

# Thailand's Best Practices and Lessons Learned in Development



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Volume



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Development

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# Foreword

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Thailand has made remarkable progress in the fields of social and economic development in recent decades, which enabled Thailand to become a middle-income country. According to the first Thailand Millennium Development Goals Report, 2004, Thailand has already reached almost all targets set in the Millennium Development Goals (MDGs). Therefore, Thailand has set more ambitious targets, called MDG Plus, that go well beyond the internationally agreed MDG targets. The development examples of many innovative projects under the royal patronage of His Majesty King Bhumibol Adulyadej are particularly valuable, and His Majesty's philosophy on "Sufficiency Economy" has become a key principle in Thailand's national development plan and practices.

As Thailand succeeded in its development during the past four decades, The Royal Thai Government has shared its knowledge and experiences with other developing countries, especially its neighbors in the Greater Mekong Sub-Region (GMS), through technical cooperation and human resource development. Helping the development of neighboring countries is among the highest priorities of Thai foreign policy. This has led to Thailand becoming a training and resource center for development, especially for scholars and practitioners from other developing countries.

The Thailand International Development Cooperation Agency (TICA) of the Ministry of Foreign Affairs is the main Government's coordinating body for technical and development assistance, including managing Thailand's Official Development Assistance (ODA). Working closely with TICA and supporting Thailand as an active donor of the South is the United Nations Development Programme (UNDP) in Thailand. We at TICA would like to express our gratitude to UNDP for its new initiatives to further strengthen Thailand's efforts in South-South cooperation and aid effectiveness. In recognizing the value of Thailand's development experiences and expertise, UNDP has provided generous support and finding to this publication on "Thailand's Best Practices and Lessons Learned in Development". The publication's provides an overview and some examples of Thailand's areas of expertise and development achievements (Volume 1), as well as providing and evidence-based resource mapping of national institutions in the country, called "Sources of Expertise for Thailand's Best Practices in Development" (Volume 2). We also appreciate the efforts of the Kenan Institute Asia in collecting, analyzing and summarizing Thailand's varied and extensive development experiences. It is our hope that this publication will be useful to the Thai Government as an advocacy tool to promote Thailand's development achievements and its available resource centers, as well as for strategic development cooperation programs with other developing countries and partners.

Apinan Phatarathiyanon

Director-General

Thailand International Development Cooperation Agency

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Introduction

# 1

## Volume

# Introduction

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Over the past 50 years Thailand has developed from a low-income nation that produced only basic commodities to a middle-level, diversified economy that has balanced strengths in agriculture, industry and services. At the same time, Thailand has developed expertise in public health, community development, and environmental protection. As in every other country, Thailand's development has not been without problems or setbacks, but key organizations in Thailand have learned valuable lessons from those challenges, which they are ready make available to other developing countries. These lessons come from too many areas of social and economic development to document them all in a report of this length.

**Therefore seven key areas of expertise have been identified for highlighting in this report. These are:**

- **Agriculture and rural development**
- **Development in support of a sufficiency economy**
- **Community-based economic development**
- **Public health**
- **Management of natural resources, environment, and energy**
- **Tourism**
- **Other development expertise available in Thailand**

Thailand's Official Development Assistance (ODA) consists of grants and concessionary loans provided by the Royal Thailand Government to other developing countries. The main Royal Thai Government donors of ODA are the Thailand International Development Cooperation Agency (TICA) of the Ministry of Foreign Affairs, the Export-Import Bank of Thailand (EXIM Thailand), and the Neighbouring Countries Economic Development Cooperation Agency (Public Organization) (NEDA) based in the Ministry of Finance. Thailand became a donor of ODA in 1992 after many years of providing informal technical assistance, training and scholarships to other developing countries. This official assistance is provided by the Thai government because of its long-term commitment to international development, regional integration, and most importantly, to the development of Thailand's neighbors in the Greater Mekong Sub-Region and its partners in the Association of Southeast Asian Nations (ASEAN). Thailand also supports United Nations (UN) agencies and other international development organizations headquartered in Thailand. Organizations such as the World Health Organization, Family Health International, the US Agency for International Development and the Rockefeller Foundation have regional offices in Bangkok that benefit from Thai government support and Bangkok's strategic location. Assisting the development of neighboring countries is one of the highest priorities of Thai foreign policy. Policy direction for

this assistance comes from the “Neighboring Countries Economic Development Cooperation Committee” chaired by the Prime Minister. Much of Thai ODA has been based on Thailand’s own development experience and focused on promoting public health, improving education, advancing agriculture, reducing illicit trafficking of people and narcotics, and building key infrastructure. Thailand’s program of international assistance is well-documented in the TICA publication “Thailand Official Development Assistance (ODA) Report 2007–2008.”

TICA, however, recognizes that Thailand’s value to its developing country partners and friends goes well beyond official assistance and has the potential for significant increase if the expertise available in Thailand were better known and more easily accessed. Therefore, this report is meant to provide a broader picture of Thailand’s development experience and the best practices that have evolved out of that experience. Support for this report has come from the UN Development Programme (UNDP), indicating the value that the UNDP sees in Thailand’s development experience and its interest in supporting the dissemination of that experience.

This report focuses on appropriate expertise for other developing countries that can be transferred through training, consultancy, site visits and materials. It is expected that some of this expertise transfer can be supported by UNDP and other multilateral or bilateral development agencies as well as Thailand’s ODA program. Transfer of expertise can also take place through TICA’s program “Friends from Thailand,” which supports Thai volunteers to work in partner countries. In other cases, the sources of expertise can be contacted directly for help, especially for training and site visits.

Some of Thailand’s development expertise originated from international development projects funded by international development agencies, but in almost all cases, the experience of implementing projects in Thailand has led to adjustments and refinements that make it more applicable to the developing country situation. There is also a great deal of expertise that has been developed by indigenous organizations working on their own to find creative and appropriate solutions to development problems.

Of particular importance are the efforts led by Thailand’s royal family and the personal commitment and technical expertise of His Majesty King Bhumibol Adulyadej. Truly a “development monarch,” His Majesty King Bhumibol has focused His Majesty considerable efforts, attention and resources on development for more than half a century. Those efforts have borne particular fruit in community development, small-scale agriculture, highland development, water resource management and rain-making. The impact of royal development projects has extended beyond their immediate scope because the lessons learned from those projects have been generously made available to all those interested, whether from Thailand or abroad.

The types of development expertise available in Thailand are varied and the organizations that can transfer this expertise are many. They include government agencies, institutes, community organizations, UN agencies and other international development organizations, NGOs and private companies that are located in Thailand.

The key areas of Thailand’s development experience addressed in this report are described briefly below, with more detailed information in separate sections and in the list of sources of development expertise in volume two of this report.

## Agriculture and Rural Development

With more than half of Thailand's population involved in agriculture, this sector has been of particular importance to national development. In the past 40 years, Thai farmers and agricultural organizations have used research, technology and on-the-farm learning to develop their own new techniques that have helped Thailand become one of the largest food exporters in Asia.

Farm productivity has steadily improved and better processing and storage technologies have increased the value of Thai agricultural products around the world. Thailand continues to maintain its position as the world's leading exporter of rice, rubber, canned pineapple, and tiger prawns. It is also a globally ranked producer of fish, chicken meat, tapioca, and sugar. Thai agricultural expertise ranges from high-tech methods based on cutting-edge research to practical small-farm methodologies that require little investment.

## Development in Support of a Sufficiency Economy

Following the 1997 economic crisis, Thailand sought ways to reduce the impact of global volatility on its domestic development and to ensure that the rapid change within the Thai economy did not adversely impact the natural environment or deprive the rural poor of an acceptable quality of life. This was a particular concern of His Majesty King Bhumibol and a theme in his long and successful efforts to foster development. Based on his extensive experience, His Majesty King Bhumibol has formulated what he calls the “sufficiency economy” philosophy. This approach emphasizes moderation, appropriate technology, careful management of risk and flexibility in dealing with change. Implemented in a wide range of projects and geographical areas, the “sufficiency economy” methodology has helped hundreds of thousands of people, especially those in remote areas with few natural advantages.

The Thai government incorporated this philosophy into the 2002-2006 national development plan, resulting in a positive impact on many areas of development. Royal research centers, foundations and projects provide opportunities for other countries to learn more about this valuable approach to development.

## Community-based Economic Development

Thailand's experience in community-based development is closely related to the sufficiency economy concept. This type of development emphasizes strengthening communities so they can withstand external economic shocks, such as the 1997 Asian financial crisis and the 2009 global downturn, and provide a stable base for improving the quality of life for community members. A key element of this approach is getting active and informed participation from the people so that development is based on their own needs and aspirations. This “bottom-up” type of development still needs inputs, information, technology and support from outside the community, but ensures that key decisions are under the control of the community itself. Community-based development in Thailand has led to expertise in implementing a range of critical development mechanisms

that include community enterprises, revolving funds, small-credit schemes, community information centers, sub-district administrative organizations and networks of community organizations. Of particular importance is the development of expertise in “sustainable alternative livelihood development,” local and community product promotion and community-based microfinance.

## Public Health

While much attention has been paid to Thailand's economic development over the past 40 years, improvements in public health have been at least equally striking. Infant mortality has dropped from more than 40 deaths per every 1,000 children born to only 12.5 deaths per 1,000 in 2009. In the 20 years prior to 2000, the life expectancy of men increased by 17 percent and of women by 14 percent. Effective family planning has cut the population growth rate by more than half and women no longer need to suffer from unwanted pregnancy. Despite the threats from emerging diseases such as HIV/AIDS and avian and pandemic influenza as well as increasing drug resistance of diseases such as malaria, the impact of infectious diseases has sharply decreased. A new, national, publicly-financed health system has extended affordable healthcare to virtually the entire population. Thai expertise has been developed in areas such as family planning, HIV/AIDS treatment and prevention, epidemiology, infectious disease surveillance, food safety, village health volunteer programs, health and nutrition promotion and the adoption of a universal health coverage system.

## Natural Resources, Environment and Energy

Concerns over the impact of Thailand's rapid industrialization on the natural environment has led to the development of mechanisms and expertise in the effective management of the natural environment and care for key resources such as soil, water and renewable sources of energy. The development of expertise in renewable energy and energy conservation is due to increasing concerns about global climate change. Thailand has used a combination of international expertise and its own “local wisdom” in devising an efficient national irrigation system, effective low-tech water controls, soil conservation, community forestry, national parks and drought relief.

## Tourism

Thailand's emergence as the third largest tourist country in Asia and one of the highest rated tourist destinations in the world has come as a result of natural advantages, local-international cooperation and learning from experience. Tourist arrivals have grown from less than 50,000 in 1960 to more than 14 million in 2008. These arrivals provide jobs for more than 3 million Thais and supply more than 6 percent of the GDP. Thailand, however, has increasingly developed expertise that goes beyond attracting larger and larger numbers of tourists and focuses on sustainable approaches to tourism that preserve nature and local culture while contributing to village economies.

## Other Development Expertise

In addition to expertise in particular areas of development, many organizations have significant capabilities in the design and implementation of overall and holistic development. Thailand's public and private universities have developed significant knowledge that they can transfer to the international community through degree and non-degree courses, research collaboration, and consulting. Most leading Thai universities now have international programs in English and actively seek international students. Thailand also has become a major regional center of development expertise, with numerous regional UN offices, such as the regional headquarters for UN Development Programme (UNDP) and the UN Economic and Social Commission for Asia and the Pacific (UNESCAP), and headquarters for many bilateral development agencies, such as USAID's Regional Development Mission for Asia (RDMA), located in Bangkok. A wide range of non-profit development organizations are also located in Thailand. These include international NGOs as well as local organizations such as the Mekong Institute, the Population and Community Development Association and the Kenan Institute Asia.

Thailand, therefore, has great breadth and depth in the development expertise it can offer to other countries. Much of this expertise has been hard-won from difficult experience and much of it has come from collaborating with other countries. Most importantly, the many development organizations – Thai government, international, for-profit and non-profit – understand the value of sharing their experiences with others.

Agriculture and  
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# Agriculture and Rural Development

Table of Expertise in Agriculture and Rural Development	
Expertise	Example Institution
Increasing efficiency and productivity in agriculture	<ul style="list-style-type: none"> <li>Ministry of Agriculture and Cooperatives               <ul style="list-style-type: none"> <li>Department of Agriculture</li> <li>Department of Agricultural Extension</li> </ul> </li> </ul>
Value creation for agricultural products	<ul style="list-style-type: none"> <li>National Biological Control Research Center, Kasetsart University</li> </ul>
Development of aquaculture	<ul style="list-style-type: none"> <li>Ministry of Agriculture and Cooperatives               <ul style="list-style-type: none"> <li>Department of Livestock Development</li> </ul> </li> </ul>
Development of livestock production	<ul style="list-style-type: none"> <li>Ministry of Agriculture and Cooperatives               <ul style="list-style-type: none"> <li>Department of Livestock Development</li> </ul> </li> <li>Kasetsart University</li> <li>Pon Yang Kham Livestock Cooperative</li> </ul>
Poultry product safety	<ul style="list-style-type: none"> <li>Ministry of Agriculture and Cooperatives               <ul style="list-style-type: none"> <li>Department of Fisheries</li> <li>Department of Livestock Development</li> <li>Department of Agriculture</li> </ul> </li> </ul>
Good Agriculture Practices (GAP)	<ul style="list-style-type: none"> <li>Ministry of Agriculture and Cooperatives</li> </ul>

## Sector Expertise Overview

Thailand is an agricultural country, with more than half of its population of 65 million engaged in agriculture. More than 20 million hectares of Thailand's total area of 51 million hectares is farmland. Over the past three decades, Thailand has successfully utilized innovations in agricultural research and technology to develop a dynamic agricultural sector. Through technology transfer and perseverance on the part of the private sector, the business of food production for export has flourished.

Farm productivity has increased and the quality of Thai food and agricultural products has been enhanced. Public and private investment in agricultural research and development has resulted in significant increases in yields and land productivity, enabling the expansion of Thai food and agricultural product exports to global markets. In 2007, Thailand was ranked the 7<sup>th</sup> leading exporter of agricultural products and food in the world, exporting more than \$24.7 billion worth of products.

Thailand has maintained its position as a world leader in the production and export of agricultural products such as rice, rubber, tapioca, prawns and pineapple. Thailand's master plan for agricultural development focuses on research and development to raise productivity and cut costs by using new technology to bring product quality and processing up to international requirements. It encourages farmers to use less chemical fertilizer while promoting natural alternatives and organic production. It calls for continued improvements in the management of natural resources and the environment as the base for agricultural production.

Support for the agricultural sector comes from many sources: government agencies, universities, research institutes and private organizations. Thailand's expertise in agricultural development may be grouped into five categories:

- Increasing efficiency and productivity in agriculture
- Development of aquaculture
- Development of livestock production
- Value creation for agricultural products
- Food security

## Expertise in Increasing Efficiency and Productivity in Agriculture

Increasing efficiency and productivity includes crop genetics research and development, agricultural production planning, pest management, utilization of inputs, crop choices, and fertilization research. The goal is to improve agricultural production and reduce costs so that farmers can achieve stable and sufficient income.

### Plant genetic improvement

Thailand has researched genetic improvement in all types of plants to boost crop quality and profitability for farmers. This task falls under the Department of Agriculture, but the research is carried out by universities and research institutes all over Thailand. Some of the benefits achieved through plant genetic improvement are:

- Increased yield, quality, and nutrition
- New plant varieties that are well-suited to particular geographical locations
- Plants that are suitable for harvesting and production technologies
- Plants that are tolerant of local pests and diseases

## The case of maize breeding for drought tolerance



Source: CIMMYT E-News

The province of Nakhon Sawan receives only enough rain for a single crop of maize each year. In the dry season, maize fields lie fallow, as in most of Thailand. At the Thai Department of Agriculture's Nakhon Sawan Field Crops Research Center, Pichet Grudloyma, senior maize breeder, showed two comparison plots: one well-watered and one "drought" plot, where watering is stopped for two weeks before and two weeks after flowering. Many of the experimental lines and varieties being tested at the center are the result of the Asian Maize Network (AMNET). Funded by the **Asian Development Bank**, this project has brought together scientists from the national maize programs of five Southeast Asian countries to develop drought tolerant maize varieties and deliver them to farmers.

Pichet said that the center has produced two varieties resistant to the disease downy mildew, which have also proved themselves under drought screening. The first, Nakhon Sawan 2, was released in 2006. The second, experimental hybrid NSX 042029 has been popular in farmer trials and with local seed companies. It has been shown to be drought tolerant, disease resistant, and easy to harvest by hand.

In current work under AMNET, Thai maize breeders are crossing lines from the national breeding program with new drought tolerant materials provided each year by CIMMYT, a non-profit, leading research organization for maize and wheat. "We screen for drought tolerance in the dry season and downy mildew resistance in the rainy season, and take the best materials forward each year," explained Pichet. "We now have many promising hybrids coming though."

Pichet said Thailand has also engaged in seed distribution, receiving and sharing seed from the AMNET member countries, and testing the varieties on the drought screening plots at the Research Center. This collaborative approach is a big change. "We've learned a lot and gained a lot from our friends in different countries. We each have different experiences, and when we share problems we can adapt knowledge from others to our own situations," he said.

The center has included ease of hand harvest as another trait to consider in their breeding program, after realizing how important it is to farmers.

Almost all Thai maize farmers grow improved hybrid varieties. "Our station is now very good at working with drought," Pichet said, "and we'll continue cooperation and providing germ plasma. We already have plans for collaboration with China and Vietnam."

(Adopted from: New maize and new friendships to beat Thai drought, CIMMYT E-News, Volume 5 no. 3, March 2008, <http://www.cimmyt.org/english/wps/news/2008/mar/thailand.htm>)



Source: Department of Agriculture

## Pest management



Water chestnut sweeping net  
Source: IPM DANIDA project

Thailand has used the area-wide approach of pest management to identify several insect pests and pest complexes for research and management. Pests are a major threat to the main rice crop as well as to field crops, vegetables, plantations and fruit trees. These included some invasive alien species, insects, weeds and snails.

Several pest management tactics and strategies have been invented, employed and integrated into Thailand's "integrated pest management – IPM" system. Area-wide pest management is one of the key pest management strategies used. It provides a long-term planned campaign against a pest insect population in a relatively large predefined area with the objective of reducing the insect population to a non-economic status.

Other non-insect agricultural pests such as weeds, plant diseases, nematodes, rats and birds are also susceptible to the area-wide concept. It is applied against an important insect pest over a relatively large area involving many individual producers of the same or similar crops.

In Thailand, the program normally uses specialized methods of pest control that are not effective on an individual farm basis. These specialized techniques include the use of sterile insect technique (SIT), male annihilation, natural enemies (parasites or parasitoids and predators), trap crops, host plant resistance, mating inhibitors, pesticides, and physical, chemical, biological and legal or regulatory control methods; they are implemented by Thai expert organizations in integrated pest management.



Ladybird adult aphids  
Source: IPM DANIDA project

In Thailand, SIT facilities are provided through the Office of Atoms for Peace. The National Biological Control Research Center at Kasetsart University and its regional center located at all key agro - geographical areas of the country are mandated to implement biological control of insect pests and weeds. The Department of Agricultural Extension helps assist farmers to combat insect and other plant pests.

## The case of area-wide integrated control of fruit flies

Two species of fruit flies with an economic impact occur in Southeast Asia: the Oriental fruit fly, *Bactrocera dorsalis*, and the guava fruit fly, *B. correcta*, *Bezzi*, the key pest attacking mango trees. These two species attack a wide range of soft fruits, and are classified as a primary quarantine pest for many of Thailand's trading partners.

An integrated pest management program based on the sterile insect technique was begun in 1987 to suppress the fruit fly population in two areas. For this program, Thailand's Department of Agricultural Extension (DOAE) worked in close collaboration with the International Atomic Energy Agency



Source: Department of Agricultural Extension

(IAEA) of the United Nations and the Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture. The objective was to improve the quality of fresh fruit through environmentally friendly techniques and strategies.

A small pilot facility capable of producing 40 million sterile pupae per week was set up in Pathumthani province. Both fruit fly species were mass reared in separated rooms. These sterile insects were used in the first pilot project using SIT in Ratchaburi province. Sterile pupae and adults were released at fixed release points. In the first pilot area, the integrated approach was effective in controlling fruit flies by reducing damage from over 80 percent before program implementation to an average of less than 3.6 percent in the past five years (2000 to 2004). However, after the SIT was stopped in year 2005, damage increased to 17 percent.

In Phichit province, where the control program was carried out from 2003 to 2005, fruit fly infestation was reduced from 43 to 17 percent. This opened the possibility for exports of mangoes produced in these selected pilot areas to some of the most stringent and lucrative markets in the world, such as Japan. An economic feasibility study conducted in 2002 clearly shows that fruit fly control in Thailand using area-wide SIT could be expanded to other production areas with significant economic returns. The program in Phichit province was unusual since most field operational costs were covered by growers. Similar programs could be applied in any country with similar fruit fly problems.

## Expertise in Value Creation for Agricultural Products

As Thailand's economy has gained in sophistication, it has developed the expertise to move from production of basic agricultural commodities to value added processing of those products. In addition, Thailand has sought to further increase value through effective marketing and brand creation. Some examples are:

## Coconut oil extraction

The coconut palm has long been a source of food, with different parts of the plant providing value in their basic state, including the meat, the husk, the fronds, the water and the cream and oil that can be extracted from the meat.

Thailand's Department of Agriculture, especially its Product and Processing Research and Development Group and its Postharvest and Product Processing Research and Development Office, has studied various techniques of coconut oil extraction. This work has resulted in higher quality coconut oil as well as improvement in oil yield and reductions in processing time. Virgin coconut oil helps moisturize skin, so the oil can be used in numerous cosmetics products as well as liquid soap and massage oil. Other research has demonstrated how powdered dry coconut meat can be used in place of wheat flour in some food products. The Department of Agriculture has also experimented with low technology processing that can maximize farm income, even in remote areas.



In addition to coconut oil and coconut flour, the department has developed processes for creating products such as coconut vinegar, coconut sugar, and distilled alcohol. These technologies are available for transfer to farmers and entrepreneurs in both Thailand and other countries.

## Expertise in Development of Aquaculture

Fisheries play an increasingly important role in food security and the economy of Thailand. Freshwater aquaculture is mainly for domestic consumption. Small-scale freshwater aquaculture is still very crucial in providing the rural poor with high quality protein food for home consumption.

A major factor limiting the promotion of aquaculture practices in Thailand is the poor economic return from investments rather than the lack of production technology. Advanced aquaculture techniques, including intensive pond and cage farming, have been developed and are available, particularly for freshwater aquaculture. Below are some of the examples.

## Tilapia culture using natural materials

Thailand has made good advances in the production of Tilapia, a species of freshwater fish that is easy to breed, tastes good and can live in both fresh and brackish water. To reduce the costs of raising Tilapia, Thai experts have tested methods of Tilapia production using locally available, natural materials. Such materials reduce potential dangers from chemicals and reduce environmental impacts, and include natural fermented fertilizer and “Efficient Microbes” (EM) solutions. Natural fermented fertilizer is made by mixing dry cow dung with rice husks, rice bran, EM solution, molasses and water. EM is a natural technology developed over 25 years that is used around the world. It is based on lactic acid bacteria (commonly found in yogurt and cheeses), yeast (bread and beer), and phototrophic bacteria (related to blue-green algae).

## Cultured fresh water catfish (*Clarias macrocephalus*)



Source: Department of Fisheries

The fresh water catfish (*Clarias macrocephalus*) is a widely available, local fish in Thailand. It produces meat that is tender and tasty. The Thai fishery department has bred this fish with African catfish to get bigger variety called big aui. This kind of fish has a very high growth rate, great resistance to disease and receives a good price in the market.

Big aui can be grown in various kinds of ponds, such as earth ponds, concrete ponds, cages, and plastic ponds. The fishery department has developed low cost, high production processes to grow big aui in plastic ponds. After three to four months, big aui reach 100-200 grams, with a survival rate of 80-90 percent. Even small ponds can yield 30-50 kilogram fish. The key lessons learned from the Thai experience in farming big aui include:

- Avoid overloading the pond
- Cover half the pond to protect it from direct sunlight
- Closely observe the fish for abnormal behavior that may indicate illness
- Do not overfeed the fish
- Natural feed such as worms, ants and termites is just as effective as commercial feed

(Contact Information: Fisheries Technology Extension Research and Development Group, Department of Fisheries, Ministry of Agriculture and Cooperatives)



Source: Department of Fisheries

## Expertise in Development of Livestock Production

Thai experts have developed various techniques to improve livestock production, including breeding, standard production procedures, animal epidemic control, and animal feed.

## Cattle production: Thai – French Natural Beef

The production of beef in Thailand is increasing in response to consumer demand. Thailand, although historically not a major beef-producing nation, has developed improved techniques in recent years. Livestock production has been particularly successful in northeastern Thailand, where limited rainfall and sandy soils make the land unsuitable for traditional rice cultivation. The government set up the Animal Breeding Promotion Center (ABPC) to pass on best practices in livestock production to local farmers. The ABPC joined with experts provided by the French government to develop the Thai-French Natural Beef system. In addition to expertise, the French helped the center improve local breeds by crossbreeding local cattle with European breeds.

Thai-French Natural Beef begins with the selection of cattle breeds, feeds and health management, and then goes on to quality slaughtering, processing and storage. The standards required of Thai-French Natural Beef are maintained through a registration system that covers artificial insemination, disease protection and feed that is guaranteed free of hormones and antibiotics. A computerized traceability system tracks the origins and care of each animal. Farmers whose animals meet the standards are provided with good prices that consider weight and marbling of the carcass.

## The case of Pon Yang Kham beef

In Sakhon Nakorn province, the Pon Yang Kham Livestock Cooperative farms are some of Thailand's best beef. Pon Yang Kham uses the Thai-French Natural Beef system based on a breeding program using two of the best French breeds – Charolais and Limosin – interbred with hardy local breeds.



Source: Pon Yang Kham Livestock Cooperative

Col. Matana Osothongs, Marketing Director of Pon Yang Kham Livestock cooperatives, said the cooperatives wanted to compete with imported frozen beef, targeting high-end customers. Operation began with 38 cows worth about 400,000 baht in 1981, and now numbers 5,694 head of prime cattle, worth more than 240 million baht.

Pon Yang Kham cattle are fed with chemical-free, natural feed. Members grow their own grass for feeding cattle. The cooperative provides members with 12 percent crude protein concentrate, which consists of cassava, rice bran, palm kernel meal, molasses, urea, salt, shell, limestone and rock phosphate. No hormones or growth promotants, antibiotics, animal products, imported feed ingredients or artificial vitamins are allowed.

Members look after their cattle by following the advice of veterinarians and extension workers from the cooperative who provide information on vaccination, parasite control and disease treatment. If cattle are sick, the member must report the illness immediately to the cooperative. Cattle are usually fattened to at least 600 kilograms. The cooperative examines the quality of the fattened cattle and individual health records before slaughtering. Fattened cattle are slaughtered and cut in hygienic and standard slaughter house. Carcasses are aged at 3° C for 7 days and are then marbling scored before transport to Bangkok. Carcasses are aged for another 14 days before sale. The strengths of Thai-French Natural Beef are tenderness, high marbling, preferred flavor, and safety through an effective traceability system. This system includes all records of cattle birth, feeding, health management, quality of carcass and certificate of source. Codes on beef packaging can then be linked to a data base with all the key information. The traceability system enables better control of beef quality, feedback on the cattle raising system and assurances of meat safety. For more than 27 years, 'Thai-French Natural Beef' has meant quality Thai beef. The Pon Yang Kham Cooperative is a model of how small scale farmers can work together to produce quality beef under a good management system that has provided good and stable livelihoods to farmers in a once poor area.



Pon Yang Kham's traceability system links animals to final products  
Source: Pon Yang Kham Livestock Cooperative

## Expertise in Poultry Product Safety

The poultry industry in Thailand has grown significantly in the last 30 years in order to meet the demands of both domestic and export markets. Chicken farming has been transformed from informal farmyards to large-scale farms with fully integrated systems. According to a 2006 report from the Ministry of Agriculture and Cooperatives, Thailand has 147 breeder farms, 7,456 broiler farms and 2,188 laying farms rearing a total of more than 234 million birds. In 2006, Thailand exported 272,630 metric tons of cooked chicken meat and 7,237 tons of cooked duck meat. The outbreak of Avian Influenza in 2004, however, has almost completely ended the export of fresh poultry meat. The disease has caused serious economic losses to farmers and the poultry meat processing industry. The Thai government established a poultry production plan to safeguard consumer health and meet the requirements of importing countries. It has also issued a series of regulations on quality and safety standards for poultry that includes:

- Broiler Farm Standard (2002)
- Chicken Breeder Farm Standard (2003)
- Poultry Hatchery Standard (2003)
- Layer Farm Standard (2003)
- Duck Breeder and Duck Farm Standard (2003)
- Regulation on Traceability of Livestock Products (2003)
- Control Measures on the Detection of Prohibited Substance in Feed, Veterinary Drug or Residues in Poultry (2003)

The Ministry of Agriculture and Cooperatives has developed Standard Operating Procedures (SOPs) for poultry farmers that set requirements for farm accreditation, procedures for farm inspection and supervision of registered veterinarians.

The overall outcome of regulations and SOPs has been to establish 'good agricultural practice', 'good veterinary practice', 'good hygienic practice' and biosecurity.

## Expertise in Good Agricultural Practices (GAP)

Thailand declared 2004 as the year of food safety as part of the national strategy on food production, called the "the kitchen of the world" strategy. This strategy included a "Road Map of Food Safety" which provided for the safety of agricultural inputs, production at farm level, control of crop protection products and quality crop production. Certification of Good Agricultural Practices (GAP) ensures these key elements of safety and reduces the burden of government inspection. Farmers who fulfill the requirements of the national GAP program can label their products with GAP logo. In addition, a regional GAP program in the western part of Thailand (known as the Western GAP cluster) has developed Thai GAP standards based on Global GAP Standards.

The Department of Agriculture has set up a national GAP system for agricultural production and is responsible for control and inspection. National GAP standards have also been developed for livestock and fisheries. Farmers who apply for GAP certification are assessed for production processes (especially appropriate use of agrochemicals). The standard contains eight elements:

1. Safety of water used
2. Site safety and sanitation
3. Use of agrochemicals
4. Product storage
5. Data records
6. Pest-free products
7. Quality management
8. Harvesting and post harvesting handling

The standards also ensure that all stages of production, processing and marketing are subject to inspection and all records are available. The objectives of the GAP program are to ensure that food crops produced in Thailand are safe, wholesome and meet high standards while ensuring the safety of growers and minimizing adverse impacts on the environment. By May 2008, nearly half of Thailand's 363,946 registered farms were certified for GAP standards, specialized for fruit vegetables, swine, poultry, cattle and aquaculture.

## The case of western Thailand GAP for fresh vegetables

Thailand is one of the world's leading exporters of high value fresh vegetables, providing 85 percent of the world market in baby corn and serving as the world's 7th leading exporter of asparagus. These exports faced increasingly stringent food safety and quality requirements from foreign markets, which caused difficulties for exporters. Problems with toxic residues were a particular challenge. A cluster of small-scale vegetable farmers, vegetable processors, exporters, government agencies and university agricultural experts worked together to analyze the problem. Under a "cluster development" development program funded by USAID, supported by TICA and managed by the Kenan Institute Asia as part of the Thailand Competitiveness Initiative, the project cluster decided to use the GAP standard, as it was the most effective way to eliminate residues without the expense and delays of government inspection of export shipments.



GPA trainers and farmers in the field  
Source: K.I. Asia

The cluster, which included Kasetsart University, Thailand's leading agricultural university, helped establish the Thai GAP based on GLOBALGAP. University experts worked with the Ministry of Agriculture and Cooperatives and the Ministry of Commerce to develop training materials in Thai and establish a training program that reached tens of thousands of Thai farmers. The cluster cooperated with European supermarket chains who are the biggest purchasers of Thai fresh vegetables to review the standards.

From this beginning in one region of the country, the use of GAP standards has expanded nationwide under the Ministries of Agriculture and Commerce, with the private sector remaining an influential partner in the certification. The Thai GAP standard is now overseen by the Thai Chamber of Commerce and the Board of Trade of Thailand. Certification provides permission for products to have a Q (for quality) logo on their packaging. The Q mark is a legally registered certification mark that provides assurance that the produce is of high quality and safe for consumers. A 20 digit code appears below the Q mark to enable the produce to be traced back to a particular farm.

(Sources: Development of Good Agricultural Practices (GAP) for Fruit and Vegetables in Thailand By Wbulwan Wannamolee Senior standards officer Office of Commodity and System Standards Accreditation National Bureau of Agricultural Commodity and Food Standards.)

## Good Aquaculture Practice (GAP): shrimp culture

Thailand is a major exporter of marine shrimp, but the industry has had to overcome production and marketing problems in order to succeed. Pollution and disease led to major losses in the industry and poor environmental management led to destruction of natural mangrove forests in low-lying coastal areas. The government's Department of Fisheries (DOF) has helped shrimp farmers overcome these problems and improve the entire production process to meet international standards. Guidelines have been established for every phase: from hatchery and farm rearing through processing and finally shipment to the consumer. These DOF

guidelines, known in the industry as the “Code of Conduct” (CoC), provide comprehensive standards for safe and environmentally sound shrimp production.

The CoC began in 1998 with assistance from the World Bank, which provided a consulting company to set up workshops with operators to develop the CoC. The three main components are an operational guideline and manual, a certification process and market incentives for shrimp produced under the CoC.

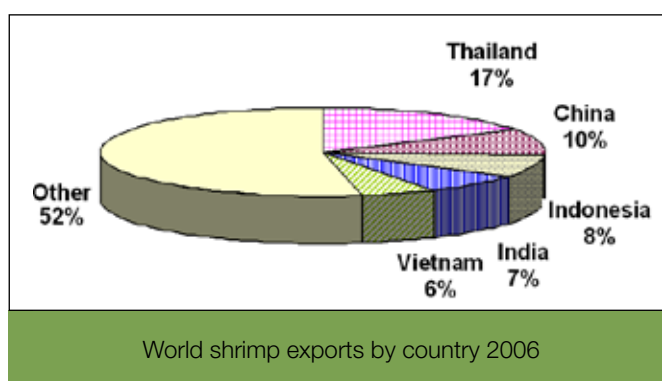
All processes on the shrimp farm must be examined by DOF auditors for compliance with the CoC for Responsible Fishery, with guidelines on aquaculture from the UN Food and Agriculture Organization and the ISO14001 standard for Environmental Management System (EMS). Shrimp transporters and processors must comply with international health and safety standards and must provide traceability of products. DOF also certifies marine shrimp feed and issues licenses to certified producers and importers of aquatic feed. Random checking is carried out to ensure feed quality, and antibiotic inspection is employed to detect the presence of prohibited antibiotics. Government inspectors also inform shrimp farmers, feed producers, processors and manufacturers, and exporters about control and prevention of antibiotic residues in shrimp products.

To reduce diseases, Thai experts have developed the “Closed Shrimp Culture System.” This is a shrimp culture management method in which, to prevent pond contamination, farmers do not add water from natural sources after release of the shrimp fry (shrimp seeds). Thailand has also experimented with the “Biological Shrimp Culture System,” which is an alternative method of managing shrimp culture problems. This system uses biological organisms such as bacteria, phytoplankton, zooplankton, shellfish, fish, and benthic invertebrates to control excess organic wastes and nutrients in shrimp ponds.

Thailand’s National Center for Genetic Engineering and Biotechnology (BIOTEC) has supported research on the prevention and treatment of viral and bacterial diseases affecting the shrimp industry since the early 1990s. This has included research on the shrimp immune system and shrimp pathogens. This research has led to the development of many techniques for the detection of pathogens by using highly sensitive and specific methods which have been used to effectively monitor and test seed stocks before pond stocking. These techniques are also useful for monitoring production ponds. Molecular studies to assist the development of fast-growing domesticated, disease-resistant stocks are still in relatively early stages.

Under the CoC program, DOF has established demonstration farms in Rayong, Chantaburi and Songkla to provide hands-on training for farmers as well as on-going practical research.

Thailand now supplies 20 percent of the world market in shrimp and prawn, and for nearly a decade has been the world’s leading exporter of black tiger shrimp, exporting approximately 250,000 tons of shrimp worth more than 100 billion baht per year. More than one million people are employed directly or indirectly by the shrimp industry. According to a Thai national survey, there are more than 800 qualified Thai specialists



involved in shrimp and shrimp product research. They have produced over 300 international publications on shrimp. In addition, there are seven universities that provide courses and research programs focusing on shrimp.

### **The case of marine shrimp farming at Kung Krabaen Bay**

The Kung Krabaen Bay Royal Development Study Centre in Chantaburi Province was established in 1981 in order to develop the fisheries, mangroves and other agriculture activities in the coastal area of the province. Its main work is promoting good shrimp culture practices for farmers in the deteriorated mangrove forest reserve areas around the bay. The development of black tiger shrimp culture expanded rapidly in the 1980s, but was soon followed by disease outbreaks, poor water quality, slow growth rate, low survival rate and low production. Improvement of shrimp culture practices was needed.

The Royal Development Study Centre helped farmers change from the open system, characterized by low shrimp density and large volumes of water exchanged with natural waterways, to the closed system which has little or no water exchange during the culture period. The Centre helped design a seawater irrigation system which pumps high quality water from the Gulf of Thailand through a system of canals into the shrimp culture farms of the area. The system also treats effluent water from the ponds before it is discharged into the bay.

Key tasks of the Study Centre were to produce quality shrimp fry and to certify the shrimp breeds. The Centre selected broodstock to produce specific characteristics of black tiger shrimp. This selection process raised egg quantity and quality and produced shrimp fry that grew quickly and resisted disease. The Centre undertook analysis of genetic variation and genetic markers in order to develop virus inspection techniques serving shrimp farmers. The Centre provided training and dissemination of shrimp farming knowledge as well as sea grass and mangrove conservation. In addition, it provided credit for shrimp farmers and quality shrimp operators who have won the CoC or GAP certifications so they could expand production.

As a result of these changes and advances, shrimp farmers in Kung Krabaen Bay have reduced their risks of crop failures, generated higher incomes and improved their living conditions. The more sustainable practices have reduced encroachment into protected mangrove forests. This has led to preservation of important breeding and spawning areas for many aquatic species.



Development in Support  
of a Sufficiency Economy

1  
Volume

# Development in Support of a Sufficiency Economy

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## Sector Expertise Overview

As in many countries, the initial target of Thailand's development was to boost economic growth with Gross Domestic Product (GDP) as the principal indicator. From 1975 to 1996, GDP growth averaged over 8%, largely due to exports of manufactured goods produced by companies using foreign technologies and foreign investment capital. Thailand was able to graduate from the World Bank's poor countries list. This success in increasing GDP, however, was due, in part, to practices that were not sustainable. Rapid urbanization and industrialization took place without sufficient care for the economy and environment. Air and water quality declined, with impacts on health and natural inputs for agriculture, which still supported the majority of the Thai population. Rapid economic growth attracted huge amounts of global capital and regulations were liberalized, exposing the financial system to much greater impacts from external financial forces. Much of the global capital attracted to Thailand was in the form of short term investment and short-term debt, exposing the country to much greater financial risks, including foreign exchange risk. This risk was largely unrecognized and unregulated. This led to the creation of a 'bubble' economy.

Attacks on the baht by international currency speculators burst the 'bubble' economy and plunged Thailand into economic crisis starting in 1997. The value of the baht fell 40 percent, sharply increasing value of unhedged, dollar-denominated debt. Companies that had over-invested due to the easy availability of funds had to cut back sharply. Unemployment rose; the stock and real estate markets collapsed; most of the country's financial institutions were technically bankrupt. GDP shrank by more than 10 percent.



Source: Office of the Royal Development Projects Board

This crisis led to a re-examination of Thailand's growth strategies. While regulatory reform in business and finance was an important part of the recovery, people also looked for a deeper philosophy for economic growth that would move the focus from GDP growth to a more balanced, holistic approach. Thailand needed a greater emphasis on longer-term, more sustainable measures of growth that placed importance on the preservation of the natural environment, reduction and better management of risk, higher quality education, grass-roots democracy and a higher quality of life.

Many Thai people wanted to move the focus away from simple growth in economic activities of any kind (GDP) to those that made real improvements in people's lives.

Thailand has now developed a successful approach to holistic development that is particularly well-suited to rural communities seeking to provide stable, healthy lives to the poor, but can also be applied to many aspects of the advanced industrial and service sectors. This approach, called the “sufficiency economy” philosophy, evolved from the numerous rural development projects led by His Majesty King Bhumibol Adulyadej. This development path focuses on moderation, appropriate technology, careful management of risk and flexibility in dealing with change. The “sufficiency economy” approach has improved the lives of hundreds of thousands of people, including many in remote areas with few natural advantages. This approach has sometimes been confused with “self-sufficiency”, but this is incorrect and arises from difficulties in translating the Thai phrase for sufficiency - “paw piang.” This phrase is better understood in terms of economic moderation or having enough for a good life while ensuring that this sufficiency can be maintained, despite unexpected change, for the long-term future.

In his addresses in 1997 and 1998, His Majesty King Bhumibol explained that the “sufficiency economy” is a philosophy that provides a guide to conducting life at individual, family and community levels. At the national level, the philosophy is consistent with a balanced development strategy that would reduce the vulnerability of the nation to shocks and excesses that may arise as a result of globalization and excessive risk. “Sufficiency” means moderation and provides sufficient protection from internal and external shocks. To achieve this, the prudent application of knowledge and appropriate technology is essential. In particular, great care is needed in the application of theories and technical know-how and in planning and implementation. It also emphasizes ethical conduct, particularly for public officials, academics, business people, and financiers. His Majesty King Bhumibol's view is that a balanced approach, combining patience, perseverance, diligence, wisdom, and prudence, is indispensable to cope appropriately with critical challenges arising from rapid socio-economic, environmental and cultural change occurring as a result of globalization.

The philosophy entails three important principles:

- Moderation – finding the middle ground between real needs and extravagant wants
- Reasonableness – understanding the consequences of actions taken

- Resilience through risk reduction and management – building the ability to endure shocks and adjust to external change, sometimes translated as “self-immunity”

In addition to these three components, two conditions are necessary to allow the Sufficiency Economy approach to function well. These conditions are:

- Knowledge – making use of tested understanding and appropriate technology
- Integrity - honesty, tolerance, perseverance, readiness to work hard and refusal to exploit others.

His Majesty King Bhumibol stresses that development must be accomplished step by step. It should start with building the economic basis for the people to have enough to live on and enough to eat. Once that basis is secure, more complex and larger scale developments can be sought.

Thailand's National Economic and Social Development Board (NESDB) used the philosophy of sufficiency economy as the guideline for the development in the Ninth National Economic and Social Development Plan, which covers the period from 2002 to 2006. The Plan provides guidelines for sufficiency at various levels.

At the family or individual level, each individual should be responsible for their daily conduct, and seek to lead a happy and moderate life. One should seek to raise oneself and his family to a sufficient level, while being fair and generous to others.

At the community level, people should participate in community activities, join in the community decision-making process, develop mutual learning processes, and apply appropriate technology in community development. The applied technology and know-how should be economical, simple, and locally available. The community must learn to apply what is available in the surrounding area to solve problems without having to rely on risky investment or the use of complicated technology that may require service or components that are expensive or hard to find.



Source: Office of the Royal Development Projects Board



Harvesting tilapia from a pond  
Source: Office of the Royal Development Projects

At the national level, a holistic development process should be promoted to create balance and sustainability.

Development should be based on available social, economic, technological and material resources. The types of economic activity promoted should be decided only after careful analysis of market and production risks and should emphasize the use of locally available materials and skills. Satisfying local demand should take priority over trying to meet global market demand. Strategies to lower risks should be developed and employed. Low risk, low return

activities should be preferred to high risk, high return activities in a fast-changing world. Over-investment and over-leveraging should be avoided because they reduce the ability to adjust to sudden change. The country should have careful planning to keep pace with changes in the world. Costs and risks to natural resources should

always be carefully considered in such plans. Investment must not be limited to activity with quick returns, but should be allocated to social capital such as the educational system.

Local wisdom should be used to create innovation and technology that is appropriate, economical and simple to use. The purpose is to reduce imports of technology and dependence on other countries as stated in a speech by His Majesty:

“Apart from advanced technology for use in huge productions for tremendous outputs, we should seek simple technology that businesses with low capital can conveniently and practically apply.”

*(p. 135, Commemorative Book: Buddhist Contributions to World Peace and Sustainable Development 2006, Mahachulalongkornrajavidyalaya University.)*

## Sustainable Agriculture

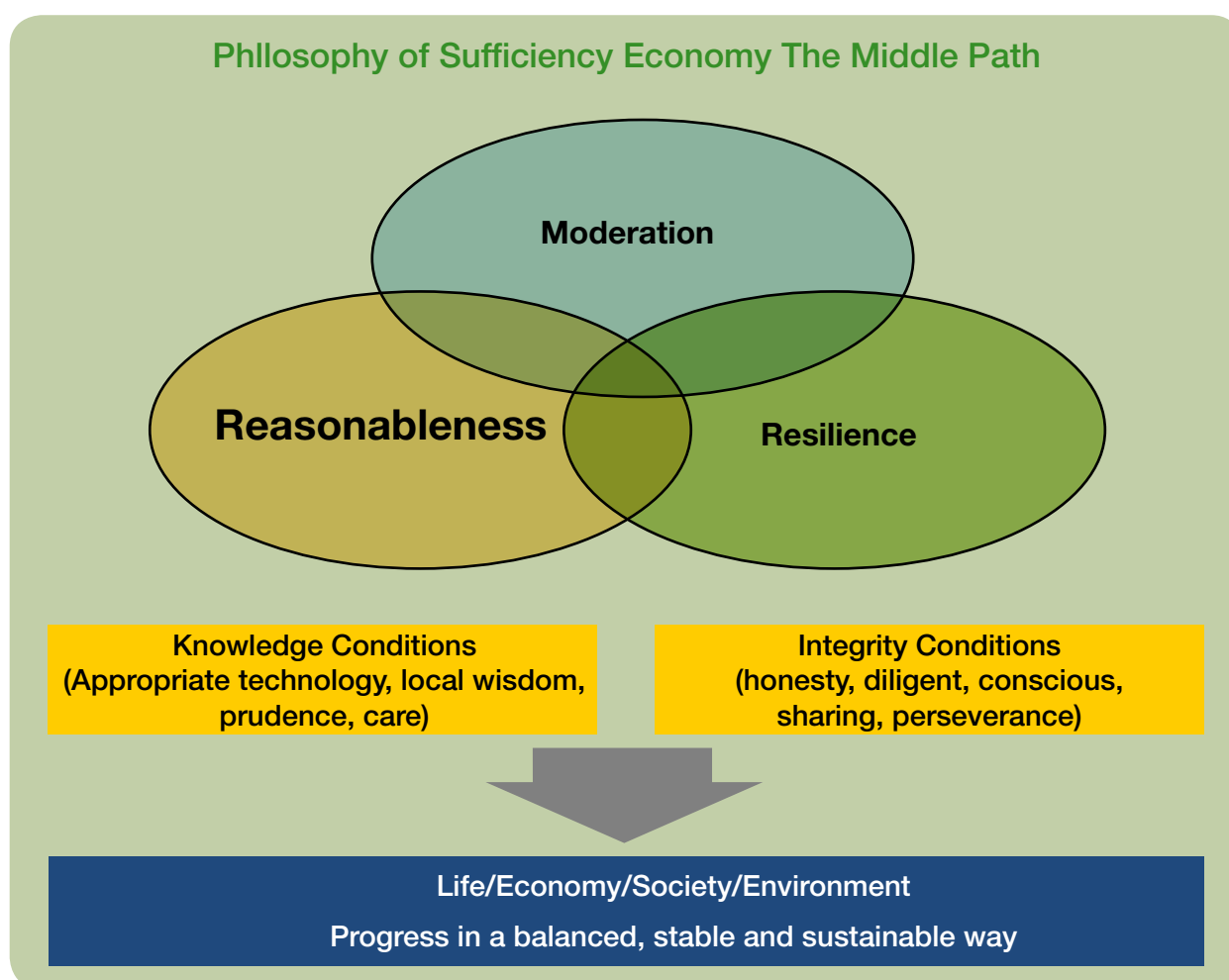
Applied to agricultural development, the sufficiency economy approach has evolved practical guidelines for sustainable agricultural management in three stages. The first stage involves developing a self-reliant family farm in order for farmers to meet critical minimum needs at the household level -- such as producing enough food for the family's own consumption.

Once the first stage of family sufficiency is achieved, the second stage follows when farmers in a community form groups to sell their surplus by setting up cooperatives to achieve greater efficiency in production and marketing. In the third stage, the community expands its operations and interacts with other communities in larger scale activities such as selling its commodities in exchange for new technology, gaining bargaining leverage vis-à-vis middlemen and end-markets and using branding to enhance value.



Source: Office of the Royal Development Projects Board

## Sufficiency Economy in Agricultural Communities



Years of testing the application of the sufficiency economy approach in agricultural communities have led to structured refinements that address key problems facing farmers, especially those who have become too dependent on raising cash crops and those that face insufficient or unreliable supplies of water for agricultural activities. His Majesty the King's first concern is that farmers and their families produce sufficient food for their own consumption. Unfortunately, areas where there is little precipitation constitute a major part of the country. Water problems limit farmers to one rice crop a year during the rainy season. Moreover, farmers are exposed to high risks and damage due to inconsistent rainfall patterns.

From his frequent visits to the people in the rural areas throughout the country, His Majesty found that the majority of farmers were still in poverty. He therefore worked with agricultural experts and implemented his own farming experiments to develop guidelines for proper management of land and water resources. These guidelines have three stages:

**First Stage:** Sufficiency at the household level, or the state of self-reliance.

In order for the farmers and their families to make a living, they should have at least 1.6-2.4 hectares of land. To achieve stable and sufficient food supplies, farmers should divide their land into three parts:

- **The first part:** about 30 percent of the land is for digging a pond of four meters deep to store water for agricultural uses. The pond can also be used to raise fish as an important source of protein for the family.
- **The second part:** about 60 percent of the farm is for agriculture. About half of this is for rice cultivation and the rest is for growing field and garden crops which may differ according to the conditions of the soil, the availability of water and local market demand.
- **The third part:** about 10 percent of the land should be used for housing and other activities such as raising animals, both for food and as draught animals.

This division of land into parts enables the people to make a moderate living and reduce the risks from a crop or market failure affecting any one part of their work. This is based on the assumption that rice farming in an area of slightly less than one hectare can yield sufficient rice for the family's yearly consumption, giving the family food security. Any surplus can then be sold in markets to earn extra income that can be used for other expenses. If additional land is available, then cash crops can be raised as long as the cost of inputs such as seed, fertilizer and insecticide do not put the farmer at too great a risk. Many farmers using the sufficiency approach have succeeded in reducing their risk by using natural fertilizers and insecticide.

**Second Stage:** Sufficiency at the community level, or group forming.

After security at the family level has been achieved, the farmers in the community should form groups to support production and marketing. The aim is to create sufficiency at the community level by diversifying economic activities. This may include integrated farming, handicraft making, food processing, services and tourism. Once the community is strengthened, the people will be able to develop the welfare, educational and public health systems that enable the community to develop with stability and sustainability.

**Third Stage:** Sufficiency at the national level, or opening to the outside world.

After the community has been strengthened, the people can then proceed to the third stage which involves creating contacts and building networks with outside sources, and expanding their activities. The community is encouraged to cooperate with both the private and the public sectors, and non-governmental agencies in such activities as fund-raising, marketing, production, management and developing information systems. To successfully reach this point, the community must collaborate to create security in the community, to conserve natural resources and the environment, and to develop participatory processes and learning based on local wisdom, traditions and culture.

## The case of the Ban Daen Samakkhee Demonstration Project

The refined guidelines for a sufficiency economy farm were first tested in the arid northeast at Ban Daen Samakkhee. The project involved experimental plots to assist rice farmers who faced problems of insufficient water. Even when rice would grow, the ears of paddy contained too few rice grains. Therefore, a pond was dug on an area of 0.48 hectares with a water storage capacity of 12,000 cubic meters. This pond held sufficient rain water for 0.6 hectares of rice and 0.96 hectares of field crops. Even during the driest period, there was water left in the pond. The farm was operated on the basis of integrated farming, which involves intercropping plants and raising pigs together with fish. The pond provides water to the rice fields throughout the planting season, resulting in a 70 percent increase in rice yield. Water left from growing rice was used for field crops, fruit crops and vegetable cultivation. Fish were harvested when the pond water level was lowest, providing additional protein for family consumption. As a result, the farmers have food to consume all year round, and in good years had a significant surplus to sell on the local market.

## Factors for the successful practice of sufficiency economy

- Farmers must be diligent and determined. They each should also own a piece of land and have some capital available for investment in improved farming.
- Farmers should have a good understanding of the sufficiency economy theory and know-how to practice farming and be ready to adopt new knowledge.
- In practicing the sufficiency economy theory, the public sector, the private sector, the community and the farmers must work together.
- There must be concern for the environment, and agricultural activities should be chosen in accordance with the climatic and geographical conditions of each area.
- Activities should rely on public participation and bring about the unity of the group before expanding.

## Benefits of the sufficiency economy approach

- It enables the people to lead a 'sufficient' life that is economical, unscathed by poverty and hunger and unburdened by heavy financial debts.
- Despite a lack of water during the dry season, cultivation of many crops, including wet rice can be feasible without having to rely on expensive irrigation systems because the water stored in the farm pond can be utilized.
- In a year with plenty of rainfall, use of the sufficiency economy theory can generate higher incomes and consequently enhance wealth.
- In case of flooding, farmers can recover from the damage without having to rely on assistance from the government.

## Sufficiency Economy in Community Development

In 2005, the Ministry of Interior made His Majesty the King's sufficiency economy philosophy a central aspect of its national community development programs. These programs had six objectives:

1. Cutting down domestic expenses through increased home production, energy conservation, the use of local materials, and the promotion of local markets;
2. Increasing income by supporting local enterprises and industries;
3. Encouraging local saving;
4. Promoting local leadership and community-based programs;
5. Protecting and preserving the environment; and
6. Promoting social capital such as local welfare programs and cooperatives.

In sum, community development based on the philosophy of the sufficiency economy is a bottom-up development approach aimed at strengthening communities by reducing their cash expenses and increasing both food security and income via the use of local resources.

The sufficiency economy philosophy works well at the family farm level, but is not limited to that level. Thailand has developed a number of examples of how to build from the individual farm to a much larger scale that involves more complex technology, production processes and distribution chains.

These larger scale models can involve sophisticated branding and marketing, showing that development using the sufficiency model does not limit people to bare subsistence. On the contrary, it provides a pathway for development on a secure base that can rise to higher income levels and quality of life while avoiding excessive risk and damage to the social and natural environment.

The extensive development centered on the Ban Bua Community in an impoverished area of the country provides an interesting example of how higher levels of development can be achieved within the sufficiency economy approach.

The social and environmental characteristics of different communities vary considerably, so each community has to work out its own ways to implement the sufficiency economy for community development. The following case provides another example of somewhat different path to success based on the sufficiency economy philosophy.

## Kloy Luk Tak War Community, Bangkok, Thailand

Kloy Luk Tak War is an Islamic community which has embraced the three components of the Sufficiency Economy – moderation, reasonableness, and self-immunity or resilience.

To achieve moderation, the community relied on Islamic principles of reasonableness and no-interest financing. In the realm of reasonableness, residents divided themselves into two groups. The first group worked outside the community to earn needed cash. The second group worked on their farms to reduce household expenses for food consumption. They also set up cooperatives and provided interest-free loans for individuals. The community reduction of risk and resistance to external shocks was attained as the residents established welfare programs and community's well-being surveillance systems. They also emphasized the importance of education. The operations of the community funds were based on the Islamic principle of distribution, so loans were only be granted to individuals who actually suffered from economic hardship. In accordance with Islamic law, investment of the community's savings shares risk with the borrowers and takes a return only if the borrowers' ventures are successful.

A key success factor was having strong leaders who could convince the community to adopt the sufficiency economy approach and guide public discussions leading to the exchange of information and knowledge. Another success element was the community's strong emphasis on Islam as a guide to living and implementing the development programs.

## Sufficiency Economy in Community Development: The Ban Bua Community

Ban Bua is a village in the northeastern region of Thailand. Due to cash cropping and mono-cropping practices since the 1950s, Ban Bua villagers suffered from serious debt problems. The increased production costs for cassava and the decline of global cassava prices were the primary causes of excessive farm debt. To address the community's ongoing problems, community leaders and local experts adopted His Majesty the King's approach to sufficiency agriculture beginning in 1987.

In the first stage, to achieve family-level food security, the Ban Bua community stopped growing cassava and replaced it with food crops and rattan. The Village Foundation, an NGO, provided the villagers with initial capital of 5,000 baht per family to buy seeds. The first year's crop earned each family an average of more than 30,000 baht. The community used parts of the earnings to establish a small nursery to produce young rattan plants and grow backyard gardens of organic vegetables. Some villagers began dividing their lands according to the guidelines for production of rice, vegetables, fruit trees, fish ponds, mushroom nurseries and chicken coops. Within a few years, the community was able to produce enough for household consumption as well as sell their products to other villagers.

In 1992, a second stage began, with Ban Bua linking to other communities in what was called the Inpaeng Network. In response to the expanded market provided by this network, the villagers increased their outputs. Some of them added new crops with potential to serve both as food and extra income. The community engaged in local food processing to add value to their products. This included making makmao (a local herb) into juice and wine, and producing shampoo and detergent from herbs. Community shops served as outlets for the increased varieties of products. As a result, the community paid off its debts while improving the community's quality of life.

Within the five years, a third stage was reached with the development of inter-community production chains. For example, local farmers sold their young makmao plants to grower groups and the latter sold the fruit to community factories that made makmao juice and wine. Then, the end products were branded and sold in community shops and outlets outside the village such as restaurants in Bangkok. The community created microfinance groups to mobilize savings, lend money and provide affordable life insurance. The villagers sought technological knowledge beyond their community and campaigned for environmental conservation and the use of organic fertilizers made from waste materials.

Studies of the Inpaeng Network indicate that one key success factor was effective knowledge transfer. The villagers sought assistance from academic institutions, government agencies and international organizations and captured that knowledge in booklets, pamphlets and VCDs that villagers could use to improve their farming and community management practices.

The Inpaeng Network now covers communities in four provinces, totaling about 900 villages and over 100,000 members. The network's activities include agriculture, community enterprises, health care, environmental conservation and education.

Sources of information: United Nations Development Program. "Thailand Human Development Report 2007: Sufficiency Economy and Human Development"

## The Royal Development Study Centres

In order to experiment with variations on the sufficiency economy approach in different regions of the country and to systematically study the outcomes of those variations, His Majesty King Bhumibol has initiated to have six “Royal Development Study Centres.” These centers work on practical applications of the sufficiency philosophy in close coordination with villagers, and have accumulated a great deal of understanding of best practices in community-based agricultural development.

These centers are also meant as mechanisms for transferring that knowledge, both inside and outside of Thailand. Each of the centers provides training and study tours for international visitors. Visitors have come to the Royal Development Study Centres from many countries including Afghanistan, Bangladesh, Bhutan, Burkina Faso, Cambodia, Colombia, Djibouti, Egypt, Gambia, Guatemala, Laos, Madagascar, Mali, Mozambique, Nepal, Papua New Guinea, Senegal, Sri Lanka and Timor-Leste.

Visitors are encouraged to spend several days or more at the centers to acquire an in-depth understanding of the sufficiency economy approach and the specific technologies used to implement it. While some of the approaches and technologies are similar, each center has specialties that fit with different local characteristics as follows:

- 1) **The Khao Hin Sorn Royal Development Study Centre** was established in 1979 in Chachoengsao Province in the flat central region of Thailand. The center serves as a training centre for farmers on agricultural technology and handicraft skills with emphasis on the following:

- Land Development
- Agricultural Education
- Forestry
- Livestock Development
- Fresh water fisheries
- Community Development
- Cooperative Promotion

- 2) **The Kung Krabaen Bay Royal Development Study Centre** was established in 1981 in Chanthaburi Province on Thailand’s southeastern coast. The activities at this center promote the effective management of coastal fisheries, as well as agricultural and occupational development in coastal areas. Specialties are:

- Research on the problems and potential of coastal zone resources
- Coastal environmental management
- Agricultural extension work
- Improving the quality of coastal and alluvial soils



3) **The Pikun Thong Royal Development Study Centre** was set up in 1982 in the southern province of Narathiwat. This center involves 23 agencies working together within the framework of the action plan of the Center. The plan covers:

- Improvement and utilization of saline soils
- Promotion of small - boat coastal fisheries
- Development of animal husbandry – especially goats, the livestock favored by the local Muslim population
- Provision and management of water resources
- Promotion of agro-industry
- Integrated economic and social development

4) **The Puparn Royal Development Study Centre** was established in 1982 in Sakon Nakhon Province in Thailand's far northeastern region near Laos. This center responds to the needs of this arid region with a focus on dry area agricultural techniques, forestry and simple irrigation systems. Specialties at Puparn include:

- Irrigation system development and management
- Soil erosion control
- Model development villages
- Development of water resources for fishing
- Promotion of cottage industry
- Study and development of forestry to preserve watersheds
- Community public health

5) **The Huai Hong Khrai Royal Development Study Centre** was founded in 1982 in the northern province of Chiang Mai. Located in a forested hill area, the center covers an area of over 3,000 acres. It was established to conduct studies and research on forest development, water resources development, and the conservation of watersheds. It also studies livestock and milch cow development. Special interests of the Huai Hong Khrai Centre include:

- Water source development
- Hill forestry
- Intensive Farming
- Dairy farming
- Frog farming
- Vetiver grass
- Development-oriented educational tourism

The hill forestry studies cover three classes of tree cultivation: for fruit, for firewood, and for sale as wood. The centre manages a forestry project that has served to improve the environment of the area, eliminate forest fires, and produce a moist climate. There are ongoing studies of industrial agriculture and fishery studies at check dams, as well as farms for livestock and dairy cattle. The center distributes high-quality seeds bred for the local environment and gives advice on practical farm techniques.

6) **The Huai Sai Royal Development Study Centre** was set up in Phetchaburi Province 1983. The center's initial purpose was to rehabilitate, improve and preserve forests near the border with Myanmar, enabling an increase of soil moisture in the surrounding areas. It also served to resettle displaced persons coming into the area. Specialties of the Huai Sai Centre include:

- Water resources and soil development
- Forestry development
- Community development
- Quality of life and environmental improvement

## International Interest in the Sufficiency Economy

The development and application of the sufficiency economy philosophy has generated considerable international interest, particularly among developing countries that share similar problems of rural and community development. In 2004, the Thailand International Development Cooperation Agency (TICA) hosted the Ministerial Conference on Alternative Development Sufficiency Economy Thailand, which attracted 54 ministerial level participants from 29 developing countries. In 2006, TICA organized two study visits to give international development officials a first-hand look at the application of the sufficiency economy approach to development. A total of 54 officials from 29 countries took part in the visits. Participants came from as far away as Sudan and Colombia and from as near as Cambodia. An evaluation of these study visits showed that they were beneficial to the work of most officials. Some countries – Myanmar, Ethiopia, Sri Lanka, Vietnam, Bangladesh, Bhutan, Burkina Faso, Mozambique, Madagascar, and Kenya – have started to include the principles of the sufficiency economy in their own development plans.

## Technical Cooperation between Lesotho and Thailand

To mark the Sixtieth Anniversary Celebrations of His Majesty King Bhumibol Adulyadej's accession to the throne and the official visit of the King and Queen of Lesotho to Thailand, the two governments launched a cooperation project on sustainable agricultural development based on the sufficiency economy philosophy.

The project established a demonstration center for sustainable agricultural practices on some 43 square kilometers of private land owned by Queen Masenate Mohato Seeiso. This area formerly grew paddy rice and rain-fed upland crops such as maize and fodder. The project set up a center that studies integrated farming and agroforestry models suitable for the conditions of the local farmers. The results of the studies are disseminated among the government agencies and the local farmers.

At the center, irrigation systems and integrated farming and agroforestry are demonstrated. The center has shown that the yield from the irrigated areas is higher than the yields from areas that depend on rainfall. Integrated farming and agroforestry has been introduced as an alternative to the mono-crop, rain-fed farming typically conducted by small-scale farmers in the area. By growing specific groups of vegetables on different pieces of land each season and moving the groups around in sequence, crop rotation leads to fewer soil pests and diseases, minimizes deficiencies and allows the soil to replenish. The project also introduced to Lesotho several bamboo species from Thailand. Bamboo is a multi-purpose crop and all parts of bamboo can be used.

(Adapted from "Sustainable Agricultural Development Project, Technical Cooperation between the Kingdom of Lesotho and the Kingdom of Thailand," Ministry of Foreign Affairs.)

## Annual Training and Technical Cooperation on the Sufficiency Economy Approach

To support this international interest, Thailand offers 25 scholarships every year for officials from developing countries in Asia, Africa, and the Pacific Islands to come to Thailand for deeper study in the theory and implementation of the sufficiency economy philosophy.

Started in 2006, the scholarship program has helped numerous officials better understand how this new development paradigm can help their people achieve sustainable development.

Thailand has also cooperated with the Kingdom of Lesotho on technical assistance on the sufficiency economy in agriculture, with Senegal and Mozambique on fisheries development and with Kuwait, Peru, and Chile on training in the sufficiency economy approach.



# Community-based Economic Development

1  
Volume

# Community-based Economic Development

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Sustainable alternative livelihood development approach	<ul style="list-style-type: none"><li>• Mae Fah Luang Foundation (MFLF)</li></ul>
Local and community production (OTOP)	<ul style="list-style-type: none"><li>• Ministry of Interior<ul style="list-style-type: none"><li>• Community Development Department</li></ul></li></ul>
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## Sector Expertise Overview

Thailand's rapid, industry-led economic growth reduced the incidence of poverty from 57 percent in 1961 to 11 percent in 1996. Poverty levels, however, increased to 16 percent after the 1997 economic crisis, and then fell to 10 percent in 2004 as the economy recovered. Many of the people left unemployed by the economic downturn had to return to their rural communities to survive. The crisis drew attention to the inherent risks of linking to the global economic system. It also reminded people how far behind the cities the rural areas had fallen. The combined effect was to refocus attention on grassroots community development. Strengthening a community's ability to withstand external shocks and narrowing the gap between rural and urban areas became increasingly important. The government, therefore, launched several community-based development programs which enabled poor communities to more effectively plan and manage their own development.

Thai communities have been through several transitional periods, moving from a subsistence farming system to commercial farming, from a traditional to a more modernized society. With these changes, many communities have grown stronger economically and socially, with improved physical infrastructure, increased income and better access to educational and health services. Higher levels of education in rural communities have enabled rural people to play a much more effective role in their community development and have led them to expect a much higher level of government support.

The latest national development plans have stressed the importance of developing local communities' capacity to manage their own economic and social development in partnership with the public and private sectors. Community enterprises, revolving funds, small-credit schemes, community information centers, sub-district administrative organizations and networks of community organizations have all become important community

development tools. Thousands of community-based organizations and networks have been established in Thailand, dealing with issues such as alternative livelihoods, culture, local and community product promotion, microfinance and basic business management. Thailand has therefore developed three main areas of community development expertise:

- Sustainable alternative livelihood development (SALD)
- Local and community product promotion, or One Tambon, One Product (OTOP)
- Community-based microfinance

## Expertise in Sustainable Alternative Livelihood Development Approach (SALD)

The Mae Fah Luang Foundation (MFLF) is a not-for-profit development foundation that manages numerous community development projects in northern Thailand, most notably the Doi Tung Development Project in Chiang Rai province. This project is known for its success in eliminating opium cultivation in the heart of what once was the notorious 'Golden Triangle,' which was once notorious for narcotics production. The Doi Tung Project was launched in 1988 by Her Royal Highness Srinagarindra, the late Princess Mother of Thailand, drawing inspiration from her son, His Majesty the King of Thailand, who started the fight against opium cultivation over 40 years ago.

HRH Princess Mother understood that opium production was a symptom of poverty and lack of opportunity. She firmly believed that lasting solutions to illicit drug production did not lie in coercive eradication, but rather in transforming poor and unstable villages into communities providing inhabitants with sufficient food, income, health and education. Her Royal Highness Princess Mother saw such transformation as something that, with judicious outside assistance, local people were capable of doing to help themselves. Thus, development must occur in a participatory manner and at a pace that allows developmental changes to be accepted by the communities, so that eventually, the community can continue the process of development without further assistance. Her vision was to align the interests of people with the sustainable use of their natural environment. The Sustainable Alternative Livelihood Development (SALD) model was created from her guiding principles.



The Princess Mother  
Source: Mae Fah Luang Foundation

## MFLF's SALD Approach

The SALD model requires a long timeline for communities to develop sufficient capacity in production and marketing. MFLF's approach builds on local knowledge and existing resources, and combines those with a market focus, leading to the creation of higher-value goods. A series of social enterprises allows communities to become independent of outside assistance. Education initiatives ensure that future generations will have employable skills, the knowledge to cope with globalization and the entrepreneurial spirit to create new opportunities for community growth. Ultimately, the key to SALD is local ownership, where capacities and activities have been developed to the point where local people can become owners of ventures rather than contract farmers or employees.

## Three priorities

The SALD approach has the following three main priorities:

- a) Health: Basic health needs must be addressed because sick people cannot be economically productive.
- b) Livelihood: Once people are able to work, they need viable livelihood options, starting with those which provide immediate food security, and then gradually diversifying into value-adding activities with higher income-generating opportunities.
- c) Education: When people have viable livelihoods, education becomes the key to unlocking future opportunities and ending the cycle of poverty.



A mobile medical clinic  
Source: Mae Fah Luang Foundation

## A phased approach

The SALD approach takes place in three phases in order to maximize success. The three phases are as follows:

1. The short-term phase starts with 'Quick Hit' activities to immediately provide the local community with a legal source of income within the first 10 – 150 days. This is the most crucial period because it is vital to gain people's trust and confidence. Fast-growing cash crops are promoted to fill the gap before medium and longer-term programs bear fruit.
2. The medium-term phase focuses on developing viable market-based livelihood alternatives and moving up the value chain.
3. The long-term phase empowers people to become self-reliant, respectful of their environment, and able to cope with pressures of globalization. Relevant education—including knowledge of markets and production options—is provided. Value-added processing activities provide increased and more stable income.

## International outreach

Since 2002, the Foundation has shared its SALD approach internationally, helping the many countries and communities that have requested assistance. The Foundation completed a project in Shan State, Myanmar in 2004, and currently has on-going projects in Aceh province, Indonesia and Balkh province, Afghanistan.

## Doi Tung Development Project

The Doi Tung project started 20 years ago as an effort to end opium production in northern Thailand. The project is in Chiang Rai Province, on the Thai border with Myanmar. It covers approximately 150 square kilometres, including 29 villages and approximately 11,000 people from six ethnic minorities.

In 1988, when HRH Princess Mother arrived in the area, much of Doi Tung was under slash and burn agriculture and large areas were planted with opium poppies. Taking the SALD approach to tackling local poverty, the Princess Mother initially addressed health problems by bringing volunteer doctors to the region. Next, she focused on livelihood creation, which took the form of “quick hit” reforestation jobs, turning opium cultivators and slash-and-burn farmers into forestry workers. This immediate wage-paying activity helped earn the trust of the local community.

In time, forestry workers became coffee and macadamia cultivators, who eventually moved from simply producing commodity crops to offering services further up the value chain, such as roasting and processing the coffee and packaging macadamia nuts. Tissue culture, horticulture, and mulberry paper, ceramics, carpets, and woven cloth industries were established to diversify the local economy and reduce the risk of depending on a single enterprise. The project went beyond simply promoting alternative crops to providing a range of alternative livelihoods that integrate local knowledge and resources with business professionalism. MFLF brought in designers well-acquainted with market demands to work with local villagers, producing world-class handicraft and fashion products. Intermediate technology was used to maximize local employment and minimize dependence on external resources.

The Doi Tung Project has been financially self-sustaining since 2001 and the area has become opium free. Living standards for local inhabitants have significantly improved. Locals have legitimate livelihood options and access to healthcare and education. There are eight schools, which are attended by the children from all 29 villages. The project revived 150 km<sup>2</sup> of denuded forest land and transformed the Doi Tung area into a tourist destination that receives an average of one million visitors a year.

By 2017, 30 years after its first involvement in Doi Tung, MFLF will completely phase out, leaving the administration and management of the project’s enterprises in the hands of local leaders.



Doi Tung fashion products on display  
Source: Mae Fah Luang Foundation

## The Yong Kha Project, Myanmar

In 2002, MFLF extended its development activities across the Thai border to Yong Kha, in Myanmar’s Southern Shan State. Mobile medical units provided the quick hit in healthcare to combat malaria, tuberculosis, scabies, and children’s malnutrition. These efforts addressed immediate problems while earning the trust of the local people. Youth community members were then trained to diagnose and treat these health issues.

The local community constructed a 30-km long irrigation canal and six weirs. This allowed them to grow food and cash crops year-round. A hospital and a school were built. Children were taught the formal national curriculum, which was supplemented with practical skills like agricultural know-how in the school’s vegetable plot. This fed into the school lunch program which included chicken raising.

After three years of implementation, the ‘Doi Tung II’ Project in Myanmar cost a total of USD 640,000 for 6,022 people. It generated benefits in cash and in kind equivalent to USD 704,574.

## Balkh Livestock Rural Enterprise Development Project, Afghanistan

In November 2006, MFLF, the Afghan Ministry for Rural Rehabilitation and Development and local Afghan partners began implementing the Balkh Livestock and Rural Enterprise Development Project. The project aims to achieve economic revival by creating an enabling environment for rural enterprise. It began by addressing the health of sheep in order to replenish the domestic population decimated from years of conflict and drought. A subscription-based veterinary service was provided by trained Afghan youths. This worked in tandem with a “sheep bank” designed to increase the rate of livestock ownership. The interaction among various groups—landless poor, sheep owners, and other members of local society—

increased dialogue within the community and helped to rebuild a participatory citizenry.



Vocational training  
Source: Mae Fah Luang Foundation

In the first year, the project provided vocational training for 12 veterinary technicians. They reduced the mortality rate of about 24,000 registered livestock from 10 percent to below 3 percent, creating additional income totalling approximately USD 548 per household.

A pilot project is currently underway to investigate the potential of a yarn-spinning project. This would provide intermediate technology to village women in order to increase their productivity. Eventually more value-added activities can be added to boost local income.

## Aceh Project, Indonesia

In November 2005, the Government of Indonesia and the United Nations Office on Drugs and Crime asked MFLF to implement a SALD project in Aceh Province, Indonesia, an area ravaged by 30 years of civil conflict and the tsunami disaster. The objective was to double per capita income from less than USD 1 to at least USD 2 per day for approximately 1.5 million impoverished people by 2012.

MFLF began its activities in Aceh in 2006 by introducing a malaria preparedness program for Lamteuba. The program trained local representatives to help their own community fight malaria. Today, the program has been adopted by the Acehese Provincial Health Office for implementation on the provincial level.

In 2007, MFLF, the Sambinoe Foundation, and Indonesian government partners embarked on livelihood creation activities, working with the community in Lamteuba to reconstruct the irrigation system, establish agricultural demonstration plots, and introduce veterinary services for livestock. The Foundation has also extended assistance to Maheung village, which will become a demonstration station on irrigation, agriculture, livestock and public hygiene.

A core objective of the ‘Aceh-SALD’ initiative is to revive the traditional ‘gotong royong’ spirit of cooperation among local communities, enabling them to improve their own livelihoods.



Source: Mae Fah Luang Foundation

## Reforestation Model

The key success factor in reforestation is the ability of people and nature to coexist. The Mae Fah Luang Foundation recognises that as long as people remain poor, they will encroach on the forest, logging illegally for money to survive. While it is important to preserve the watershed area, economic forestry can be a tool to provide long-term income to local people who once lived off the forest. Economic forestry – such as planting coffee and macadamia nuts – provides income streams from the forest. Subsistence forests let people gather food and fuel within special areas. These zones provide a buffer between local people and the forest, saving the watershed area from undue encroachment. Allowing local people to take care of their forest is vital, since people will pass on the wisdom of natural preservation.



Watershed area in Pang Mahan in 2005  
Source: Mae Fah Luang Foundation



The same area in 2007  
Source: Mae Fah Luang Foundation

The Foundation's first reforestation expansion was Pang Mahan, a 2,250 hectare area where lessons learned from Doi Tung were applied. Starting in 2005, the Foundation switched from monoculture reforestation to planting multiple variants of plants native to the area. This helped restore the forestland and add native biodiversity to the area. Average annual income per household has risen from USD 532 in 2004 to USD 2,797 in 2008 as a result of these different income generating activities.

## The Living University

While the Foundation is extending the SALD approach, one of its long-term aims is to develop a "living university" to test, document and disseminate learning from SALD projects. This will be done by collecting practical experiences from the Foundation's work, and sharing its lessons learned with other countries facing similar problems. The living university will be a dynamic, interactive, real-life classroom, where trainees and project staff can learn together and from each other.

The work of MFLF abroad combined with the training given domestically makes it a key source of expertise in sustainable rural development.

## Expertise in Local and Community Product Promotion

The One Tambon One Product (OTOP) program is a local entrepreneurship stimulus effort that supports the locally made products from each Thai tambon (subdistrict). OTOP is a means of strengthening the grass-root economy by encouraging collaboration with the public and private sectors. OTOP has successfully raised the quality of community products to standards certified by the OTOP committee at the Community Development Department of the Ministry of Interior.

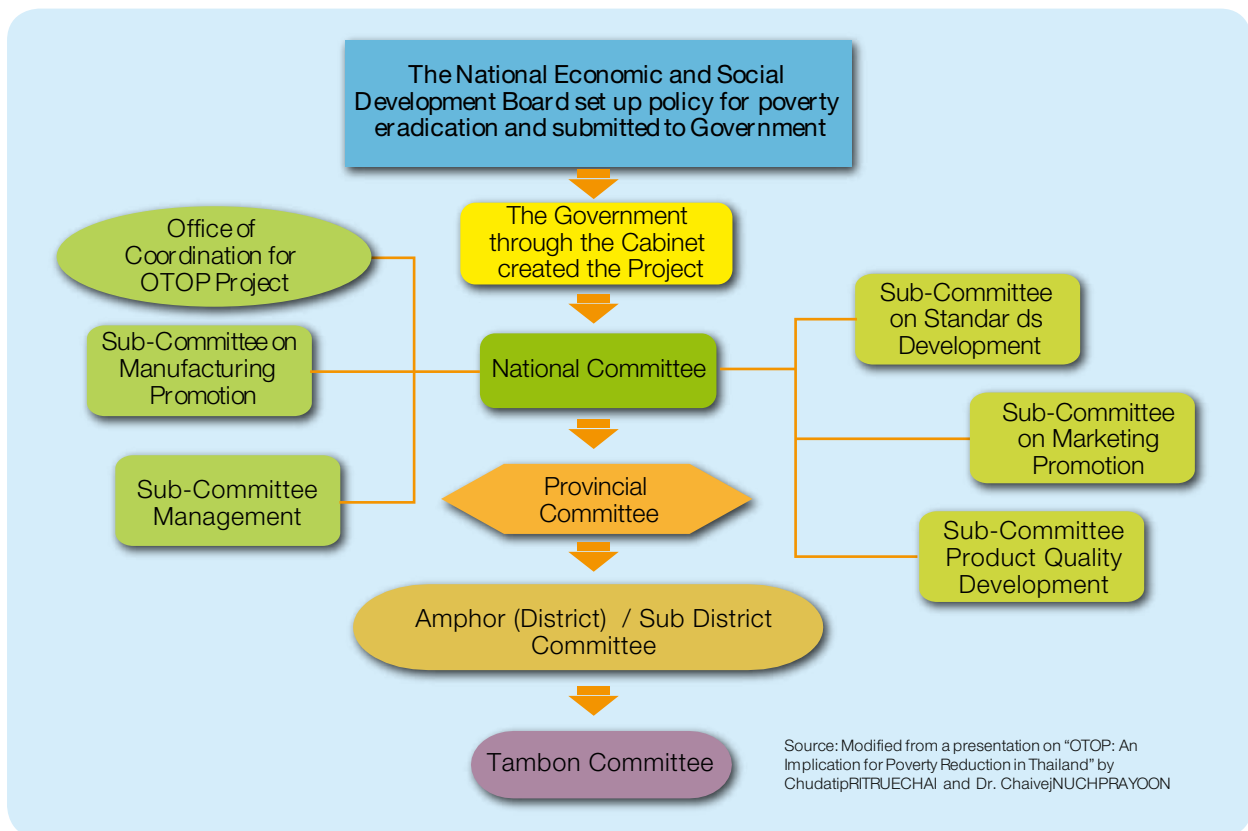
OTOP is based on the idea that each village has at least one native product or tourism destination that can provide the basis for a small business. OTOP products often reflect local knowledge that has been passed down through generations. The project has become a key source of extra income for local people, with products sold at OTOP outlets across the country.

The OTOP project is modeled after a Japanese concept of community development policy, known as One Village One Product (OVOP), which has been widely replicated all over Japan. Thailand received assistance from the Japanese External Trade Organization to support Thailand's development of OTOP and promote OTOP products in the Japanese market in 2002. The targeted products included textiles, wooden products, baskets, ceramics and mulberry paper.

The two key elements in OTOP are entrepreneurs and high quality products from local materials and skills. The first important step is to survey and register qualified OTOP producers. These are categorized into three groups: community enterprises, community level sole proprietorships, and SME producers. The second step is product selection. OTOP products should reflect local traditional knowledge, and their production should employ inherited skills and use raw materials from the local area. In addition, local tourist destinations can also be classified as OTOP.

One of the special features of OTOP is the government's oversight of the project's marketing side, providing advertising budgets to market OTOP products, organizing marketing events, and creating a system of information exchange among producers, buyers and consumers through a website at [www.ThaiTambon.com](http://www.ThaiTambon.com). Government support, including 1,500 million baht in 2001 and another 460 million baht for 2003-2006, as well as loans at cheaper interest rates for OTOP entrepreneurs, has been a major factor in OTOP's success.

## OTOP Policy Management Structure



### Distribution of duties among government agencies

No.	Duty	Responsible agency
1	Searching for star products as well as strengthening people and community	<ul style="list-style-type: none"><li>Ministry of Interior (province, district, tambon)</li></ul>
2	Strengthening production of goods, raw materials, food process, and product development	<ul style="list-style-type: none"><li>Ministry of Agriculture and Cooperatives</li><li>Ministry of Commerce</li><li>Ministry of Industry</li></ul>
3	Defining standards and criteria for product selection	<ul style="list-style-type: none"><li>Ministry of Industry</li><li>Ministry of Public Health</li></ul>
4	Overseeing marketing and product promotion, product distribution, and intellectual property right, such as trademarks.	<ul style="list-style-type: none"><li>Ministry of Commerce</li><li>Tourism Authority of Thailand</li><li>Office of Small and Medium Enterprises</li></ul>
5	Research and development of products, packaging, and design	<ul style="list-style-type: none"><li>Ministry of Science and Technology</li></ul>
6	Public relation	<ul style="list-style-type: none"><li>The Prime Minister's Office</li></ul>
7	Monitoring and evaluation	<ul style="list-style-type: none"><li>Ministry of Education</li><li>National Economic and Social Development Board</li></ul>
8	International cooperation on technology transfer	<ul style="list-style-type: none"><li>The Prime Minister's Office</li></ul>

OTOP has had a sizable impact in Thailand, in both the economic and social dimensions.

#### The economic dimension:

- Created jobs in more than 22,762 villages
- Involved more than 1,340,000 members and employees
- Increased the number of entrepreneurs from 7,000 in 2001 to 37,840 in 2006
- Increased sales revenue from 16.7 million baht in 2002 to 67.8 million baht in 2006
- Strengthened infrastructures and communication
- Raised the level of business skills
- Improved of product quality and standards

#### The social dimension:

OTOP induced greater community involvement that led to stronger communities. OTOP production utilized the traditional, local knowledge of the elderly, thus giving them new importance and value in the community. By increasing locally available income, OTOP reduced the incentive for people to leave the village in search of jobs. This helped keep families together and provided a more stable home environment for children.

The Community Development Department of the Ministry of Interior, which oversees OTOP, is ready to receive international visitors interested in how the OTOP project was designed and managed. The department offers a training camp package in English that allows visitors to learn about all the aspects of OTOP Thailand, and government officials from India, Nepal and Laos have already participated in this training.

### The case of the OTOP community at Wat Phra Non Chaksi

The tiny village of Wat Phra Non Chaksi, just two hours north of Bangkok in Singburi province, does not offer any natural ecotourism attractions. Unlike many other One Tambon One Product villages, there are no significant “traditional” products native to the village either. The village, however, was determined to make the best of their situation for the benefit of villagers in need by using the rich local history. Close to the village is the famous battle site of Bang Rachan, where Thais fought an invading Burmese army in 1784. The story was made into a full-length movie released in 2000.

Three years ago, a small group of entrepreneurial villagers who previously sold shirts in Bangkok decided to design and produce some elegant button-up shirts depicting the battle at Bang Rachan to generate income for themselves and others in the community. Ultimately, 20-30 villagers became involved in the production of the shirts, which were priced at about 150 baht (US\$4.70), and sold locally, as well as being shipped to OTOP outlets across the country. Featuring artistic interpretations of the Battle of Bang Rachan, as well as elegant Thai script recounting the story of the battle, the shirts have proven to be a huge success. Wam Prouma, age 34, a tailor who manages the shirt project, says the project has provided a steady source of income for many villagers. “People in the village who would otherwise struggle now have a job, a source of income they can rely on. I teach them what to do, and they can make the shirts here in the shop or at home,” she says. The shirts, along with other OTOP products from the central region, are sold at the village’s OTOP market in front of the district’s famous temple - Wat Phra Non Chaksi.

In addition to the shirts, the community uses the OTOP concept to promote its historic attractions and local services. In 2006, the community developed a “mini-trolley” service to transport visitors between the village’s two most important temple sites: Wat Phra Non Chaksi, which features one of the largest reclining Buddhas in Thailand; and Wat Na Prathat, a Khmer-style temple dating back to the 1400s.



Wam Prouma with a Bang Rachan OTOP shirt and the mini-trolley for tourists  
Source: James Vernon. “OTOP Community in Focus: Wat Phra Non Chaksi village,”

A group of local high school students act as tour guides, telling visitors the history of the community and its temple sites. In addition to a village homestay, other villagers sell food and souvenirs. Villagers also provide traditional Thai massage to weary tourists.

Kacha Majikringchanpa, age 15, and Chewee Gaoseng, age 14, have been tour guides with the mini-trolley service at Wat Na Prathat for one and two years, respectively. They both work during holidays and on the weekends.

“The aspect I like most is that we’re able to preserve our temple history while earning money for our families,” Kacha says. She said most visitors come from Bangkok.

Sureeporn Intakul is responsible for teaching the students the history of the temples after being taught herself by the Tourism Authority of Thailand (TAT).



Small stand selling food and souvenirs  
Source: James Vernon. “OTOP Community in Focus: Wat Phra Non Chaksi village”

“I began with a batch of 16 local high school students, who are all still acting as guides today. We didn’t really have all that much information at the beginning, although we’ve built upon it from local sources; I think our guides are pretty informative now,” she says.

During weekends, the mini-trolley service makes about eight circuits between the temples sites, carrying about 40 people at a time. There is a small fee to take the trolley ride, so this OTOp initiative generates funds for the welfare of the community.

(Adapted from: James Vernon. “OTOP Community in Focus: Wat Phra Non Chaksi village,” ThaiAsia Today.com)

## Expertise in Community-based Microfinance

Thailand has a long history of community-based credit mechanisms that depend on trust and peer-based, non-collateral borrowing and repayment. Modern microfinance schemes have developed from these traditional mechanisms. Today, there is a wide variety of providers of microfinance, including government agencies, non-governmental organizations, banks, and community members or vocational groups who have set up their own microfinance schemes.

The Thai government has supported community-based microcredit schemes for more than 30 years. For example, the Saving Groups for Production projects were launched in 1974 by the Department of Community Development. This scheme utilized local resources to establish community funds while inculcating five basic virtues – honesty, devotion, responsibility, sympathy and mutual trust – in its members. Much later, the Thai government launched the One Million Baht Village Fund – donating a million baht to each of Thailand’s 70,000 villages for a village revolving fund to improve credit access for the poor. Other government plans include the

Poverty Alleviation Fund and the Economic Stimulus Fund, People's Bank Programme and the Loans for Self-Help Groups.

Donor agencies and NGOs also play a role in supporting community-based microcredit. Some programs are exclusively concerned with microfinance, such as savings groups and credit-union groups. Other programs use microcredit as one of several components, such as with fertilizer and grain banks that enable farmers to participate in new farming practices or revolving funds to help weaving group members obtain their raw materials. Community savings groups help their members to participate in the market economy, though often not according to strict market principles.

The Community Development Department is in charge of teaching the concept of community-based microfinance to local communities. The most challenging task is to convince local members to believe that microfinance can work better for them and their communities, with only five rules to govern the system: 1) trust, 2) honesty, 3) sacrifice, 4) responsibility, and 5) sympathy. With more than 30 years of experience, the department staff have the necessary skills to transfer this knowledge to visitors from other countries who are interested in Thai-style community-based microfinance.

The community microfinance schemes below demonstrate how microfinance helps the communities achieve their goals of economic sustainability, social security and political empowerment.

### The case of the Klong Pia Saving Group

Klong Pia is a sub-district of Songkla province in southern Thailand. It includes 10 villages, housing about 7,000 people. Most villagers in Klong Pia rely on rice, fruit orchards and livestock husbandry for a living. The Klong Pia savings group has a long-standing reputation and serves as a role model. The services provided to the group's members include funds to cover health, education, youth activities, occupations, welfare for the elderly, orphans and the disadvantaged, as well as funds to support the community's cultural conservation, infrastructure maintenance, and life-long learning programs.

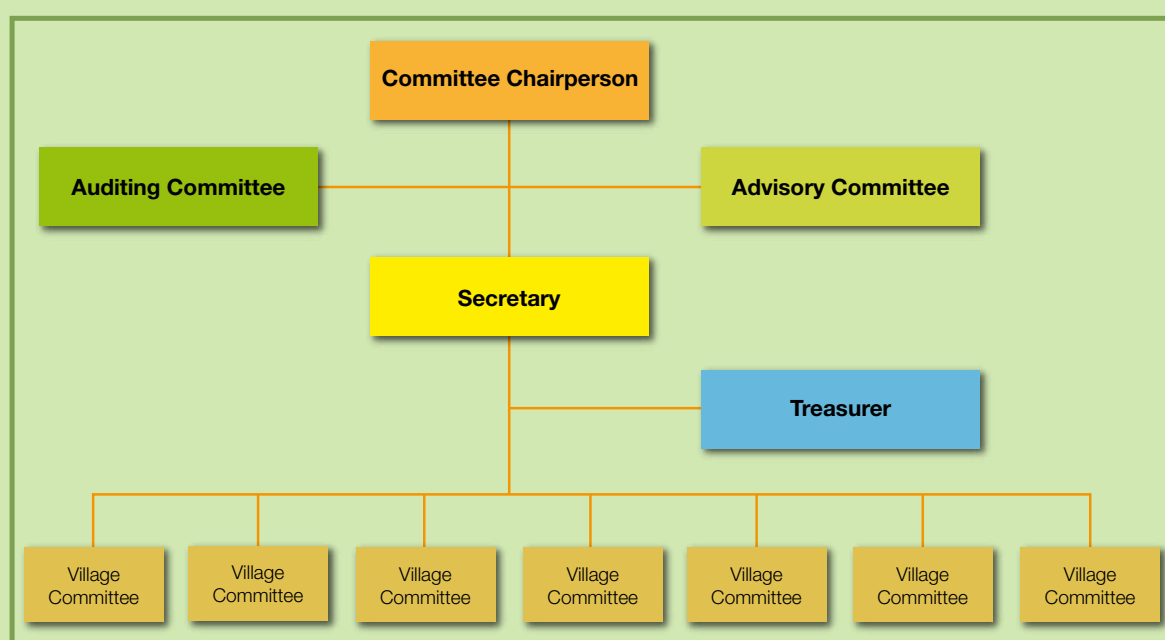
The Klong Pia Savings Group was established in 1980 under the Savings Groups for Production Programme. Before the savings group was established, villagers were in chronic debt, with some unofficial, private lenders charging interest rates up to 20 percent per month.

In the beginning, there were 57 members from seven villages who each deposited 50 to 100 baht each month. The group started with 2,850 baht, which was deposited into a bank savings account. Members needing money could apply for a loan directly from the bank using the group's savings as collateral. At the end of the first year, 25 members resigned because the dividend rate of 2 percent was lower than the bank's usual savings interest rate.

The group learned an important lesson from this and revised the group's objectives and rules. More members were recruited and more deposits mobilized. The money was provided as low-interest loans to its members to invest in income-generation activities or to spend on their children's education. By 2004, membership had increased to 7,000 and included at least one member of every household in the subdistrict, with a total savings of 128 million baht.

The group provides loans at interest rates that are lower than bank interest rates, while providing dividends to its members at a higher rate than any bank. Normally, no loan can exceed the member's individual savings. Members who wish to borrow more, must ask other members or village committee members to guarantee them. There have been only five non-performing loans in the history of the group. Even those loans, however, were eventually returned because of the villagers' traditional honesty. With a growing member base, the group expanded its services to cover more types of loans and allocated part of its profits as community funds to improve the life of community members.

The Management Committee is comprised of 41 members representing the 10 villages, with two to five committee members from each village, depending on the size of the village. This committee manages the savings group, formulating policies and ensuring that they are followed. At the village level, they provide information regarding policies and the group's progress, as well as receiving deposits, loan repayments and loan requests.



Source: Ministry of Foreign Affairs of Thailand and United Nations Development Programme, 2006

The group has a simple structure:

This committee meets at least once a month. The meetings are rotated between the 10 villages so that villagers can be informed of the group's activities. All three committee groups have a one-year term and are elected during the annual meeting. However, committee members who have done nothing wrong during their term of service automatically continue serving as committee members. Each year, only a few new committee members are elected, mostly when membership increases and more committee members are needed to look after them. The fact that committee members receive a pension after retirement is an additional incentive for their good work and honest performance. It also reflects a traditional community value of gratitude for the elderly.

Membership is open to everyone. Each member pays a small entrance fee and gains a bank book. Most members are farmers and live in Klong Pia. Government employees working in the subdistrict

can be members but can only apply for a limited loan amounts because of their frequent turnover, making it difficult to collect repayment.

The group is managed on principles of good governance – openness, transparency, decentralization and participation. Members are regularly informed of developments and are encouraged to participate and monitor the performance of the committees. Because the community is closely knit, members are often warned not to trust the committee just because they are relatives or friends, but to closely monitor their performance.

Through the saving group's management, the people of Klong Pia have confidence that their savings group will grow and will be a valuable community asset for their children. It is a community social safety net that the Klong Pia people are proud of.

The success of the Klong Pia Saving Group is largely due to its planning process. Every year, the committee develops an operational plan which details its activities, timeline, the people in charge, and expected outputs. It also includes the group's vision, mission, rules and regulations, which everyone refers to as guiding principles for the management of their community fund.



This villager invested in a small petrol pump after receiving a loan from the group  
Source: Ministry of Foreign Affairs of Thailand and United Nations Development Programme, 2006

The group collects deposits from its members on the first day of every month. The members bring their deposits to their village meeting place where the management committee records their deposits. Members wishing to receive loans submit their requests when making their deposits and receive their loans the following day, if approved. Villages with sufficient deposits provide the loans out of the newly received deposits. Villages with insufficient deposits borrow from the umbrella group to respond to the loan requests. This arrangement facilitates savings flows and support among villages.

Over the past 24 years, the group has provided over 100 million baht in loans, half of which have been invested in production activities, such as buying farm inputs and machines, improving farm facilities and investing in new income-generation activities. Another 40 percent of the loans were spent on buying land and improving housing. Loans have ranged from 2,000 to 300,000 baht.

The Klong Pia Savings Group began its welfare activities in 1983 using three different sources of money: money left after the dividends were given back to the members, members' entrance fees, and interest from the welfare fund.

Two community businesses, a fish sauce factory and a rice mill, were established using the savings group's funds and a government grant. The fish sauce factory was initiated after community analysis showed that almost every household used fish sauce and spent a lot of money doing so. The fish sauce business continues to do well as it uses local fish and has a large share on the local market.

The community rice mill started in much the same way, after a similar analysis conducted under the master plan indicated that many households were buying rice from outside markets. The mill was bought using funds provided by the government and the processed rice is sold mainly for local consumption.

Knowledge generated from their actions has become a valuable community asset. Many communities across the country have come to learn from the people in Klong Pia. In 2002, the group received funding from the Social Investment Fund to establish the Songkla Local Wisdom Transfer Institute, or Community University in short. It provides learning experiences for people from all walks of life.

According to the group's rules, any technical and financial support provided by outside sources should be based on the needs of the community. They will not accept assistance that does not fit their philosophy. Furthermore, they will not let external agents control the decisions and direction of the group. However, external agents can introduce information and new learning sources to enhance the community's learning.

## Factors contributing to success

**Continuous improvement of the management system based on lessons learned** - In the initial period, some members withdrew from the group because of low dividend rates. The committee therefore increased the dividends and reduced the repayment rates, despite disagreement from the supporting government agency, which was worried that this would result in non-performing loans. The committee believed that these adjustments would improve the members' livelihoods.

**Decentralized management** - The fact that committee members from each village have the authority to collect deposits and make decisions to provide loans from their village's savings makes them proud and accountable. Members are satisfied with this arrangement; they feel that they have access to their money and that their needs are immediately attended to. The central management committee places high priority on the group members' needs. They listen to their ideas and proposals made through village committees and develop operational plans around these ideas.

**Community vision** - The people of Klong Pia have a vision of self-reliance. They want to eliminate their debts by reducing expenditures for production and consumption expenditures, securing their children's education, improving their health, conserving the environment, and preserving local culture and wisdom.

**Social capital** - The management of the Klong Pia Savings Group helps to strengthen community ties by increasing mutual assistance within each village and between villages. Every month, people meet to deposit their money, make their requests for loans, chat, and share stories of their lives, ensuring the community social capital becomes stronger.

**Effective group leaders** - The Klong Pia Savings group was initiated by Mr. Amphon Duangpan, who was committed to making community savings groups work, believing that they would help people to get out of debt and become self-reliant. At the start, some people questioned his ability and transparency in managing the group, and he was challenged by lenders. However, with his commitment, vision and hard work over the past 20 years, he has made the group one of the most successful community savings groups in Thailand. Other leaders on the management committee have contributed to the group's success with their accumulated experiences and hard work.

## Problems and risks encountered

Despite its success, the Klong Pia Savings Group has had to deal with two main problems:

- A low enrolment rate in the initial period because people did not understand the importance of community savings. They did not believe that it would work and worried that the committee did not have a clear idea of how to operate it. However, this was solved as the committee learned from its mistakes.
- Dependency on the same leaders: Although these leaders have been effective managers, they will eventually retire, and new leaders may not have the same knowledge and experience. Hence, it is important that the group involve younger leaders in its committee so that knowledge transfer can take place.

## New challenges

The Klong Pia Savings Group plans to expand its services to its members. The group's future focus will be on community enterprises for self-reliance. With this expansion, new knowledge, skills and manpower will be needed. The challenges lie in ensuring that the villagers will be able to continue to use their indigenous knowledge while using new technologies.

(Adopted from: Ministry of Foreign Affairs of Thailand and United Nations Development Programme, 2006. "Community-based Microfinance: An Empowering Approach towards Poverty Alleviation and Community Self-Reliance.")

Public Health

1  
Volume

# Public Health

Table of Expertise in Public Health	
Expertise	Example Institution
Family Planning	<ul style="list-style-type: none"> <li>Population and Community Development Association</li> <li>Planned Parenthood Association of Thailand</li> <li>Village Health Volunteers</li> </ul>
Slowing the HIV/AIDS Pandemic	<ul style="list-style-type: none"> <li>Thailand Business Coalition on AIDS</li> <li>Population and Community Development Association</li> <li>Thai Red Cross</li> <li>Ministry of Public Health</li> <li>Chulalongkorn Hospital</li> <li>Bamrasnaradura Infectious Diseases Institute</li> <li>UNAIDS</li> <li>World Health Organization (WHO)</li> <li>US Centers for Disease Control and Prevention</li> <li>Family Health International</li> <li>Duang Prateep Foundation</li> </ul>
Malaria	<ul style="list-style-type: none"> <li>Ministry of Public Health</li> <li>Bureau of Vector-Borne Disease</li> <li>Kenan Institute Asia</li> </ul>
Avian Influenza	<ul style="list-style-type: none"> <li>Asia Disaster Preparedness Center</li> <li>Ministry of Public Health</li> <li>Thai National Influenza Center</li> <li>Kenan Institute Asia</li> <li>Influenza Foundation (Thailand)</li> </ul>
Village Health Volunteer Program	<ul style="list-style-type: none"> <li>Ministry of Interior</li> </ul>

## Table of Expertise in Public Health

Expertise	Example Institution
Food Safety	<ul style="list-style-type: none"> <li>Ministry of Agriculture and Cooperatives               <ul style="list-style-type: none"> <li>National Bureau of Agricultural Commodity and Food Standards</li> <li>Department of Livestock Development</li> </ul> </li> <li>Ministry of Public Health               <ul style="list-style-type: none"> <li>Department of Health</li> <li>Food and Drug Administration</li> <li>The Bureau of Health Promotion</li> <li>The Bureau of Environmental Health</li> </ul> </li> </ul>
Nutrition	<ul style="list-style-type: none"> <li>Ministry of Public Health</li> <li>Ministry of Agriculture and Cooperatives</li> <li>Ministry of Education</li> <li>Ministry of Interior</li> <li>Health Promotion Foundation</li> </ul>
Health Promotion	<ul style="list-style-type: none"> <li>Ministry of Public Health</li> <li>Health Promotion Foundation</li> </ul>

## Sector Expertise Overview

Thailand has achieved major improvements in public health in the past 30 years. Infant mortality rates have dropped from more than 40 of every 1,000 children dying before their first birthday to only 12.5 deaths per 1,000 live births in 2009. Malnutrition has been reduced, with particularly great strides made in the 1980s when severe child malnutrition dropped from more than 15% to less than 0.8%. Life expectancy at birth for males and females has increased from 60 and 66 years in 1980 to 70 and 75 years in 2000, respectively. The population growth rate has been more than cut in half through effective family planning and has now reached replacement level, where the number of births equals the number of deaths in the population. Diseases such as malaria have sharply decreased, although a serious threat from drug resistant strains of the parasite has emerged. At the same time, Thailand has dealt well with new infectious disease challenges that include HIV/AIDS and avian and pandemic influenza, and has extended publicly financed healthcare to almost the entire population.

Some of these improvements can be explained by increases in per capita income, which have given people the disposable income necessary to afford better medical care. However, these successes can also be attributed to the development of an effective public health system that reaches out into rural areas with better health information, surveillance and treatment.

Although there are still problems within the system, it has been particularly effective in a number of key areas. These include family planning, HIV/AIDS treatment and prevention, water and sanitation, health care quality, epidemiology, infectious disease surveillance, food safety, village health volunteers, health and nutrition promotion and a universal health coverage system.

## Expertise in Family Planning

One of Thailand's most striking successes has been a reduction in the population growth rate. Family planning information and easily available contraception have given mothers the opportunity to decide when to start having children, how many children they want, and how far apart in age they want them. This benefits both mothers and children, as it allows families to ensure they have sufficient finances before having another child as well as giving mothers the opportunity to care for their babies for a sufficient length of time before becoming pregnant again. The ability to time and control family growth significantly reduces the financial and emotional burdens on many families.

After World War II, Thailand's birth rate increased while the mortality rate simultaneously decreased. The resulting population pressure, according to a report by the World Bank in 1959, would result in such problems as a shortage of schools, inadequate housing, poor health care and unemployment. The report said that even if national production could be increased significantly, it would not be sufficient to meet the needs of the country's growing population. These findings helped change the traditional mindset that a bigger population would lead to a more productive, more powerful nation.

The Ministry of Public Health launched its first trial efforts to control population growth in 1964, and the Thai government instituted its first national family planning program in 1967. This was supported in 1970 by the first national population policy. This policy has evolved over the years and now includes maternal and child health as well as family planning.

In 1967, the total fertility rate (TFR), which is the average number of children born to a woman over her lifetime, was 6.3. By 2003, Thailand's TFR was reduced to below replacement level at 1.7. Similarly, the population growth rate decreased from 3.3% to 0.8% in 2003 in what has been called a "reproductive revolution". Innovative promotion of family planning under slogans like "more children, more poverty" has led to major changes in attitudes and behavior. NGOs such as the Population and Development Association (PDA) and the Planned Parenthood Association of Thailand (PPAT) have been especially effective and creative. For example, PDA's founder, Mechai Viravaidhya, captured popular attention with campaigns that featured monks blessing contraceptives, condom blowing contests and free "scalpel-less" vasectomies on holidays. Government and NGO support for a wide variety of contraceptive methods has sparked a dramatic increase in the contraceptive prevalence rate from only 14.4% in 1970 to 79.2% in 2000. Widespread distribution through clinics, NGOs, government hospitals, village midwives and local drug stores has helped make oral contraceptives the most popular method, followed by injectable contraceptives and condoms.

## Success in family planning: the case of the PDA

In 1976, the Population and Community Development Association (PDA) adopted a strategy of using local people and local distribution channels to introduce a community-based approach to family planning services at the grassroots level. At that time, rapid population growth was straining the education and economic systems. The use of grassroots motivators, coupled with an imaginative publicity campaign, spread practical information on family planning throughout the country.

The PDA publicity included promotional items such as t-shirts, cigarette lighters, and other novelty items emblazoned with family planning slogans.



Source: PDA

The campaign, led by PDA's charismatic leader, Mechai, Viravaidya, once a popular movie star, used a humorous, common sense approach that struck a chord with village and urban people alike. It included Buddhist monks blessing condoms, condom-blowing contests in schools and condoms given like after dinner mints at the PDA's popular "Cabbages and Condoms" restaurants. This campaign also gave a boost to a parallel, albeit more staid government program. By recruiting key members of local communities as family planning advisors, including more than 300,000 rural school teachers, the PDA was able to expand the program into most of rural Thailand. The PDA example has been emulated by government programs within Thailand and in many other countries. Mechai's condom-promotion efforts were so successful that his name became another word for condom throughout Thailand.



Source: PDA

The PDA established family planning clinics in several cities. These clinics provided vasectomies, family planning information and birth control services for the poor. Fees were generally far lower than at private clinics and special holidays were celebrated with free services, including mass vasectomies. In recent years, PDA has reported providing about 30% of the total number of vasectomies in the country.

PDA and a group of physicians managed to convince the Medical Council of Thailand to accept new medical regulations effective in 2006 that permitted pregnancy termination on physical as well as mental health grounds. The PDA often works closely with the private sector. PDA volunteers in more than 400 businesses sell contraceptive devices to their fellow workers. In 1989, for example, the PDA sold more than 11,000 cycles of pills and 2,100 packages of 3-piece condoms through business-based family planning volunteers. The PDA has been happy to pass on its techniques and lessons learned to more than 3,000 health workers from 50 countries.

The national population policy aims to maintain fertility at a replacement level by:

- Providing health education and information,
- Integrating reproductive health and family planning,
- Promoting life skills learning, sex education, family education, and equal gender roles,
- Concentrating on areas where contraception acceptance is low,
- Providing services to reduce adolescent pregnancy,
- Encouraging women to wait three years between births,
- Promoting male involvement in family planning, and
- Improving service to neglected groups, such as migrant workers, tribal people, ethnic minorities and slum dwellers.

## Expertise in Slowing the HIV/AIDS Pandemic

When HIV/AIDS reached Thailand in the mid-1980s, little was known about the disease. Between 1988 and 1989, HIV prevalence among injection drug users rose dramatically, from virtually zero to 40%. The prevalence among sex workers also increased, with studies in the northern city of Chiang Mai indicating that 44% of sex workers were infected with HIV. Many HIV positive sex workers then passed the virus on to their male clients, who in turn could infect their wives and partners, and their children.

The Thai government launched an aggressive program of information and prevention. The government of Prime Minister Anand Panyarachun, which took office in 1991, was particularly forthright and effective in its efforts. Anand established a National AIDS committee that he chaired himself. The committee set a target of 100% condom use and put major government resources behind the effort, increasing the HIV/AIDS prevention budget from less than \$3 million to \$44 million. This campaign focused first on male homosexuals, but quickly expanded to reach other high-risk groups including sex workers, injectable drug users, fishermen, teenagers and ultimately the general population. Pragmatically, the government even worked with the owners of illegal brothels to institute regular tests for HIV.

Not surprisingly, the campaign was led by Mechai Viravaidhya, by then a minister in Prime Minister Anand's cabinet. Mechai enlisted not only the PDA but a variety of other NGOs, including the Thai Red Cross, CARE, Raks Thai Foundation and the Thailand Business Coalition on AIDS in an all-out effort against the disease. Even the army pitched in after it found that 240 new recruits tested positive for HIV. In coordination with the government and Ministry of Public Health, the campaign used many of the information techniques Mechai had pioneered at PDA. With his deft touch at attracting mass media coverage, the campaign quickly spread the word about this new health threat. A 1993 study of Bangkok college students indicated that more than 94% of students had some understanding of AIDS and 92% could cite the major modes of transmission. Condoms were popularized as both disease prevention and contraception devices and they became available at the checkout counters of most supermarkets, convenience stores and drugstores. In the countryside, contraceptives were made available through free distribution at village clinics or through health related NGOs.

The Thai program has been highly successful. Reported condom use in brothels increased from only 14% in 1989 to over 90% by 1994. Over the same period, the number of new sexually transmitted disease cases among men treated at government clinics plummeted by over 90%. Regular surveys among young male recruits in the Thai army revealed similar changes in infection rates, with rates peaking at 4% in 1993 before falling to below 1.5% in 1997.

The AIDS pandemic, however, is far from over. Its attention diverted by the 1997 financial crisis, the government let spending on AIDS programs drop by about 25%. Infection rates among injectable drug users increased to 20%-45% nationwide. In some rural areas, HIV infection rates among sex workers rose once more. At the same time, the risk of infection has spread from commercial sex to unprotected casual and marital sex. Thailand has learned that information campaigns cannot be relaxed. Of particular importance was a government program monitoring mother-to-child transmission of HIV. This led to improvements in the use of short-course AZT (zidovudine) to prevent mother-to-child transmission of HIV and a significant reduction in the number of infants born with the virus.

In 2000, Thailand adopted the use of combinations of anti-retroviral drugs to treat people infected with the virus. The therapy proved successful in prolonging the lives of people and delaying progression of HIV to full-blown AIDS. The Ministry of Public Health put these drugs on the list of standard medications provided through government hospitals and clinics, enabling a dramatic decrease in the number of people dying from complications from AIDS.

Initially, branded drugs were used, but availability of less expensive generic drugs allowed the government to expand the use of anti-retrovirals by 800% while increasing the budget by only 40%. By the end of 2006, an estimated 88% of those needing the drugs were able to receive them. Unfortunately, the first line anti-retrovirals eventually became less effective and a second, patented, and therefore more expensive, line of drugs was needed. In 2006 and early 2007, the Thai government issued compulsory licenses for two patented anti-retroviral drugs in order to make them available at less cost. The move was opposed by some pharmaceutical companies, but championed by AIDS activists.

By the end of 2007, national HIV prevalence was 1.4%, down from 1.8% in 2003 and more than 2% a decade earlier. This, however, means that an estimated 600-700,000 Thais are HIV positive.

Thailand has also become a leader in HIV/AIDS research. It has hosted a number of clinical studies of treatments and vaccines that have made Thailand a leader in medical advances regarding the disease. An important example is the first successful trial of the efficacy of an AIDS vaccine. This six-year trial of a vaccine known as RV 144 was the world's largest clinical trial of an AIDS vaccine and it showed a 32% protection rate. Although this was not a high enough rate to lead directly to vaccine production, it is expected to spark significant further work as researchers try to understand why the vaccine worked in some cases and not in others. The Thai government's cooperative attitude on AIDS treatment and research has made it a center for AIDS capacity building.

Thailand's leading hospitals have achieved a high level of expertise in treating AIDS patients. Chulalongkorn Hospital and Bamrasnaradura Infectious Disease Hospital, for example, provide excellent

opportunities for international health workers to observe AIDS care. These hospitals also emphasize the need for universal precautions to develop greater confidence among health care workers, the need for medical, nursing and other personnel to be involved in counseling, better coordination among the different care institutions, and the integration of preventive programs for sexually transmitted diseases and tuberculosis into an effective HIV/AIDS care program. The Ministry of Public Health channels the latest learning on AIDS care to provincial hospitals and clinics through initiatives such as the Northern AIDS Coordination Center.

Thailand has become a center for international AIDS expertise by hosting offices and programs of UNAIDS, the World Health Organization, the US Centers for Disease Control and the US-Thai Armed Forces **Research** Institute of **Medical** Sciences. Thailand has also welcomed international NGOs working on various aspects of the AIDS problem, such as the Program for Alternative Technologies in Health and Family Health International. Effective grassroots Thai organizations have developed considerable expertise in the home care of AIDS sufferers, counseling AIDS victims, helping people affected by AIDS and providing income and self-esteem for the infected.

In addition to its program on AIDS information and condom distribution, PDA has innovated programs that partner an HIV-positive person with an HIV-negative person in a business venture. The partnership is given initial funding and business assistance. These partnerships provide living proof that people can work closely and safely with infected persons. At the same time, the project provides income to the HIV-positive people who are often fired from their jobs when their condition becomes known.

Many Thai NGOs provide HIV/AIDS counseling services. Access and the Hotline Center Foundation provide examples of the different services that can be developed for different target groups. Telephone counseling and individual counseling provided at counseling centers located at hospitals is available for persons infected with HIV/AIDS, as well as advice for their partners and families, radio talk shows spread information and awareness of HIV/AIDS and decrease stigma associated with the disease, support groups for people affected by HIV/AIDS exist, as well as training programs for counselors and peer educators.

People living with AIDS themselves have organized to help each other. Groups such as the Wednesday Friends Club and Concrete House have emerged to support those who are infected, to keep in touch with the latest medical developments, to mobilize resources to fight stigmatization and to promote positive attitudes towards persons affected by HIV.

The Duang Prateep Foundation, a slum-based community development organization, has a prevention and education program targeted at intravenous drug users and female sex workers in the slums and uses volunteers from the community to spread the message of safe sex and HIV prevention. NGOs, such as the Association for the Promotion of the Status of Women, provide shelter for women who are HIV positive. The International Network of Engaged Buddhists encourages temples to set up hospices for people infected with AIDS and provide spiritual support to their families.

## Getting the private sector involved: the case of the TBCA

The Thailand Business Coalition on AIDS (TBCA) is a non-profit organization that was set up in 1993 at the height of the AIDS crisis. A 1992 survey by the American Chamber of Commerce in Thailand showed while almost all companies were aware of the AIDS problem, only 1% had actually implemented any AIDS information or training for their employees. Most of the company managers surveyed said they did not know where to turn for help. Alarmed by the findings, two American businessmen provided financial support to set up the TBCA as a non-profit alliance serving business interests and addressing business concerns related to HIV and AIDS. Its immediate objectives were to mobilize resources from the private sector and promote the adoption of sensible, non-discriminatory workplace policies and education programs. The first business coalition of its kind in the world, TBCA enabled companies to work together to reduce the risk of AIDS to their employees, their businesses and the wider community. Its activities have included:

**Training:** Six educational curriculums on HIV and AIDS target management and employees, teaching workers and managers how to protect themselves and providing managers with guidelines for developing non-discriminatory workplace policies towards HIV-positive workers.

**Community program:** This program provides home visits, group support activities in hospitals and skills development to 1,300 families in Bangkok and Chiang Mai.

**Certified quality management system:** TBCA provides a national quality certification program on HIV and AIDS prevention and management recognized by the International Labor Organization.

Since 1993, TBCA has worked with more than 7,000 companies in Thailand to help them implement HIV and AIDS programs.

## Expertise in Malaria

Thailand has also developed expertise against a much older public health threat – malaria. Through much of Thailand's history, this mosquito-borne disease was a major factor in limiting population size. King Mongkut, one of Thailand's most effective and celebrated monarchs, died of malaria in 1868. As late as 1949, malaria was the leading cause of death in Thailand, killing more than 38,000 people per year, a rate of 201.5 per 100,000. In 1951, the government, with US assistance, developed a national Malaria Control Program that focused on mosquito control.

The program steadily eroded the number of malaria infections with the malaria death rate dropping to 22.8 per 100,000 by 1963. In the 1970s, with the disease eliminated in most cities, the malaria program focused its attention on forested areas and the rural population. New drugs providing more effective treatment also played a role in limiting malaria transmission. Total cases were halved from 200,000 in 1991 to only 100,000 in 1996.



Thai students study  
the science of malaria  
Source: K.I.Asia



A Phuket health official tests a migrant worker from Myanmar for malaria  
Source: K.I.Asia

However, by 1999, the number of cases was again rising, with 128,833 Thai infections reported and nearly 80,000 cases brought into Thailand by foreign migrants. Suddenly, Thailand faced a new set of challenges to its success in dealing with malaria. Dropping infection and death rates had diverted attention and budget to other diseases. The spraying of DDT, so effective in the early malaria programs, had become unacceptable due to environmental concerns. An influx of migrant workers, especially from Cambodia and Myanmar, were bringing the malaria parasite with them. Malaria re-emerged in many districts where malaria

transmission had ceased. Phuket Province, for example, where malaria transmission has been eradicated for years, reported seven confirmed indigenous cases in 1998 – all from hilly forested areas where migrant laborers were employed. Resistance to the front-line anti-malarial drugs, especially along the Thai-Cambodian and Thai-Myanmar borders increased the cost of treatment and threatened to make key drugs ineffective.

Thailand's anti-malaria program included support for both school-based and community-based information and prevention efforts in border areas. A key effort was the distribution of insecticide-treated bed nets. The Ministry of Public Health, with support from USAID's Accelerating Economic Recovery in Asia (AERA) program, set up a sentinel surveillance program to assess treatment efficacy and increased scrutiny of the ineffective or counterfeit malaria drugs that led to drug resistance.

The Ministry moved to new treatments using artesunate, a drug that killed the parasite more quickly and limited the time for transmission. It also developed bio-environmental measures and more environmentally friendly chemicals to reduce mosquito populations. Village health volunteers played a major role in providing low-cost action against malaria in many areas.

The Ministry, in collaboration with the Kenan Institute Asia, developed active programs of cross-border cooperation with Thailand's neighbors, especially Lao PDR and Cambodia. It has also established Thailand as a training center for personnel development and malaria research in the region.

## Expertise in Avian Influenza

Since the virulent H5N1 avian influenza virus emerged in Vietnam in 2003, the virus has spread to more than 60 countries with a 60% fatality rate among confirmed human cases. It has caused the death or culling of hundreds of millions of domestic birds, and Thailand was not immune, suffering outbreaks among both birds and people.

The first outbreak hit Thailand in 2004. In response, the government established programs to cull at-risk poultry populations and to compensate the owners of the birds. Four more outbreaks occurred in 2005 and 2006, but, with more effective procedures in place, the human toll was steadily reduced. The National Strategic Plan for Avian Influenza Control in Thailand was established in 2005. This plan provided for better compartmentalization of poultry raising, especially free-range ducks and established controls on poultry relocation, including fighting cocks.

In addition to setting up effective domestic measures, Thailand recognized that international cooperation was also needed. With financial assistance from USAID's AERA program and support from TICA, the Ministry of Public Health worked with K.I.Asia to strengthen cross-border collaboration for early identification and rapid containment of outbreaks under a project called "Border Action Against Microbes". It worked with its neighbors to establish coordinated surveillance and response at its borders and emphasized the importance of sharing good practices.



Health officials from Sakaeo province screen for H5N1 infections at a check point between Thailand and Cambodia Source: K.I.Asia

The Ministry, working closely with K.I.Asia, set up eight strategic "twinning province" sites involving four provinces in Cambodia, five in Lao PDR and eight in Thailand. K.I.Asia provided technical and financial support to enable the sites to implement a package of activities including orientation meetings, ICT hardware and software for cross-border communication and functional exercises on avian and pandemic influenza. The program included training on joint planning and budgeting, sharing outbreak information, joint outbreak investigation and response, assessment of core capacities (laboratory, ICT, and checkpoint quarantine), and exercise management.

This regional public health collaboration, with funds from USAID and support from TICA was extended for another five years beginning in 2009 under a new project called "Greater Mekong Subregion – Responses to Infectious Diseases" (GMS-RID).

The Bangkok-based Asia Disaster Preparedness Center (ADPC) organized workshops to share experiences in conducting avian and pandemic influenza exercises, which led to development of a training curriculum to improve design and management of cross-border simulation exercises. Some 35 cross-border field exercises have been conducted with the involvement of more than 400 GMS professionals from public health, agriculture, livestock, quarantine, and border checkpoint offices as well as hospital staff. Results included establishment of standard operating procedures, knowledge about the preparedness of each site, agreements on how to respond to outbreaks, the set up of rapid response teams on both sides, and the capacity to manage joint exercises.

With co-funding from UNICEF and USAID, the Ministry of Public Health and the Ministry of Education established guidelines for a school-based process for pandemic preparedness planning. With technical assistance from K.I.Asia, five school curriculum and instructional packages were created using a life-skills approach to avian and pandemic influenza. The packages were rolled-out to 33,000 schools. This has led to improved practices for prevention of human infection by H5N1 and response to pandemic influenza in school children, their families and communities.

The private sector has also contributed to the prevention of avian influenza in Thailand. Colgate Palmolive (Thailand) worked with the Ministry of Education to launch campaigns in 28,000 Thai schools using posters, videos and other activities encouraging use of the seven-steps in effective hand washing. Follow-up surveys indicated that the campaign made a significant difference in the hand-washing behavior of both students and teachers, at home and in school. Although designed to protect against avian influenza, the hand-washing message has also proved useful in slowing the spread of other infectious diseases, including pandemic H1N1 Influenza 2009, in Thai schools.



Rural school children practice the seven steps of cleaning hands learned from the Colgate project.  
Source: K.I.Asia

## Expertise in Thailand's Village Health Volunteer Program

Much of Thailand's ability to deal successfully with health threats in rural areas is due to its system of village health volunteers. More than 900,000 village health volunteers provide Thailand's first line of defense against illness. They can be found in virtually every rural village in the country. The volunteers implement a primary health care approach that is practical, community-based and participatory. These volunteers are trained as health communicators and health mobilizers who work as an extension of the professional staff of the Ministry of Public Health, giving the ministry a valuable implementing arm that can reach into every village in the country. This cost-effective program has attracted international attention, with Japan recently announcing that it wanted to learn from the Thai system.

Formally launched in 1977, the "Village Health Volunteer" program grew out of a pilot project that began a decade earlier. The volunteers, trained by the Ministry of Public Health, provide a crucial link to Thailand's 70,000 villages.

The government aims at recruiting enough volunteers so there is one for every 8-15 households in rural areas and one for every 20-30 households in more populated areas. The criteria for selection as a village health volunteer includes:

- Acceptance by the other villagers at a meeting of the whole village,
- Willingness to stay in the village and serve for at least a two-year term,
- Sufficient free time,
- Ability to read and write,
- Providing a good example of healthy living, and
- Not currently a civil servant.

The volunteers are offered discounts on their own health care and their children's education, but most seem motivated by the opportunity to help their neighbors. Volunteers are trained at sub-district health stations or district hospitals. The training covers both health theory on a broad range of issues and the practical actions expected of them as volunteers, such as promoting good health, gathering health information, coordination with local officials and referring patients for treatment. The training is customized to the particular health problems of each locality.

Once they have completed their training, the volunteers are assigned responsibility for specific households. Their performance is monitored by the village committee and government health officials.

The critical role of the village volunteers is providing information for both health promotion and disease prevention. They give villagers correct, up-to-date information about health threats and also provide the government with details on the spread of disease in rural areas. This two-way information role is particularly important since government studies have shown that some 70% of rural health problems are due to misunderstanding of health dangers or attempts at self-treatment. The volunteers encourage villagers to seek proper treatment at the government's sub-district health stations or district hospitals, but they don't provide treatment themselves.

Although increasing urbanization and easier communication and transportation have lessened the importance of the village volunteers in recent years, they recently played a valuable role in Thailand's efforts to limit the spread of avian influenza. Volunteers were able to go house-to-house to search for suspected victims of the disease. They also checked for sick poultry and provided information on how villagers could protect themselves from infections. When a volunteer identifies a sick bird, he dons a disposable white plastic safety suit and face mask, puts the bird in a bag and then buries it. Then the volunteer passes on the information to the government health system. This grassroots system is credited with the decline in cases of avian influenza in Thailand in the past three to four years.

In some areas, village health volunteers have become critical data gatherers for computerized mapping of disease spread. In Thailand's eastern provinces bordering Cambodia, for example, volunteers have been able to provide house-by-house health information to a provincial GIS (geographical information system). William Aldis, the WHO representative in Thailand, recently praised the village volunteer system saying, "This is something that all over the world we've been trying to promote. And this is probably the best example that I've ever seen."

## Expertise in Food Safety

The promotion of food safety has been one of the government's priorities under its "Healthy Thailand" campaign. Responsibility for food safety is shared by the Food and Drug Administration, the Bureau of Health Promotion, the Bureau of Environmental Health, the National Bureau of Agriculture Commodities and Food Standards (ACFS), and the Department of Livestock Development.

As a leading food exporter and prime tourist destination, food safety is critical to the national economy as well as national health. The ACFS was set up in 2002 as the primary agency to regulate and certify standards

of food for both domestic consumption and export. A key tool has been the Good Agricultural Practice (GAP) standard that provides methods of eliminating toxic residues and identifying animal disease. Similarly, Thailand uses the Good Manufacturing Practice (GMP) and Good Hygienic Practice (GHP) standards for food processors, distributors and retailers. The ACFS is the accreditation body for all organizations certifying these standards. It also issues rules on the registration and standards of agricultural commodities and food laboratories.

Recognizing the importance of providing safe food at tens of thousands of small restaurants and street stalls, the Department of Health joined the Tourism Authority of Thailand and the Ministry of Interior to launch the “Clean Food, Good Taste” project. The goals of the project are to reduce the risk of food-borne disease, promote sanitary food services and support local authorities in their inspection of all businesses serving food to the public. The project is centrally planned and locally implemented using partnerships with the private sector and public awareness. A central committee establishes the criteria for awarding a “Clean Food, Good Taste” logo to locally-inspected food sellers. About 30 percent of awardees are randomly chosen each year and re-assessed at least twice a year. If the awardees fail to maintain standards, the logo will be revoked. The project provides training courses for local inspectors and for food service personnel. By 2008, some 122,000 food services out of 168,000 had been awarded the “Clean Food, Good Taste” logo.

## Expertise in Nutrition

Thailand’s first five-year National Food and Nutritional Plan was launched in 1977 as a cooperative effort among the Ministry of Public Health, Ministry of Agriculture and Cooperatives, Ministry of Education and Ministry of Interior. This first plan raised awareness of nutrition, but did little to reduce malnutrition. An evaluation showed that communities did not participate effectively in the plan and understanding of nutrition was low. It also showed the direct connection between malnutrition and poverty.

This evaluation led to more effective plans and interventions that reached out to villages, with village health volunteers using simple tools such as scales and growth charts to show mothers whether their children were malnourished. Children were weighed at village weighing stations every three months to identify problem cases. The volunteers could offer both food supplements and recipes based on local ingredients that provided proper nutrients for the malnourished.

The Ministry also added nutrition to the national “Basic Minimum Needs” (BMN) indicators of quality of life. These are a list of indicators used to identify situations that need improvement, set goals and monitor progress. The BMN approach helped integrate efforts at the community level. At the same time, reduction in poverty gave even poor families sufficient income to provide proper nutrition to their children.

In the 1980s, Thailand used the village health volunteers and much greater community participation to implement a number of additional measures, which included:

- Promotion of breast feeding,
- Correction of traditional food taboos,
- Promotion of nutritious foods such as legumes, fish and poultry

- Decentralization of production and distribution of supplementary foods to the community level through home vegetable gardens and fruit trees,
- Iodization of salt,
- Wider distribution of low-cost vitamin and iron tablets, and
- Establishment of school lunch programs at 5,000 schools in low-income areas.

In 1988, a food coupon program was introduced, providing coupons for each child determined to be moderately or severely malnourished. These coupons could be used to purchase specific nutritious foods at local shops.

These efforts made a major impact. From 1980 to 1986, Thailand's child malnutrition rate was reduced from 50 percent to 25 percent. Severe child malnutrition dropped even more dramatically from 15% in 1980 to less than 0.8% a decade later. Malnutrition has continued to decline since then, albeit at a slower rate.

## Expertise in Health Promotion

Thailand has recognized that health promotion is particularly cost-effective in reducing the burden of disease and in reducing the physical and economic impact of diseases.

Under the umbrella of "Healthy Thailand," the Ministry of Public Health has implemented promotion initiatives in nine areas:

- Child Development,
- School Children in Health Promoting Schools,
- Healthy Families for a Healthy Thailand,
- Healthy Cities,
- Physical Activity and Diet for Health,
- Reproductive Health,
- Food Safety,
- Healthy Public Toilet, and
- Healthy Elderly.

Health promotion campaigns have been launched in each of these areas, but it is also recognized that the promotion of good health in Thailand must go beyond the issues of disease and nutrition. Many health problems and deaths in Thailand are due to preventable, behavior-based causes such as smoking, alcohol abuse and traffic accidents.

To bolster government health efforts, Thailand established the Thai Health Promotion Foundation in 2001 and funded it with a 2 percent surcharge on alcohol and tobacco excise taxes. This has provided more than US \$50 million per year to finance a wide variety of projects promoting better health, particularly to reduce the adverse health impacts of tobacco smoking, excess consumption of alcohol, and accidents. Many health promotion projects focus on the benefits of regular exercise and healthy eating. The Health Promotion Foundation operates an open grants program that invites proposals from all kinds of organizations interested in health

promotion initiatives. As a result of these promotion projects, along with legal measures to control smoking and drinking, studies show a rise in health awareness and a drop in smoking and alcohol consumption.

## Expertise in Health Policy

Thailand has achieved nearly universal health care coverage through three major public health financing programs. The Social Security Scheme covers formal employees in the private sector. The Civil Servants' Medical Benefit Scheme covers government employees, government retirees and their dependents. The government enacted the National Health Security Act, in November 2002, to establish the Universal Healthcare Coverage Scheme to cover the rest of the population.

These public programs co-exist with a wide range of privately financed health insurance plans that provide a higher level of coverage and care. The Civil Servant Medical Benefit Scheme covers about six million government employees and their dependants; the Social Security Scheme protects approximately nine million employees in the formal sector from non-work related health care expenditures; and the Universal Coverage scheme covering approximately 47 million people who were not previously beneficiaries of the two previous arrangements. Although there have been difficulties in working out the mechanism of government financial support for the hospitals that receive the most difficult medical cases, Universal Coverage has been a major boost to the health of the poor.

Although the poorest tenth of the population still spend a higher percentage of their income on health than the richest tenth, the spending of the poor has declined dramatically, from over 8 percent in 1992 to just over 2 percent in 2004. The percentage of poor households facing impoverishment due to medical costs dropped from 11.9 percent in 2000 to only 2.6 percent in 2004.

Although treatment benefits are limited to a list of standard treatments, that list was extended in 2008 to include:

- Dialysis,
- Kidney transplants,
- More expensive drugs for cancer, muscular degeneration, and fungus infections,
- Flu vaccinations, and
- Methadone treatment for drug addicts.

The Universal Coverage Scheme has succeeded in providing comprehensive benefits, including both preventive and curative health services, that, combined with the pre-existing health care schemes, cover nearly the entire population. However, the implementation of the scheme was not without problems. Health facilities have to register to take part and must be registered as providing primary, secondary or tertiary health care. Beneficiaries are not allowed to go directly to secondary or tertiary care facilities without referral from the primary medical care unit except in emergency situations. This has sometimes caused unnecessary delays in treatment.

Most importantly, however, Thailand has had to adjust its payment system to meet the needs of tertiary health care providers that typically face more complicated and expensive care needs. There were controversies as some hospitals facing financial losses tried to pass on more complicated cases to other hospitals.

A per capita payment is used to cover prevention services and ambulatory care. Double counting of members among the three services became an issue that was ultimately resolved by synchronization of member registration databases. The databases of the three schemes and the personal ID database of the Ministry of Interior have now been linked together and are synchronized twice a month.

Thailand's experience has shown that publicly funded health care providers respond to different payment mechanisms in a similar manner to private providers. When hospitals initially received fees calculated on the number of local inhabitants registered to receive care from the hospital, administrators of those hospitals tended to seek to restrict more expensive services, such as those to the elderly. In its seven years of experience with the system, a number of changes have been made to set standard fee schedules, improve auditing, and account for the costs of investment in advanced equipment. The need for close monitoring of the quality of care has become apparent.

With universal coverage, the overall cost burden to the government has nearly doubled from 2002 to 2006. Due to an aging population, strategies to ensure healthy elders are clearly needed. Cost-effective long-term care is another need as life-spans have increased and family size has decreased so that the elderly can no longer depend on their families for care in the final stages of their lives.

## Partnership with Developing Countries

Thailand has been active in regional and sub-regional health cooperation initiatives with other developing countries. Health initiatives have been carried out through the following mechanisms:

- Association of South-East Asian Nations (ASEAN),
- Asia-Pacific Economic Cooperation (APEC),
- Greater Mekong Sub-region (GMS),
- Mekong-Ganga Cooperation (MGC),
- Ayeyawady-Chao Phraya-Mekong Economic Cooperation Strategy (ACMECS), and
- Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMST-EC).

Thailand has actively engaged in South-South development cooperation, sharing with other countries its experience in improving health in a variety of dimensions. In collaboration with the UN Development Program (UNDP), Thailand has provided development assistance to several African countries on HIV/AIDS prevention.



# Natural Resources, Environment, and Energy

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Volume

# Natural Resources, Environment, and Energy

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## Sector Expertise Overview

Thailand's rapid industrialization and urbanization in the 1980s led to rising concern over the damage caused to the natural environment. The faster the country "developed", the more the environment seemed to deteriorate and pollution to intensify. Population growth and rising affluence also led to increasing amounts of solid waste and waste water as well as greater demand for energy. Forests that, as late as the 1960s, covered more than half of Thailand's land area had dwindled to about 25% in 1998. This led to fear that the forests' ability to perform their presumed role in regulating rainfall, water flows and water purification had been impaired.

Soil, critical to Thailand's food production and export, was threatened by overuse, contamination, erosion and degradation. Rising domestic energy demand, coupled with rising global energy prices, impacted the economy and further intensified pressure on natural resources. Thais, therefore, sought innovative solutions and expertise to deal with these environmental problems in order to limit the damage to the environment while allowing economic growth to continue. Many of these solutions, especially those for rural areas, have been inspired by the development work of His Majesty King Bhumibol Adulyadej.

## Expertise in Soil Development and Conservation

In the past 30 years, much of Thailand's success in increasing agricultural production has come from expansion of land for cultivation rather than improved productivity. Not only is this unsustainable, but it has come at the expense of forests and land quality. Land quality has been further reduced by erosion and soil degradation.

### The use of vetiver grass to prevent soil degradation and erosion

One solution has been to use vetiver grass for soil conservation and erosion control. Known as a "miraculous grass", vetiver grass grows naturally in many parts of the world. In Thailand numerous studies and experimental planting of the grass have shown it can solve soil degradation problems by providing a barrier to the loss of soil due to water runoff. The vetiver slows the water flow and allows it to be absorbed in the soil.

Conclusions from the experimental planting, much of it in rural development projects initiated by His Majesty King Bhumibol, include the following:

- Vetiver grass, with an extensive root system, helps filter soil sediment while keeping the soil surface intact.
- On slopes or hillsides, vetiver grass should be grown perpendicular to the slope.
- On flat plains, vetiver grass should be grown in rows alternated with rows of field crops.
- Vetiver grass can be grown around ponds or reservoirs to prevent the shallowing of the pond from sediment eroded from the edges. It also helps revitalize the watershed area above the reservoir.
- Rows of vetiver grass grown in the area above a water resource prevent soil erosion and filter the waste that normally flows into the water.

In addition, the grass helps maintain the dikes of paddy fields. Vetiver thatch is useful both at the household level and in commercial manufacturing. Vetiver's aromatic root can be used in wardrobes to freshen the air and to protect clothing against moth infestation. The volatile oil in the roots is used in fragrances, such as the French perfume Vetiver. The success of vetiver grass initiatives has been recognized by the International Erosion Control Association (IECA) and the World Bank.



## Solving the soil acidity problem

Soil acidity in southern Thailand arises from high sulfur content and often prevents cultivation. Thailand has developed several methods of de-acidifying such soils. Alternately flooding and draining the land, mixing lime with topsoil at 3 to 10 tons per acre, or a combination of the two methods can accelerate chemical reactions that lower acidity. Controlling the ground-water level helps prevent the release of sulfuric acid. Acid is further reduced with water flows. Since acidic areas are typically flat with poor drainage, it is often necessary to change the land contours. Ultimately, selected, acid-resistant crops can be planted, turning what were once wastelands into productive areas.

## The Pikun Thong Royal Development Study Centre

A major soil acidity reduction project in the southern Thai province of Narathiwat, supervised by the Pikun Thong Royal Development Study Centre since 1982, has successfully implemented Thailand's de-acidifying techniques. The project reduced soil acidity to the point where rice can now be cultivated twice a year and the yield has increased three to four fold. The center also studied an intercropping system, with planting of sweet zalacca, flowers and herbal plants. Limestone dust was used to improve the pH condition in ponds, enabling freshwater fish breeding. As a result of these practices, the annual income per household of the farmers in the surrounding villages increased from 8,918 Baht in 1982 to 59,663 Baht in 1994.



Source: The Pikun Thong Royal Development Study Centre

## Expertise in Forest and Natural Resource Conservation

In 1961, the total forested area of Thailand was 27 million hectares, covering about 53 percent of the country. By 1998, the percentage of forest cover had dropped to around 25 percent. Thailand's rapid loss of forest was initially driven by demand for tropical hardwood, which led to extensive logging. Teak was the most highly sought wood, resulting in a precipitous drop in the area of natural teak forest from an estimated 2.3 million hectares in 1954 to only 150,000 hectares by 2000.

In the 1980s, however, it became clear that if unrestricted logging continued, there would be little forest left within a few decades. The importance of maintaining forests was brought home by a series of flash floods in heavily logged areas that caused extensive loss of life. A comprehensive ban on logging was put in place in 1989. This slowed the damage, but loopholes in the ban and difficulties in enforcement allowed some logging to continue. Since then, the main threat to the forests has shifted from logging to gradual forest encroachment by the growing rural population in need of agricultural land. However, while expanding villages were seen as the enemies of the forest, simple enforcement of forest boundaries, sometimes by evicting whole villages, proved ineffective and unduly harsh. To address this problem, the Royal Forest Department of Thailand began to involve communities in the mission to preserve forests. The idea, actively promoted by His Majesty King Bhumibol, is to develop ways that forests can provide economic benefits to the community and to organize the community so that it maintains those benefits by preserving the natural forest.

Thailand has also established measures for protection of forests as national parks and forest reserves. Beginning in the 1970s, there was a rapid expansion of national parks. These serve both to protect forests and provide outdoor recreation to the increasingly urbanized population. These measures to restore and protect forests appear to have contributed to a gradual increase in the estimate of forest cover that, by 2009, was put at 32.7 percent. A portion of this apparent improvement, however, is due to a change in the method of calculation and improved technical ability to identify and count smaller patches of forest.

## National parks

In 1979, Thailand had only 16 national parks, covering an area of 935,700 hectares. Twenty-five years later, this had increased dramatically to 114 national parks covering an area of 6.35 million hectares with another 38 new parks in the process of being established. There are now 55 conservation areas, 67 forest parks (which are given a lower level of protection) and numerous no-hunting areas. In addition, 1,221 national forest reserves have been established that cover more than 23 million hectares. These efforts have increased the percentage of Thailand's land area under some form of official protection to about 20 percent.

National Parks, which must have an area of at least 10 square kilometers, serve as recreation areas for the rising number of Thais who live in towns and cities. Approximately two-thirds of Thailand's domestic tourists engage in some type of ecotourism activities, including nature study, exploring, camping, trekking, rafting and picnicking. The parks also attract international tourists,

establishing Thailand as a prime eco-tourism destination. The Tourism Authority of Thailand has identified nature-based tourism as a key area for growth.

National parks also provide habitat for a wide range of animal, plant and insect species, with forest plants considered to have great potential for the development of new medicines.



Waterfall at Khao Yai, Thailand's first national park  
Source: Department of National Parks, Wildlife and Plant Conservation

## Community forests

Thailand has long sought to find ways to encourage communities to take care of nearby forests. This effort has been controversial, with committed advocates on all sides of the issue. Efforts to pass and implement a Community Forestry Bill have not yet succeeded, but a great deal of practical experience has been gained. It is estimated that some 1.2 to 2 million people live in or adjacent to protected forests and use forest products for household or commercial purposes.

As early as the 1970s, the government recognized community forestry as a strategy for sustainable management of forest resources. In 1991, the Office of Community Forest Management was created to plan and promote community forestry. This office involves local communities and NGOs in its work; approximately 11,400 villages are engaged in managing community forests, with half of those having formally registered their community forest with the government. These community forests are estimated to cover an area of 196,667 hectares in both national forest reserves and other forest areas – about 1.2 percent of the total forest area.

Officially registered community forests must be set up and organized by members of local communities to manage nearby forest resources. These resources are considered community property, and must be shared fairly. Community members are responsible for all the planning, caring, monitoring, and development of community forests.

Common factors contributing to the success of community forest management include:

- There is a high sense of community, often including networks of relatives or inter-dependent neighbors.
- The forest area involved has the potential for healthy recovery.
- There are additional benefits from conservation, such as the protection of water sources, food or medicines.
- There is awareness of the benefits of forest conservation.
- There is strong community leadership.
- A local organization is set up to represent villagers' conservation interests.
- There is a strong belief in the concept of common resources and common rights, so there is a clear perception that the forest belong to the community.
- There is a set of enforced regulations and conditions for the use of community forests.

### **The “3 Forests, 4 Benefits” concept**

The “3 Forests, 4 Benefits” concept integrates the need to conserve and rehabilitate forest resources with socio-economic benefits. The concept provides for three types of forests to be planted. One type gives wood for household use, one produces fruits, and the other, fuel. Besides providing these three economic benefits, these forests, or forest plantations, also provide a clear environmental benefit by enhancing soil and water quality and maintaining humidity through the dry season. The Huai Sai Royal Development Study Centre in Phetchaburi Province and the Huai Hong Khrai Royal Development Study Centre in Chiang Mai Province have become leaders in the use of this type of community forestry.

### **The Smiling Seedling “Love the Forest and the Community” Project**

In 2008, the Royal Forest Department, together with the Ratchaburi Electricity Generating Holding PCL, launched the Kla Yim (Smiling Seedling) “Love the Forest and the Community” project to promote harmonious human-forest living and protect natural resources. This was the first partnership between the Royal Forest Department and a private company to develop well-managed community forests. The program is open to all community forests approved by the Royal Forest Department. Its goal is to identify the community forests with the best systematic plans, mechanisms and procedures to protect forests through strong community participation. The award-winning community forests serve as models and act as learning centers for other communities.

In 2009, Baan Ta Pa Pao community forest in Lamphun Province won the “Best National Community Forest” award and the HRH Princess Maha Chakri Sirindhorn trophy, beating out 673 other community forests that applied for the award. After ten years of being nurtured by a three-party collaboration of households, temples and schools in adjacent villages, the 5,000-acre community forest has a rich variety of plants, including some

500 types of herbs. This fertile forest also provides an abundant supply of water to the community via a supply system than runs through the surrounding mountains.

The Love the Forest committee cited another 190 award-winning community forests, including 64 winners for the “Best Provincial Community Forests” and 120 consolation prizes awarded to other projects. Noppol Milinthaggoon, President of Ratchaburi Electricity Generating Holding, said, “The awards are expected to boost the spirits of these communities and encourage them to protect and preserve their natural resources and ensure the fertility and sustainability of their food sources.”

## **Institutional expertise in forestry**

Thailand hosts the Regional Community Forestry Training Centre for Asia and the Pacific (RECOFTC), an important regional organization that is focused on the development of community forestry. Growing out of the need for increased professional skills and capabilities in the field, RECOFTC is the only international non-profit organization that provides training, research and advisory services on community forestry. Established at the Forestry Faculty of Kasetsart University, it offered its first six-month certificate course in community forestry in 1988. By the late 1990s, RECOFTC had expanded its activities to six different types of international training courses, international seminars and workshops. In 2000, under a special Thai law, RECOFTC became an international organization. Since then, in addition to training, RECOFTC’s work has expanded to include analysis of key forestry issues and implementation of action research at the field level.

In addition to the expertise of RECOFTC and the Department of National Parks, several Thai NGOs have expertise in forest management for both environmental protection and community development. These include the Thailand Environmental Institute, the Dhammanaat Foundation, the Foundation of Education for Life and Society, Seub Nakhasathien Foundation, and Promotion of Human Resources for Community Development Foundation.

Several Thai universities offer courses related to forestry, but with different emphases. Chiang Mai University is known for its courses on natural resource management, and Khon Kaen University for its courses on rural development. Mae Jo University offers courses on land use and ecotourism, and Chulalongkorn University on community forestry. Kasetsart University not only offers courses on forestry, agriculture and fisheries, but also has the only fully fledged forestry faculty, offering BA, MA, and PhD programs in forestry.

## **Expertise in the Development of Water Sources and Water Management**

The development and management of water resources has been critical to the people of Thailand for hundreds of years. Although major irrigation canals, dug by hand in the 18<sup>th</sup> and 19<sup>th</sup> centuries, are still in use, the nation-wide, systematic development of the irrigation system did not begin until the 1960s. With assistance from the World Bank, the centerpieces of the modern Thai irrigation system, the multipurpose Bhumibol Dam on the Ping River and the Sirikit Dam on the Nan River, were completed by 1973. These dams impound water in two large reservoirs in the Chao Phraya River Basin. By the end of the 1970s, nearly 1.3 million hectares of

Thai agricultural land had controlled water flow in the rainy season, and about 450,000 hectares had it in the dry season.

Responsibility for the national irrigation system lies with the Royal Irrigation Department, which was set up in 1904. With most of the opportunities for large-scale water storage already developed by 2000, the department has focused on projects to improve irrigation efficiency, decentralize decision-making and introduce better technology. These efforts have included:

- Automatic control and water distribution to farms.
- Using hydro mechanical devices for water level and discharge control.
- Telemetry systems for managing irrigation systems in response to basin runoff.
- Geographic positioning system (GPS) and echo-sounding devices for reservoir sediment surveys.
- Installing prefabricated canals to reduce construction time and minimize excess right of way usage.

Thailand has created water resource development master plans for its 25 main river basins. The collective objective of these plans is to identify water resources for sustainable irrigation and flood protection. The plans also promote conservation and rehabilitation of water resources in order to develop and improve operation of water resources for agricultural use.

The Royal Irrigation Department also works with farmer organizations throughout the country to establish and increase their participation in irrigation management. Measures include developing farmers' decision-making capabilities as well as introducing cost-sharing schemes aimed at increasing farmers' ownership in the irrigation systems that serve them. The cost-sharing, in particular, has proved successful, with farmers now contributing to the maintenance costs of many irrigation projects. The department has also developed and experimented with other types of management, including privatization of water resource development.

Thailand's development of large-scale water sources has been important for year round agriculture and has freed millions of farmers from dependency on uncertain rainfall. Despite this success, however, most of Thailand's cultivated land, especially in the drought-prone Northeast, is still outside irrigated areas. As a result, crop production suffers from irregular water supply and fluctuations of rainfall. Years of experimentation and pilot projects, particularly those under the royal family, have led to the successful development of extensive small-scale water resource management expertise.

Key lessons learned from royal water projects include:

- The development of water sources must fit the local topographical conditions.
- Projects must suit the conditions of the natural sources of water in the locality.
- The development of water sources must be appropriate to local socio-economic conditions. It must avoid causing trouble to one group of people while helping another group.
- Local people must cooperate with officials and with one another in maintaining water projects.

## Check dams to retain moisture

Thailand uses two types of small check dams, both made from readily-available natural materials, to slow the flow of water and retain moisture. One is the watershed check dam, which slows stream flow, allowing water to seep into the soil and increase soil humidity in the area. Another is the sediment control check dam that traps water-borne earth and sand. Both contribute to an improved hydrological cycle beneficial for effective forest conservation and rehabilitation.



Rural check dams in northern Thailand  
Source: Check dams handbook of Huai Hong Khrai Royal Development Study Centre

## Artificial rain-making

Concerned about undependable rainfall and its impact on the rural population, His Majesty King Bhumibol encouraged the development of expertise in artificial rain-making techniques. Beginning in 1969, Thailand has worked to develop a three-step rain-making process. It uses a combination of eight different chemicals, both liquid and crystal, the majority of which have the ability to absorb and change temperature upon coming into contact with moisture. The first step of artificial rain-making disperses chemicals in the air, stimulating the air mass to float upward into cool altitudes, where water vapor gathers and begins to form clouds. In the second step, operators of special rain-making planes sprinkle vapor-absorbing chemicals in circles in the air to accelerate cloud formation. In the final step, the plane operators fly into the clouds and trigger the rain. The chemical mixtures and flying methods of artificial rain-making change depending on whether the objective is to increase overall rainfall in general or is to trigger rainfall over specific areas.

In addition to directly benefiting agriculture, artificial rain-making has helped increase the volume of water in reservoirs and dams, thereby improving irrigation and hydro-electric capabilities. The program has also helped reduce the risk of forest fires.

Thailand's royal rain-making techniques have greatly benefited farmers throughout Thailand and have won patents in 30 countries. Officials from many countries, such as Bangladesh, China, Indonesia, Malaysia, Singapore, Sri Lanka, and Tanzania have traveled to Thailand to learn about rain-making operations in order to help farmers in their own countries.

## Expertise in Waste Management

With more of Thailand's people living in cities and more of its economy devoted to manufacturing, waste water management has become an increasing challenge. While high-technology waste water treatment systems are used in many areas, they require expensive inputs of energy and chemicals and frequently fail if not well-maintained. Thailand has responded to this challenge by developing a number of innovative waste water treatment systems that utilize natural processes in constructed wetlands.

### Waste water filtration by water hyacinth

Bueng Makkasan is a small lake in Bangkok. Dug by the Royal Siamese Railway in 1931, it was used for many years to hold flood and waste water from surrounding areas, including water contaminated with used lubricants from the Makkasan railway workshop. Over the years the lake silted up and became highly polluted. In 1985, His Majesty King Bhumibol asked various agencies to help improve the lake water quality by using water hyacinth, an aquatic plant, to absorb the organic matter and heavy metals in the water. The hyacinth is cut every 10 weeks, and the removed vegetation is used to make compost or fuel, but not animal feed as it contains heavy metal residues. This simple and inexpensive method treats 30,000 to 100,000 cubic meters of polluted water daily, reducing biological oxygen demand (BOD) by 19 to 85 percent, total coliform bacteria by 90 percent, and fecal coliform bacteria by 89 percent.

### Two-step filtration system

The Laem Phak Bia Environmental Research and Development Project in Phetchaburi Province uses a local mangrove forest to assist in waste water treatment.

Waste water from the municipal area is conveyed to a pumping station, where floating garbage is removed and sediment is allowed to settle. The water is then pumped into an 18-kilometre pipeline to Laem Phak Bia to undergo a two step treatment.

The first step of the treatment system consists of five different ponds: one sedimentation pond, three oxidation ponds, and one polishing pond, which gradually treat the waste water as it flows from pond to pond. Next, the water is drained into a mangrove forest for secondary treatment. This second step uses natural filtration by channeling the water through a constructed wetland system, grass fields, and finally into a constructed mangrove area. Aquatic plants reduce toxins and organic matter in the water by absorption and digestion. After the treatment, the water quality meets acceptable standards. Similar systems have been adapted to treat water pollution at Nong Han and Nong Sanom in Sakon Nakhon province.

## Constructed wetlands for beach resorts

The Danish development agency, Danida, and COWI (named from the initials of its founders, Christian Ostenfeld and Wriborg Jønson), an international environmental consulting organization, have designed and built natural wastewater treatment plants on the islands of Koh Phi Phi and Phuket. The plants replaced highly treatment plants that did not function properly.

COWI engineers worked with the local people to convert the old plants to “constructed wetlands”, which use nature-based waste water treatment. These new treatment plants have many advantages, including that they were cheap to build, can be made attractive and are easy to maintain. The consultants said that this approach is particularly well suited to islands and tourist areas where natural appearance is important and technical staff are in short supply.

The constructed wetland system on Koh Phi Phi has the capacity to treat 400 cubic meters of water per day. It consists of vertical flow, horizontal subsurface flow, free water surface flow and pond units. Since the treatment plant is surrounded by resorts, restaurants and shops, the constructed wetland systems were designed to include scenic landscaping with trees, flowers and even benches for visitors.

On Phuket, the system is used to treat waste water at Patong Beach, the islands most densely inhabited resort area. The system includes a 5,000 m<sup>2</sup> constructed wetland that takes in grey water from homes and hotels, overflow from septic tanks and polluted water from a drainage canal. These natural systems are intended to serve as prototype demonstration systems for appropriate wastewater management in Thailand and other tropical countries.

## Constructed wetlands for treatment of food processing waste water

Many agro-industries in Thailand discharge untreated waste water with high organic content into natural waterways, causing severe environmental problems. In order to prevent such problems, Phayao province uses the constructed wetlands technology as a waste water treatment system for a fermented fish sauce production factory. The waste water from the factory has both high biological oxygen demand (BOD) and chemical oxygen demand (COD), as well as grease and oil at high concentrations. Pre-treatment by a grease trap and an anaerobic process is required prior to treating water through two constructed, connected wetland beds. The first bed is a subsurface horizontal flow bed filled with stones and planted with umbrella sedge (*Cyperus flabelliformis Rottb.*). The second bed is a free water surface bed planted with canna (*Canna hybrida*). The system is designed to treat 10 cubic meters of waste water per day. The overall removal efficiencies of the system are over 97% for COD, BOD, suspended solids, grease and oil, and around 70% for nitrates. The system also nearly eliminates unpleasant odors and greatly reduces the number of flies.

## Community-based waste management

As the amount of solid waste increases, so do the burdens on local governments. With increasing urbanization and growing wealth in Thailand, the amount of waste has increased and the disposal options have become more difficult. Although all communities generate solid waste, few want a waste disposal site in their backyard. The selection of sites for waste disposal facilities is frequently met with protests and political conflict because community members fear the problems of stench, flies, disease and heavy traffic that sometimes accompany such facilities.

In an effort to find acceptable innovative solutions to this problem, GTZ, the executing agency assigned by the German government to implement Thai-German development cooperation, developed community-based waste management (CBM) as a tool for decision makers, municipal governments, and communities. The model, as adapted to the situation in Thailand, involves six steps.

1. Community members separate garbage that can be sold. A recycling mechanism, such as a waste bank or a waste market is set up to purchase recyclable materials.
2. Organic waste is composted and used for fertilizer.
3. Municipal governments stop providing free public garbage cans. Each family is required to purchase and clean their own bins.
4. Each family is allowed to put out their garbage bins only at certain days and times for collection by the municipality.
5. By separating waste, with much of it recycled or composted, both the amount of total waste and the municipal burden are reduced.
6. Finally, the municipality works on implementing a fee for waste collection. Community members are educated to understand that waste management is everyone's responsibility, and the fee is part of their responsibility to help cover operating costs of waste management.

## City of Phitsanulok



Source: Department of Environmental Quality Promotion

The CBM system in the city of Phitsanulok won a Best Practices Award from UN-Habitat in 2006. Only 11 years earlier the city had a major garbage problem, with the fast-growing city producing greater and greater volumes of garbage. Waste disposal expenses were rising quickly. The existing landfill site was nearly full and the city could not find a new site as no one wanted such a facility nearby.

To solve the problem, Phitsanulok Municipality received technical support from GTZ under the Solid Waste Management Program for Phitsanulok. The municipal government provided personnel and the budget for routine work while GTZ provided coordination and technical support. Together they developed a CBM curriculum. A central government agency stepped in to cover the expense of CBM training for all participants.

The key events were:

- A public information campaign to explain CBM.
- A month later, recycling and composted activities began.
- Two months later, waste bins for organic waste and non-organic waste were set out.
- One to two months after that, central waste bins were removed.
- Two months later the municipality reduced the frequency of waste collection.
- Over the next year the municipality implemented the final stage – charging a fee for waste management and improving fee payment cooperation.



Making compost  
Source: Department of Environmental Quality Promotion

The Phitsanulok CBM program reduced the waste collected from 140 tons to 80 tons per day, nearly a 60 percent decrease. The cost of waste management consequently dropped as well and additional income was earned by selling recyclables and compost. With this success, CBM was replicated in other regions of Thailand via CBM training supported by the Ministry of Natural Resources and Environment.

The key to the success of Phitsanulok's CBM program was the active involvement of communities and stakeholders from the project planning stage onward. Representatives from each community were invited to exchange ideas and take part in determining objectives and strategies of the plan. With this type of participation, the municipality's role switched from an implementer to a supporter.

## Kumpaengpetch Municipality recycle waste bank

Kumpaengpetch Municipality, made up of five communities in the southern province of Songkhla, faced an increasing waste problem. Therefore, at a municipality meeting, representatives from each community agreed to use a CBM approach and set up a recycle waste bank. With this decision to implement CBM, the municipality's first priority was to train a working team on CBM and recycle waste bank operation. During the training, participants not only heard and learned from experts, they also had a chance to exchange ideas, where many raised the concern that most inhabitants were not yet ready for CBM. Therefore, the working team decided to implement a pilot CBM program at Baan Kumpaengpetch School in Community No. 5.

Along with selling recyclable waste from the bank, the community and the school also made and sold bio-extract compost from organic waste. The recycle bank at the school proved so successful that the community expanded CBM, implementing the “no garbage bin street” concept on main streets, arranging instead for exact dates and times for waste collection. The success of Community No. 5 led to the extension of CBM to other communities, resulting in waste reduction and fewer burdens on the municipality. The community also implemented various other environmentally positive activities, including founding the *Love Rattapoom Canal* network group, whose mission is keeping the local waterway clean, and utilizing areas within their yards to grow vegetables for their own consumption in order to reduce expenses.

(Adapted from: UN-Habitat 2006 Best Practices Database <http://www.unhabitat.org/bestpractices/2006/mainview.asp?BPID=396>)

## Challenges and benefits of CBM

While CBM can greatly benefit communities and reduce both waste and financial burdens on municipalities, there are also several key challenges communities must overcome to successfully implement such an approach. The typical challenges of CBM include:

1. Convincing community members that CBM will work. This task falls to the community leaders, and training may be necessary to build up both their communication and leadership skills.
2. Creating awareness and understanding that CBM requires long-term planning and dedication to solve the waste problem. To help increase support, community members must understand that a large portion of their taxes goes to waste management, and that if waste management programs were made more efficient, then these taxes could be used for other social benefits.
3. Recognizing that political stability in the municipality is critical to program success.
4. Finding sufficient staff to implement CBM. However, this can be solved with a volunteer program, which also helps reduce the gap between the government and people.

5. Community members may be able to sort organic waste but may not yet be ready to make compost. The municipality may have to set up its own compost plant.

In Thailand, workshops on solid waste problems for local politicians and local government staff are offered through central government training institutions. However, there is little training for communities. The CBM curriculum overcomes this gap by involving all related stakeholders in the municipal waste management process. CBM training creates a common understanding among concerned stakeholders: decision makers, municipality implementation staffs and community members.

The Thai government has promoted CBM by holding Recycle Waste Bank contests in schools and communities, with prizes awarded by Her Royal Highness Princess Maha Chakri Sirindhorn.

## Expertise in Renewable Energy and Energy Conservation

Thailand is largely dependent on imported energy for transportation, spending more than 10 percent of its GDP on energy imports, at least half of which are diesel fuel. To limit foreign currency expenditures as well as environmental impacts, the Thai government has encouraged the use of renewable energy resources. The threat of global climate change and the need to limit the release of carbon dioxide and other greenhouse gases has become another important driver for renewable energy and energy conservation. Biogas projects, which capture and use methane gas, are particularly important in climate change reduction efforts. Without the projects, the methane, a greenhouse gas that is many times more potent than carbon dioxide, would enter the atmosphere and contribute to the acceleration of climate change.

### Biodiesel from used cooking oil

Biofuel is a liquid fuel made by mixing oil derived from plants or animals with methanol or ethanol to form an ester resembling diesel. Thailand has abundant agricultural resources that can be used as raw materials for biofuels. These include oil-yielding plants such as oil palm, coconut, soybean, peanut, sesame, castor, and sunflower seeds. Annual palm oil production is about four million tons and coconut oil production is about 1.4 million tons. The raw materials for biofuel can also be obtained from plants that yield starch and sugar, such as cassava, sugarcane, maize, sorghum, molasses, and rice straw. Diesel engines can run on biodiesel without any modification, and biodiesel is clean, environmentally friendly, burns completely, and emits fewer pollutants than petroleum-based diesel oil.

## Community-level biodiesel production

More than two decades ago, His Majesty King Bhumibol began experimenting with bio-based fuels. His formula, which uses palm oil as a fuel for diesel engines, won the Gold Medal with Mention at the 2001 Brussels Eureka, a showcase for innovative new inventions held in Belgium.

Inspired by His Majesty's efforts, the Department of Alternative Energy Development and Efficiency, under the Ministry of Energy, officially launched the project "Community Biodiesel Research, Development, and Demonstration" in June 2004. The first phase included the establishment of a community-level biodiesel production system, demonstrations of biodiesel use in vehicles, studies on economic and environmental impacts, and public relations campaigns to educate local people.

Located in the San Sai District in Chiang Mai province, the biodiesel prototype produces biodiesel for petrol stations and is the first of its kind in Thailand and the region. The production system, designed by Thai engineers, initially started with 2 percent biodiesel blended with 98 percent regular diesel. Three to four months later, the amount of biodiesel was raised to 5 percent.



Apart from oil crops, used cooking oil and animal fat have also been used to produce biodiesel. Taxi drivers and truck owners, however, were not convinced that biodiesel was reliable. Therefore, the department launched a publicity campaign to demonstrate the advantages of the new fuel.

"Every day we visited drivers of [local] taxi pick-up trucks, talked to them, distributed posters and other publications to educate them everywhere, such as the Night Bazaar and the railway station," a department official reported.

Due to these campaigns, biodiesel sales are on the rise. The price of biodiesel is 0.50 baht lower than diesel and the project now produces more than 2,000 liters of biodiesel a day.

The success of the project has attracted many groups of people to visit the biodiesel plant in San Sai. Training is offered to those interested in this technology and wishing to produce biodiesel for use in their own communities. Any community with at least 20 households and the raw material for biodiesel production may write to the Department of Alternative Energy Development and Efficiency, asking for the establishment of the production system. (Adapted from: Thailand Illustrated Magazine, Vol. 23 No. 2 Year 2006 [http://thailand.prd.go.th/ebook\\_bak/story.php?idmag=31&idstory=247](http://thailand.prd.go.th/ebook_bak/story.php?idmag=31&idstory=247))

## Jatropha-based biodiesel production

One of Thailand's first community-based biodiesel production sites is located at Wat Phayakkharam Temple in Suphanburi province. The site uses the seeds from Jatropha plants, which grow wild in the area. The center started operation in 2004 to help the temple reduce expenses on fuel, while also increasing the income of local Jatropha seed sellers. After the oil is extracted from the seeds, the waste is used to make charcoal.

The center's purchase of Jatropha seeds has induced both the temple and local farmers to plant Jatropha trees, which, if properly watered, can produce seeds all year round without much care.

(Adapted from: <http://www.squidoo.com/biodiesel-benefits>)



## A.T. biopower rice husk fuelled power plant

In addition to renewable fuels for transportation, Thailand has also developed expertise in the use of agricultural waste materials to generate electricity. The Ministry of Energy has established a policy on Small Power Producers (SPP) to encourage small-scale private electricity generation projects. Typically, these SPPs generate electricity from renewable sources such as rice husks, sugar cane, corn leaves, tapioca, palm shell and woodchips and sell electricity to the Electricity Generating Authority of Thailand (EGAT). This supplements and strengthens the existing electricity generating capacity of Thailand and reduces dependence on imported fuel.

The use of agricultural waste such as rice husks for energy generation not only produces electricity, but also disposes of waste with minimal pollution and reduces the release of greenhouse gases. Burning rice husks eliminates the methane that would be produced by leaving rice husks to decompose in the fields and provides renewable energy with no net carbon dioxide emissions. One example of a company using such methods is A.T. Biopower, a rice husk fueled power plant in Pichit province. Using 500 tons of rice husks, a waste product from rice milling, the plant generates 22 megawatts of electricity, which it sells under the SPP program. It also sells fly ash, the residue created by burning the rice husks, into markets identified by an earlier study by the Kenan Institute Asia. As one of the world's biggest rice producers, Thailand generates a supply of 5 million tons of rice husk annually. If this were all used for electricity, it could generate more than 500 megawatts of electricity and save more than 800 million liters of imported oil per year.

In Pichit province, A.T. Biopower has entered into a social contract with the local community to jointly develop residential areas, temples, schools and health centers with a budget of 1 million baht per year. The project provides additional revenue to local people through long-term rice husk supply contracts with local rice mills. This not only benefits the mills, but raises the price of rice in the area, increasing the income of many local rice farmers.

## Biogas

As livestock production in Thailand has increased, so has waste matter, including manure, urine, feed residues and waste water. Traditional pig farms in Thailand normally manage their livestock wastes by dumping them into a pond. However, without proper controls, waste can leak into natural streams, causing pollution and transmitting disease. The method also causes significant odor problems. Through support from Germany's international development aid agency, GTZ, biogas technology has been introduced into the swine industry as a strategic solution to these problems. The benefits of biogas are:

- Energy produced by biogas.
- Alleviating waste water treatment costs and reducing pollution.
- By-products that can be used as organic fertilizer.
- Reduction in the emission of methane, which contributes to climate change.



Biogas operated gas engines produce electricity from the gas produced in the covered lagoon  
Source: [www.thaibiogas.net](http://www.thaibiogas.net)

From the first demonstration of biogas systems in 1992, experience and expertise has increased rapidly. Hundreds of pig farms now produce biogas. Most of the gas is used on site, but any excess electricity produced from the gas can be sold into the grid under the SPP policy.

Biogas has extended beyond pig farms to poultry farms and other businesses dealing with animal waste. The *Thai Elephant Conservation Center in Lampang* produces biogas from elephant excrement. Six elephants provide approximately 250-300 kilograms of excrement, resulting in approximately 15-20 cubic meters of biogas, per day. The conservation center uses biogas as fuel for cooking and

running water pumps for agriculture.

In the Korat Waste to Energy project in Nakhon Ratchasima, a tapioca mill uses an anaerobic system to produce approximately 70,000 cubic meter of biogas per day. Biogas is used in place of fuel oil in their production process, and the remainder is used to produce electricity.

A palm oil refinery in Krabi province produces 3,600 cubic meter of biogas per day. The biogas is used as fuel for dynamo, an electrical generator. (Adapted from: <http://www.thaibiogas.net/en/node/223>)

Several Thai universities provide training and advice on biogas production in livestock farms. For the complete list of experts, see part two of this publication.

## Energy-efficient stoves

Thailand's Department of Alternative Energy Development and Efficiency supports cost-effective, clean energy production and consumption. It finances a variety of projects to promote energy conservation and renewable energy. One of these projects is an energy-efficient traditional stove project. Despite the availability of gas and electric stoves, Thai traditional wood or charcoal-burning stoves are still widely used, especially in rural areas.

The project improved the design and materials of the traditional stove. Extra insulation on the outside of the stove body allows it to retain heat longer. Slimmer grates increased air ventilation and make it easier to light. The design enables it to fit nine sizes of pots. The stove has been proven to consume 15-20 percent less firewood because of more complete combustion. The department provided training on stove production to ten communities in the south of Thailand. Later, trainings were extended to 30 more communities. Of these, 18 communities became training centers, while seven of them also produce the stoves for sale. Use of these more efficient stoves has a positive impact on the environment. Not only is less wood or charcoal needed for the same amount of cooking (and therefore more trees are left to grow and absorb carbon), but less burning means less release of carbon dioxide into the atmosphere and helps lower the impact on climate change.



### Traditional Stove

- Old design
- Cumbersome
- Fits with limited sizes of pots
- Low ability to retain heat
- Firewood slot is too large, leading to excessive use
- Grate of the stove is thin and easily breakable
- Grate of the stove is large, causing low air ventilation
- Little or no insulation
- Produce low heat at 500-600 degree Celsius
- Durability: 1 year
- Wastes firewood



### Newly Improved Stove

- Energy-efficient design
- Light weight
- Fit 9 sizes of pots
- High ability to retain heat
- Firewood slot has the right size to cook a meal
- Grate of the stove is thicker and more durable
- Has extra insulation on the outer body
- Produce high heat at 1,000-1,200 degree Celsius
- Durability: 2 years
- Uses less firewood

Source: Booklet of Thailand's Department of Alternative Energy Development and Efficiency, Ministry of Energy

The department has worked with experts from universities and research institutes to design other energy-efficient and environmentally friendly stoves. Commonly used in rural areas, the Economic Stove requires less firewood. A special smoke tunnel prevents soot and ashes from sticking to walls and ceiling and reduces respiratory problem in users. The Economic Stove was developed by Nakhornratchasima Technical College.

The Environmental Friendly Stove is another energy-efficient stove that has been specially designed. It utilizes double combustion, leading to less soot, and less fuel consumption and thus, is environmental friendly.





Tourism

1  
Volume

# Tourism

Table of Expertise in Tourism	
Expertise	Example Institution
Tourism Promotion	<ul style="list-style-type: none"> <li>• Tourist Organization of Thailand</li> <li>• Ministry of Tourism and Sports</li> <li>• ASEAN Competitiveness Enhancement (ACE) Project</li> </ul>
Nature-based tourism	<ul style="list-style-type: none"> <li>• Ministry of Natural Resources and Environment               <ul style="list-style-type: none"> <li>• Department of National Parks, Wildlife and Plant Conservation</li> </ul> </li> </ul>
Community-based tourism	<ul style="list-style-type: none"> <li>• Community-Based Tourism Institute</li> <li>• North Andaman Tsunami Relief</li> <li>• Population and Community Development Association</li> <li>• Kenan Institute Asia</li> </ul>
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Thai Cuisine	<ul style="list-style-type: none"> <li>• Oriental Hotel Thai Cooking School</li> <li>• Benjarong Cooking Class</li> <li>• Modern Women Institute</li> </ul>

## Sector Expertise Overview

Thailand has built up its tourism industry from a very low base to become a pillar of the economy and the third-largest tourism industry in Asia. Fifty years ago, Thailand received only about 50,000 tourists and in 1960 earned less than 200 million baht from the tourism industry. By 2008, however, the number had increased to over 14 million visitors, bringing in over 500 billion baht. More than 3 million Thais now earn their main income from tourism, which constitutes more than 6 percent of Thailand's GDP. In 2008, Thailand was awarded the title of Best Country Brand for Value for Money by the Country Brand Index during the World Trade Market in London. Thailand was cited for having some of the world's best attractions in spas, golf, women-only attractions, family-friendly destinations, beach resorts, great shopping, diving and medical tourism. While the distinctive Thai cuisine, Buddhist religion, great national parks and traditional dance and music have added to Thailand's tourist allure, potentially the most alluring draw to the country is the smiling friendliness of the Thai

people themselves. Due to these attractions, Thailand has received many awards and recognitions in tourism, including:

- Third Best Country Brand for Authenticity,
- Fourth Best Country Brand for Shopping , and
- Fourth Best Country Brand for Nightlife.

Tourism development, however, has not always been smooth or easy. Thailand's tourism industry has had to learn to be flexible and resilient in the face of a series of exterior setbacks, including the destructive Indian Ocean tsunami, political unrest, a flu pandemic and a global economic downturn. Thai tourism has also had to deal with the problems of overly rapid expansion in some tourism areas, leading to the development of expertise in planning, public participation, and environmental protection.

The increasing importance of tourism in the Thai economy has led to expectations that tourism will play a key role in alleviating poverty and improving income distribution. With tourism well-established, the challenge is to make it financially, socially and environmentally sustainable in the long run.

Tourism experts, in both the private and public sector have begun to learn from the experience of the past. At the Ministry of Tourism and Sports and the Tourism Authority of Thailand there is increased emphasis on the “quality” of the tourists attracted rather than the quantity. Tourism planners put greater emphasis on length of stay, spend per stay and the amount of income “leakage” – the tourism money that goes out of the country to pay for imported luxury items or to pay profits to foreign investors. Many tourist areas have begun to control the height of buildings and their distance from shorelines. Local people are invited to participate in tourism planning. Overall, there is growing interest and expertise in developing the types of tourism that protect the environment, encourage development of local culture and that bring income to the poor and rural population.

Thailand's tourism expertise, therefore, spans the gamut from the high-end to grass roots, from five-star hotels, elegant restaurants, luxurious spas, high-tech medical tourism and vibrant night-life to community-based tourism, eco-tourism, adventure tours and local culture. While some of this hard-earned expertise is kept confidential as part of competitive advantage, many Thai tourism organizations are willing to share their experience with visitors interested in learning from Thailand's tourism development.

## Expertise in Tourism Promotion

Thailand understood very early that the tourism industry needed creative and coordinated promotion. In many ways the expansion of Thai tourism dates back to 1960 when the Tourism Authority of Thailand (TAT) was established as the first organization in Thailand to be specifically responsible for the promotion of tourism.

TAT supplies information on tourist areas to the public, publicizes Thailand with the intention of encouraging both Thai and international tourists to travel in Thailand, conducts studies to set development plans for tourist destinations, and supports the development of skilled tourism personnel. There are now 22 TAT regional offices throughout Thailand and another 16 offices around the world. These include new offices in Beijing, Shanghai and Delhi to tap into the huge potential of the Chinese and Indian tourism markets.

TAT, with support from the Ministry of Tourism and Sports, has been the key organization in promoting Thai tourism through the use of media campaigns such as “Visit Thailand Year,” “Amazing Thailand” and the “Seven Amazing Wonders of Thailand”. These campaigns are illustrated with attractive images, specially composed songs and carefully themed messages. The focus of such campaigns is on the country’s seven “amazing” attractions listed as:

- Thainess: The art of Thai living, traditional Thai hospitality, lifestyle and culture,
- Heritage and history, world heritage sites, historical attractions, temples and museums,
- Popular beach resorts,
- Nature: National parks, soft adventure and ecotourism products,
- Health and Wellness: Medical tourism, spa and health resorts,
- Boutique hotels, shopping centers, dining and night life, and
- Festivals: International and Thai festivals and events.

Thailand’s tourism promotion has been alert to market niches such as:

- Female tourists – increasing worldwide and influential in making family vacation decisions. Thailand has promoted attractions for females, such as spas, shopping and cooking schools. Female tourists visiting Thailand grew 29 percent in 2004.
- Elderly people – who have both time and money for travel, but also have special needs for medical care and facility access. During the past ten years, the proportion of tourists over 55 years of age increased from 13.38 to 16.87 percent.
- Young people – interested in adventure tours and tourism activities concerned with nature and therefore matching Thailand’s tourism offerings.
- Families – Thailand has developed tourism products to meet the needs of the family segment in an integrated manner.
- Domestic tourists, particularly during the off-season.

Alert to changes in information technology and social media development, TAT is spreading its promotion attentions to websites, blogs, discussion forum, travel clubs, Twitter and mobile phone messages. Thai tourism promotion also works with viral marketing, relationship marketing, loyalty and reward campaigns, travel promotion packages and special offers, joint promotions with restaurants, airlines and tour operators and international travel road shows.

Thailand has also begun to see that cooperation and coordination of tourism efforts with other countries can be mutually beneficial. Much work is underway to develop joint tourism projects, particularly with Lao PDR, Vietnam, Myanmar, southern China, Malaysia and Indonesia. The Association of Southeast Asian Nations (ASEAN) has stepped up efforts to coordinate marketing and facilitate regional tourism itineraries. In 2009, Thailand hosted the ASEAN ministers of tourism, who reaffirmed plans for increased cooperation and coordination of tourism marketing efforts. They pledged that national tourism organizations would work with a USAID-funded project called ASEAN Competitiveness Enhancement (ACE) on joint marketing of ASEAN as a destination and the promotion of “Visit ASEAN” campaign.

The ACE Project team, located in Bangkok, works in close collaboration with the ASEAN Working Group on Tourism, the ASEAN Tourism Association (ASEANTA), and the Mekong Tourism Office to enhance the competitiveness of the ASEAN tourism supply chains. The key objectives are:

- To increase awareness and enhance the image of Southeast Asia as a regional tourist destination,
- To increase awareness and enhance the image of the Mekong region as ASEAN's Northern Tourist Circuit, and
- To increase the number of long-stay (10+ days) and above average spending (\$100+ per day), regional visitors.

The ACE project is also working to establish a marketing research group and a regional destination marketing organization. It is also producing electronic materials for marketing tourism in the region.

## Expertise in Nature-based Tourism

The 1992 Earth Summit in Brazil's Rio de Janeiro called for sustainable development and proposed three ways to make tourism development more sustainable in the long run: preserving the environment, creating proper perception and experiences for hosts and guests and developing environmentally conscious human resources. More recently, the trend towards nature-based tourism has been accelerated by concerns over global climate change.

In Thailand, tourism-related organizations have focused on these three aspects in the promotion of alternative tourism, which includes ecotourism, green tourism and responsible tourism. As part of this shift, TAT has begun to emphasize the "high quality" target market with smaller numbers of tourists rather than mass markets. TAT led the way in bringing ecotourism into the country, creating a framework of policies, standards and procedures. Local authorities, national park officials, and wildlife staff have contributed to new tourism policies concerning national parks. Natural tourism site enterprises, conservation NGOs and educational institutions that teach ecotourism have also contributed vital expertise.

Thailand's efforts to boost nature-based tourism include the development of a database of environmentally responsible tourism operators, development of green tourism destinations, organization of informational conferences on tourism and the environment, and a promotional campaign on the "Seven Greens" of Thai tourism. These are:

- **Green Heart:** to urge tourists to be socially responsible and environmentally aware to help protect and preserve the environment at all tourist attractions,
- **Green Logistics:** to encourage more environmentally-friendly tourism-related modes of transport ,
- **Green Destinations:** to promote responsibly managed tourist sites that respect the environment,
- **Green Communities:** to support community-based tourism that promotes conservation of the environment, local traditions and ways of life,
- **Green Activities:** to promote tourism activities well-suited to local communities and takes into account the carrying capacity of natural destinations ,

- **Green Service:** to urge all tourism-related service providers to create positive first impressions for visitors by attaining higher quality and environmental assurance standards , and
- **Green CSR:** to encourage Corporate Social Responsibility (CSR) among tourism operators by encouraging them to give back to the communities in which they operate.

## Expertise Community-Based Tourism (CBT)

Thailand's community-based tourism industry began to develop in the 1990s during a period of burgeoning awareness of sustainable and alternative forms of tourism. It was closely associated with conservation tourism, which views local communities as owners of tourist sites and resources, such as waterfalls, mountains, local culture and traditions. Therefore, these communities have the right to be involved in the conservation and management of resources, while earning supplemental income for themselves. Local and foreign NGOs have created greater interest in community tourism and they have identified markets, particularly in urban areas, for this type of tourism. This has led to the establishment of at least 150 community-based tourism operations in Thailand.

These CBT operations have demonstrated that when communities display and share their resources with outsiders, they take pride in and begin to conserve their resources. Although CBT does provide income for local people, the experience so far has shown that the key benefit has been the development and protection of community assets that leads to improved quality of life for residents. Participation in CBT has also stimulated local people to become more active in their community and to see the advantage of learning languages, business management and ICT.

Thailand's CBT experience has shown that there are four components that are key to success. They are:

### Community organizations

Residents must be ready to learn and work together in an organized way. Creating a community organization for CBT gives local people a sense of ownership and involvement in the development process. Local experts and skilled people must be ready to share information within the organization.

### Natural and cultural resources

These are the most obvious attractions to tourists. They include natural resources, such as forests, mountains, waterfalls, coral reefs, beaches and wild animals, and unique cultural traditions that have been handed down from generation to generation.

### Management

In order for the community to properly manage its resources, it must have a widely-accepted leader with vision, thought and an understanding of CBT. There must be a management mechanism that manages CBT to encourage natural and cultural resource conservation, both among locals and tourists. It must link tourism

to community development while cooperating with relevant authorities. Most importantly for the community, it must participate in a way that is good for the whole not just a few individuals.

### Training and learning

The community must have ways to learn new skills, formulate new ideas, debate issues, solve problems, make plans and coordinate with relevant authorities. It must create rules for locals and visitors to follow, and have a system of knowledge-exchange between locals and visitors.

Thai CBT communities have learned that they must first evaluate their situation in terms of these four components mentioned above. There must be a free and open discussion to determine a vision for CBT that is accepted by all. The community needs to be able to establish goals in managing its resources and set limits that preserve the long-term value of the core community tourism resources. Too often, communities are enticed by visions of big profits, and oversell or overdevelop their resources. This may result in a society and culture that is captured by tourism and lead to a depletion or degradation of the key resources. Successful CBT communities have learned to be wary of this temptation and have created various safety measures. NGOs or state organizations that don't profit directly from tourism can be helpful to communities in establishing limits.

Such limits can mitigate the possible negative impacts on the environment, such as an increase in trash from tourists, disruption of natural water supplies, an influx of foreign ideas that may affect local culture and loss of privacy from having to welcome tourists. Most importantly, the individuality and uniqueness may be overwhelmed if the number of tourists rises beyond the community capacity to deal with them.

There are many varieties of CBT in Thailand. Some locations are purely CBT, while others are a mix of CBT and other types of tourism, such as conservation tourism, ecotourism, agro-tourism, culture tourism and homestays. As a result, each community involved in CBT may call themselves something different. The basis, however, is the same – a form of tourism that is not disruptive to the natural resources of a community that is managed by community members and aims to benefit the community as a whole.

A leader in providing expertise to communities is the Community-Based Tourism Institute (CBT-I), which provides community training on CBT as well as setting standards to help communities. Under the umbrella of the Thailand Research Fund Regional Office in Chiang Mai, Northern Thailand, CBT-I works to do the following:

- Facilitate community-based tourism research and development initiatives,
- Build the capacity of Thai Community-based Tourism Networks to cooperate with the private sector,
- Advocate for tourism policy that benefits local communities,
- Facilitate cooperation among stakeholders to support CBT,
- Act as a Thai community based tourism information center, and
- Provide community-based tourism training services.

In addition, a number of other Thai NGOs have expertise in CBT. These include North Andaman Tsunami Relief, the Population and Community Development Association (PDA) and the Kenan Institute Asia (K.I.Asia). These organizations have worked to help communities in the tsunami-affected areas of the south as well as

other areas establish successful CBT programs. They can provide training, guidelines and advisory services in English.

## The case of the Mae Kampong CBT Group

The picturesque northern Thai village of Mae Kampong is only 50 kilometers from Chiang Mai City. Nestled on a hillside, 1,300 meters above sea level and surrounded by pristine forest, Mae Kampong has a cool and pleasant climate. A small stream meanders through the village. Tea trees grow alongside Arabica coffee, herbal medicines and a natural forest.

These natural assets, along with northern Thai carved teak houses and a traditional lifestyle have provided the key tourism resources for Mae Kampong's community-based tourism.

Community ecotourism in Mae Kampong began in 1999 to provide an alternative source of income for local villagers. The headman of the village educated himself by attending various training programs and study tours on ecotourism supported by the Thai government. Based on his experiences, he saw the potential of ecotourism resources in the village. A village forum was organized to discuss "community ecotourism." The villagers of Mae Kampong agreed to work together to form a CBT group. Members began meeting regularly to discuss tourism management and community preparation in terms of staff, natural resources and fair distribution of profits. Local guides were trained to explain Mae Kampong's cultural and environmental practices to guests.

With assistance from external organizations, government and non-government, the Mae Kampong community established village sightseeing, cultural shows and homestays for community based tourism that was formally launched in 2000.

At the beginning, the community experienced difficulties as tourists did not understand the community way of life. The CBT group had to set and enforce tourism arrangements, rules and regulations for both the locals and tourists. The group also set standard prices and service fees for each activity.

The tourism experience in Mae Kampong includes walking with community guides through the forest, passing tea, coffee and herbal gardens. The guides explain how the community manages its natural resources and harnesses small-scale hydropower from the many streams in the area. The CBT offers camping on a nearby mountain reachable by a three-hour trek. Guides prepare delicious jungle food, steamed in bamboo over a camp-fire. Traditional dances are performed by local youth. Guests also enjoy villagers' performance on traditional, northern, stringed instruments. In the early morning, guests participate in the life of the village by offering alms to the Buddhist monks from the local temple.

More than 30 households now are actively involved in CBT in Mae Kampong. About 1,000 tourists visit Ban Mae Kampong each year and 200 spend at least one night in a homestay. More than 70 percent of homestay guests are foreigners. Income from ecotourism is about 300,000 baht per year. Ten percent of this income is allocated to village development, ranging from infrastructure to forest conservation.



Source:  
[http://www.phuphiang.com/tour\\_itineraries.asp](http://www.phuphiang.com/tour_itineraries.asp)

## The case of community-based tourism in Leeled

Leeled, a community in the southern Thai province of Surat Thani, is home to one of the largest and most fertile mangrove forests in Thailand, a nursery for sea life that supports hundreds of local fisher families. Over the past three years, community members have undertaken conservation activities to preserve and expand the forest. The villagers harvest nipa palms, catch fiddler crabs and mollusks, plant crab traps, and set up different types of fishing nets in the forest.

In 2003, the Leeled community, in collaboration with the European Union and Thai Department of Fisheries, set up a project to find creative ways to encourage local community members to conserve the marine ecosystem essential for the wellbeing of local fishing families. The project established the 'Leeled Community-Based Tourism for Conservation Group.' Since 2005, Leeled has welcomed many students, families and adventure and cultural travelers from around the world. Income earned by the group has contributed to replenishing Leeled's mangrove forests, thereby supporting sustainable local livelihoods.

Local people serve as community guides, homestay hosts, and boat and car drivers. Guests meet local fishermen, explore the mangrove forests, and learn how the villagers use mangrove products in their everyday life. The guides show guests the forest and help them spot and identify beautiful birds.

Leeled's tourism group is an example of Thailand's best practices in participatory community based tourism development. The group has a committee that meets each month to share ideas and experience. In 2005, Leeled earned 104,000 Baht and in 2006, 176,000 baht from tourism. At least 10% of this income was donated to community funds. Leeled is now recognized as one of Thailand's leading conservation-based community tourism operations.

## Expertise in Health Tourism

Thailand's tourist infrastructure and its high standard of medical service have enabled the country to attract visitors for medical treatment. The government has actively marketed tourism integrated with medical service. This became particularly important during the 1997 economic crisis. By 2007, TAT figures show that some 1.54 million people visited Thailand for medical treatments worth US\$740 million. According to the Kasikorn Research Center, the number of medical visitors is expected to reach 2 million people in 2010.

The five-year National Development Plan promoted medical sector internationalization under the themes of "Health Tourism Hub of Asia," "Wellness Capital of Asia," and "Thai Herbs for Health." The development plan covers: medical care services, health services, and herbal products. Initial target development areas included Bangkok, Chiang Mai and Phuket, with ten other provinces to be developed later. The government will provide overall planning, marketing, monitoring services, and price standardization, certification, regulation, biotechnology related research and development.

The focus of the promotion of health tourism has been "Quality Medical Services at Relatively Lower Medical Fees." For patients from countries with high medical costs, like the United States, the big attraction is lower costs. For patients with socialized medical systems, the attraction is quick service for elective procedures

that often require long waits in their home countries. The leader in attracting foreign clients has been Bamrunggrad Hospital, the first certified hospital in Asia, but other hospitals are actively seeking international patients. Bangkok Hospital, for example, provides translation services in 29 languages and offer customized diets to suit the need of patients of different cultural backgrounds.

Another part of health tourism is “wellness” services to visitors who don’t have a particular medical complaint, but just want to feel better. With 450 spa hydrotherapy centers, Thailand is considered the regional center for wellness services. Thai spas have won awards as the top five best spas in the world for many years in a row. Massage, hydrotherapy and herbal treatments are often bundled together in a health service package. A number of Thai spas make their expertise available by teaching massage techniques and other spa therapies to international trainees.

### The case of the Chiva-Som Spa Academy

Chiva-Som International Academy is a department of the world-renowned Chiva-Som International Health Resorts Co., Ltd. The Academy was set up to make the group’s expertise on spa, holistic and aesthetic therapies available to others through highly effective training program.

Chiva-Som Academy teaches both theory and practice, aiming to produce highly trained therapists with the knowledge and skills as well as the attentiveness and enthusiasm to give their clients great service. It seeks to produce graduates with the excellence and professionalism for which Chiva-Som International Health Resorts are known. The academy was set up to meet the growing demand for a standard training facility dedicated to the human resource needs of the spa and wellness industry. Internationally accredited, the academy strives to be the region’s leading edge health and wellness educational institute.

Courses and examinations are conducted either in Thai or English. Training typically starts with lecture explanations. Then instructors demonstrate and guide students through a step-by-step method of learning. Hands-on practical classes are highly supervised to ensure that everyone understands and completes procedures accurately. Students are required to practice among themselves during practical sessions.

Graduates of Chiva-Som International Academy can seek employment at spas, cruise lines, health clubs, fitness centers, health and wellness facilities and beauty salons, or work as independent professional therapists. Those who want to launch their own businesses can enroll in the academy’s special training program in spa development and spa management.



Source: Chiva-Som International Academy

## Expertise in Promotion of Thai Cuisine

An important part of Thailand's tourism development has been the promotion of Thai cuisine. The spicy taste of Thai food has become popular around the world because it is nutritious, delicious, and inexpensive. According to Thailand's Ministry of Commerce, there were some 13,000 Thai restaurants outside of Thailand in 2009. Many Thai restaurants, ranging from elegant up-market outlets to fast-food take-aways, were set up by Thai expatriates living abroad, Thai wives of expatriates, and former students, as well as overseas entrepreneurs who simply fell in love with Thai food. This international acceptance of Thai cuisine has boosted both Thai food exports and attracted visitors to Thailand.

The Thai government launched a project called "Kitchen of the World", aimed at boosting both exports and food tourist arrivals. Thousands of foreign visitors come to Thailand each year to learn how to cook Thai dishes. In addition, the positive image of Thai food has boosted business at Thai restaurants in the country. In 2007, it was estimated that visitors spend an average of 730 baht per day on Thai food.

To further promote Thai cuisine as a tourist attraction, the TAT, Department of Export Promotion, Thai Hotels Association, Association of Domestic Travel Agents, and Thai Restaurant Association launched a five-day project called "Amazing Tastes of Thailand" in September, 2009 in Bangkok and other major provinces. The project was designed to further enhance the global popularity of Thai cuisine, boost exports of Thai agricultural products, and help visitors enjoy a higher quality of culinary experience in the kingdom.



The project sets up travel around Thailand for participants to enjoy the traditional Thai cuisine of each region and see cooking demonstrations, as well as buy local condiments and ingredients and visit local traditional Thai arts and crafts shops, tourist attractions, and food markets.

A number of hotels have seen the international interest in Thai cooking as an opportunity to attract guests and share their expertise. The top Thai cooking schools include the following:

## **The Thai Cooking School at The Oriental Hotel**

This legendary hotel on the banks of the Chao Phraya River was one of the first hotels to open its own Thai cooking school. The courses are led by chef-lecturers and include hands-on participation by students. Tuition is charged per class.

## **Benjarong Cooking Class at the Dusit Thani**

The Benjarong Royal Thai Cuisine is one of the most sophisticated Thai restaurants in Bangkok. Its head chef runs the Benjarong Cooking Class every Saturday morning. Recipes are drawn from the restaurant's menu and include snacks and appetizers, soup and salad, main dishes and desserts. The class is very hands-on and the instruction emphasizes practicality and inventiveness. The complete course comprises 12 classes, and graduates will receive a certificate as well as a recipe book in English.

## **Nipa Restaurant at the Landmark Hotel**

The restaurant offers a 7-day course designed to teach beginners all the basics of Thai cooking and enable them to prepare curries, soups, salads and other dishes that make up a Thai meal. The restaurant's chefs lecture on ingredients and recipes, and then let students participate in the cooking and tasting. Nipa is famous for its authentic food, which has not been toned down to suit milder palates. Students receive a recipe book in English or Japanese.

## **UFM Baking & Cooking School**

UFM offers 10-day Thai cooking course every other month. Recipes are a mix of the simple and the sophisticated, regional specialties and national favorites. Students will receive a companion book in English.

## **Modern Women Institute**

The 9-day Thai cooking course, which is run on an ongoing basis, teaches all the basic techniques of a Thai kitchen. Fees are based on the number of recipes a student chooses. Vegetable and fruit carving lessons are available separately.

## **Culinary Workshops at the Boathouse, Phuket**

The Boathouse's Thai cooking classes, led by the resort's executive chef, take place every Saturday and Sunday morning. Classes are conducted in English and are very hands-on, with attendance limited to 10 persons to ensure participation by all. Recipes have been chosen for adaptability to Western kitchens.

## **Chiang Mai Cookery School**

The school offers one to three-day cooking classes in English. Recipes include Northern specialties, and students get hands-on experience with kitchen tools. Classes include Northern-style lunches, where students will learn the etiquette of eating at the unique khantoke table.

Other Development  
Expertise Available  
in Thailand

1  
Volume

# Other Development Expertise Available in Thailand

Table of Expertise in Other Development Areas	
Expertise	Example Institution
Research and advanced education	<ul style="list-style-type: none"> <li>Thai Universities</li> </ul>
Engineering and sustainable development	<ul style="list-style-type: none"> <li>Asian Institute of Technology</li> </ul>
Transport engineering	<ul style="list-style-type: none"> <li>Sirindhorn International Institute of Technology</li> </ul>
Chemical biology and environmental toxicology	<ul style="list-style-type: none"> <li>Chulabhorn Research Institute</li> </ul>
Textile industry	<ul style="list-style-type: none"> <li>Thailand Textile Institute</li> </ul>
Automotive industry	<ul style="list-style-type: none"> <li>Thailand Automotive Institute</li> </ul>
Greater Mekong Subregion capacity building	<ul style="list-style-type: none"> <li>Mekong Institute</li> </ul>
Corporate social responsibility, sustainable development	<ul style="list-style-type: none"> <li>Kenan Institute Asia</li> </ul>
Disaster preparedness	<ul style="list-style-type: none"> <li>Asia Disaster Preparedness Center</li> </ul>

## Sector Expertise Overview

Thailand's rapid transformation from an agriculture-based economy to one that produces a wide range of services and manufactured goods for global markets has required the parallel development of a great variety of technical development expertise. Much of that expertise is available only in Thai, but increasingly Thai universities, government agencies, technical institutes and training institutions have stepped up their ability to provide training in English in order to serve human resource development needs beyond Thailand's borders and to provide Thais with international level skills.

Much of Thailand's expertise is available through international courses, both short courses and degree programs, at Thai universities and other institutions of higher education. There are a total of 146 institutions of higher education in Thailand and 19 community colleges. These include 13 autonomous state universities and 15 traditional state universities, many of which provide international programs.

These programs are typically taught in English and cover a wide variety of academic disciplines. The number of foreign students taking advantage of these programs has steadily increased, reaching more than 11,000 by 2007. Some of these students, particularly those from countries in the Greater Mekong Subregion, are supported by grants or scholarships from the Thai government or international donor agencies. Thailand is also seeking to increase the number of students coming from ASEAN countries. Information on the international programs of some of the leading Thai universities is available in the second part of this report.

Thailand has also developed expertise in research and development in a number of important areas. With support from the Asian Development Bank (ADB), Thailand has established seven “centers of excellence” in R&D, which involve researchers from 26 universities and specialized research institutes.

Many international organizations use Thailand as a regional hub for development training and advisory services. Several United Nations Organizations have regional or country headquarters in Bangkok, many of which can provide experts, often Thai nationals, in a wide variety of development areas. Of particular importance are the recently established United Nations Development Programme - Regional Centre in Bangkok (UNDP-RCB) and the UN Economic and Social Commission for Asia and the Pacific (UNESCAP). In addition to the UNDP and UNESCAP, the list of UN or UN-related organizations with a presence in Thailand includes: the Food and Agriculture Organization (FAO), the International Labor Organization (ILO), the International Organization for Migration (IOM), the International Telecommunications Union (ITU), the UN Educational, Scientific and Cultural Organization (UNESCO), the UN Children’s Fund (UNICEF), the UN Industrial Development Organization (UNIDO), the UN Population Fund and the World Health Organization (WHO). Detailed information on these organizations is available under the “Structure and Organization” section of the UN website.

## Thai Universities with International Programs

Most of Thailand’s leading universities are state-supported, including some that receive block grants from the government but operate autonomously. Most of the major universities were originally founded for very specific purposes. **Chulalongkorn University**, for example, was Thailand’s first university and was established to train civil servants. **Thammasat University** was established with a focus on political science, with the mission “to teach students to love and cherish democracy.” **Kaestsart University** evolved out of a college within the Ministry of Agriculture and initially developed expertise in agriculture and fisheries. **Mahidol University** was founded as the University of Medical Sciences closely connected with Siriraj Hospital’s medical school, and therefore focused on medical and health sciences. **Silpakorn University** was originally established as a school of fine arts. **Srinakharinwirot University** was first called the “Higher Teacher Training School” and concentrated on subjects related to education.

**Dhurakij Pundit University** and **Assumption University**, two private universities, were founded specifically to train students for business. Unlike other Thai universities, **Assumption University** used English as the medium of instruction from the start and became a key training ground for students interested in international business. Other universities, such as **King Mongkut’s Institute of Technology Ladkrabang** and **King Mongkut’s Institute of Technology Thonburi**, were launched to train students to handle increasingly sophisticated industrial technologies.

Since their founding, however, all of these leading universities have expanded into other areas of expertise. Although most have retained great strength in their initial areas of academic concentration, almost all Thai universities now have multiple strengths including business schools and undergraduate faculties of liberal arts. All have added graduate programs that offer master's and doctoral degrees. Most have degree programs in science, arts, social sciences, humanities, education, engineering, architecture, information technology, business, medicine and health science.

Another important change is that in the past 20 years all major Thai universities have developed international programs, including full degree programs, taught in English. In some cases, the international courses are taught within the same faculties as Thai courses. In other cases, separate international colleges have been created, sometimes with their own campuses, to attract both students from abroad and Thais who want to prepare for international careers.

From modest beginnings, these international programs are now strong and numerous, covering a wide variety of academic fields. Accompanying the degree courses are a number of short courses in specific areas. More details on the international programs in Thai universities are provided in the second section of this report.

Thai universities also offer international collaboration in research and development. Such collaboration can be sought through individual universities or through seven joint "centers of excellence" in research and development that are run as multi-university consortia.

**These R&D centers of excellence are:**

- Center for Innovation in Chemistry
- Center for Toxicology, Environmental Health and Management of Toxic Chemicals
- Center for Environmental and Hazardous Waste Management
- Center for Petroleum, Petrochemicals and Advanced Materials
- Center for Energy Technology and Environment
- Center for Agricultural Biotechnology
- Center for Post Harvest Technology Innovation

These centers have produced more than 3,000 graduates with advanced degrees, and have worked on more than 200 research projects involving the private sector. The outputs of this research include some 3,000 articles in scholarly journals and four international patents. Some of this research has been channeled to assist the rural economy through a government project called "Research and Innovation for Technology Transfer to Rural Communities" that began in 2003. This project coordinates research activities with the needs of rural communities and the local knowledge of those communities.

In addition to the universities described above and in the second part of this report, Thailand also has a number of institutes that provide development expertise available to other developing countries. Some of these institutes are connected to universities, but many are independent not-for-profit organizations. Some, like the Asian Institute of Technology, are very large, with thousands of students and staff, while others are much smaller, but all have developed significant expertise that can be accessed through training courses, materials, site visits or consulting.

## Asian Institute of Technology

The Asian Institute of Technology (AIT) is an international graduate institution for education in engineering, advanced technologies, business management and planning. It was founded to serve the Asia-Pacific region through “technological change and sustainable development.” Originally set up in 1959 under the Southeast Asia Treaty Organization (SEATO), it served as a regional graduate school of engineering, with support from the governments of Australia, France, New Zealand, the United Kingdom, the United States, Pakistan, the Philippines and Thailand. In 1967, the institute became independent of SEATO under special Thai legislation that changed its name to the Asian Institute of Technology gave it the authority to grant Thai graduate degrees.

Since then, AIT has become a leading regional postgraduate institution and is actively working with public and private sector partners throughout the region, as well as with some of the top universities in the world. The School of Engineering and Technology focuses on three areas of study- civil and infrastructure engineering, Industrial systems engineering, and information and communications. The school implements a holistic academic approach which combines traditional engineering curriculum with subject areas such as management, economics, finance, environment and law. The School of Engineering and Technology is committed to developing highly qualified engineers and technologists who play a leading role in promoting the region’s industrial competitiveness and its integration into the global economy. The School of Environment, Resources and Development offers a variety of academic programs with the mission of achieving sustainable development and poverty alleviation while mitigating the effects of climate change. The School of Management has adapted its program to the needs and challenges of the increasingly competitive regional economies. With an increasing focus on development in the region, AIT is currently developing programs on sustainable cities, climate change, and geosystem exploration and offshore engineering. In addition to degree programs that actively recruit international students from the Asia and Pacific regions, AIT has an outreach program that provides short-course development training in a wide variety of areas, especially agriculture, environment, information and communication technologies, small business management, business administration, development planning, project management, infrastructure development and public utility management.

## Sirindhorn International Institute of Technology

The Sirindhorn International Institute of Technology at Thammasat University (SIIT) is a good example of a international level research and teaching institute that has been established within a Thai university. SIIT grew out of cooperation among the Japanese Industrial Association, Keidanren, the Federation of Thai Industries and Thammasat University that began with a bachelor degree program in engineering in 1992. In 1996, with additional programs and a new building of its own, the institute was renamed in honor of Her Royal Highness Princess Maha Chakri Sirindhorn.

From its beginning, SIIT established English as the medium of instruction in order to prepare Thai engineers for international work and to attract top students from all over the world. All faculty members hold doctoral degrees, work on a full-time basis, and are fully available for consultation with students. The Institute now offers

bachelor's, master's, and doctoral degree programs in engineering and technology. All graduate programs are research oriented and the Institute operates two research centers: the Construction and Maintenance Technology Research Center and the Transportation Research Center. In 2007 an assessment by the Thai Research Fund showed that among the 13 participating engineering faculties and institutes, SIIT was the only institute receiving the highest rating of "Very Good" for all indicators. In 2005, for example, the 57-member faculty published a total of 167 research papers, including 49 in international journals.

SIIT actively recruits international students, and support from the private sector enables the Institute to offer substantial financial assistance to capable students in need.

## Chulabhorn Research Institute

This biomedical and chemistry research institute in Bangkok was initiated by Her Royal Highness Princess Chulabhorn in 1987 as an independent agency funded by the Thai government. It has focused on the areas of applied biology, chemical biology and environmental toxicology. It operates nine laboratories in biochemistry, biotechnology, organic synthesis, pharmacology, natural products, immunology, chemical carcinogenesis medicinal chemistry and chemical carcinogenesis.

In addition to its research work, the Institute also offers various trainings as well as master's and doctoral degree programs in Environmental Toxicology, Technology and Management. The curriculum for these international programs was designed by a team of international experts, with support from UNDP, many of whom have remained as part of the teaching faculty. The expertise available through these programs is furthered via international collaboration, with some courses operating as a joint-effort between CRI and leading foreign institutions such as the Massachusetts Institute of Technology in the United States, collaborative research and dissertation supervision efforts with various European and North American institutions, visiting professors from leading international institutions and organizations, and a chance for PhD. candidates to study abroad. The Institute seeks international collaboration and funding to further its research. Through training courses, seminars, symposia, workshops and conferences, the Chulabhorn Research Institute promotes the dissemination of information to assist local scientists in keeping abreast with new developments as well as to strengthen regional and international co-operation. Of particular importance are the Princess Chulabhorn International Science Congress and Distinguished Lecture Series. The international congresses were initiated to provide a forum for the exchange of the latest information and the most recent advances in research among the international scientific community. Congresses take place on a selected topic every four to five years, with over 1,000 participants at each previous congress. The Distinguished Lecture Series aims to promote the development of science according to the wishes of H.R.H. Princess Chulabhorn, by providing the opportunity for scientists of all disciplines in Thailand to benefit from the insights of renowned scientists throughout the world.

## Thailand Textile Institute

The Thailand Textile Institute (THTI) is a non-profit training organization set up by the Thai government to support and develop the textile and garment industries and help keep them competitive in the world market. THTI was founded by a Cabinet resolution in 1996, as a result of efforts by businesses in the textile and garment sector.



### The key tasks of the institute are:

- To collect, publicize and develop the textile and garment industry information system.
- To support research on textile production, style, standards and quality .
- To train and develop human resources for the industry.
- To check, analyze, test and guarantee textile quality.
- To provide technical advice on textiles to businesses.
- To arrange marketing promotion activities.
- To coordinate public-private efforts to promote and develop the industry.



Source: Textile Development Center

The end of global textile and garment quotas has greatly intensified competition in the industry. It was clear that for the Thai textile and garment industry to survive, it would have to provide higher value, use better technology and employ more skilled workers and designers.

**Co-operations with foreign countries** – THTI places great importance on creating links to textile trading partner countries through institutes, organizations and associations. The institute's co-operation development has included domestic and international trade development, investment, technology development, research and development, human resources development, information exchange and testing services. In the past ten years, the institute has performed four different roles in building co-operation with foreign countries.

**Trade and investment development** – The institute has supported trading relations between Thai private companies and trading partners in other countries. The main objective is to maintain markets in major consuming countries and to expand Thai exports in countries such as China, France, Singapore, Vietnam, the Philippines, New Zealand and Italy.

The Institute has also worked to improve cooperation within ASEAN. It has hosted business coordination meetings for the ASEAN Federation of Textile Industries (AFTEX), which represents more than 2,000 companies from all ten ASEAN countries. THTI also supports AFTEX by managing the AFTEX website.

**Human resources development** – As a result of cooperation with the Italian Trade Commission, THTI coordinates training and advisory services provided by Italy on bleaching, dyeing and finishing. The Institute also holds training and train-the-trainer courses on a variety of textile and garment manufacturing technologies and techniques. Some of this training involves international experts and most of it can be delivered in English for international trainees.

**Quality standard and testing services development** – The THTI's Textile Testing Center has developed textile testing services and textile counseling under the EU Eco Label (EU-Flower). The center has cooperated with the Danish Technological Institute (DTI), the National Metal and Materials Technology Center (MTEC) and Kasetsart University (KU) in a project for capacity building by institute and textile industries according to the EU-Eco Label standard. The testing center helps entrepreneurs develop environment-friendly products.

## The Thailand Automotive Institute

The Thai automotive industry has expanded rapidly in the past 15 years to become the largest automotive product exporter in Southeast Asia. Part of the reason for this success has been the ability of Thailand to upgrade the human resources in the industry. While much of this is due to the efforts of the major automobile assemblers, an important role has been played by the Thailand Automotive Institute (TAI). This institute

was established by the Ministry of Industry to provide information, analysis and human resource development for the industry as a whole. TAI advises the government on policy making and acts as a Cluster Development Agency, promoting coordinated activities within key auto industry clusters. TAI coordinates with international providers of expertise to help build Thai industry competitiveness on quality, cost, delivery, engineering and management – QCDEM.



Participants in TAI on-site training  
Source: Thailand Automotive Institute

**Automotive human resource development** – TAI provides both public and in-house training concentrating on the skills and knowledge needed by the automotive industry. Key training topics cover productivity, quality systems, administration and management. Training is also provided for personnel on technical subjects such as metal fabrication, metal molding, plastic injection and milling.

The training and subsequent capability tests cover both theory and practical application. TAI's capability certification helps promote systematic personnel development, and enhances personnel capability standards. TAI has established a Skill Certification System for the more than 300,000 workers in the Thai automotive industry. This system establishes widely accepted standards for key labor skills in the industry, with support from the

Japan External Trade Organization (JETRO). TAI has also received support from the Association for Overseas Technical Scholarship (AOTS) to dispatch experts to set up certification systems, training courses, and operation procedures for training personnel, examiners, and trainers.

TAI manages the Automotive Human Resource Development Project, a co-operative effort between automotive manufacturers and related organizations from Japan to develop human resources to meet international standards. This project has been supported by The Federation of Thai Industries, JETRO, the Japanese Chamber of Commerce in Thailand and private companies in the automotive industry.

The key corporate supporters are Toyota – on production technology, Denso – on the development of industrial attitudes, Honda – on die making, and Nissan – on the personnel skill certification system.

These TAI activities have achieved the following results:

- Increased the knowledge and skills of employees
- Increased productivity due to the higher abilities of employee
- Developed teaching courses that produce skillful and knowledgeable workers aligned with industry needs

**Co-operation with foreign countries** – TAI is willing to play an active role in encouraging co-operation and transferring industry skills in the automotive industry. It is able to provide many of its training courses in English and looks forward to receiving trainees from automotive companies in the region.

## The Mekong Institute

The Mekong Institute (MI) is an inter-governmental organization with a residential learning facility located on the campus of Khon Kaen University in northeastern Thailand. It serves the countries of the Greater Mekong Subregion (GMS), namely, Cambodia, Lao P.D.R., Myanmar, Thailand, Vietnam, Yunnan Province and the Guang Xi Autonomous Region of China. MI's programs and services principally cater to

the capacity building needs of current and future GMS leaders on issues around public sector reform and good governance, transnational project management and sustainable development, trade facilitation, and regional cooperation. MI is the only development learning institute founded by the six GMS members that offers standard and on-demand human resource development programs with a focus on regional cooperation and transnational development issues.



Source: Mekong Institute

### MI offers training in four areas :

- Rural Development and Project Management
- Leadership and Good Governance
- Trade and Investment Facilitation
- Effective Regional Cooperation

The MI Residential Training Center is equipped with the following training facilities:

- Two conference rooms equipped with audio-visual equipment and training materials
- Four class rooms
- Twenty-four hour wireless internet service
- A GMS Document Center with online access to the Khon Kaen University Library
- A language laboratory
- Thirty-eight standard hotel rooms with 24-hour wireless internet access

MI maintains a regional network of professionals, civil society organizations, government agencies and the private sector. It has strategic alliances with the Entrepreneurship Development Institute of India (EDII), the GMS Business Forum and the Mekong Migration Network (MMN). In 2008, 16 regional and international learning programs, four sub-regional research projects and seven workshops and policy dialogues were conducted, benefiting over 600 government officials and leaders of private enterprises involved in GMS development. The Institute also published eight working papers for its MI Working Paper Series. In 2009, MI conducted 12 learning programs, five research activities, eight workshops and one symposium.

MI's major partners include UNESCO Bangkok on education policy reform, UNIAP on combating human trafficking, MMN on trans-border labor migration management, the GMS Business Forum on trade and investment facilitation, and EDII on entrepreneurship development.

MI carried out a tracer study of its alumni and conducted a training need analysis for GMS development and cooperation to assess the impact of its training programs and identify the human resource development needs of key government agencies and state enterprises in the GMS. The study found the following:

**Course effectiveness:** 96% of the respondents rated MI's courses as effective in improving their knowledge and skills, and 74% believed that MI's courses fostered professional network development among participants. About 53% of the respondents said that they were still in contact with their batch mates from other GMS countries.

**Training needs:** The priority training needs identified during the study were

- Trade and investment facilitation
- Project management
- Aid management for government officers
- Monitoring of social and environmental impacts of development of infrastructure and economic integration in the GMS



K.I.Asia trainer assists an entrepreneur with her business plan during REAL training  
Source: K.I.Asia

## Kenan Institute Asia

The Kenan Institute Asia (K.I.Asia) is a Thailand-based, non-profit organization serving the sustainable development needs of the region by providing training, project management, research and consulting services. It grew out of a United States Agency for International Development (USAID) development project and was set up with support from the US government, the Thai government (through the agency now known as The Thailand International Development Cooperation Agency – TICA) and the Kenan Charitable Trust, a private family trust in North Carolina.

K.I.Asia was established on the understanding that the challenges facing Southeast Asia could be best addressed through free enterprise mechanisms, boundary-spanning partnerships and expertise gained through practical development experience. K.I.Asia's team of approximately 50 professionals (38 with advanced degrees) draws upon expertise and

experience gained over more than a decade of activities to support sustainable development.

The Institute works on the principle that human resource development and capacity building is at the core of economic and social development. K.I.Asia provides practical, short-course training in the following areas:

### Youth Development & Innovative Education

Training for young people and teachers can be provided in the following areas:

- Inquiry-based science education
- Monitoring and evaluating educational projects
- Using information technology for higher learning, especially through K.I.Asia's "One Computer Classroom" curriculum that helps subject teachers make best use of computers when they are in limited supply
- Management of community IT and learning centers, based on five years of practical experience in setting up and managing such centers



Teachers plan inquiry-based science teaching in a K.I.Asia course  
Source: K.I.Asia

### Corporate Social Responsibility (CSR)

K.I.Asia provides training for corporate executives and managers in corporate citizenship through open courses, executive briefings, and customized programs. K.I.Asia offers English language courses on:

- Developing Strategies for Corporate Community Engagement
- Building Effective Employee Volunteer Programs

- Evaluation and Measurement
- Communicating & Branding

## Entrepreneurship, Business and Economic Development

K.I.Asia provides training and consulting services (one-on-one and group) to entrepreneurs and SME owners and managers at all stages of a business' life cycle. K.I.Asia human resource development services also include training and seminars for government officials. These courses can be customized to particular needs in the following areas of expertise:

- Business plan writing – especially for small and medium-sized companies
- Marketing
- Business cluster development – including a handbook and training for cluster development facilitators
- Franchising – effective design and business planning for franchise-based businesses
- Entrepreneurship – especially for small, low-tech entrepreneurs, through a curriculum called Rural Entrepreneurship through Action Learning (REAL). The REAL methodology emphasizes “learning-by-doing” through activities and experiences following the “Experiential Learning Cycle” concept.
- Financial project management - especially for small companies and NGOs
- Development project design and evaluation – especially for government development officials
- Financial literacy – focused on budgeting, saving and borrowing for individuals
- Microfinance – focused on best practices in operating community-based microfinance organizations

## Public Health

K.I.Asia's Public Health Program, largely funded by USAID and supported by TICA, emphasizes cross-border collaboration on surveillance of, and response to, significant and emerging human and zoonotic infectious diseases, preparedness for pandemic influenza, control and elimination of multi-drug resistant malaria, and public health communication. Customized English-language training can be provided on:

- Pandemic preparedness planning
- Life-skills-based behavior change communication in schools and communities

## The Asian Disaster Preparedness Center

The Asian Disaster Preparedness Center (ADPC), based in Bangkok, is a non-profit organization helping the countries build safer communities through projects that reduce the impact of disasters. Key areas of activity include developing disaster risk management capacities, facilitating the dissemination disaster risk management expertise, experience and information and enhancing disaster risk management knowledge and skills

ADPC was established in 1986 at the recommendation of the UN Disaster Relief Organization with the aim of strengthening the national disaster risk management systems in the region. In 1999, ADPC became an independent entity, which is governed and guided by a Board of Trustees. ADPC's areas of expertise include the following:

## Climate Risk Management

- Reducing the vulnerabilities of communities to climate risks and applying climate information to crop and water resource management
- Building the capacity of partner institutions to generate, interpret, translate and communicate climate forecast information with sufficient lead time to enable communities and governments to anticipate and manage risks

## Community-Based Disaster Risk Management

- Institutionalization of the community-based disaster risk management in the policy, planning and implementation of the government
- Implementation of innovative programs
- Development of tools to support the work of decision-makers and practitioners
- Development of databases and publications to support implementation
- Development of new training tools to enhance the capacity of practitioners
- Development of a regional information and technical support center

## Disaster Risk Management Systems

- Strengthening the capacities of national, provincial and local disaster management systems, and promoting regional cooperation

## Public Health in Emergencies

- Developing more effective policy, procedures and guidelines for emergency management by the health sector
- Assisting health agencies, both government and non-government, in health emergency preparedness, mitigation and response

## Training Resources

- Regional courses, which ADPC conducts periodically every year, to improve the knowledge and skills of professionals on various aspects of disaster management in the light of regional disaster management needs
- Program based courses, under which ADPC develops and institutionalizes courses at the national level in different countries with the collaboration of national level training organizations on specific aspects of disaster management
- Special courses tailored to suit the needs of particular groups of professionals to enhance their capabilities to meet the requirements of their disaster management programs; typically developed upon request from governments, international and UN agencies, NGOs and the private sector

## Urban Disaster Risk Management (UDRM)

- Reducing human, social and economic losses in cities resulting from disasters
- Building stakeholders' capacity
- Facilitating structural and non-structural interventions
- Effective emergency response planning process

ADPC's work is primarily focused on the Asian region, but its training courses have also received participants from Africa, Australia, Europe, New Zealand, Latin America, the Middle East, the South Pacific and the United States.

ADPC is governed and guided by a Board of Trustees and advised by a Regional Consultative Committee and Advisory Council. It currently has over 100 staff from 18 different countries. ADPC has country project offices in Dhaka, Bangladesh; Ho Chi Minh City and An Giang, Vietnam; Khamuane, Lao PDR; Yangon, Myanmar; and Prey Veng and Phnom Penh, Cambodia.

ADPC also facilitates, maintains and operates a regional early warning facility to cater to differential needs and demands of countries to address gaps in the end-end multi-hazard early warning system through its office in Thailand.





# Thailand's Best Practices and Lessons Learned



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Volume



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