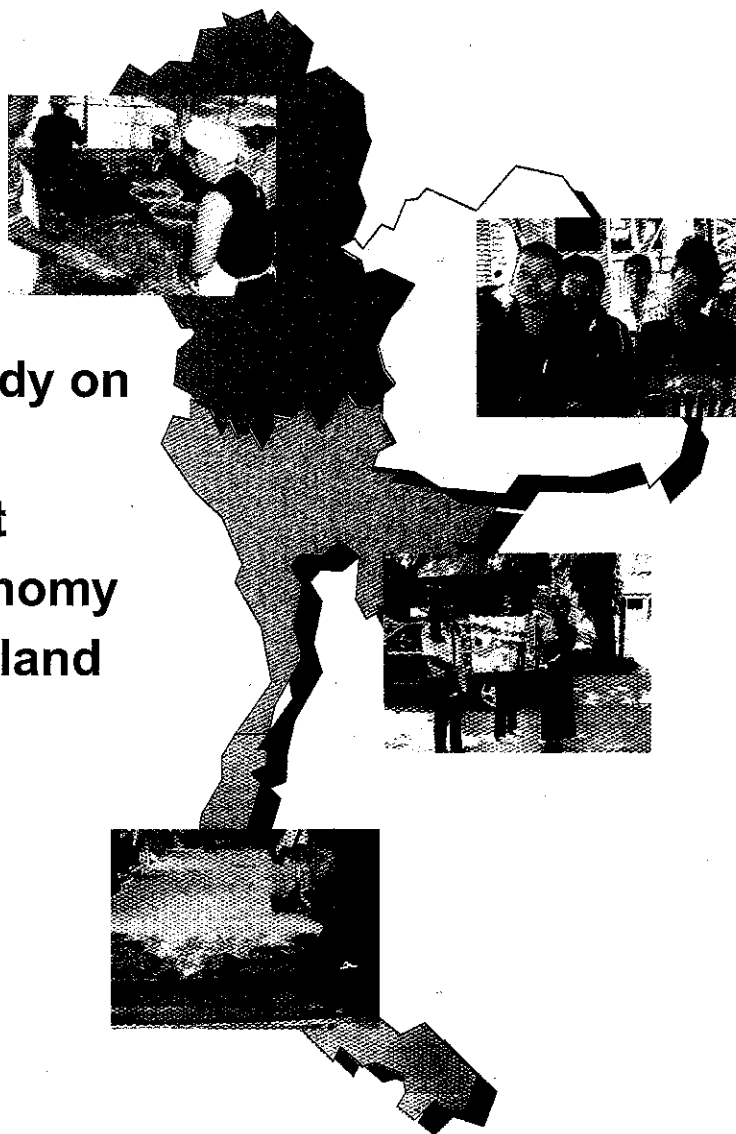


Japan International Cooperation Agency (JICA)

Office of the National Economic and Social Development Board
(NESDB), The Kingdom of Thailand

**The Development Study on
Human Resources
Training/Development
in the Context of Economy
in Rural Areas of Thailand**



Final Report
February 2003

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Preface

In response to a request from the Government of the Kingdom of Thailand, the Government of Japan decided to conduct "The Development Study on Human Resources Training/Development in the Context of Economy in Rural Areas of Thailand" and entrusted the study to the Japan International Cooperation Agency (JICA).

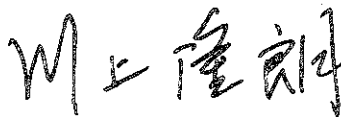
JICA dispatched a study team headed by Dr. Jinichiro Yabuta of International Development Center of Japan to the Kingdom of Thailand from February 2002 to January 2003.

The team held discussions with the officials concerned in the Government of the Kingdom of Thailand, and conducted field surveys in the study area. Upon returning to Japan, the team conducted further studies and prepared this final report.

I hope that this report will contribute to the promotion of the project and to the enhancement of friendly relationship between our two countries.

Finally, I wish to express my sincere appreciation to the officials of the Government and those concerned in the Kingdom of Thailand for the close cooperation they have extended to the study.

February 2003



Takao Kawakami
President
Japan International Cooperation Agency

February 2003

Mr. Takao Kawakami
President
Japan International Cooperation Agency

Dear Mr. Kawakami,

Letter of Transmittal

We are pleased to submit to you the final report for the Development Study on Human Resources Training/Development in the Context of Economy in Rural Areas of Thailand. The report contains our analysis on the current conditions, the master plan on the human resources development for rural economies, and proposed project ideas for realization of the master plan.

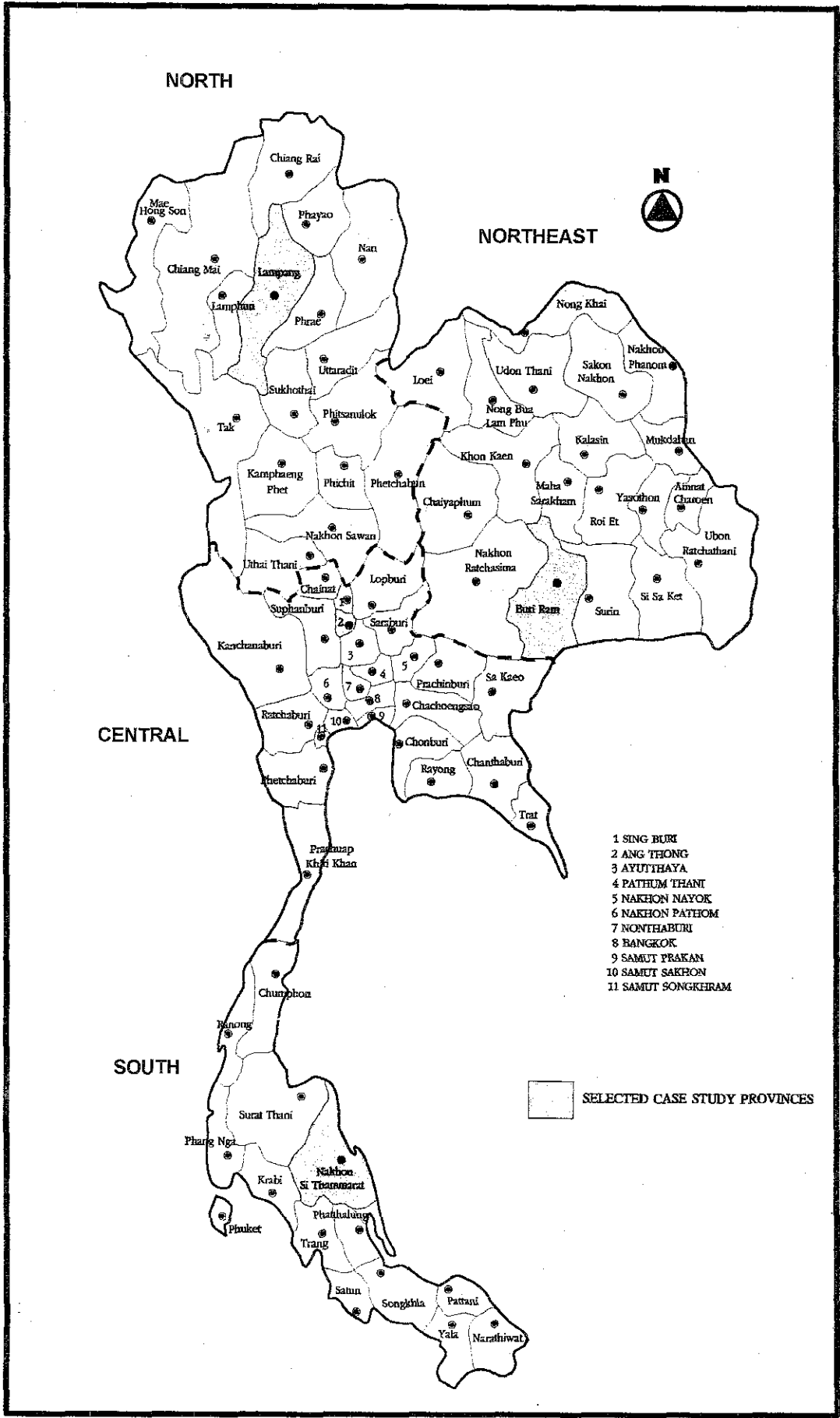
We wish to take this opportunity to express our sincere gratitude to your Agency and the Japanese Ministry of Foreign Affairs. We also wish to express our deep gratitude to the National Economic and Social Development Board (NESDB) and other authorities concerned of the Royal Thai Government for the close cooperation and assistance extended to us during our study. Especially the people and officials in the case study areas in Ang Thong, Buri Ram, Lampang, and Nakhon Si Thammarat provinces took their precious time to enlighten us as to the situation, the problem and the future vision of rural people.

We do hope that this report will contribute to human resource development in the rural areas of Thailand.

Very truly yours,



Jinichiro Yabuta
Team Leader



NORTH

NORTHEAST

CENTRAL

SOUTH



- 1 SING BURI
- 2 ANG THONG
- 3 AYUTTHAYA
- 4 PATHUM THANI
- 5 NAKHON NAYOK
- 6 NAKHON PATHOM
- 7 NONTHABURI
- 8 BANGKOK
- 9 SAMUT PRAKAN
- 10 SAMUT SAKHON
- 11 SAMUT SONGKHERAM

SELECTED CASE STUDY PROVINCES

Currency Equivalents

US\$1= 42.1 Thai Baht
(as of August 2002)

JYEN 100=35.4 Thai Baht
(as of August 2002)

The Development Study on Human Resources Training/Development
In the Context of Economy in Rural Areas of Thailand

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ABBREVIATION

ADB	Asian Development Bank
AEW	Agricultural Extension Worker
ARP	Agricultural Rehabilitation Plan
ASEAN	Association of Southeast Asian Nations
ATTC	Agricultural Technology Transfer Centers
BAAC	Bank of Agriculture and Agricultural Cooperatives
BMA	Bangkok Metropolitan Administration
BMR	Bangkok Metropolitan Region
BOI	Board of Investment
CBIRD	Community Based Involvement in Rural Development
CD	Community Development
CDD	Community Development Department, Ministry of Interior
CDW	Community Development Worker
CEO	Chief Executive Officer
CIPO	Center for Integrated Plan of Operations, NESDB
CND	Cross-National Development
CPD	Cooperatives Promotion Department
CSO	Civil Society Organization
DDC	District Development Committee
D/D	Detailed Design
DEDP	Department of Energy Development and Promotion, Ministry of Interior
DIP	Department of Industrial Promotion
DIW	Department of Industry Works
DLD	Department of Livestock Development, Ministry of Agriculture and Cooperatives
DNFE	Department of Non-formal Education
DOA	Department of Agriculture
DOAE	Department of Agricultural Extension, Ministry of Agriculture and Cooperatives
DOF	Department of Fisheries, Ministry of Agriculture and Cooperatives
DOH	Department of Highway, Ministry of Transport and Communication
DOL	Department of Land, Ministry of Interior
DOLA	Department of local Administration, Ministry of Interior
DOVE	Department of Vocational Training, Ministry of Public Welfare
DSD	Department of Skill Development
EIA	Environmental Impact Assessment
ESB	Eastern Seaboard
F/S	Feasibility Study
GDP	Gross Domestic Product
GIS	Geographical Information System
GOJ	Government of Japan
GPP	Gross Provincial Product
GRP	Gross Regional Product
HRD	Human Resource Development
IEAT	Industrial Estate Authority of Thailand
IEE	Initial Environment Examination
IEs	Industrial Estates

IFCT	Industrial Finance Corporation of Thailand
IG	Income Generation
IMF	International Monetary Fund
JBIC	Japan Bank for International Cooperation
JICA	Japan International Cooperation Agency
LDD	Land Development Department, Ministry of Agriculture and Cooperatives
LTD	Land Transport Department, Ministry of Transport and Communications
MMR	Maternal Mortality Rates
MOAC	Ministry of Agriculture and Cooperatives
MOE	Ministry of Education
MOF	Ministry of Finance
MOI	Ministry of Interior
MOID	Ministry of Industry
MOPH	Ministry of Public Health
MOSTE	Ministry of science, Technology and Environment
MOUA	Ministry of University Affairs
NBVTC	The National Board of Vocational Training Coordination
NESDB	National Economic and Social Development Board
NIEs	Newly Industrialized Economies
NFED	Non-Formal Education Department, Ministry of Education
NGOs	Non Government Organization
NRDC	National Rural Development Committee
NRDDC	Nation Rural Development and Decentralization Committee
PACO	Provincial Agriculture and Cooperative Office
PAO	Provincial Administrative Organization
PDA	Population and Community Development Association
PDC	Provincial Development Committee
PHC	Primary Health Care
PLWHA	People living with HIV/AIDS
PWD	Public Works Department, Ministry of Interior
PWWD	Provincial Water Works Department
RAPS	Project on Restructuring of Agricultural Production Systems
RFD	Royal Forest Department, Ministry of Agriculture and Cooperatives
RID	Royal Irrigation Department, Ministry of Agriculture and Cooperatives
RJCP	Rural Job Creation Project
RRA	Rapid Rural Appraisal
RTG	Royal Thai Government
SME	Small and Medium-scale Enterprise
SMI-IE	Industrial Estate for Small and Medium-scale Industries
SMIs	Small-and Medium-scale Industries
SWOT	Strengths, Weaknesses, Opportunities, Threats
TAO	Tambon Administrative Organization
TAT	Tourism Authority of Thailand
TBIRD	Thailand Business Initiatives in Rural Development
TC	Tambon Council
TOT	Telephone Organization of Thailand
TTC	Agricultural Service and Technology Transfer Center
VHVs	Village Health Volunteers
WID	Women in Development

The Development Study on Human Resources Training/Development in the Context of Economy in Rural Areas of Thailand

Executive Summary

BACKGROUND

The rural economy is recognized as an increasingly important sector after the economic crisis in 1997. The economic crisis is primarily a result of excessive dependence on external capitals in the development of the industrial sector that is the major source of the economic growth. Through the rapid economic growth, rural areas have been left stagnated. The experience of economic crisis has reminded people of the importance of rural economy and its need to be stimulated for the sustainable and balanced development with local resources and initiatives. One pays greater attention to 1) widening income disparities between urban and rural areas and among regions, 2) decline in the relative importance of the agricultural sector requires the sector to be value-added and development of the non-agricultural sector, and 3) effects of the Asian economic crisis; rural areas recognized as the important sector to underpin sustainable economic development.

Development approach is changed as seen in the National Economic and Social Development Plan. The Ninth Plan adopts the Sufficient Economy philosophy and advocates balanced development of human, social, economic and environmental resources to achieve real sustainable people-centered development. Past agriculture and rural development policies, however, have given greater emphasis on providing public facilities. These policies have taken top-down approaches to foster local communities and leaders as government agents. Meanwhile, Human Resources Development (HRD) policies have emphasized on skilled workers development to meet the manpower demand of the urban and industrial sectors.

New initiatives are introduced by the government in line with the new direction: sizable budget is allocated to local authorities such as "Village and Urban Fund"; and rural promotion programs with local initiatives are introduced such as "One Tambon One Product (OTOP)". These initiatives have encouraged local people to think about their future and to work out their own plan with local initiative. In addition, local authorities such as Tambon Administration Organization (TAOs) have to undertake the new administrative functions entrusted by central ministries under administrative decentralization. However, local people are not ready to respond to these new initiatives since they have largely been dependent on government agencies, and local administrations are not yet fully capable of undertaking administrative works.

In this context, there is a need to establish a policy framework to meet new direction for strengthening the capacity of people, communities, entrepreneurs, as well as local officials so that they can promote rural economies with local initiatives. It is in this regard that National Economic and Social Development Board (NESDB) and Japan International Cooperation Agency (JICA) jointly undertake the Development Study on Human Resources Training/Development in the Context of Economy in Rural Areas (the Study).

THE STUDY OBJECTIVES

The objectives of the Study are to develop the human resources that will promote economic development in rural areas through the identification of constraints and potential for HRD in rural areas, and the establishment of appropriate guidelines for upgrading the occupational skills of people in rural areas. International Development Center of Japan (IDCJ) organized a JICA Study Team to undertake this study during the period from February 2002 to March 2003. This study delineates the Whole Kingdom in four regions and selects one province from each of the four regions as a case study area: Ang Thong, Buri Ram, Lampang and Nakhon Si Thammarat.

ANALYSIS

A SWOT analysis based on the case study gives strength and weakness of HRD in Thai rural economy and opportunities and threats to HRD. HRD in rural economy has strength of broad human resource base thanks to primary education, basic vocational training, and government officials training; expanding group activities; and local wisdom and natural heritages. HRD has suffered from weaknesses as well, such as uncoordinated training activities by many government agencies, teaching the same across the country, vague strategy for rural HRD; and limited capacities of local authorities such as Tambon to plan and do own HRD. In the meantime, HRD is now given new opportunities of market diversification and government decentralization. It is also faced with threats such as rural-rural competitions, widening rural-urban disparities, relatively unstable agricultural income, and out-migration of young people.

Based on this analysis, we think firstly that rural areas have new business opportunities of market expansion, but they need leaders to encourage rural people to make use of such opportunities. Secondly, existing HRD programs do not meet the diversified demand of people. Thirdly, decentralization gives rural people an opportunity to think by themselves about how to develop rural economies, and thus local authorities could play critical role in fostering the local leaders.

MATER PLAN

(1) **Strategy of HRD for rural economy:** Overall strategy of HRD for rural economy based on the analysis above is as follows:

- 1) In order to get business chance in the expanding local and/or value added markets, foster local leaders with local initiative and market-oriented mind,
- 2) In order to support fostering local leaders, make the most of decentralization by strengthening local administration capacity, and
- 3) Strengthen demand-oriented HRD toward fostering local leaders and building capacity of local administration, in coordination among various agencies under the explicit policy.

(2) **A specific human resource needed in Thai rural economy** are the local leaders who are willing and able to:

- run new economic activities,
- encourage people to adjust themselves to external change,
- encourage people to think about their community in future, and
- encourage people to be aware of sustainable society.

(3) **New approaches:** For the rural areas, new approaches are to be employed in HRD with special reference to:

- 1) a shift from one sided teaching to mutual learning,
- 2) outward-looking.
- 3) a shift from uniform to tailor-made,
- 4) sharing success experiences,
- 5) start from the young age, and
- 6) two-level approach: facilitation at Tambon level and technical advice at provincial and central government levels.

(4) **Targeted people:** To foster local leaders, target people are:

- 1) local leaders and potential leaders such as children and young people,
- 2) local authorities officials
- 3) facilitators such as agricultural extension workers, community development workers; businesses; NGOs; and formal educational institutions.

(5) **HRD Needs by actors:** Leaders such as business leaders and women need capacity of leadership, strategic thinking, market-oriented mind and business skill, and broad perspectives. Especially, business leaders need market-oriented mind, business skill, and strategic planning, and product development strategy for community business like OTOP. Children and youth are a breeding ground of the leaders in future. They need moral education, environmental and hometown awareness, self-reliance mind and skill such as basic accounting, and broad perspectives.

The leaders and members of TAOs need leadership, planning capability and the responsiveness to people's demand. TAO staff need capacity to undertake the administrative works transferred from central ministries so that it can provide better services to the people. Provincial officials need to strengthen capability to make strategies, provide TAOs with technical advice, coordinate of various activities, and respond to TAOs in a people-centered manner.

Facilitators in government agencies need capacity building to provide demand-oriented services as a catalyst and to coordinate HRD at field level. Facilitators in NGOs and businesses need further involvement in community and rural development. Especially, businesses are encouraged to participate in community activities such as OTOP to support business skill development.

Formal educational institutions are under a reform process to meet local-specific needs. For basic education, curricula are to be developed with local initiatives, where moral education, environmental and hometown awareness, and self-reliance are to be emphasized. Vocational institutions are also under a reform process for to meet local-specific. Vocational education is expected to provide the potential leaders of communities and local authorities with spirit, skill and broad perspective for self-reliance. Rajabhat is transformed from teacher training college to the college for provincial people, including potential leaders of communities and local authorities. University should also be more involved in providing communities with technical advice and higher education, and getting students interested in rural development.

(6) **Step-by-step approach to foster leaders:** One should assume two levels in promoting rural leadership. The first level is to establish a foundation of rural leadership largely through the enhancement of development awareness and basic managerial skills. The second level is to improve leadership ability and skills through actual experience of leader and HRD opportunities that have catalytic role to foster leaders.

(7) **Approaches to OTOP and Community Fund.** OTOP and Community Fund are new initiative introduced in rural economy. HRD is needed for promotion OTOP and better utilization of Community Fund. On the other hands, human resources are strengthened through introducing and implementing these program and activities. Harmonizing both OTOP and Community Fund with HRD in rural areas has a synergy effect on rural development.

1) **HRD and OTOP Programs: survival in the globalization.** Approaches to OTOP promotion with respect to HRD are as follows.

- Foster leaders who can work out product development strategies that differentiate own products from others: products with original design and concept of local wisdom adaptable to changing consumer demand.
- Foster leaders who can transform their products to meet from only regional demand to urban and export demand.
- Establish a public IT network and foster leaders who supports rural businesses to utilize knowledge and information obtained for producing value added products.
- HRD through OTOP contributes rural economic development: Through promoting and implementing OTOP activities, leaders of local business activities with strategic and market-oriented mind are grown. These leaders eventually can become leaders of community as seen in the case study where the leaders of economic activities are also advisors to community. These business minded community leaders can manage local economy with business and strategic mind, which stimulates local economy, as seen in the case in Japan where a business leader is elected as a mayor.

2) **HRD and Community Fund: strategic utilization as a financial basis of Development Plan.** Various funds are available for local government and rural people under the decentralization of government function. Mostly, these funds are distributed individually and equally to people because of political reason. On the other hand, though TAOs are struggling to work out their development plan, though they do not have a financial basis. TAOs are lacking in fund source to finance own activities.

These fund can be strategically utilized with priority for their HRD and rural development as a financial basis of Tambon Development Plan without misusing. An investment in the strategic areas can stimulate rural economy as well as encourage broader participation of people in the process of planning of Tambon Development Plan for serious discussion of the future of Tambon. This process can grow their capacity, especially strategic thinking and fund management of Tambon members and people, which contributing to the rural development. In addition, Tambon-Tambon cooperation may be introduced, which enhances the potential of development of Tambons to overcome the limited capacity and funds of each Tamobon.

(8) Individual strategies: These strategy, target and approaches entail the following individual strategies:

Strategy 1: HRD programs to be more demand oriented.

- 1.1 Foster local leaders.
 - Create local leaders network for mutual learning and collective leadership.
 - Promote sharing of successful development experience.
 - Give a chance to people to get exposed to outside.
- 1.2 Strengthen information support services.
 - Support information network for OTOP
 - Support research and development at the local level.

Strategy 2: Capacity building of TAO.

- 2.1 Strengthen the function of TAO to plan, do and monitor own HRD strategies and programs.
- 2.2 More effective financial arrangements to promote locally initiated HRD.
 - Secure financial basis of Tambon Development Plan.
 - Strengthen capability of Tambon to use and monitor funds.
- 2.3 Encourage Inter-Tambon cooperation.

Strategy 3: Capacity building of provincial development committee and its technical staff.

- 3.1 Strengthen the function of provincial development committee to make strategy for integrated rural-urban development.
- 3.2 Strengthen the function of provincial development committee to plan, do and monitor HRD.
- 3.3 Coordinate the HRD at field level.
- 3.4 Strengthen the ability in technical advice.

Strategy 4: Formal education to be more local-need-oriented.

- 4.1 Basic education: Curriculum development with local initiatives.
- 4.2 Vocational education: Decentralized management to meet local needs.
- 4.3 Rajabhat: Further involvement in rural development.
- 4.4 University: Further involvement in rural development.

Strategy 5: Institutional arrangements for HRD.

- 5.1 The Sub-committee on HRD for Rural Economy to be set up under the Prosperity Decentralization Policy Committee for effective monitoring and inter-departmental coordination of relevant programs and projects at the local, regional and national levels.
- 5.2 The national HRD policy to be worked out.
- 5.3 Government human resources to be decentralized in proportion to financial resource.

PROPOSED PROJECT IDEAS

In accordance with the strategies, a set of projects ideas are presented for consideration by willing provincial development committees, either in individual or group:

- 1) Inter-sectoral Coordination at Local Level: Integrated Approach to Participatory Learning,
- 2) Group Networking at Provincial Level,

- 3) National Rural Leader Networking,
- 4) Inter-Tambon Cooperation,
- 5) University-Changwat Cooperation,
- 6) Community Business Development,
- 7) Capacity Building of Vocational Institutions for Rural Economies, and
- 8) Curriculum Development of Basic Education: for Self-reliance.

Strategic framework of HRD for rural economy and Individual Strategies and Project Ideas are shown in the figures below.

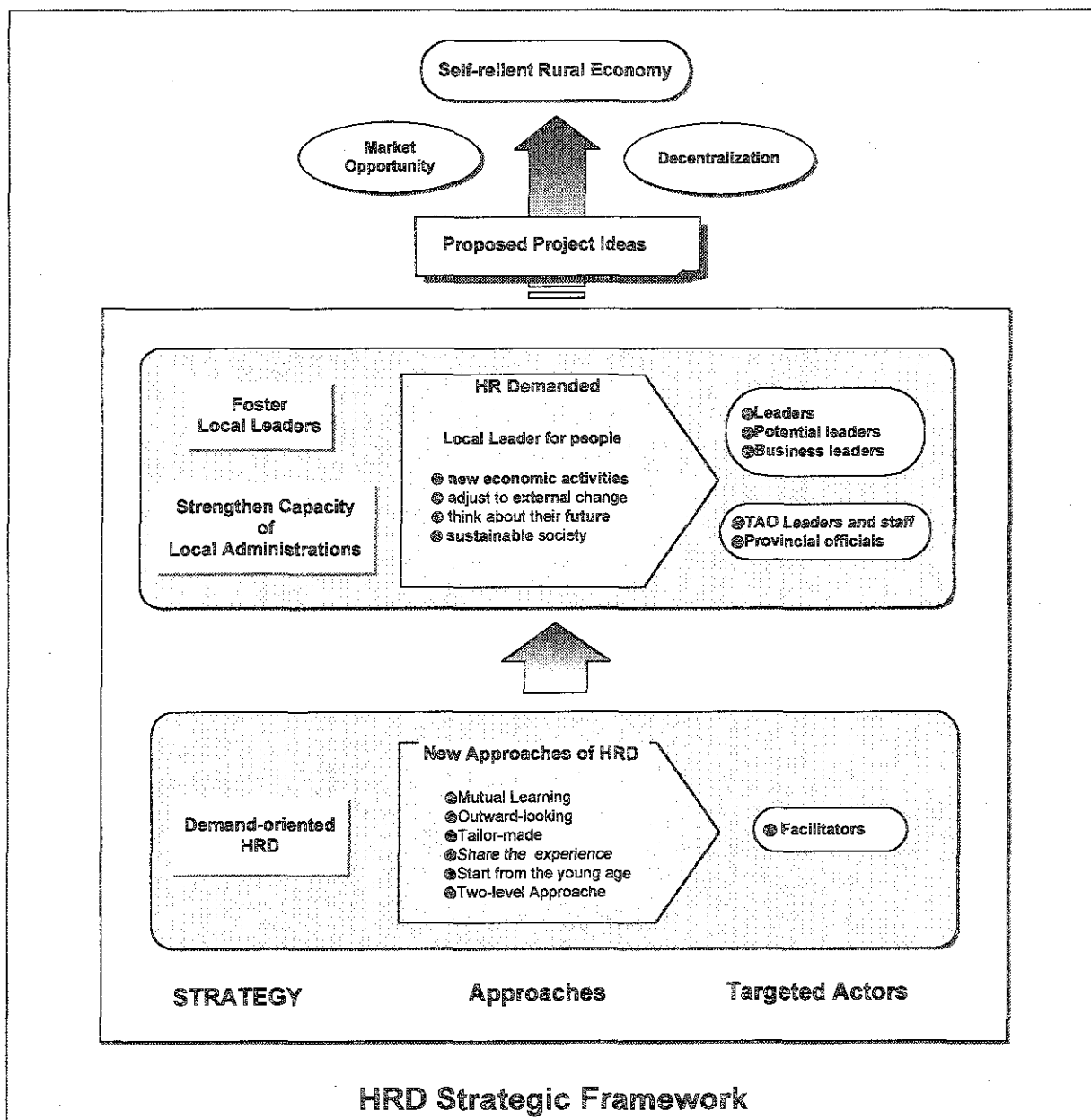


Figure: Strategic framework of HRD for rural economy

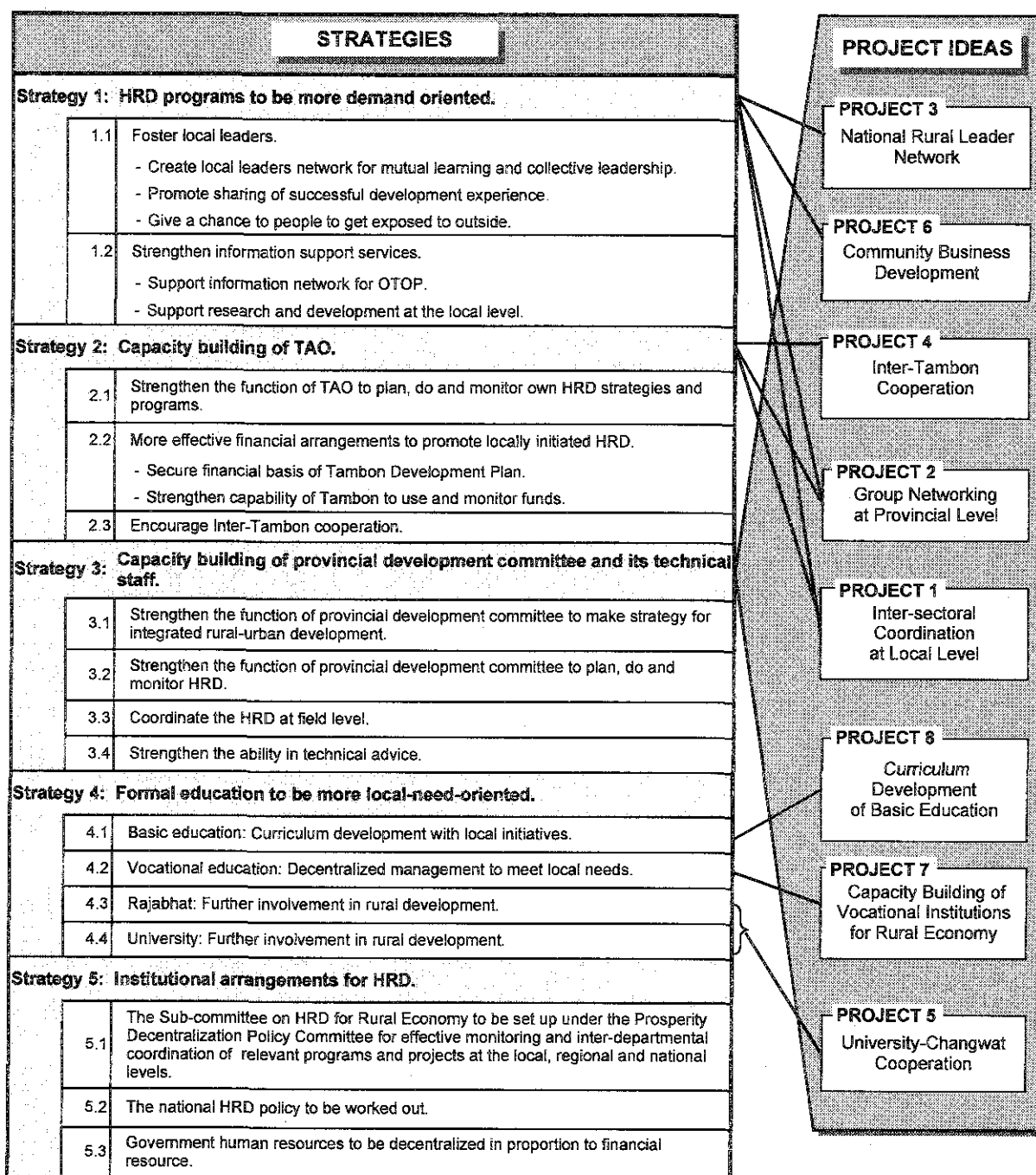


Figure: Individual Strategies and Project Ideas

Introduction

Background

Thailand has experienced the rapid economic growth up to the end of 1990s. This economic development has been driven by the development of the industrial sector with full utilization of external resources such as foreign direct investment. Consequently, rural areas and the agricultural sector have been left behind stagnated, which has caused unbalanced and Bangkok-centered development, and created the huge disparity between rural and urban areas. Through the experience of economic crisis in 1997, the people and the Royal Thai Government (RTG) understand the need for a change in national development approach toward balanced development and matured civil society. Above all, stimulating rural economy with local initiatives is given priority to narrow the regional and rural-urban disparities to achieve sustainable and balanced economy in Thailand. This largely depends on human resources in rural areas.

Past agriculture and rural development policies, however, have given greater emphasis on providing public facilities. These policies have taken top-down approaches to foster local communities and leaders as government agents rather than encouraging the local people to think their own policies for development. Meanwhile, Human Resources Development (HRD) policies have emphasized on skilled workers development to meet the manpower demand of the urban and industrial sectors rather than strengthening manpower base of the rural economies since the urban and industrial sectors have lead the Thai economy.

Government, currently, drastically changes these policies from top-down to people-centered approach and employs decentralization of administration systems to meet people's demand. The government also employs the development approach utilizing local resources rather than outside resources. These are supported by the National Economic and Social Development Plan. The Eighth Plan advocated a holistic people-centered development approach. The Ninth Plan (2002-2006) adopts the "Sufficient Economy" philosophy bestowed by His Majesty the King. The ninth plan advocates balanced development of human, social, economic and environmental resources to achieve real sustainable people-centered development.

Various initiatives are introduced by the government in line with the new direction. According to decentralization policies, government allocated sizable budget for local authorities such as "Village and Urban Fund". The government has also introduced the rural promotion programs with local initiatives such as "One Tambon One Product (OTOP)". These policies and programs have encouraged local people to think about their future and to work out their own plan with local initiative. In addition, local personnel have to undertake the new administrative functions entrusted by central ministries under administrative decentralization. However, local people are not ready to respond to these new initiatives since they have been dependent on government agencies under the governments' top-down approach. Furthermore, local administrations such as Tambon Administration Organization (TAOs) are not yet fully capable of undertaking administrative works.

Current HRD systems for rural people have been set up according to the past policy setting, which is designed for efficient implementation of top-down policies. In this context, there is a need to establish a policy framework to meet new policy direction for strengthening the

capacity of people, communities, entrepreneurs, as well as local officials so that they can promote rural economies with local initiatives. Even though the regulations and organization are to set up in line with people-centered approach, it is painstaking job to change peoples' mind and behavior. Various actors and agencies are involved in HRD for rural economies. While rural people are the target of HRD programs, supporting agencies themselves have to be changed according to the policies to meet peoples' demand-oriented system. To change system is difficult and challenging task.

It is in this regard that NESDB and JICA jointly undertake the Development Study on Human Resources Training/Development in the Context of Economy in Rural Areas (the Study).

The Study

The objectives of the Study are to develop the human resources that will promote economic development in rural areas through the identification of constraints and potential for HRD in rural areas, and the establishment of appropriate guidelines for upgrading the occupational skills of people in rural areas. International Development Center of Japan (IDCJ) organized a JICA Study Team to undertake this study during the period from February 2002 to March 2003.

The study is implemented in the following four phases:

Phase I Preliminary analysis

Phase II Identification and analysis

Phase III Provincial workshop and preparing recommendations

Phase IV Finalizing report

In the Phase I, the team visited Lampang province for a preliminary review of the actual situation and the need of people in rural area. This study delineates the whole Kingdom in four regions and selects one province from each of the four regions as a case study area. The case study provinces being Ang Thong, Buri Ram, Nakhon Si Thammarat and Lampang, were identified by the steering committee on March 5th, 2002. The team compiled the Progress Report 1 as the results of fact finding from the filed survey and reviews undertaken during the Phase I.

In the Phase II, the team visited the four case study provinces. The team had a series of discussions with the officials concerned of provincial and Amphoe administrations, people, leaders of groups, Tambon and villages.

The team, together with NESDB officials, also visited the successful village/regions in Japan in terms of stimulating rural economy such as Oyama village in Oita prefecture, One Village One Product in Oita Prefecture, and Minabegawa in Wakayama prefecture to review the HRD in rural areas in Japan. The team compiled the Progress Report 2 as the results of studies in the Phase II.

In the Phase III, the team held the provincial workshops at Buri Ram on November 1st, at Nakhon Si Thammarat on November 5th, at Lampang on November 8th, and at Ang Thong on November 12th, 2002. These workshops aimed at presenting the issues and proposal for HRD in rural economy and Japanese experience in rural development for sharing information,

exchanging views with people and officials at Tambon, Amphoe, and provincial levels, and inviting comments on the proposals. Based on these studies and workshops during the Phase III, the team compiled this Progress Report 3 in November 2002.

In the Phase IV, the team compiled the Draft Final Report (DFR) in December 2002 as the results of studies from Phase I to III. DFR is to be presented at the national seminar at Bangkok in January 2003 for inviting comments from people and authorities concerned. The final report is prepared in February 2003 where the comments by the seminar and steering committee of the study are incorporated.

The final report consists of two parts. PART I compiles analysis of rural economy and HRD. PART II is recommendations. PART I includes Chapter 1 to 4. Chapter 1 is the analysis of the rural economy. Chapter 2 reports results of the analysis of Case Study Areas. Chapter 3 analyses the HRD programs and their needs. Chapter 1 and Chapter 2 try to undertake demand side of HR, on the other hand, Chapter 3 takes a look at the supply systems of HR as shown the Figure below. Chapter 4 reports the analysis of Japanese experience on HRD in rural development. As PART II, Chapter 5 to presents Master Plan for HRD. Chapter 6 presents project ideas.

The contents and the flow of analysis of the final report are as shown in the Figure.

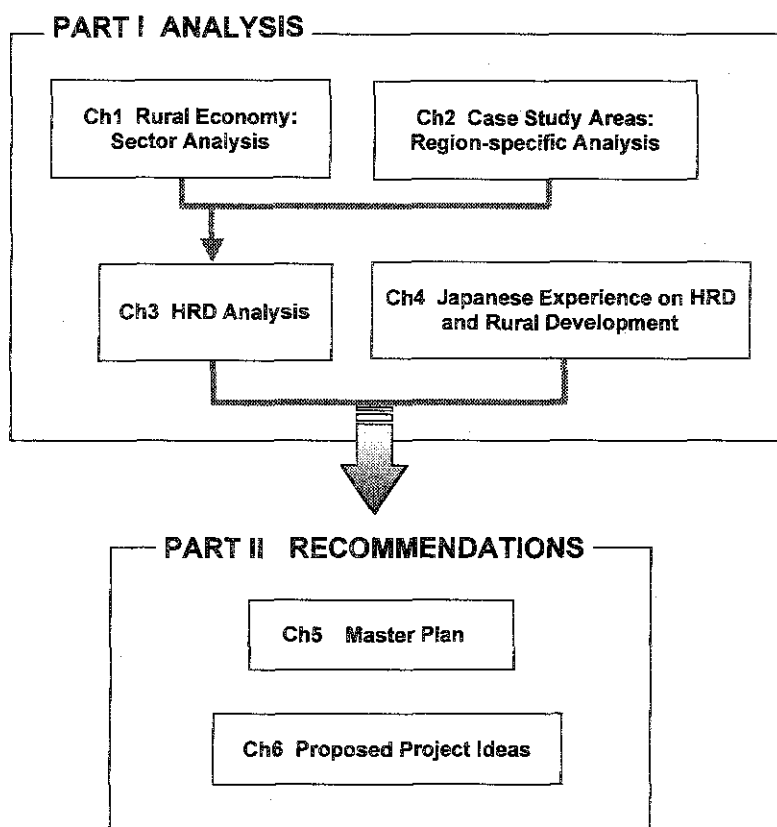


Figure: Contents and Flow of the Draft Final Report

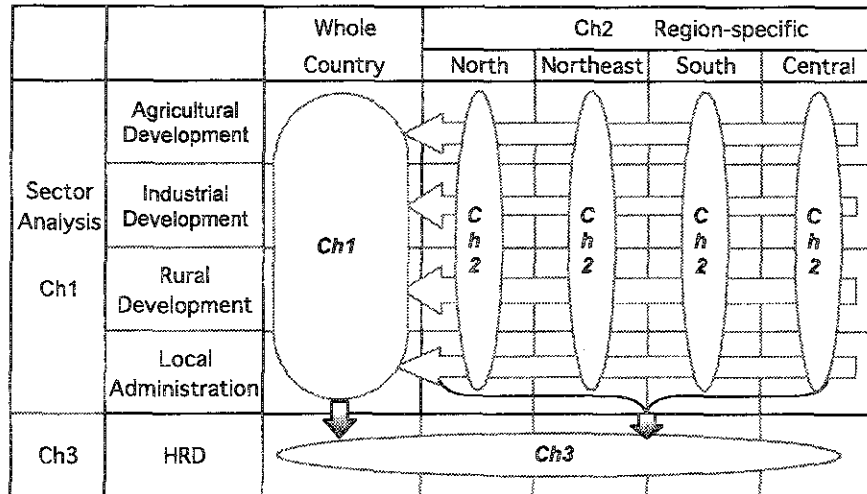


Figure: Flow of Analysis

Staff Input

The Study Team consists of the following members.

- | | |
|-------------------------|------------------------------|
| Dr. Jinichiro Yabuta | Leader |
| Mr. Paitoon Palayasoot | Agriculture |
| Mr. Masamichi Ogawa | Community Business |
| Mr. Yoshio Aizawa | Human Resource Development |
| Mr. Yasuyuki Kuroda | Local Administration |
| Mr. Hiroshi Yoshimura | Rural Development |
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PART I

ANALYSIS

Chapter 1

Rural Economy

Chapter 1 Rural Economy

The rural economy is recognized as an important sector in the society and national economy in Thailand after the economic crisis in 1997. The economic crisis is primarily a result of excessive dependence on external capitals in the development of the industrial sector that is the major source of the economic growth. Through the rapid economic growth, rural areas have been left stagnated. The experience of economic crisis has reminded people of the importance of rural economy and its need to be stimulated for the sustainable and balanced development with local resources and initiatives because of:

- Widening income disparities between urban and rural areas and among regions,
- Decline in the relative importance of the agricultural sector: need agricultural sector to be value-added and development of the non-agricultural sector in rural areas, and
- Effects of the Asian economic crisis: rural areas recognized as the important sector to underpin sustainable economic development.

Development approach is changed as seen in the National Economic and Social Development Plan. The Ninth Plan adopts the “**Sufficient Economy**” philosophy and advocates balanced development of human, social, economic and environmental resources to achieve real **sustainable people-centered development**.

The Ninth Plan also mentions: 1) society be able to cope with unexpected change under the rapid globalization and achieve sustainable development, 2) developing human resources to facilitate timely adjustment to rapidly changing conditions, 3) providing people life long learning opportunities to make people can cope with changes and be able to accumulate intellectual capital. In addition, the Plan mentions the transformation of a new national management system based on efficiency, quality of life and sustainability objective.

This chapter tries to analyze the rural economy on the major economic sectors based on the existing information and the case study. These sectors analyzed are **agricultural development** in Section 1.1, **business development** in Section 1.2, and **rural development** in Section 1.3. This analysis tries to find current trend and the future prospects, and to extract the issues to be addressed to HRD for rural economy in each sector.

In addition, the issues of **local administration** are discussed in Section 1.4 as systems to provide services to rural people. Local administrations are expected to play a further important role in HRD of rural people. Since local administration such as TAOs is given administrative works and budget from central governments by the decentralization, the capacity building of local administration to undertake these tasks is another issue.

1.1 Agricultural Development

Thailand has been known as an agricultural country for centuries and the agricultural sector is closely associated to the way of life of its people. At present, agricultural sector is still playing a vital role in Thai national economy and society. It absorbs about 40% of the total labor force, and about 50% of the national population has been engaged in agricultural sector.

The major crops cultivated in Thailand are paddy, cassava, sugar cane, maize and para rubber, while the minor crops in terms of planted area are mungbean, soybean, oil palm, groundnut, pineapple, vegetables and fruit trees. Major rice is mostly cropped in the rainy season while a small acreage of second rice is planted in the dry season in irrigated area.

Agricultural production in Thailand differs by ecological regions. Rice, maize and other cereals are widely grown in the Central Plain, the Northeast and the North, while sugar cane are mostly planted in the Central Plain and the Northeast, and cassava in the Northeast and the East. Para Rubber and fruit trees are mainly grown in the South and the East.

Thailand's agricultural sector has been faced with many changes, which result in a decline of the importance in rural economy. The rural sector, however, is still important to all society because if it is not strong and self-reliant in the long term, it will lend itself to an unsustainable society. This study puts special emphasis on HRD for rural economy. Two agendas are discussed as follows: issues Concerning the Agricultural Sector, and implication of Agriculture Condition on HRD in the Context of Rural Economy.

1.1.1 Issues for the Agricultural Sector

One of the issues is the low farm household income. Low income lowers quality of life, morality of people and impedes HRD, which narrows the opportunity to alternative income sources. This low income is the consequence of: 1) low agricultural income, 2) low level of value-added of agricultural products such as agro-processing small opportunity of non-agricultural income sources, 3) not-enough level of farmer's organization to pursue it, 4) not-targeted agricultural extension services to support farmers and farmer's organization. These key issues and not-controlled water resources to be discussed as follows.

(1) Low Agricultural Income

One of the causes of the low household income is low agricultural income. According to observations from past development, the major causes of low level of agricultural income are as follows: 1) low crop yield and unstable production, 2) decreasing relative prices of agricultural products to farm inputs, 3) low level of diversification, and 4) decrease in livestock raising.

1) Low Crop yield and Unstable Production

Since most farmland of about 75% of the total land area depend mainly on rainfall, agricultural production has been fluctuating from year to year due to weather conditions. Low yields of the major crops have been regarded as an important cause of low agricultural productivity. It can be observed that, increases in average yields of major crops during the last 30 years (1972-2001) are rather insignificant. That of rubber produce marked about

14.7% per annum increase while those of maize, soybean and rice had an annual increase exceeding 1.0%. Other crops recorded an annual yield increase of less than 1.0%.

The yield and production of major crops by region in the past 10 years (1990-2000) are presented in Table 1.1.2. Table 1.1.2 indicates that the yields of major rice, second rice, cassava and maize in the Northeast region in 2000 were only 83%, 75%, 89% and 90% of national average, respectively. This has been due to the relative poor soil fertility and low irrigation ratio in the region. Furthermore, great variation of rainfall distribution and annual rainfall has resulted in fluctuation of agricultural production year by year. In some year crop pest and disease problems are another factor that caused low crop yield and unstable production. In general, the yield per rai of the second rice crop, which is planted in irrigated areas, is higher than that of the major rice.

Table 1.1.1 Average Yield of Major Crops (1972 – 2001)

Crops	Average Yield (kg/rai)						Annual Increase (%)
	1972-76	1977-81	1982-86	1987-91	1992-96	1997-2001	
Major Rice	267	260	305	313	338	352	1.06
Second Rice	-	-	-	-	675	690	2.22 ^{1/}
Cassava	-	2,226	2,367	2,294	2,210	2,479	0.45
Sugarcane	8,144	6,302	7,195	8,211	8,095	8,808	0.27
Maize	313	312	384	397	468	550	2.52
Mungbean	126	91	103	112	117	123	-0.08
Soybean	148	133	198	207	220	229	1.82
Para Rubber	42	50	76	102	210	227	14.68

Note 1/ Ten years average

Source: Agricultural Statistics of Thailand

Despite the ascending trend of the nation's average farm yield, the comparative production efficiency of some major crops is far below those in other major producing countries. Those of rice and sugarcane are taken for example. The national average rice yield in Vietnam in 1998 was 633 kg/rai and that of sugarcane in the Philippines was 10,992 kg/rai in the same year. These indicate that more research and development supports for crops varieties, soil fertility management, pest control, irrigation facility and technology transfer are deemed necessary.

2) Decreasing relative price of agricultural products to farm inputs

Low rate of price increase observed for the major crops in recent years is another factor that has caused low agricultural productivity compared with that in other sectors. It is also one of the direct reasons leading to low farmers' income. Agricultural production prices vary widely among crops and seasons, and farm prices of almost all crops gradually increase year by year. However, the rates of increase in the average farm prices of the major crops are rather lower than those in the cost of farm inputs and consumer's price. Farm prices of selected agricultural products are shown in Table 1.1.3.

Table 1.1.2 Average Yield and Production of Major Crops by Region (1990 – 2001)

Unit: yield kg/rai
Projection 1000 ton

Yield and Production	North			Central Plain			Northeast			South			Whole Country		
	1990	1995	2001	1990	1995	2001	1990	1995	2001	1990	1995	2001	1990	1995	2001
Major Rice															
Yield	411	444	444	387	456	489	240	281	310	288	331	362	312	350	374
Production	5.472	4.975	5.196	4.581	4.290	4.492	7.106	8.001	9.046	0.894	0.885	0.818	18.053	18.161	19.552
Second Rice															
Yield	685	704	739	*377	717	714	482	430	523	362	391	457	465	694	627
Production	0.805	0.667	2.201	1.080	2.167	3.301	0.197	0.068	0.451	0.041	0.049	0.102	2.124	2.950	6.055
Cassava															
Yield	2,341	2,037	2,685	2,312	2,212	2,695	2,169	2,040	2,388	-	-	-	2,227	2,084	**2,697
Production	1.667	1.888	2.670	6.625	4.409	5.922	12.408	9.920	10.472	-	-	-	20.701	16.217	19.064
Sugar Cane															
Yield	7,980	9,035	8,797	7,534	8,580	9,141	8,826	8,883	9,102	-	-	-	7,823	8,774	9,052
Production	6.779	11.725	10.392	20.903	23.403	20.525	5.879	15.469	18.153	-	-	-	33.561	50.597	49.070
Maize															
Yield	414	475	601	435	505	609	385	426	525	311	411	411	411	471	582
Production	2.047	1.890	2.183	1.183	1.116	1.144	1.152	0.915	1.068	0.010	0.044	0.003	4.393	3.965	4.397
Para rubber															
Yield	-	-	-	-	-	-	-	-	-	-	-	-	163	220	**229
Production	-	-	-	-	-	-	-	-	-	-	-	-	1,418	2,061	2,236

Source : Agricultural Statistics of Thailand

* Drought

** Data in 2000

Table 1.1.3 Farm Price of Selected Crops (1984/85 – 2000/01)

Unit : Baht/kg

Crops	1984/85	1989/90	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000	2000/2001
Major Rice	2.299	3.662	3.81	4.83	5.634	6.973	5.608	4.607	4.665
Second Rice	2.499	3.342	4.146	4.49	4.673	6.891	5.023	4.241	4.086
Cassava	0.4	0.64	1.15	0.98	0.71	1.26	0.91	0.63	-
Sugar Cane	0.305	0.402	0.435	0.386	0.41	0.507	0.470	0.446	0.491
Maize	2.33	2.92	2.92	4.05	3.93	4.4	3.69	4.29	3.79
Garlic	8.83	10.04	18.49	30.74	16.27	18.01	24.56	24.28	22.38
Para Rubber	14.76	17.66	22.64	31.13	27.53	23.29	23.06	18.05	21.52

Source: Agricultural Statistics of Thailand

The prices of cassava and sugarcane fluctuate considerably and have remained almost at the same level in the past 10 years. Aside from the low rate of increase in the farm price of major crops as mentioned above, seasonal variation of the farm prices within a year is also quite serious. Moreover, the external changing conditions also affect farm price. In the period of Plan VIII, the annual average farm prices were higher than those in Plan VII due to the government policy to float the baht currency in July 1997. As a result, farmers obtained more cash earnings than before.

3) Low Level of Diversification Production Structure

At present, diversification in the production structure is the main policy of the MOAC, which tries to transform the agricultural production structure from traditional crops to higher value-added products in line with the local conditions, farmers' needs and market demand together with processing for agro-industry. By diversification, it means a response by farmers to choose a wider range or different set of outputs in order to reduce production and marketing risks. This will increase and stabilize their farm incomes. In general, this program can be achieved through crop diversification in irrigated areas and integrated farming system in the

rained areas.

A study by TDRI in 1995 indicates that, at the farm level, only 38% of farm holdings cultivated more than one kind of crop in 1993. Most of these farmers grew rice and other crops implying that those who diversified did so by owning at least two plots of land, one for paddy, another for other crops in the upland areas. In addition, crop diversification in the past was based on land expansion.

In the diversified production structure, the farmers have to be engaged in new activities and farming practices that they did not have any experience before. Furthermore, farmers who have been growing traditional crops for a very long time are unfamiliar with new cash crops or animal raising practices. The final decision should come from the farmers themselves with active information, technical and financial support from the relevant agencies. The following are the main factor for farmers to make decision to employ diversificaion.

- Water availability low: Tree crops and animal raising require assured supply of water all year round.
- Inadequacy of agricultural research and extension services in facilitating diversification: There is no extensive mixed farming and integrated farming research that combines the knowledge on crops, livestock and fishery.
- Increasing farm inputs: Livestock rearing, dairy farming and fruit tree growing all require large long-term investments.
- Availability of non-farm employment: Farmers prefer crops with minimum labor requirement, such as rice and cassava, so that they can be engaged in non-farm employment after the crop-growing season.

4) Decrease in Livestock Raising

In the past, buffalos played a vital role in agriculture, because farmers relied on their physical power for paddy cultivation, such as land preparation and threshing. In some areas, oxen were also used in crop cultivation. Now, the economically important livestock are buffalo, cattle, swine, chicken and duck. Draught animals have been replaced with machineries like big tractors and hand tractors. Only poor farmers who cannot afford owning or hiring tractors for their crop cultivation still keep buffaloes for animal labor. Nowadays, most livestock are raised for additional family income as well as for household consumption, as in the case of chicken, duck and swine. A decrease in buffalo heads is remarkable year after year in parallel with the decreasing demand for draught animals, which have been substituted by farm machinery. Table 1.1.4 shows livestock production by region during 1990 – 1999.

Table 1.1.4 Buffalo and Cattle Population (1990-1999)

Unit: 1000 heads

Region	Buffalo					Cattle				
	1990	1995	1999	% of change		1990	1995	1999	% of change	
				1995-90	1999-95				1995-90	1999-95
Northeast	3,778	3,213	1,509	-14.96	-53.03	2,006	2,686	2,307	33.90	-14.11
North	821	580	228	-29.35	-60.69	1,432	1,783	1,471	24.51	-17.50
Central	391	274	123	-29.92	-55.11	1,309	1,492	1,211	13.98	-18.83
South	158	114	51	-27.85	-55.26	684	861	688	25.88	-20.09
Whole Kingdom	5,148	4,181	1,911	18.78	-54.29	5,431	6,822	5,677	25.61	-16.78

The above Table indicates that the buffalo population in the country in 1990, 1995 and 1999 were, 5,148, 4,181 and 1,911 respectively. From 1990-1995, their numbers decreased by 18.78% or 3.75% per annum. From 1995-1999 the number continuously decreased by 54.29% or 13.57% per annum. Among the four geographical regions, the Northern region has the highest percentage of decreasing number of buffalo.

On the other hand, the population of cattle has been fluctuating, due largely to the price of their meat and feeds. During the period 1990-1995, the number of population increased at 25.61% or about 5.12% per annum. It, however, decreased by 16.78% or 4.20% per annum during 1995-1998. The Northeastern region occupies the highest number of buffalos and cattle followed by that of the Northern region.

One of the objectives of livestock development is the expansion in the production of livestock for improvement of the national self-supply and export promotion and to supply the nation with quality and safe livestock products at reasonable prices. However, there are some key factors that play important roles in limiting the extent of livestock raising. They are listed as follows:

- Lack of grassland
- Inadequacy of appropriate technical support
- Fodder improvement
- Artificial insemination technology
- Disease prevention
- Requiring large investments
- Fluctuation of output prices

(2) Low Level of Agricultural Processing

In general, most of the villagers' needs are related to their economic activities. It implies that rural people hope to increase their household income by improving their agricultural production, and to increase the value of their agricultural produce by agro-processing at village level. In the rural area, mainly women's groups undertake agro-processing activities. With regard to agro-processing development, the major issues concerning agro-processing in the community are as follows:

1) Instability and lower quality of raw material

Generally, agricultural production is highly dependent on the climatic and other natural conditions. Therefore, the supply of raw material in agricultural processing itself is rather unstable. In some cases, the quantity of raw material is rather low for value added agro processing. In order to improve production efficiency for stability and standard quality improvement of farming system by small-scale water resources, development with appropriate farming practices are required.

2) Inadequacy of know-how for processing industry

Group organizations in agricultural production and agro-processing production have been activated through small rural producer's groups by various concerned governmental agencies. Most producers' groups do not have adequate access to know-how in respect of the initial development stage, methods of processing, product quality development and packaging.

Moreover, suggestions on appropriate equipment and facilities to be introduced for higher production efficiency and better quality of produce are still lacking.

3) Insufficient market information at village level

Generally, the major problems encountered by the producer's groups of agro-processing productions concerning rural marketing can be listed as follows :

- Lack of up-to-date marketing information, especially marketing situation, prices of the products, market demand and quality standards for exporting.
- Inadequacy of marketing channels linking local organizations and traders or government agencies concerned as well as appropriate commodity collection and distribution centers at the village level.

(3) Farmer's Organization Not Strong Enough

The rural sector is important to all society because if it is not strong and self-reliant in the long term, it will lend itself to an unsustainable society. Moreover, the rural people are at the center of rural development, since people are the targets of government development programs.

Organizing farmers is one of the ways to undertake such activities that can diversify the income sources and add value of agricultural products such as agro-processing in rural areas. Rural organizations in Thailand are divided into two major groups, namely, government organizations and people's organization. In rural areas, provinces and districts are the centers of governmental administration and public services. Tambon and villages, however, are obviously closer to the rural people. They are therefore, the first official administrative units that the villagers come into contact with for advice and assistance in time of difficulty.

In the rural areas, there are many kinds of people's organization involved in socio-economic development and agricultural development. Among them, farmer's organization is a major one which is an important element for successful agricultural development. Farmers' organizations can provide a link among farmers and also between government agencies and farmers. Furthermore, it will create the bargaining power of the farmers themselves for their occupational management. Farmer's organization in Thailand can be divided into two major groups:

- formal organizations, which have been established mainly on the initiatives of various agencies.
- informal organizations, which have been established by local initiatives based on their needs.

At present, formal farmers' organizations can be classified largely into two types, namely, the cooperatives and the farmers' groups. Cooperatives are the ultimate goal of farmers' institutions, while farmer's groups are still at the intermediate stage waiting for further development into full-scale cooperatives. The Cooperative Promotion Department (CPD) of MOAC is responsible for promoting all the present six types of cooperatives, namely, agricultural cooperatives, land settlement cooperatives, fisheries cooperatives, consumers' cooperatives, thrift and credit cooperatives and services cooperatives.

Among the above six types of cooperatives, agricultural cooperatives are the most popular cooperatives the country over, while fishery cooperatives are quite popular in the South.

Besides, CPD is also promoting other new forms of cooperatives concerning agricultural activities such as dairy cattle cooperatives and pig raisers cooperatives, etc.

In order to improve agricultural productivity and develop leadership among the farmers, farmers' groups are promoted by the Department of Agricultural Extension (DOAE). At present, there are about 4,000 farmers' groups all over the country. They are divided into various sub-groups in accordance with the specific activities each handles, such as, paddy, upland crops, horticultures, livestock, silkworm, fishermen, mushroom culture, etc. In addition, DOAE is also promoting organization of women farmer's groups and young farmer's groups or youth groups. The women farmers' groups are engaged in imparting knowledge on agricultural and handicraft making from agricultural by-products to the members and the non-members' families and to promote agro-processing and cottage industries so as to raise the income of farm families.

For-non-formal farmers' organizations, some informal farmers' organizations are temporary informal village-based groups. They come into existence to address specific of grievances, and they generally dissolve after matters have been addressed or compromises have been reached. Besides these temporary informal groups, there are many kinds of permanent informal farmers' groups in nearly all villages for various purposes, such as improving agricultural productivity, agro-processing, cottage industry, operation and maintenance of irrigation systems.

In 1999, there are 3,344 register Agricultural Cooperatives throughout the country with an aggregate membership of 4,659,070 persons. These Agricultural Cooperatives may be classified into 8 principal types namely, General Agricultural Cooperatives, Dairy Cooperatives, Swine Raisers' Cooperatives, Para Rubber Producers' Cooperative, BAAC Customer's Co-operatives, Land Reform Area Cooperatives and Water User Cooperatives. Of all 4,000 Farmer's Group, the Paddy Groups share the largest number of 69%, followed by the Upland Crop Groups with a share of 18% and Horticulture Groups (11%). Chiang Mai, Roi Et, Ayutthaya and Nakhon Si Thammarat top other provinces in the North, the Northeast, the Central Plain and the Southern regions with the highest numbers of Farmers' Groups, which are 176, 147, 117 and 121 groups respectively. The major farmers' organizations in the four case study provinces are presented in Table 1.5.

Table 1.1.5 Major Farmer's Organization in the Four Case Study Provinces

Province	Agricultural Co-op.		Farmer's Group		Farmer's Housewives Group		Young Farmers' Group	
	No.	Member	No.	Member	No.	Member	No.	Member
Lampang	27	85,374	82	9,741	301	17,647	89	1,960
Angthong	23	41,377	56	5,135	64	1,463	61	1,545
Buriram	-	-	65	12,920	349	11,047	190	3,996
Nakhon Si Thammarat	149	99,798	132	14,967	362	10,776	73	1,622
Total	199	226,549	335	41,763	1,076	40,933	413	9,123

Source: PACO, Lampang, Angthong, Buriram and Nakhon Si Thammarat Province

Generally, the numbers of both the formal and the informal farmers' organizations are increasing. This is partly due to the ineffectiveness of the existing ones, and because it is more convenient to establish new groups with new memberships rather than improving the existing organizations or undertaking additional responsibilities. Many of the existing farmers' organizations are not strong enough due to weak self-reliance, lack of capable

leaders and insufficient technical and financial supports. The major issues concerning farmers' organizations in the country may be summarized as follows:

1) Lack of qualified staff with management capability.

Most farmers' organizations are lacking of managerial skill, business development experience and sound experience on how to improve production and marketing activities on a collective scale. Therefore, most farmer's institutions have not been able to win the trust and interest of the farmers to participate in their activities.

For building up the capability of the staff or to solve the managerial constraints, a sound HRD program for farmer's organizations with proper training arrangement are deemed necessary.

2) Lack of coordination among the supporting agencies.

Several governmental agencies are involved in farmers' organization activities. However, most agencies do not deal with the full cycle of agricultural production, which ranges from agricultural credit to production, processing and marketing. Some agencies look into political, social and cultural relationships. Because of the segmented, sectoral approach and the lack of horizontal integration of the agencies themselves, the members of most organizations are busy with too many meetings. Too frequent and time-consuming meetings with various agencies do obstruct the working schedule of the participating farm households.

3) Top-down model of establishment.

Farmers' organizations are set up according to the policy directions of the Government. Farmers tend to perceive farmers' organizations arranged by government agencies as a source of assistance through which they can get credits with low interest rates or acquire necessary farm inputs at subsidized prices. Most farmers' organizations do not emphasize enough on the real concept of organization as a means of creating and strengthening production know-how and bargaining power vis-à-vis the powerful traders and middlemen.

4) Lack of marketing information

It is common that most farmers' organizations do not have access to up-to-date marketing information and that on effective marketing channel. Hence, their planting and harvesting patterns do not normally link well with market demands and prices. In many instances, concerned agencies themselves neither have adequate information on the proper channels for obtaining production inputs of reasonable prices, nor that on potential market outlets through which the farmers can earn the highest for their produce.

(4) Agricultural Extension Services Not Targeted

Agricultural extension is an essential component of agricultural development. In terms of necessary supporting services to farmers, it covers quite a broad array of activities among which agricultural extension services, training, agricultural credit and post-harvest handling are essential for a positive impact on crop production and farmers' income. Agricultural extension services play an important role in agricultural development through transferring agricultural knowledge and technology from research institutions to the target farmers.

The Department of Agricultural Extension (DOAE) has the major responsibility for extension services and transfer of technical know-how on crop production to farmers. Crop research is conducted by the Department of Agriculture (DOA). As for livestock and fishery, research and extension activities are carried out by the same organizations, which are the Department of Livestock Development (DLD) and the Department of Fishery (DOF).

During the last 35 years, the DOAE and the agricultural extension system in Thailand evolved through a number of developmental processes. The first decade of 1967-1976 placed more emphasis on individual farmer's problems with limited transfer of technology due to shortages of budget and manpower. The decade ended with five irrigation area development projects financed by the World Bank, wherein the success of agricultural extension was highly recognized. The Training and Visit (T&V) system was introduced in 1977. The problems encountered in applying the system led to the initiation of two new projects on Improved Farmers' Planning and Development System during 1988-1991; and the Farmers Production Planning Supporting Project during 1992-1993.

The DOAE has Provincial Agricultural Extension Offices (PAEO) in every province and Amphoe Agricultural Extension Office (AAEO) in all districts throughout the country. PAEO is composed of four branches, i.e. Administration, Planning, Extension and Production Development, and Pest Control and Eradication. PAEO is primarily responsible for the promotion of crop production, encouraging the formation of farmer groups, training of farmers in group units by using demonstration farms and training facilities, and also the coordination of agricultural extension and development in the province. Each PAEO is manned with approximately 20 staff members.

In terms of manpower, the DOAE, being the largest agency rendering agricultural extension services in Thailand, had a total staff of 14,629 in 1997. There were 1,198 in central offices, 2,271 in 5 regional offices, 2,617 in 76 provincial offices, 8,543 in 792 district offices, and about 5,000 at Tambon level.

Other line agencies responsible for the extension of relevant sub-sectors and disciplines in the MOAC are: Department of Livestock Development (DLD), Department of Fisheries (DOF), Land Development Department (LDD), Cooperative Promotion Department (CPD), Office of the Rubber Replanting Aid Fund, and the Agricultural Land Reform Office (ALRO).

There also exist several agencies responsible for agricultural related extension services outside of the MOAC. Those in the Ministry of Interior are Community Development Department (CDD), Department of Public Welfare (DPW), and Department of Accelerated Rural Development (DARD). The Sugar Association and the Pineapple Association are from the private sector. The Farmer-Centered Agricultural Resources Management Program (FARM) is funded by the UNDP and executed by the FAO. Several dairy cooperatives also have their own extension services and manpower.

In terms of agricultural extension system, DOAE has changed its agricultural extension services from being the sole promoter of agricultural activities to providing farming alternatives to farmers based on their needs and consistent with local conditions and market demand in each area. However, the number of extension workers and specific technical expertise at field level are insufficient, especially in the field of horticulture and livestock.