the scope of the book, which focuses primarily on policy challenges for Thailand's competitiveness in light of the historical developments of East Asian NIEs, as well as present and future fiercer competition from other countries catching-up, especially in the manufacturing sector.

References

- Amsden, A. *Asia's Next Giant: South Korea and Late Industrialisation*. New York: Oxford University Press, 1989.
- Beccatini, G. "The Marshallian District as a Socio-Economic Notion". In *Industrial Districts as Inter-Firms Co-operation in Italy*, edited by F. Pyke, G. Beccatini, and W. Senbengerber, pp. 37–51. Geneva: ILO, 1990.
- Beccatini, G. "Le district industriel: milieu créatif". *Espaces et sociétés*, no. 66–67 (1992): 147–63.
- Chang, H. *The Political Economic of Industrial Policy*. London: Macmillan, 1994.
- Drucker, P. *Post Capitalist Society*. New York: Harper Collins, 1993.
- Freeman, C. *National Systems of Innovation: The Case of Japan Technology Policy and Economics Performance: Lessons from Japan*. London: Pinter Publishers, 1987.
- Hodgson, G. "The Approach of Institutional Economics". *Journal of Economic Literature* 36 (1998): 166–92.
- . "What Are Institutions". *Journal of Economic Issues*, XL (2006): 1–26.
- Hou, C. and S. Gee. "National Systems Supporting Technical Advance in Industry: The Case of Taiwan". In *National Innovation System*, edited by R. Nelson, Oxford: Oxford University Press, 1993.
- Johnson, B. "Institutional Learning". In *National Innovation Systems: Towards a Theory of Innovation and Interactive Learning*, edited by B.-Å. Lundvall. London: Pinter Publishers, 1992.
- Kim, L. *Imitation to Innovation: The Dynamics of Korea's Technological Learning*. MA: Harvard Business School Press, 1997.
- Lundvall, B.-Å. "Innovation as an Interactive Process: From User-Producer

- Interaction to the National Systems of Innovation". In *Technical Change and Economic Theory*, edited by G. Dosi et al. London: Pinter Publishers, 1988.
- . *National Systems of Innovation: Towards a Theory of Innovation and Interactive Learning*. London: Pinter, 1992.
- Lundvall, B., P. Intarakumnerd, J. Vang, eds. *Asian Innovation Systems in Transition*. Cheltenham, U.K., and Northampton, U.S.: Edward Elgar, 2006.
- Nelson, R. "Institutions Supporting Technical Change in the United States". In *Technical Change and Economic Theory*, edited by G. Dosi et al. London: Pinter Publisher, 1988.
- Niosi, J. et al. "National Systems of Innovation: In Search of a Workable Concept". *Technology in Society* 15 (1993): 207–27.
- Piore, M. J., C. F. Sabel. *The Second Industrial Divide: Possibilities for Prosperity*. New York: Basic Books, 1984.
- Porter, M. E. "Cluster and the New Economics of Competition". *Harvard Business Review* 76, no. 6 (November–December 1998): 77–90.
- Rush, H., J. Bessant, and M. Hobday. "Assessing the Technological Capabilities of Firms: Developing a Policy Tool". *R&D Management* 37, no. 3 (June 2007): 221–36.
- Veblen, T. *The Theory of the Leisure Class: An Economic Study of Institutions*. New York: Macmillian, 1899.
- Wong, P. *National Systems of Innovation: The Case of Singapore*. Korea: Science and Technology Policy Institute, 1996.