

**Thai Traditional and
Alternative Health Profile:
Thai Traditional Medicine, Indigenous Medicine and
Alternative Medicine
2011-2013**

**Office of Information and Evaluation
Department for Development of Thai Traditional and Alternative Medicine
Ministry of Public Health**

Thai Traditional and Alternative Health Profile:

Thai Traditional Medicine, Indigenous Medicine and Alternative Medicine
2011-2013

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Preface

The Department for Development of Thai Traditional and Alternative Medicine (DTAM), Ministry of Public Health, through the Office of Information and Evaluation, has prepared “**Thai Traditional and Alternative Health Profile, 2011–2013**” with the collaborative efforts of relevant experts and representatives of agencies concerned. It is believed that the information contained in this report will be useful for further knowledge creation, service system development, herbal drug system development, and the formulation of policy and direction for further development of Thai traditional medicine, indigenous medicine and alternative medicine. The report also serves as the knowledge base for further programme development based on the information and achievements during the last decade of the Department for Development of Thai Traditional and Alternative Medicine.

Thai Traditional and Alternative Health Profile, 2011–2013, contains 10 chapters on important matters as follows:

1. Thai Traditional Medicine Wisdom during the Reign of His Majesty King Bhumibol Adulyadej the Great (1946–2013)
2. Policy and Strategy on Thai Traditional Medicine, Indigenous Medicine and Alternative Medicine
3. Thai Traditional and Indigenous Medicine Services Systems
4. Herbal Drug System and Thai Traditional Drug Utilization
5. Situation and Development of Thai Massage
6. One Decade of the Protection of Thai Traditional and Indigenous Medicine Wisdom and Medicinal Plants



7. Research on Thai Traditional, Indigenous and Alternative Medicine
8. One Decade of Traditional Chinese Medicine in Thailand
9. One Decade of the Department for Development of Thai Traditional and Alternative Medicine
10. Traditional Medicine Service and Education Systems in ASEAN

The Department for Development of Thai Traditional and Alternative Medicine would like to thank the experts, academics, and officials of responsible agencies for their kind contributions to this report; and we are hopeful that this report will be useful for further development of Thai traditional, indigenous and alternative medicine. Moreover, this report is expected to be used as a reference in this field at both national and international levels.

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Acronyms and Abbreviations

ACCSQ	ASEAN Consultative Committee for Standards and Quality
ADR	adverse drug reaction
AEC	ASEAN Economic Community
AFTA	ASEAN Free Trade Area
AHCRS	ASEAN Harmonized Cosmetic Regulatory Scheme
AHHM	ASEAN Health Ministers Meeting
AIDS	acquired immune deficiency syndrome
AM	alternative medicine
APSC	ASEAN Political-Security Community
ASCC	ASEAN Socio-Cultural Community
ASEAN	Association of Southeast Asian Nations
ATFTM	ASEAN Task Force on Traditional Medicine
AWGPD	ASEAN Working Group on Pharmaceuticals Development
B.E.	Buddhist Era (A.D. 0 = B.E. 543)
BHS	basic health service
BIMSTEC	Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation
BMA	Bangkok Metropolitan Administration
BMTM	Bachelor of Myanmar Traditional Medicine (or B.M.T.M.)
B.TCM.	Bachelor of Traditional Chinese Medicine
CAM	complementary and alternative medicine
CBD	Convention on Biological Diversity
CBD-COP	Conference of the Parties to the Convention on Biological Diversity
CBR	Community Biodiversity Registration

CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CL	compulsory licensing
CMM	Chinese medicinal materials
CPG-TM	clinical practice guidelines for Thai traditional medicine
CPG-TMS	clinical practice guidelines for Thai massage
CSMBS	Civil Servant Medical Benefit Scheme
CUP	contracted unit of primary care
DHSS	Department of Health Service Support, MoPH
DMSc	Department of Medical Sciences, MoPH
DPN	dermatosis papulosa nigra (small skin lesions)
DRG	diagnosis-related group
DTAM	Department for Development of Thai Traditional and Alternative Medicine
EEC	European Economic Community
EU	European Union
INN	Individuals, Nodes, and Networks
OHEC	Office of the Higher Education Commission
R&D	research and development
FDA	Food and Drug Administration
FTA	free trade agreement
GACP	good agricultural and collection practice
GAP	good agricultural practice
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade
GCP	good clinical practice
GDP	gross domestic product
GLP	good laboratory practice
GMP	good manufacturing practice
GPO	Government Pharmaceutical Organization, MoPH

GR	genetic resources
HPVC	Health Product Vigilance Centre
HSRI	Health Systems Research Institute, MoPH
ICD-10-TM	International Statistical Classification of Diseases and Related Health Problems, 10th revision, Thai Modification
IGC	Intergovernmental Committee on Intellectual Property, Genetic Resources, Traditional Knowledge and Folklore (under WIPO)
IM	indigenous medicine
IPR	intellectual property rights
ISO/TC249	International Organization for Standardization Technical Committee on Traditional Chinese Medicine
ITB Berlin	International Travel Trade Show in Berlin
ITM	Institute of Traditional Medicine (Lao PDR)
ITTM	Institute of Thai Traditional Medicine
JPO	Japan Patent Office
KOTRANAS	traditional Indonesian medicine (or Jamu, in Indonesia)
LGO	local government organization
MDNS	Michigan diabetes neuropathy score
MFA	Ministry of Foreign Affairs
MoPH	Ministry of Public Health
MTA	Standardized Material Transfer Agreement
NCTM	National Research Center of Traditional Medicine
NESDB	National Economic and Social Development Board
NGO	non-governmental organization
NHA	national health assembly
NHCO	National Health Commission Office
NHSO	National Health Security Office
NICE	National Intellectual Property Rights Centre of Enforcement
NLEM	National List of Essential Medicines

NRCT	National Research Council of Thailand
NRMN	National Research Management Network
NSS	neuropathy system score
NSTDA	National Science and Technology Development Agency
NVC	nerve conduction velocity
OP	outpatient (in OP Individual Database)
OPD	outpatient department
OPS	Office of the Permanent Secretary, MoPH
OTOP	One Tambon One Product
PAR	participatory action research
PCU	primary care unit
PHC	primary health care
PIC/S	Pharmaceutical Inspection Co-operation Scheme
PITAHC	Philippines Institute of Traditional and Alternative Health Care
PMAS	post-marketing alert system
PPP	public-private partnership
PWG TMHS	Product Working Group on Traditional Medicines and Health Supplement
SAHM	Standard of ASEAN Herbal Medicines
SIPO	State Intellectual Property Office, China
SOM-AMAF	ASEAN Ministers of Agriculture and Forestry
SS-DPN	Score Scale of Clinic Symptom for DPN
SSS	Social Security Scheme
TAO	<i>tambon</i> (subdistrict) administrative organization
TBA	traditional birth attendant
T&CM	traditional and complementary/alternative medicine
T/CAM	Traditional/Complementary & Alternative Medicine
TM/CAM	traditional medicine and complementary/alternative medicine

TCE	traditional cultural expressions
TCM	traditional Chinese medicine
ThaiHealth	Thai Health Promotion Foundation
THP	Thai Herbal Pharmacopoeia
THPH	<i>tambon</i> (subdistrict) health promoting hospital
TK	traditional knowledge
TKDL	Traditional Knowledge Digital Library
TKM	traditional Khmer medicine (in Cambodia)
TMRI	Thai Traditional Medicine Research Institute
TP	Thai Pharmacopoeia
TRF	Thailand Research Fund
TRIPS	trade-related aspects of intellectual property rights
TTM	Thai traditional medicine
UAE	United Arab Emirates
UHC	universal health coverage
UCS	Universal Health Coverage Scheme
UNESCO	United Nations Education, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
UPOV	Union for the Protection of New Varieties of Plants
USA	United States of America
USD	U.S. dollars (1 USD = approx. 32 Thai baht)
VTM	Vietnamese traditional medicine
WHO	World Health Organization
WIPO	World Intellectual Property Organization
WTO	World Trade Organization

1 Thai Traditional Medicine Wisdom during the Reign of His Majesty King Bhumibol Adulyadej the Great (1946–2013)

On 9 June 1946, the Thai parliament unanimously passed a resolution on the accession to the throne of His Majesty King Bhumibol Adulyadej as the Ninth King (Rama IX) of the Chakri Dynasty. But soon after that His Majesty had to bid farewell to the Thai people to further his study at Lausanne University in Switzerland.

In 1950, His Majesty the King returned to Bangkok to attend the Coronation Ceremony, which was held on 5 May according to the ancient royal tradition, and was formally named “*Phrabat Somdet Phra Paramintharamaha Bhumibol Adulyadej Mahitalathibet Ramathibodi Chakkrinaruebodin Sayamminthratthirat Borommanatthabophit*” as inscribed on the Golden Name Tablet (or *Phra Suphannabat*). At the Ceremony, the King took the oath of accession: “We shall reign with righteousness for the benefits and happiness of the people of Siam.”

His Majesty the King has undertaken a large number of activities for the benefits of the Thai people and the country as per his accession oath since the first phase of his reign; many of such activities involve Thai traditional medicine (TTM) and were also performed by all former kings of the Chakri Dynasty as follows:

1.1 Royal advice on the establishment of TTM School at Wat Pho

In 1950, while visiting Wat Phra Chetuphon Vimolmangklaram (a Buddhist monastery or temple commonly known as Wat Pho), His Majesty the King asked that, as Wat Pho was the place where textbooks on traditional medicine were collected, why a traditional medical school was not set up for the teaching or learning of the traditional practices of medicine (*vejakam*), pharmacy, midwifery and massage (*hatthavej*). To follow the royal advice, the Wat Pho Thai Traditional Medical Association and the Wat Pho Thai Traditional Medical School were established in 1955 by the monastery committee together with other traditional medical experts, led by Venerable Phra Dhammarodom (Pun Punnasiri), who later on became Somdet Phra Ariyawongsakatayan, the 17th Supreme Patriarch (*Sangharaja*, or the head of Buddhist monks in Thailand). Then the School began offering training programmes on traditional medicine, traditional pharmacy and traditional midwifery.

Later on in 1961, while visiting Wat Pho again and upon being presented with the School's textbooks, His Majesty the King asked whether there was any teaching or training in traditional massage. In response to the royal initiative, the knowledge about Thai traditional massage was compiled and a training programme on Thai massage was established on



15 May 1962. Since then, the School has offered the training curriculum in all four branches of Thai traditional medicine.

In 1991, the School, under the leadership of Mr. Kamthon Tangtrongchit, a former president of the Wat Pho Thai Traditional Medical Association, had the standard textbooks on traditional Thai massage prepared by a group of the temple's massage teachers, involving the diagramming of ten primary energy lines or paths (*sen prathan sib*) for use as standard Thai massage postures and the selection of safe and effective body-stretching exercises, setting aside those with doubtful efficacy to be used with care. The standard textbooks are still in use today.

Besides, the United Nations Education, Scientific and Cultural Organization (UNESCO) passed its first resolution recognizing Wat Pho's stone or marble inscriptions as documentary heritage "Memory of the World Regional Register for Asia/Pacific" on 31 March 2008, which was the birthday of King Nangklao (Rama III) who directed that all kinds of knowledge be inscribed on marble tablets at the temple for use as technical evidence in such fields as traditional medicine, massage, self-stretching exercise (*ruesi dadton* or hermit body twists), religions, and traditions. Thus, the Wat Pho inscriptions are regarded as an old learning centre in various disciplines of Thailand. And on 27 July 2011, UNESCO passed its second resolution endorsing the inclusion of the Wat Pho inscriptions in the "Memory of the World Register in 2011".

Throughout the reign of His Majesty King Bhumibol Adulyadej, the TTM wisdom or knowledge has extensively advanced through the implementation of various royal development projects initiated and supported by the King, other royal family members, and public and private sector agencies as follows:

1.2 Medicinal Plants Project (a Royal Development Project)

“Royal Development Projects”, or royally initiated projects, generally mean the projects that were initiated by Their Majesties the King and Queen as well as other royal family members. The main purposes of such projects are “to help the people with difficulties in their livelihood or any other problems in various areas throughout the country”.

With the strong determination to resolve the problems and improve the living conditions as well as develop the quality of life of all Thai people, His Majesty the King has travelled extensively across the country, even to remote areas, and used modern scientific and technological principles, based on each locality’s natural and environmental context, in addressing such problems. As for disease prevention and medical treatment of illnesses, His Majesty has initiated and promoted the use of herbs or medicinal plants, which have been actually used for health care since ancient times. The use and development of herbal medicines should be further promoted for the benefit of the people.

Royal Development Projects related to the development and conservation of medicinal plants are numerous and can be divided into two categories as follows:

1. The projects that were truly initiated by His Majesty the King such as the Herb Forest Garden Project at the Khao Hin Sorn Royal Development Study Centre and the Herbal Medicines against Cancer Research Project.

2. The projects that have been designed and implemented by agencies, organizations or groups of people in response to royal initiatives such as the Queen Sirikit Botanic Garden Project, projects under the Royal Project Foundation, Somdech Phra Srinagarindra Garden at the Huai Sai

Royal Development Study Centre in Cha-am district, Phetchaburi province, and Herb Garden Projects of Royal Development Study Centres.

The royally initiated medicinal plants-related projects with various objectives may be categorized into four major features as follows:

- 1) Developing and conserving medicinal plant varieties so that they are suitable for growing in Thailand, especially those that are rare and endangered if they are not properly maintained in a suitable environment.
- 2) Increasing occupational options for the people including farmers to improve their quality of life, based on the self-reliance principle.
- 3) Collecting auspicious plant varieties that are used for conserving Thai culture and traditions related to the enhancement of the people's morale and willpower.
- 4) Being medicinal plants to be used for healing ailments, based on the local wisdom passed on from the ancestors.

Among such projects, the one with a clear objective of developing medical plants is the Herb Forest Garden at the Khao Hin Sorn Royal Development Study Centre.

1) Herb Forest Garden at the Khao Hin Sorn Royal Development Study Centre

On 8 August 1979, His Majesty the King graciously presided over the opening ceremony of the King Pinklao Shrine in Khao Hin Son subdistrict, Phanom Sarakham district, Chachoengsao province. At the ceremony, seven local residents presented His Majesty with a 264-rai (approx. 104-acre) plot of land in the subdistrict's village No. 2 to build a royal residence as they had deemed that wherever His Majesty visited, he would try to develop such a place; and that plot of land was barren and unsuitable for agricultural purpose as stated by the King:



Figure 1.1 His Majesty the King, during a visit to the Khao Hin Sorn Royal Development Study Centre, planting a Maha Pho Tree at the Centre's Herb Forest Garden on 21 July 1980

“...Historically, in the beginning the plot of land measuring 264 rai (approximately 104 acres) donated in 1979 by the village headman for building a royal residence. The land was located at the foothill of Khao Hin Son near Wat Khao Hin Son. Initially, the plot of the land had to be located and it was shown on four parts of map. When the donor was asked about not building a royal residence, “Would it be all right if an agricultural study centre is built instead? The donator agreed to the idea. Then the Centre began its construction and operation....”



Figure 1.2 The billboard depicting the background of the Khao Hin Sorn Royal Development Study Centre



Figure 1.3 The billboard depicting the royal development guidelines for the Khao Hin Sorn Royal Development Study Centre



Figure 1.4 Khao Hin Sorn Royal Development Study Centre

According to His Majesty the King's initiative, the Centre has been undertaking the activities related to the studies, experiments, as well as research and development on sandy soil improvement for agricultural purposes. Its public education service, on a one-site comprehensive basis, is carried out for the people as well as farmers who come to seek such knowledge at the Centre as a "Living Museum". It is thus an example in agriculture and occupational development and serves as a model for the farmers and interested persons who wish to apply such principles on their farms. The aim is to cover 15 villages with the total land area of 113,214 rai (or 44,749 acres).

Within in the Centre, His Majesty the King directed that 15 rai of land be used for growing medicinal plants as the Herb Forest Garden. Thus, the Garden is regarded as the one truly initiated by the King as per the stone inscription at the Centre:



Side 1: His Majesty King Bhumibol the Great thinks that medicinal plants growing in the Kingdom have had healing properties since ancient times. The quantities of such plants have been decreasing due to the lack of clearly and continuously assigned maintenance persons as in the old days. His Majesty has instructed that the 15-rai plot of land in the Khao Hin Sorn Royal Development Study Centre be used as the Herb Forest Garden.

Side 2: On Wednesday, 25 August B.E. 2525 (1982), or the 7th waxing-moon day of the 10th lunar month in the Year of Dog (*Pi Cho*), Rattanakosin Era (*Ro So*) 201, by royal command, His Royal Highness (HRH) the Crown Prince, representing His Majesty the King, graciously presided over the foundation stone-laying ceremony for the construction of the inscription stone at the Herb Forest Garden Project, Khao Hin Sorn Royal Development Study Centre.



Figure 1.5 The inscription stone, showing one of its sides, at the Khao Hin Sorn Royal Development Study Centre

Side 3: The construction began with the 1 million baht budget from the provincial development fund on Monday, 1 July B.E. 2535 (1992), or the 5th waning-moon day of the 8th lunar month in the Year of Goat (*Pi Mamae*), Rattanakosin Era 211. May the Herb Forest Garden be prosperous and beneficial for all Thais forever.

Side 4: His Majesty the King's determination is for the Garden to become the centre for fundamental studies and technical research as well as the site for study visits, and to disseminate the knowledge about medicinal plants to be used as food, herbal remedies and health-care products, which will help ease the households' economic burden of the general public.

In addition, the Project has set up a "Herbal Sauna Room", in front of which the statue of Dr. Jevaka Komarapaj (or Jivaka Komarabhacca), the great teacher of traditional medicine, is situated together with public relations signboard, saying:

1. Improve blood circulation
2. Relieve body aches and pains
3. Help reduce body fat
4. Relieve numbness, paralysis, and paresis
5. Treat acne and blemish, and use for skin care
6. Help increase the lung capacity and cure asthma
7. Help reduce blood pressure and cure rashes
8. Help restore the uterus of postpartum women

In the Garden, mostly the natural plants are maintained while other varieties of medicinal plants from other places are also grown and propagated on an experimental basis.



2) Royal speeches on medicinal plant research for cancer, AIDS and thalassemia treatment

His Majesty the King has clearly realized the importance of Thai wisdom on medicinal plants as evident in his support for the systematic establishment of herb forest gardens for use as a research centre with immense benefits. Moreover, His Majesty has asked some relevant officials such as Dr. Noparat Boonyalert to conduct a study on the use of medicinal plants for cancer treatment. In addition, in January 1998 His Majesty gave some advice to the research team from the Research Institute of the Government Pharmaceutical Organization (GPO), during their audience with the King on the herbal medicines against AIDS project at the Chitralada Villa Royal Palace, as follows:

- ❁ The research has to be undertaken collaboratively by relevant individuals, agencies and organizations for the benefit of the country.

- ❁ The collaborative efforts are to be pursued with the Rajpracha Samasai Foundation, which has resolved the leprosy problem, in the treatment and care for AIDS patients as well as their families and orphans, and with the Royal Chitralada Projects in producing herbal extracts and tissue-culturing medicinal plants.

- ❁ The medicinal plants against AIDS may not only be used against AIDS; if any of them are efficacious against other diseases, they would be more extensively used.

- ❁ The ingredients of a certain herbal medicine need not be disclosed as it would be more harmful if such information is not properly understood by the public.

- ❁ For each of the medicinal plants used, there should be a broad description of its medicinal properties. So the people will help conserve such kind of plants, not cutting them down.

✿ In some villages, there are a lot of people with thalassemia; you all have to help resolve the problem, educating the people about the disease, or research on minimizing the destruction of the red blood cells, using herbal medicine as an antioxidant or seeking an iron-removing drug to help prolong the patient's life.

✿ The research team should be named “Medicinal Plant Research Team” or “Medicinal Plant Research Promotion Team”. If its name was “AIDS Research Team”, it would be scary for the people; and if the people were told that AIDS was curable, they would be less interested in protecting themselves against the disease.

✿ Much attention should be paid to medicinal plant research as it deals with our wisdom, spending frugally as we have a small budget.

His Majesty encouraged and thanked the research team and wished them success. Such remarks show His Majesty's interest and intelligence in medicinal plants and herbal medicines.

3) Other relevant projects

Such projects include those originated and operated by agencies, organizations or groups of people in response to His Majesty the King's ideas; some are run under Royal Development Projects with other main purposes but with a medicinal plant component, such as:

(1) Projects under the Royal Project Foundation

For more than 20 years, Their Majesties the King and Queen have visited hill or hill-tribe people in the Doi Pui mountainous area, seeing them planting opium poppies but poor. Such practice is detrimental to the water catchment areas and causes damage to other regions of the country. Hence, His Majesty had a Royal Project established as a personal project in 1969

under the directorship of Prince (*Mom Chao*) Bhisadej Rajani. The aim is to help improve the livelihood of the hill people, which also partly resolves the problem of narcotics and deforestation. Later on, support has been received from the United States of America (Department of Agriculture), Taiwan and many other countries with close relations, in terms of funding and volunteers from universities and agencies, resulting in its smooth operations.

In March 1992, His Majesty the King had the status of the Royal Project changed as the Royal Project Foundation with his personal cash of 500,000 baht as the initial endowment under the honorary chairmanship of His Majesty. Its purposes, as a permanent non-governmental organization carrying out charitable activities with a flexible and efficient management system, are the following:

1. To provide humanitarian assistance to the hill people.
2. To help the country decrease the destruction of natural resources, i.e. forests and water catchment areas, and eliminate deforestation.
3. To conserve the soil and promote suitable land use, i.e. maintain the forests in the forests and cultivate in only cultivable land, without overlapping each other between the two types of areas.
4. To produce agricultural products for increasing the economic benefit of the country.

There are several products of the Royal Project, under the brand “Doi Kham”, including 40 cold-climate vegetables, 17 experimental vegetables, 17 medicinal plants, 28 cold-climate flowers, 39 dried flowers, 10 artificial products, 50 processed and canned food products, as well as relevant books, equipment and tools.

The herbal medicines and other herbal goods commercially produced by the Royal Project Foundation include angelica, Italian parsley, chive, sorrel, basil, thyme, marjoram, mint, rosemary, and sage. Some

of such medicinal plants are used for producing many products such as spices (angelica and mint), cosmetics (chamomile, rosemary, and sage), food additives (chive, sorrel, tarragon, mint, rosemary, sage, and oregano), and potpourri or *bu-nga* (chamomile, dill, thyme, balm, mint, marjoram, rosemary, lavender, lemon, and sage).

As for the development of medicinal plant products, relevant activities have been carried out in parallel with that for other agricultural and food products such as the tissue culture for increasing the yield without using too much of cultivation land and the promotion of biotechnologies (the use of microbes for production). In addition, there are several experimental projects and research and development (R&D) laboratories for food production and agriculture on the grounds of the Chitralada Villa. For such activities, His Majesty the King emphasizes the principle of maximum benefit of land use. For example, the herbal products developed and commercially produced, using modern technology, are *lingzhi* (or *reishi*) mushroom extract, canned *lingzhi* drink, and other herbal drinks (such as rosella juice). According to the royal advice, the technology used must not be too complex and too costly, but it must be developed within the country and cost-effectively used, based on the sufficiency-economy philosophy.

(2) Cinchona Garden

The Cinchona Garden, officially known as the Herb Garden of the Department of Medical Sciences, was initiated by His Majesty the King as he had deemed that the plot of land near Bhubing Rajanives Palace (in Chiang Mai), which was previously used for opium poppy cultivation by hill people, should be used for planting medicinal plants on a pilot scale. Thus, cinchona (quinine) trees were planted and propagated for R&D purposes for the benefit of the people. In addition to growing cinchona trees, the

Department of Medical Sciences has been assigned to take charge of the Garden and experiment with other medicinal plants such as dainty spurs (*thongphanchang*), cat's whisker (*ya-nuatmaeo*), etc.

Another obvious example is the Somdech Phra Srinagarindra Garden at the Huai Sai Royal Development Study Centre in Cha-am district, Phetchaburi. At the Garden, a study on medicinal plants for primary health care was also partly undertaken, in collaboration with the Faculty of Pharmacy at Mahidol University; many medicinal plants are grown and grouped according to their medicinal properties on an experimental basis for the people to use before going to the doctor such as those for reducing blood pressure and others for use as tonics, appetizers, and diuretics.

(3) Queen Sirikit Botanic Garden

The Queen Sirikit Botanic Garden, whose name was granted by Her Majesty the Queen, is a park under the Botanic Garden Organization of the Ministry of Natural Resources and Environment (previously under the Office of the Prime Minister). Located at the 12-km marker on Mae Rim-Samoeng Road in Mae Rim district, Chiang Mai province, the Garden was established in 1992 as a new agency according to the Royal Decree establishing the Botanic Garden Organization.

The objectives of the establishment of the Botanic Garden Organization are as follows:

1. To serve as the country's botanic technical and service centre.
2. To be a place where plant varieties existing in the country and from overseas are collected and beautifully grown in an integrated manner with name tags, based on their characteristics.
3. To serve as Thailand's plant variety conservation centre, especially local or endemic plants (orchids), economic plants, medicinal

plants, rare plants, and endangered plants, for plant propagation purposes and further studies in the future.

4. To serve as the collection centre for dried plant varieties for use in verifying plants' correct names and as a botanic database of the country.

5. To be the place for exhibiting the beauty of plant varieties in nature in line with technical and recreational studies as well as the ecological and environmental conservation principles.

6. To serve as a cooperating centre for botanical research and training, on a continual basis, especially on the production of botanists for the country in collaboration with universities and other institutions in both public and private sectors within and outside the country.

7. To serve as the place for the collection of documents and printed materials on plants.

8. To be the national centre for the exchange of botanic and genetic information, especially that related to the plants native to South-east Asia.

9. To be the place for creating positive mental attitudes and giving knowledge to youths so that they will cherish and realize the value of natural resources as the extremely important basic culture.

10. To be the place that promotes and disseminates the beauty and value of the Thai flora to be known across the world.

The Queen Sirikit Botanic Garden is located geographically in the plain and hilly area with the varying altitudes of 400 to 950 metres and good climate. Its total area of 3,500 rai (1,383 acres) contains naturally fertile and beautiful plant varieties especially those stated in objective 3 of the Garden.

(4) Siri Ruckhachati Nature Park

As Her Majesty Queen Sirikit is interested in medical, public health and pharmaceutical services, Her Majesty's helpfulness and compassion have been extended to all the people in giving them an opportunity as well as knowledge to live a better life. To assist the poor people with illnesses during Her Majesty's visits to remote areas, the Queen always has the royal medical unit provide medical care for the sick people and monks who ask for help. Her Majesty's keen interest in this matter is so delicate particularly for sick monks; for example, when the late senior Buddhist monks (Luang Pu Waen, Luang Pu Toh, and Luang Pu Thes) were sick, she kindly provided all kinds of necessities even skin-moisturizing cream for healing the elders' dry skin. As for the patients with thyroid disorders in the North and North-east under the royal patronage, in addition to having the medical team provide medical care, her personal funds were also given to such patients; and surgical care has been given to more than 20,000 patients across the country. Her Majesty's benevolence and compassion are immense towards poor and needy people.

Another example for Her Majesty's interest in medical and pharmaceutical work that is worth mentioning here is that whenever there were some people presenting her with medicines and medical supplies for use by the Office of Her Majesty the Queen's Private Secretary and the Royal Medical Division, Her Majesty would ask the pharmacist of Mahidol University's Siriraj Medical School to check and see whether herbal medicines could be obtained for use at the Division. Her Majesty's interest in Thai herbal medicine is evident in her constant support for the preservation of Thai traditional medical textbooks and practices.

Realizing the importance of medicinal plants, which have been used in Thai traditional medical services since ancient times, but today's knowledge of herbal therapy has been declining, resulting in the confusion in their use and the lack of research, the Faculty of Pharmacy, Mahidol University, has initiated the research on medicinal plants in all aspects including the growing of medicinal plants for research purposes. For this effort, Her Majesty the Queen has granted the name "Siri Ruckhachati" Herb Garden and graciously had Her Royal Highness (HRH) Princess Maha Chakri Sirindhorn preside over its opening ceremony on 8 August 1988.

The **Siri Ruckhachati Herb Garden**, operated by the Department of Pharmaceutical Botany, covers an area of 38 rai (15 acres) with approximately 800 beautifully grown medicinal plant varieties. The plants have name tags describing Thai and scientific names, families, parts for medicinal use and medicinal properties. The Garden is regarded as a natural classroom for students, academics and other interested persons; its number of visitors has been rising each year. As a result, the Garden was granted the "Mahidol University Award, Service Branch" in 1983 and recognized as the National Outstanding Project (Natural Resources and Environment Branch) by the National Identity Board of the Prime Minister's Office in 1996.

In the **Siri Ruckhachati Herb Garden**, there are medicinal plants that are generally found and used in daily life as well as rare varieties regarded as indigenous wisdom. The Garden is divided into three parts:

❁ **Part 1: The nursery** growing not-too-big medicinal plants that require special nurturing, but not needing bright sunlight, such as flame lily (*dongdueng*), stevia (sweet herb or *ya-wahn*), and some poisonous plants such as *changrong*, and purging croton (*salod*).

❁ **Part 2: The herb garden**, a 12-rai plot, growing small medicinal plants as well as climbers and annual plants beautifully arranged and suitable for relaxation and learning about such plants, including ebony (*ma-kluea*), *somsiao*, tembusu (*kan-krao*), *saraphi*, and catechu (*si-siad*).

❁ **Part 3: The forest garden**, an area of about 26 rai, exhibiting the ecosystem in which all medicinal plants are naturally growing. Most of the plants are trees and small plants growing among the large ones, providing the shades for the people who are interested in medicinal plants in nature, such as black myrobalan (*sa-moh-thai*), beleric myrobalan (*sa-moh-hiphek*), *sa-moh-di-ngu*, camphor, cinnamon, and ivory (*mok-man*).

The **Siri Ruckhachati Herb Garden** has many rare medicinal plants such as *mok-rajini*, *sirindhorn-walli*, *samsipkipnoi*, *jikdong* (new plant varieties of the world), *sakai-jasmine* (*mali-sakai*, a rare herb used by Sakai people as contraceptive), *kamphaengjedchan*, white *kwao khrueta*, and red *kwao khrueta* (Thai tonics) as well as many other indigenous vegetables.

Mahidol University has realized the importance of the leaning and use of medicinal plants for health care, disease prevention, and environmental conservation. Thus, Professor Dr. Piyasakol Sakolsatayatorn, then president of the University, proposed that the ground level of the **Siri Ruckhachati Herb Garden** and the nearby southern conservation area, totalling 171 rai (67.6 acres), should be raised as a national and international natural conservation park. The new site would be used for planting all kinds of medicinal plants and other plants for use in producing herbal medicines (extending the Thai wisdom) as well as for herbal research and development activities and learning about nature. The improved site will be a public park and a site for conservation tourism

related to botany and medicinal plants in Nakhon Pathom province and the western region of the country. The effort was undertaken with the government budget in 2011 and Her Majesty the Queen had got its name changed from “Siri Ruckhachati Herb Garden” to “**Siri Ruckhachati Nature Park**” on 22 April 2010.

(5) Princess Maha Chakri Sirindhorn Herb Garden

The Princess Maha Chakri Sirindhorn Herb Garden in Rayong province was established by the PTT Public Company Limited (formerly, Petroleum Authority of Thailand) and then presented to HRH Princess Maha Chakri Sirindhorn on 18 April 1975.

As PTT had realized that the Princess had been interested in herbal medicine and medicinal herbs or plants as valuable heritage of Thailand, coupled with PTT’s policy on natural and environmental conservation including Thai herbal wisdom, the medicinal herb garden was established on the grounds of PTT staff quarters and maintenance centre in Map Kha subdistrict, Nihom Phatthana minor district (today’s Nihom Phatthana district), Rayong province. Overall, its aim is to collect and grow rare as well as general medicinal herbs, based on the landscape architectural principles and types of medicinal properties of the herbs. On the 60-rai (24-acre) plot of land, 20 groups of medicinal herbs were grown; and as requested, the royal permission was granted to name it “**Princess Maha Chakri Sirindhorn Herb Garden**”. On 18 April 1985, Their Majesties the King and Queen, together with Princess Sirindhorn and Princess Chulabhorn, presided over the opening ceremony of the Garden, in which each of them planted a memorial tree of nutmeg (*chan-thet*).

The objectives of the **Princess Maha Chakri Sirindhorn Herb Garden** are:

1. To collect and grow medicinal herbs and serve as the centre of medicinal herb knowledge.
2. To be the source for the production and propagation of certain medicinal plants to be used for studies on their medicinal properties of various public and private agencies.
3. To be a public park for the general public and PTT staff.

The 60-rai Herb Garden has grown the medicinal plants in 20 major groups, according to their medicinal properties as described in Thai traditional medicine textbooks. It is beautifully maintained and convenient for the public to visit.

1.3 The publication of TTM textbooks for royal commemoration

In addition to those mentioned earlier, there are several other royal projects that directly and indirectly deal with medicinal herbs, but cannot be stated here.

For all the royal projects, or royally initiated projects, His Majesty the King has set the aim to bring about the benefits of the Thai people. Every project must be implemented in a complete-cycle manner, involving the production, reuse of excess materials, marketing study, and quality control to meet the market's demand, finally resulting in farmers' increased income, better living conditions, better economy and better quality of life.

As all relevant agencies are aware of the interest in Thai traditional medicine of His Majesty the King as well as other royal family members, many textbooks on TTM and medicinal plants have been published to commemorate various royal celebrations follows:

Phaetsart Songkroh: Medical Wisdom and National Literary Heritage, a textbook of medicine, published to commemorate the Sixth Cycle (72nd) Birthday Anniversary of His Majesty King Bhumibol Adulyadej, 5 December 1999, by the Thai Language Institute of the Ministry of Education's Department of Curriculum and Instruction Development.

Tamra Vejasart Chabap Luang of King Rama V, Vol. 1-2, royal textbooks of medicine, published to commemorate the Sixth Cycle (72nd) Birthday Anniversary of His Majesty King Bhumibol Adulyadej, 5 December 1999, by the Committee on Documentation and Archives under the Steering Committee on Celebrations of His Majesty the King's Birthday Anniversary.

Explanation of Tamra Phra Osot Phra Narai, a textbook of Thai drug recipes, published in commemoration of His Majesty the King's Sixth Cycle (72nd) Birthday Anniversary, 5 December 1999, by Bhumipanya Foundation and Amarin Printing and Publishing PCL.

Siri Ruckhachati Herb Garden, a book on medicinal plants, published in commemoration of Her Majesty the Queen's Fifth Cycle (60th) Birthday Anniversary, 12 August 1992, by the Faculty of Pharmacy, Mahidol University.

Siam Phaisatchayaphruek: National Wisdom, a book on medicinal plants, published in commemoration of HRH Princess Maha Chakri Sirindhorn's 40th Birthday Anniversary, 1995, by the Faculty of Pharmacy, Mahidol University.

Since the reign of King Rama V, many textbooks on Thai traditional medicine have been published, whose contents were mostly copied from older textbooks. As they are nearly complete TTM textbooks, many people who have realized the benefits like to republish them for distribution on various occasions such as:

Textbook of Medicinal Properties (*Tamra Sappakhun Ya*) of Prince Krom Luang Wongsa Dhiraj Snid (two original volumes at the National Library were written in white pencil in black Thai notebooks, which are now in a deteriorating condition), covering the properties of various Thai herbal medicines. So far there have been a number of reprints for distribution.

Textbook of Special Medicines (*Tamra Ya Phiset*) compiled and written by HRH Prince Krom Somdet Phra Pawaretwariyalongkorn and printed in 1910 and covering general herbal drugs as well as elixirs.

Textbook of Medicine: Thai Medicines (*Nangsue Wicha Phaet Phanaek Ya Thai*) written in 1907 by Lieutenant Colonel Mom Chao Kammasit, assistant director-general of the Medical Services Department, covering brief symptoms of illnesses and tastes/types of drugs for the illnesses as well as aqueous drug adjuvants or vehicles.

Textbook of Poems on Diseases (*Tamra Rok Nithan Khamchan*) written by Phraya Wichayathibodi (Klom) and compiled as the palm-leaf version by Lieutenant Colonel Mom Chao Kammasit; the revised version with an addendum was printed in 1913. It is easy to read, but hard to understand; and its characteristics are similar to the aforementioned textbooks with the descriptions of diseases and drugs for treatment purposes.

Textbook of Medicine for Households (*Tamra Phaet Samrab Ban*) 1921, transcribed from medical textbooks by Mr. Rod Butri from unspecified sources and printed for distribution at the funeral of Khun Suphanrasmi.

The book covers selected good drug formulas such as *ya-kha-thaengthong*, *ya-hom*, etc.

Textbook of Phruetthathalaeng Medicines (*Tamra Ya Phruetthathalaeng*), written by Phraya Kaset-hiranrak in 1921. It is a short textbook, but contains an interesting chapter on drug formulas for treating “*rok phaak*” and rabies. *Rok phaak* was described as a serious illness that might be fatal within 12 hours or 7 days and could be treated with the bark of beleric myrobalan (*sa-moh phiphek* or *Terminalia bellirica*), the kind that did not turn black when mixed with liquor (using its powder for taking orally or applying on the skin). For treating rabies, use a gold leaf or foil mixed with lime juice. It should be noted, however, that such drug formulas had not been tested to see whether or not they were really efficacious as stated.

Textbook of Thai Medicines (*Tamra Ya Thai*), printed in 1930 and dealing with 53 drug formulas such as *Ya Kamlangratchasi* (elixir), *Ya Tartbanjob* (for treating diarrhoea and stomach upset), and others.

The drugs of the same names, such as *Ya Kamlangratchasi*, that appear in various textbooks have slightly different formulas or ingredients, probably due to revisions deleting unnecessary or rare ingredients, or errors in successive transcriptions.

Wijit-ying Proverbs and Household Remedies Textbook (*Tamra Ya Prajam Ban*), printed by Venerable Phra Uttamamongkol Chaimangkalo for distribution in commemoration of his ecclesiastical rank promotion in 1931, including an elixir formula of Venerable HRH Prince Pawaretwariyalongkorn, which was found by himself to be efficacious.

The Legends and Medicinal Properties of Some Plants written by Phraya Sihasak Sanidwongse in 1938 is a collection of miscellaneous

Thai drugs (*ya-kred*) with different variations for his own use and found efficacious. As a grandson of Prince Wongsā Dhiraj Snid and Prince Sai Sanidwongse, he had been told about the medicinal properties and legends of some plants, for example, a story about Prince Wongsā Dhiraj Snid, a private physician to King Rama IV, using cinchona bark before anybody else in Siam. During that period, there was quinine, one of the Western drugs, for use but Thais did not like to use such drugs. Then the Western physician advised that cinchona bark be imported for grinding as powder and then used like Thai medicines. It was thus considered that cinchona bark was first imported into Thailand during the reign of King Rama IV. And there were legends about eucalyptus trees and wintergreen oil being used widely in Siam during the reign of King Rama V, the use of spinach for treating diabetes of Prince Sai Sanidwongse, as suggested by a Chinese, by cooking it as food for consumption, which was found efficacious. Regarding some other plants' properties, it was found that eating boiled flesh of aloe vera (*wahn hang-jora-khe*) with rock sugar in lieu of swallow's nest helped refresh the body better than the bird's nest; and peanuts could be used to help relieve coughing due to common cold and as antidote for wild yam (*kloi* or *Dioscorea hispida*) poisoning.

Thai Medicines Textbook (*Tamra Ya Thai*) is another book, printed in 1939 for distribution at the funeral of Muen Chamnanphaettaya (Ploy Phaettayanon, grandfather of Dr. Pirote Ningsanonda, former minister and permanent secretary of the Ministry of Public Health), that contains a number of selected drug formulas such as *Ya Khiao-hom*, *Ya Inthajak*, *Ya Suksai-yaht*, anti-pyretic drug, anti-dysentery drug, herbal liquor tonic, etc.

In 1949, Professor Dr. Samran Wangsapha compiled and transcribed the drug formulas from the marble tablets on the walls of the cloisters at Wat

Ratcha-orasaram, except those that had been deteriorated or unreadable, in a total of 55 volumes of notebooks called the **Textbooks of Inscribed Formulary of Wat Ratcha-orasaram** (*Tamra Ya Jaruek Wat Ratcha-orasaram*). The textbooks deal with illness characteristics and several drug formulas to choose from for treating them. Some well-known formulas are, for example, *Ya Sang-rasmi*, *Ya Samutkluean*, etc. Some of the drug formulas have 4 to 40 ingredients; some with more descriptions of amounts, but all with preparation and administration methods.

Compendium of Some Articles on Herbal Medicines, a book compiled and printed in 1979 by Professor Dr. Ouay Ketusingh dealing with home remedies that he had ever used for himself and found efficacious. The medicines are categorized into 47 groups of illness symptoms including a total of 118 drug preparations, some of which had been told by other people, but are reliable. Almost all preparations are single herbal drugs such as *yah-nguang-chang* (*Heliotropium indicum*), *phlai or plai* (*Zingiber cassumunar*), or salt or benzoin (*kam-yan*, or gum benjamin) for treating sore throat. Besides its interesting preface, the book also has warnings about the danger from the use of Thai medicines, written by Dr. Krungkrai Jenpanich, who had selected and included some of them in the book, totalling 49 preparations.

Home Remedies Textbook (*Tamra Ya Klang Ban*) compiled by Venerable Phra Thepwimolmolee, who invited Buddhist monks and other people to donate drug formulas that were efficacious in treating illnesses, each with the name of its owner endorsing its properties with confidence as he/she had used it for him/herself, including the drug administration methods. (This kind of compilation was similar to those undertaken during the reigns of Kings Rama III and Rama V.) The textbook, first published in 1881, contains 244 preparations; and the second printing contains 299

preparations, including those that could treat the same diseases such as 8 preparations for dysentery, 1 for menstrual fever, 1 for malaria, etc. Having several preparations makes it convenient to choose from and use at different localities. At the end of the book, there is the directory of medicinal plants (for home remedies) indicating the plants' common names called in all four regions of the country.

1.4 The establishment of TTM organizations and networks: the first phase

In 1952, the **Traditional Pharmacy Association of Thailand** was set up at Thai Wattana Osot drugstore (near the Wat Liap Power Plant), whose first president was Moh Daeng Tanvejakul. Later on, in 1960, the association's office was moved to Wat Sam Phraya; and in 1961, Khun Sophitbannarak (Amphan Kittikhajorn) was elected president and Mrs. Saisanom Kittikhajorn as vice president and administrator. And in 1962, the association's name was changed to "**Ayurvedic Association of Thailand**". After that there have been many other traditional practitioners taking turns serving as president; today the association has moved its office from Wat Sam Phraya.

In 1957, the **Wat Pho Thai Traditional Medical Association** was established and, in the beginning of its operations, the training courses on traditional medicine, traditional pharmacy and traditional midwifery only were offered. Later on, in 1961, while passing by the Thai Traditional Medical School to preside over a poetry contest at the temple and being presented with the School's textbooks by the teachers, His Majesty the King asked about the art of Thai massage, whose training course and services were later started in 1963.

In 1962, the “**Northern Traditional Medicine Centre**” (*Sathan Phayaban Banthao Thuk Phak Nuea*) was established in Chiang Mai by Mr. Sintorn Chaichakan; at present, the Centre’s name has been changed to “Association of Licensed Thai Traditional Medicine Practitioners, Northern Thailand” and “Thai Massage School Shivagakomarpaj”.

In 1972, the “**Traditional Medicine Practitioners Association of Chumphon Province**” was established at Wat Chumphon Rangsan; its first president was Mr. (Master) Soen Somboon. Currently, its name has been changed to “Thai Traditional Medicine Practitioners Association of Chumphon Province”.

In 1972, the “**Wat Mahathat Traditional Medicine Association**” (in Bangkok) was established by Luang Buretbamrungkarn, Moh Prasert Phrammani and Lieutenant Sek Saralamp (previously, three of them were masters or teachers of traditional medicine at Wat Pho); and the **Thai Traditional Pharmacy Association** was established in the Tha Phra Chan area (in Bangkok).

In 1973, the “**Ayurvedic Association of Songkhla**” was established; its office was at Wat Liap in Mueang district, Songkhla province.

1.5 Academic programmes on TTM and applied TTM at the bachelor’s degree level

The Thai Traditional Medicine Curriculum: the School of Health Science, Sukhothai Open University, began offering the bachelor’s degree (extension) programme in 2001.

The School of Traditional and Alternative Medicine, Chiang Rai Rajabhat University, began its bachelor’s degree programme in 2002.

The Applied Thai Traditional Medicine Curriculum: the Faculty of Medicine Siriraj Hospital, Mahidol University, took the transfer of Ayurved School and began offering the bachelor's degree programme in 2003.

The Thai Traditional Medicine Centre, Faculty of Medicine, Maharakham University, began offering its TTM curriculum in 2003.

The Faculty of Thai Traditional Medicine, Prince of Songkla University, began offering its TTM curriculum in 2004.

The Thai Traditional Medicine Project, Faculty of Science, Ramkhamhaeng University, began giving TTM programme lectures in 2004.

The College of Thai Traditional Medicine, Rajamangala University Technology Thanyaburi, began offering its applied TTM curriculum in 2004.

The Faculty of Abhaibhubejhr Thai Traditional Medicine, Burapha University, began originally as the College of Abhaibhubejhr Thai Traditional Medicine in 2005.

The Applied Thai Traditional Medicine Programme, Faculty of Medicine, Thammasat University, began offering its applied TTM curriculum in 2005.

The Faculty of Oriental Medicine, Rangsit University, began offering its bachelor's degree programme in 2008.

The Thai Traditional Medicine Programme, Faculty of Science and Technology, Bansomdejchaopraya Rajabhat University, began offering its TTM curriculum in 2009.

As for the list of TTM and applied TTM educational institutions recognized by the TTM Profession Commission (11 for Thai traditional medicine and 8 for applied Thai traditional medicine), see more details in

Tables 3.6 and 3.7 in Chapter 3 on Thai traditional and indigenous medical services systems.

1.6 The development of Thai traditional medicine, indigenous medicine and alternative medicine under the Primary Health Care Programme

After the World Health Organization (WHO) had held a meeting on policy and planning for the promotion and development of indigenous medicine in 1977, with the support from the Asia Foundation, a technical seminar was held on modern and traditional medicine (in Thailand). At the seminar, a manual for the use of herbal medicines written by Assoc. Prof. Somporn Putiyanan of the Faculty of Pharmacy, Chiang Mai University, was distributed. And then training courses were organized on primary health care and herbal medicines including Lanna (or Northern) Thai indigenous medicine; two classes were held in 1977 and other classes on 20–29 September 1979, 24 April – 3 May 1980, and 29 May – 7 June 1980, in collaboration with the Chiang Mai Family Welfare Association, the National Council on Social Welfare of Thailand under the Royal Patronage, and the Lampang Project of the Ministry of Public Health (MoPH). Another manual for the use of herbal medicines was written by Assoc. Prof. Phayao Muanwongyaht, printed and distributed in 1981, covering 348 medicinal preparations for treating 57 common ailments; many of the preparations are of the same medicinal plants with other names, parts to be used, dosages and administration methods, but there are no scientific names.

In 1978, WHO issued the Alma-Ata Declaration on Primary Health Care, calling on Member States to use indigenous medicine as well as herbal medicines as part of their Primary Health Care (PHC) Programme.

Since then, the Thai government has paid more attention to the study and development of Thai traditional medicine including herbal medicines. Thus, in 1979, the policy on primary health care was officially issued and the Thai PHC Programme was incorporated into the Health Development Plan under the Fourth National Economic and Social Development Plan (1977–1981). The Medicinal Plants in Primary Health Care Project was then supervised by the National Herbal Medicine Development Committee, which currently is the National Herbal Medicine Committee.

In addition, Mahidol University also organized a seminar on traditional medicine on 1–3 October 1979, which recommended that Thai traditional medicine and pharmacy be promoted and further developed, and that an agency be established to take responsibility for such efforts as well as the integration of Thai traditional medicine into modern medicine, and to promote the use of more traditional Thai drugs.

During 1980–1981, the Office of the National Economic and Social Development Board (NESDB) assigned the Faculty of Pharmacy of Mahidol University to conduct a study on medicinal plants as well as herbal medicine and develop guidelines for formulating a policy on medicinal plant and herbal medicine development. The study made four recommendations as follows:

1. Development of medicinal plants for use in primary health care
2. Development of medicinal plants for use in traditional and modern pharmaceutical industry
3. Development of herbal medicines for use as military supplies
4. Development of herbal medicines for export purposes

In 1981, the government set a national drug policy, whose parts related to herbal medicines include the following:

❁ Conduct a survey on essential raw materials domestically available for drug manufacturing industry; and conduct a feasibility study on manufacturing larger amounts of medicines using local resources so that Thailand will become self-reliant.

❁ Conduct research seriously so as to know about the therapeutic potential of traditional Thai drugs for use with safety and efficacy. Under the PHC Programme, the Medicinal Plants and Traditional Medicine Unit was established in the Office of the Primary Health Care Committee to support other operational units of the MoPH to carry out their functions in promoting the use of herbal medicines in primary health care. Later on, the unit was upgraded as the Community Medicinal Plants and Thai Traditional Medicine Section.

In 1982, there was a major change in the Thai traditional medicine system when Professor Dr. Ouay Ketusingh established the Thai Traditional Medicine Promotion Foundation aiming to revive the TTM knowledge, promote the education and practice of TTM so that it had a higher standard, and promote the research on and use of medicinal plants for better health of the people, in coordination with other charity organizations. Moreover, the foundation also established *Ayurvedvidhayalai (Jevaka Komarapaj) School*, to accept high-school graduates to study in the three-year Thai traditional medicine curriculum which included basic sciences. Upon completion, they would receive a diploma and become an *ayurved* medical practitioner (*phaet ayurved*) with the capacity to provide TTM and basic modern medical services as they could communicate (both types of medical aspects) with patients and modern medical doctors, as well as make and take referrals.

Thus, the teaching-learning process at Ayurved School was carried out on a teacher-student basis, in a classroom, using educational media

or instructional materials for better understanding. The students were selected through the written test and interview, which was different from the ancient-style teaching process, usually done only to the learner or disciple who could closely follow and please the master or teacher until the teacher was willing to teach the individual learner or follower. And in the old days, the learners had to have a special capacity to observe, memorize, and help themselves so as to enhance their own knowledge and experience.

Later on in 2002, Ayurved School including its clinical service and drug production units was transferred to be under the newly established Centre of Applied Thai Traditional Medicine (*Sathan Kanphaetphaenthai Pra-yuk*), a department at the Faculty of Medicine Siriraj Hospital, Mahidol University. The Centre takes charge of the operation of the transferred school, which was later renamed “Ayurved Thamrong School” on 4 August 2007 by HRH Princess Maha Chakri Sirindhorn.

Besides, the Thai Massage Revival Project was initiated in 1985 by the popular sector involving several non-governmental organizations (NGOs), namely the Health and Development Foundation, the Folk Doctor Foundation, the Coordinating Committee on NGOs for Primary Health Care, and several TTM practitioners associations. Later on, they jointly set up the **Federation of Thai Traditional Medicine Associations of Thailand** in 1993 with a membership of more than 20 organizations. These network members have played an important role in restoring and developing Thai traditional medicine especially Thai massage so that it is widely recognized and well known at the national and global levels.

During the period of the Fifth National Economic and Social Development Plan (1982–1986), the Ministry of Public Health started a pilot project on herbal medicine promotion with the support from UNICEF

during 1984–1985 in 25 provinces, 1 district in each province, covering a total of 1,000 villages. The project activities included providing research funds, distributing seeds or saplings of medicinal plants, producing traditional household remedies, supporting the information system for medicinal plants, disseminating the knowledge about medicinal plants, and promoting the use of herbal medicines. Under the project, 66 types of medicinal plants were selected for use and distribution.

Towards the end of the Fifth National Plan, in 1985, another pilot project on **Medicinal Plants in Primary Health Care** was implemented with the support from the Federal Republic of Germany (GTZ Medicinal Herbs Project). The project was carried out until 1988, using the modified approach based on the experiences from the UNICEF-funded project and the Wang Nam Yen Hospital's project (in Prachin Buri province). The pilot project was implemented in only five districts, focusing on clinical research particularly related to the use of five herbal medicines at the clinics of the hospitals. The five medicinal plants including curcuma or turmeric (*khamin-chan* or *Curcuma longa*), kariyat (*fa-thalai-jon* or *Andrographis paniculata*), ringworm bush (*chum-hed-thet* or *Cassia alata*), *phaya-yor* (*Climacanthus nutans*), and aloe (*wahn-hang-jorakhe* or *Aloe vera*) were used with the aim of helping the hospitals to help themselves by planting the five medicinal herbs and using them to produce herbal medicines. Besides, the project also provided funding for hiring *ayurved* practitioners to work in the target hospitals. That was regarded as another major change in the use of medicinal plants and the integration of Thai traditional medicine into the government health service system.

During the period of the Sixth National Economic and Social Development Plan (1987–1991), more development activities were undertaken on the use of herbal drugs and Thai traditional medicine, through

the inclusion of the Development of Herbs as Medicines Project in the Plan, focusing on five medicinal herbs, under the GTZ-funded Medicinal Herbs Project, for industrial production and partial import substitution.

In 1987, in connection with Thai traditional medicine, the Act for the Control of Healing Arts Practice was amended, categorizing traditional medicine practitioners into two types: general traditional medicine practitioners and applied traditional medicine (*ayurved*) practitioners. In the same year, the MoPH started the TTM revival project and published the recommendations obtained from the brainstorming meetings on the development of TTM as a book entitled “**Thai Traditional Medicine: The Wisdom for Self-Reliance**”, which was used as a guide for further development during the following periods.

In 1989, the MoPH, with the Cabinet’s endorsement, set up the “**Centre for Thai Traditional Medicine and Pharmacy Development Cooperation**” under the Office of the Permanent Secretary for Public Health, to set policies and guidelines for TTM development and to facilitate, coordinate and support the operations of agencies and institutions concerned in a suitable direction. The Centre began to lay the foundations for the development of TTM in collaboration with all public and private agencies concerned, as well as professional groups.

Later on, the coordinating centre was upgraded as the “**Institute of Thai Traditional Medicine (ITTM)**” under the Department of Medical Services in 1993 to develop, coordinate, and support the Thai traditional medicine programme of the MoPH, taking over the functions of the coordinating centre. In the same year, the **Federation of Thai Traditional Medicine Associations of Thailand** was established, whose membership includes 28 foundations, associations and clubs working on TTM. The Federation called for an amendment of the Practice of Healing Arts Act,

which was being reviewed at that time by the Public Health Commission of the House of Representatives, suggesting that the term “traditional” be changed to “Thai”, the definition of the “practice of healing arts” to include the use of scientific knowledge in the practice, and Thai massage be included in the practice of the Thai traditional healing art. That was the first gathering of TTM professionals and movement calling for changes in relevant law and policy.

The efforts for developing Thai traditional medicine, indigenous medicine, and alternative medicine were made continuously until the Seventh National Economic and Social Development Plan (1992–1996) as clearly evident in the strategies for public health development:

“Support and promote self-healthcare using the options that can be carried out by the people such as indigenous medicine, herbal drug use, and others at the individual, family and community levels in a correct and systematic manner, in coordination with the Western system of health care.”

Later on, the Practice of Healing Arts Act of B.E. 2542 (1999) was enacted on 19 November 1999; several of its provisions are more favourable to the development of Thai traditional medicine. For example, the term “traditional medicine” was changed to “Thai traditional medicine” and the definition does not have any feature that obstructs further development efforts. And there is a provision specifying the branches of Thai traditional medicine, namely Thai medicine, Thai pharmacy, Thai midwifery, and other branches as prescribed by the Minister (of Public Health). The Act requires the election of members of the “Profession Commission in the

Branch of Thai Traditional Medicine”, which is a professional organization comprising appointed and elected members, and functioning like a professional council.

The **Protection and Promotion of Thai Traditional Medicine Wisdom Act, B.E. 2542 (1999)**, came into force on 27 May 2000, prescribing that the Institute of Thai Traditional Medicine (ITTM) be an agency under the Office of the Permanent Secretary, Ministry of Public Health. The ITTM’s duties include taking actions on the protection and promotion of education and training, research, and development of TTM wisdom and medicinal herbs, and serving as the administrative and technical office of the Committee on the Protection and Promotion of Thai Traditional Medicine Wisdom. The Act also prescribes for the first time that the registration is to be undertaken for Thai drug formulas and Thai traditional medicine textbooks, and requires that a national Thai traditional drug formulas or formulary (*Tamrab Ya Phaen Thai*) be prepared.

In 2002, a royal decree was enacted to establish the “**Department for Development of Thai Traditional Medicine and Alternative Medicine**” as the agency taking actions as prescribed in the law on the protection and promotion of Thai traditional medicine wisdom as well as other relevant laws. The Department has powers and responsibilities related to Thai traditional medicine, indigenous medicine, and other alternative medicine practices, essentially in connection with research studies, analyses, development, knowledge and technology transfer, standard development, promotion and support of the health service system management, and recommendations for consumer protection concerning Thai traditional medicine, indigenous medicine, and other alternative medicine practices.

Besides, the Department has the powers to collect, conserve and protect the wisdom of Thai traditional medicine, indigenous medicine

and medicinal plants with the important aim of developing “public and private health-care facilities, communities and the people to have access to appropriate Thai traditional medicine and alternative medicine services for health development on a sustainable basis, and for the self-reliance of the people and the country”. Its vision is the commitment to develop Thai traditional medicine, indigenous medicine and alternative medicine to play an important role in, and integrate them into, the national medical and health system.

In 2013, the Thai Traditional Medical Professions Act, B.E. 2556 (2013), was enacted based on the bill proposed by the popular sector. The Act supersedes the relevant provisions of the Practice of Healing Arts Act B.E. 2542 (1999) as briefly stated below:

1. The powers and responsibilities involving the oversight function for Thai traditional medicine and applied Thai traditional medicine, which were previously under the Profession Commission (that is not a juristic person), are transferred to the Thai Traditional Medicine Council, which is a juristic person, with a wider scope of responsibilities and ability to seek its revenue in addition to the allocated government budget.

2. The TTM profession and the applied TTM profession are merged under the same professional council.

3. Indigenous medicine is recognized as a branch of Thai traditional medicine equivalent to other branches of Thai traditional medicine.

Even though the Act just came into force on 2 February 2013, it is expected that the provisions of the new TTM professions law will cause changes in the structure of the TTM system, which will result in drastic advancement of TTM development in the near future. This is to modernize TTM in preparation for the integration of the ASEAN Economic Community in 2015.



Policy and Strategy on Thai Traditional Medicine, Indigenous Medicine and Alternative Medicine

2.1 The importance of policy and strategy in driving Thai Traditional Medicine (TTM) work

At present, the words “policy” and “strategy” are important tools for monitoring plan or programme operations from the national level down to the local level as well as the performance of various organizations. In the modern world, situations tend to change rapidly as they are complex and difficult to predict, while resources are limited, resulting in the selection of only high priority issues for implementation in a timely manner to achieve the set targets.

The word “policy” means the channel or tactic for good action regarded as the key success factor. In connection with the good course of action for TTM development, if it is clear and geared towards achieving the desirable goal, the result or impact will be more concrete. In sum, a policy is a broad framework or principle that influences decisions or actions, but in practice for the TTM work, the adoption of the policy depends on the people’s acceptance of TTM services as an option for their health care, similar to modern medical services.

While “strategy”, originally used in the military, means a plan of action designed towards the achievement of a specific objective. Today, almost all organizations have a strategy leading to a plan of action to achieve their goals. As for the TTM-related strategic plans, there are several plans such as the Second National Strategic Plan for Thai Wisdom and Thai Healthy Lifestyle Development (2012–2016), the specific Thailand Healthy Lifestyle Strategic Plan (2011–2021), and the Department for Development of Thai Traditional and Alternative Medicine (DTAM) Strategic Plan (2012–2016) at the organizational level. Such strategic plans are essential for developing a plan of action to be used as a framework for actual operations. And finally, the aim is to make the science of Thai traditional medicine acceptable to the people.

It may be stated that how much the Thai traditional medicine (TTM), indigenous medicine (IM) and alternative medicine (AM) work will further progress is dependent upon the policy and strategy as an important tool for future move in an inter-connected manner at three levels, namely the policy level, the operational level, and the strategy level, all of which have to be undertaken consistently with limited financial and human resources, in a timely manner. The issues to be addressed have to be the ones that respond to the top-level policy, while achieving the strategic objective and using the resources most cost-effectively.

Thus, in essence, this chapter aims to point out major TTM/IM/AM policies and strategies, currently in effect, to be used as appropriate, based on specific situation, timing and constraints, particularly in the health service system. The major development issues to be elaborated are inter-connected systematically at the upstream, midstream and downstream levels. The importance is also given to the system management related to the support for all stakeholders or network members to be involved in the implementation of the policies and strategies to achieve concrete results. In particular, the two priority issues in TTM development during the next

decade are: the strategy for complete-cycle development of medicinal plants' values including additional value creation and the strategy for TTM human resource development. If such policies and strategies are seriously implemented, the people will accept and have confidence in TTM in the future.

2.2 Current TTM/IM/AM policies and strategies: an overview

According to a review of policies and strategies as well as laws related to TTM/IM/AM, there is a chain of inter-connectedness at the upstream, midstream and downstream levels that is significant for TTM/IM/AM development in the next 5 to 10 years as follows:

1) Upstream policies and strategies

In this report, upstream policies and strategies mean the guidelines for upstream development leading to the manufacturing of TTM/IM/AM products and services including those related to local and Thai indigenous wisdom or knowledge recorded or inscribed in any form of textbook, as well as starting herbal materials that are linked to their origins, places and wisdom protection. The current policies and strategies emphasize the following issues:

(1) Giving the right to local communities to conserve and restore local wisdom. Section 66 of the Constitution of Thailand B.E. 2550 (2007) prescribes that persons assembling to be a community, local community or traditional local community shall have the right to conserve or restore their local wisdom, and to preserve and develop local wisdom and Thai wisdom [Section 86 (2)]. This is consistent with Section 66 of the Statute on

National Health System B.E. 2552 (2009), which prescribes that state agencies shall strengthen community participation in restoring and preserving local wisdom.

(2) Expediting the establishment of a digital database on TTM/IM wisdom of the country linking the national and community information systems. The Second National Strategic Plan for Thai Wisdom and Thai Healthy Lifestyle Development (2012–2016) requires the expeditious establishment of a digital database by translating national and local textbooks into the Thai language and foreign languages, and recording or documenting local wisdom or knowledge to show that such wisdom belongs to Thailand. The national or central database will have to be linked to the local community databases.

(3) Monitoring the protection of Thai wisdom against foreigners' violation. This effort should begin with the community actions involving the recording of the knowledge of the community and indigenous healers, the translation of local knowledge into the Thai language so that the digital knowledge or wisdom can be linked to Thailand's TTM/IM information system and the International Patent Office. This is to check whether or not any Thai wisdom has been violated (Second National Strategic Plan for Thai Wisdom and Thai Healthy Lifestyle Development). This issue is consistent with Section 66 of the 2009 Statute on National Health System, which gives importance to Thailand's proactive role in international negotiation forums on wisdom protection. Emphasis is also to be placed on the joint actions of state agencies and local government organizations (LGOs) to create a system and mechanism for protecting community health and TTM/IM wisdom in a strong and efficient manner with community, national and regional linkages.

This can be accomplished by creating the understanding and awareness for Thai society, creating the potential and strength of state agencies and communities in wisdom protection as well as legal system and mechanism development, and requiring that the TTM Wisdom Fund provide financial support to other state agencies, local communities, and LGOs in appropriately strengthening the wisdom protection system and mechanism. Besides, Article 8(J) of the Convention on Biological Diversity (CBD) also states that the protection is to be extended to indigenous and local community wisdom relating to the conservation and use of biological resources in a sustainable manner.

(4) Promoting self-reliance regarding community's medicinal plants and their sustainable use. In the Second National Strategic Plan for Thai Wisdom and Thai Healthy Lifestyle Development, one of its aims is to encourage the communities to be self-reliant in terms of medicinal herbs or plants for the people as well as indigenous healers to have a source of herbs for their own use, and to support the communities, indigenous healers and private sector agencies to conserve and grow medicinal plants with government funding from the TTM Wisdom Fund, established by the 1999 TTM Wisdom Protection and Promotion Act. The local communities are also requested to take part in the monitoring of illegal and unsustainable use of the medicinal plants from the communities. This is consistent with Section 66 of the 2007 Constitution of Thailand, which provides that the community has the right to participate in the management, maintenance, and use of natural resources and the environment, including biological diversity, in a balanced and sustainable manner.

2) Midstream policies and strategies

In this report, midstream policies and strategies mean the guidelines for midstream actions on TTM including Thai wisdom and herbal raw materials in further development so that herbal medicines will be reliable and safe to use. In this regard, there must be a linkage between service providers and service recipients to ensure herbal drugs' standards and safety as well as TTM wisdom preservation and social acceptance. Research studies are to be promoted and undertaken to generate the knowledge as scientific evidence like that in modern medicine with technical reliability and evidence-based knowledge transfer of TTM/IM healing practices in parallel with the use of herbal medicines that are efficacious and safe. This is related to the standards for producing herbs and herbal medicines. In this connection, the policies and strategies are as follows:

(1) Improving the standards for manufacturing herbal medicines and products that are linked to raw (starting) material development. Efforts will be made to: enhance the potential and standards of manufacturing for self-reliance purposes and community use; improve the potential and standards of Thai traditional drug industry according to the ASEAN Harmonization principles through technical, technological and personnel support; promote the central drug manufacturing system by establishing a national herbal drug manufacturing plant according to the GMP¹, PIC/S² and GLP³ standards

¹ GMP or good manufacturing practice is the criteria that have been used for herbal drug production and also for developing the production process since the year 2000.

² PIC/S or Pharmaceutical Inspection Convention and Pharmaceutical Inspection Co-operation Scheme is the standards for in-country production of medicines adopted by the European Union as an international convention on drug inspection that is equivalent the EU-GMP.

³ GLP or good laboratory practice is a quality management system for research agencies or organizations dealing with non-clinical studies as well as those affecting human health and the environment.

for producing herbal drugs for small drug industries; improve the raw material quality based on the good agricultural practice or organic agricultural approach as well as good harvest practice; and provide herbal lab testing services to state health facilities and private industries in a proactive manner by establishing a herb laboratory (Second National Strategic Plan for Thai Wisdom and Thai Healthy Lifestyle Development).

(2) Creating and managing Thai knowledge or wisdom so that it is technically acceptable by:

(2.1) Developing the TTM research and development system by promoting and supporting government agencies, workforce production institutions and technical institutions in collaboratively undertaking efforts for R&D in TTM including the basic knowledge of human body and functions, natural history of disease, aetiology, diagnosis, drug preparation, therapeutic procedures, therapeutic team building system, prescription system, medical record system, medical error correction system, and technical development system including technical meetings and journals, clinical practice guidelines and textbooks/manuals (Second National Strategic Plan for Thai Wisdom and Thai Healthy Lifestyle Development).

(2.2) Developing researchers' capacity at all levels including community researchers, elementary and intermediate researchers, and research scholars. The research capacity is to be enhanced for the research groups and networks at the national, regional and local levels (Second National Strategic Plan for Thai Wisdom and Thai Healthy Lifestyle Development). In addition, development activities are also needed in relation to local knowledge from learned persons and local sages, empirical research by the community, and systematic knowledge management in the community [11th National Economic and Social Development Plan (2012-2016)].

(2.3) Establishing a system for the documentation, assessment and utilization of evidence-based local health wisdom. Such a system is actually a knowledge management system undertaken by the network of indigenous healers involving knowledge verification with relevant experts or learned persons regarding the source of knowledge as well as its safety and efficacy, based on the community's unanimous opinion; and then the knowledge can be used for health-care purposes in the community. Besides, a Traditional Knowledge Digital Information (TKDI) system at the community level is to be developed throughout the country as a nationwide network of local community information systems, using the knowledge derived from the recording of empirical information and the revision of community's and region's traditional textbooks. And all the knowledge can be linked to the national database or information system and the international wisdom protection system (Second National Strategic Plan for Thai Wisdom and Thai Healthy Lifestyle Development).

(2.4) Developing a national mechanism and system for research management and screening of alternative medical sciences by establishing a National Thai Wisdom Research Committee or national and regional research networks with a minimum budget of 0.5% of the national public health budget for TTM/IM/AM research (Second National Strategic Plan for Thai Wisdom and Thai Healthy Lifestyle Development). In addition, the importance is accorded to the development of a strong and independent (neutral) technical system and mechanism for screening alternative medical procedures that are efficacious, economical, cost-effective and safe for people's health care. This is also a mechanism for promoting alternative medicine and consumer protection in this regard. And a technical network of other alternative medicines should be set up at the community, national and regional levels for promoting, supporting and using such practices for self-healthcare purposes (Second National Strategic Plan for Thai Wisdom

and Thai Healthy Lifestyle Development and Section 67 of the 2009 Statute on National Health System).

(3) Developing the standards for producing IM workforce in both formal educational system and individual teacher-learner preceptorship or apprenticeship system by:

(3.1) Increasing the capacity of indigenous healers and passing on the knowledge to the new generation by supporting community participation in endorsing and enhancing the status of indigenous healers, improving the capacity of indigenous healers in the community, supporting the transfer of practices to the new generation of indigenous healers by encouraging the youths to realize the value of indigenous medicine and preserve the community's preservation pattern, developing the system of knowledge management in terms of textbooks and individual healers, undertaking technical, service and management development activities, establishing an indigenous healers' council for the exchange of knowledge and experiences in this regard, and supporting the networking of indigenous healers at the community, regional and national levels using the participatory approach (Second National Strategic Plan for Thai Wisdom and Thai Healthy Lifestyle Development).

(3.2) Improving the standards for producing TTM/IM/AM practitioners in both formal educational and teacher-learner preceptorship systems, linking to the modern medical educational system. The significance is to be accorded to: developing the preservation of indigenous medicine in the community and the educational system; improving the teaching/learning approach for the teacher-learner preceptorship and the institutional system; improving the curricula, teachers or preceptors, textbooks, manuals, teaching/learning materials, practices, technical conferences, research, etc.; networking for strengthening TTM training institutions, teacher-learner preceptorships and TTM institutions;

improving the systems for teaching/learning in traditional Chinese medicine and other branches of alternative medicine regarded as the healing art practices; promoting the inclusion of the fundamentals of TTM/IM/AM in the modern medical curricula as well as those for allied health professionals; compiling the information on Thai traditional drugs for inclusion in the modern medical curricula (Second National Strategic Plan for Thai Wisdom and Thai Healthy Lifestyle Development), and enhancing the capacity of drug-prescribing personnel and drug users, based on the rational herbal drug use principles in a safe and economical manner (Second National Strategic Plan for Thai Wisdom and Thai Healthy Lifestyle Development).

3) Downstream policies and strategies

In this report, downstream policies and strategies mean the guidelines for transforming the results from midstream activities into goods or services for further distribution to the destinations (consumers or people) so that they will receive TTM/IM/AM services that are safe and of acceptable standards. Such policies and strategies are the following:

(1) Developing TTM model hospitals according to the established standards. The 2009 Statute on National Health System prescribes that TTM model hospitals are to be established to set good examples regarding TTM services, research and personnel training (Section 64); the target is to have at least one TTM hospital in each region of the country (Section 60).

(2) Promoting and supporting the use of Thai traditional and herb-derived drugs or medicines. The 2009 Statute on National Health System prescribes that the National Drug System Development Committee is to push for the inclusion of more Thai traditional and herb-derived drugs (or herbal medicinal products) in the National List of

Essential Medicines (NLEM) in an adequate number for people's health care. In this effort, all relevant public and private agencies have to enhance the capacity of hospitals and communities in the production and use of Thai traditional and herb-derived drugs (Section 65), set the target for such drugs to account for at least 10% of all drugs in the NLEM, and promote the use of such drugs in the health-care system for the country's self-reliance purposes regarding medicines (Section 56).

(3) Setting a public policy for standard quality and safety control in relation to the herbal product consumption. The Thailand Healthy Lifestyle Strategic Plan, 2011–2020, prescribes that a public policy is to be in place for promoting the production and consumption of health foods, drinks and products for the people's healthy living, by paying attention to the development of a monitoring system for quality and safety assurance of medicinal herbs and local health foods, and to the public policy advocacy in promoting the culture of using Thai herbal drinks.

(4) Developing the standard, system and strength in the management of medical treatment, by managing and caring for lifestyle diseases at the national level through the integration of TTM/AM wisdom and modern medicine (Thailand Healthy Lifestyle Strategic Plan, 2011–2020), and promoting the participation of LGOs, indigenous healers' networks, academics, and civil society members so that the community can handle community health activities using the existing local health wisdom (Second National Strategic Plan for Thai Wisdom and Thai Healthy Lifestyle Development, 2012–2016).

(5) Pushing Thailand to become a health and medical hub of Asia. In this effort, actions to be undertaken include revising or amending relevant rules and regulations to promote the joint deployment of medical personnel in both public and private sectors for smooth

operations; improving health businesses according to the international standards; supporting the development of health businesses, personnel and products; developing mechanisms for controlling health business quality and product standards; and improving the standards of health products and services (the Government Policy Statement and the State Administration Plan, 2012–2015).

4) The management of the policy and strategy implementation

It has been generally accepted that most government strategic plans are normally shelved and not actually implemented as they are hard to implement, particularly those that require multisectoral cooperation. This is due to a number of constraints, especially budgetary limitation and most state agencies' function-oriented actions. Any activities that are not directly related to the agency's roles and missions or responsive to its policy will not be undertaken by such an agency. Therefore, in order for the TTM/IM/AM policies and strategies to be implemented in certain aspects as mentioned in item 2 with practical results, importance should be given to the following management actions:

(1) Raising awareness of the value of Thai traditional wisdom.

All Thais have to accept the fact that TTM wisdom has been used for their health care and health promotion since ancient times. This is evident in the stone inscriptions and textbooks on traditional knowledge, essentially Thai massage, which are regarded as four sources of wisdom heritage, namely the Wat Pho Inscriptions (or stone inscriptions at Wat Phra Chetuphon, listed in the Memory of the World Register), Textbook of Poems on Diseases (*Tamra Rok Nithan Khamchan*), Textbooks of Inscribed Drug Formulary of Wat Ratcha-orasaram, and Textbooks of Thai Massage 1 and 2 (*Khamphi Phaen Nuad 1 and 2*) in the Royal Textbooks of Medicine (*Tamra Vejasart*

Chabap Luang) of King Rama V. Such evidence has reflected that the TTM knowledge is the culture preserved, transmitted and recognized as Thais' lifestyles and spirit. If we hope for TTM to be accepted by the people, the TTM system has to be managed in such a way that the services are accessible to the people in line with their current way of life. They have to also realize the importance of TTM and help with the protection and preservation of Thai wisdom for the next generation.

(2) Mobilizing all resources for the actions on and development of Thai wisdom. If Thais have realized the value of Thai wisdom, the next management step is networking for mobilizing resources to undertake this effort. The operational framework has to be linked to the national policy and strategy without adhering to any particular strategic plan or any agency's plan. If it is the overall national framework and every agency has agreed that the issue is important, they all need to jointly implement it, while DTAM serving as the coordinating centre in both operational and technical aspects. The joint actions will also serve as the mechanism for data linkages with all local and central agencies to be used for Thai wisdom research, monitoring and protection purposes, as well as for workforce capacity building with adequate quantities and qualities for Thai wisdom preservation in a sustainable manner.

2.3 High priority development policies and strategies during the next decade

According to the TTM/IM/AM policies and strategies mentioned in item 2, chiefly covering the issues of TTM workforce and services with technical reliability, Thai wisdom monitoring and protection, and networking support, all such issues are inter-connected and have to be tackled simultaneously. But during the transitional period and globalization affecting

Thais' livelihood, while the country is moving towards the Association of Southeast Asian Nations (ASEAN) Community beginning in 2015 with the free flow of cultural exchanges, DTAM as the TTM/IM/AM technical coordinating agency has to expedite the process of choosing high priority development options for implementation. It has been deemed that the monitoring and protection of Thai wisdom and workforce development are the two issues that need to be addressed. Thailand has to define its direction framework for action so that TTM can proudly be in existence in the ASEAN and global forums. Regarding the problems of TTM development over the recent years, the fact to be admitted is that nowadays TTM is not accepted as highly as Western or modern medicine by Thai society, meaning that many people are still suspicious of TTM's safety and reliability.

For TTM to be responding to such problems, the TTM development framework needs to cover the issue of Thai wisdom monitoring and protection focusing on complete-cycle development of herbal medicine as it involves upstream through midstream and downstream activities. Such actions can increase the economic and social values and are associated with the dimensions of natural resources and the environment. That means the development actions will lead to the creation of balanced development for sustainable future. In addition, TTM human resources development is to be planned and gradually implemented on a long-term basis for the workforce to play an important role in preserving Thais' legendary livelihood that has relied on Thai wisdom for a long time. This is another action that will help with the country's sustainable development.

1) Strategic framework for increasing the values of Thai herbs in a complete-cycle manner

A review of the Thai herb development over the recent years as well as its future trends suggests that the issues that will affect such development

leading to the setting up of the strategic framework for increasing the values Thai herbs in a complete-cycle manner are as follows:

(1) Major changes in situations and trends have affected Thai herb development in the following aspects:

(1.1) Trends in herbal use have returned to be part of Thais' lifestyles and created a huge economic value. As Thailand and many other countries all over the world are becoming the ageing society, today's human lifestyles are threatened by environmental changes as well as unsuitable consumption behaviours, resulting in higher prevalence of illnesses, particularly chronic diseases. Such illnesses, for example, diabetes, hypertension, heart disease, cardiovascular disease, and cancer require higher health-care spending and a long period of medical care. This has contributed to the rising popularity of alternative health care all over the world including Thailand. More people have turned to disease prevention and health promotion before getting ill; and more herbs and herbal products are used to meet consumers' demand and become a part of Thais' lifestyles. Currently, herbs are also used for increasing the economic values of various business and service systems such as health-related business, health or medical tourism, health-care systems, and the One Tambon One Product (OTOP) scheme.

Each year herbs are used as major ingredients in manufacturing consumer goods and help create hundreds of billions of baht in revenue for the country. This is evident in the fact that, in 2011, the value of cosmetic exports was as high as 140 billion baht (Thai Cosmetic Manufacturers Association), while the value of health foods in the country was more than 80 billion baht (Federation of Health and Beauty, 2011), the value of herbal medicines (in the National List of Essential Medicines) used in the state health-care system was 147 million baht (National Health Security Office, 2012), and the value of traditional medicine exports was 83 million

baht (Thai Food and Drug Administration or FDA, 2011). And in 2012, the import values of herb-derived products were also high: 319.5 million baht for health foods, 20.9 billion baht for cosmetics, and 359 million baht for traditional medicines.

(1.2) The problems of herbs' scarcity, poor quality and substandard, affecting the quality of herbal products. For the herbs used as raw materials for domestically producing goods, they are chiefly obtained from herb gardens and natural forests. The cultivated herbs are mostly supplied by two major gardening groups: one growing herbs for hospitals and the other growing for their own herbal processing as well as for other people. Both groups tend to get support from various agencies to grow more herbs, while forest herbs are affected by deforestation which has diminished a large number of herbs. As a result, only 1,131 rare herb varieties remain in the forests in Thailand, accounting for only 0.5% of plant varieties in the world. This has resulted in herb scarcity and each year large quantities of them have to be imported to meet the domestic manufacturing and consumption demand. Meanwhile, Thai herbs are of low quality and standard contributing to the poor quality and substandard herbal products; such problems include microbial contamination exceeding the allowable level and the substandard amounts of active ingredients. So the manufactured products are substandard; according to a study on pathogenic microbial and heavy metal contamination of traditional drugs produced in four districts in Khon Kaen province (Bungorn Sripanidkulchai, 2007), the proportions of capsule and tablet drugs contaminated with lead are as high as 85.7% and 70.0%, respectively.

(1.3) Most herbal drug factories and community or OTOP herbal product-manufacturing plants are not GMP-certified. At present, most Thai herbal drug manufacturers are small scale or family run and have no GMP certification. Of all 1,117 factories across the country,

only 50 (4.5%) have received a GMP certificate, of which 23 are ASEAN GMP-certified and 27 are Thai GMP-certified (Thai FDA, 2013). For community or OTOP herbal products, the product standards are in accordance with the Thai Industrial Standard Institute or TISI's Thai Community Product Standards (TCPS). To date, 1,403 product standards have been issued, but only 677 products have been TCPS-certified involving 11,145 certified producers (TISI, 2013). This has reflected the need for the improvement of most OTOP products' quality and standards. That is why Thailand will be less advantaged in terms of trade competition upon entering the ASEAN Community in 2015.

(1.4) Research on medicinal plants is not conducive to consistently enhancing the quality and safety of herbal products. Such research aimed at seeking scientific evidence of herb's quality, efficacy and safety is essential for herbal product development. However, it has been found that the country's research direction does not respond to the needs of the manufacturing sector as there is no linkage towards common objectives of national development; and most researchers tend to work only on their own areas of interest, while very few are able to conduct complete-cycle research activities. Moreover, the research results have not been used in further development in a complete-cycle manner so as to create a quality product; the numbers of laboratories with good laboratory practice (GLP) and clinical research studies with good clinical practice (GCP) are very small, resulting in herbal research being unable to raise the level of herbal product manufacturing in terms of consistent quality and safety.

(1.5) International situations and global/regional economic trends will affect Thailand's efforts in the protection of Thai plant varieties and wisdom, and the improvement of herbal drug production standards. Since ancient times until today, Thailand has been faced with several problems of bio-piracy such as those related to jasmine

rice (or *Khao Hom Mali*), *plao-noi*, mangosteen, and *kwao-khrua*. The **Biodiversity & Community Rights Action Thailand (currently, BioThai Foundation)** found in November 2004 that some companies in Japan and Korea had got Thai herb *kwao-khrua* patented in the USA, based on the extended knowledge of the herb gained with the modern scientific and technological techniques. Another case is related to specific postures of Thai massage or body stretching called *ruesi dadton* (or *ruesi dutton*, self-stretching), whose patent application was filed by a Japanese who had learned about the Thai massage postures at the Wat Pho Thai Massage School in 2002. Upon completion of his training, he began a business of Thai massage, spa and yoga in a complete-cycle manner in Japan, while filing patent applications of “Ruesi Dutton” and many other products such as cosmetics, health foods, visual and audio records, yoga teaching media, translation services, massage teaching, totalling more than 50 items.

In addition, there will be more actions according to various regional economic communities in the world, while the global centre of economic power will move to Asia, resulting in the establishment of international cooperation frameworks for all member countries to follow. Therefore, when the ASEAN Community is formally launched in 2015, Thailand as a member country has to follow the ASEAN harmonization requirements, particularly the ASEAN GMP for herbal drugs for exports and domestic use. In this regard, earlier in 2008, the Agreement on the ASEAN Harmonized Cosmetic Regulatory Scheme (AHCRS) came into force, and all member states have to revise their cosmetic laws to be in line with the Scheme. Moreover, there are many other global agreements that Thailand has to be aware of, one of which Thailand has not been a member state, i.e. the UPOV Convention 1991 involving the protection of plant varieties. During a negotiation meeting of the Thai-USA Free Trade Agreement, the USA gave much importance to this matter. And whenever

Thailand becomes a member state of the Convention, it has to abide by the Convention's requirements.

(2) Strategic framework for creating Thai herbs' values and additional values in a complete-cycle manner. Based on the aforementioned changes in the situations and trends certainly affecting the Thai herb development effort and the review of policies and strategies as well as laws related to TTM/IM/AM, the strategic framework for creating Thai herbs' values and additional values in a complete-cycle manner, linking to all upstream, midstream and downstream strategies, and moving forwards the TTM/IM/AM work in the next decade is as follows:

(2.1) Upstream herb development framework. Thailand is now facing the problems of herbs' scarcity as starting materials, resulting in large amounts of herbal imports each year, due to a dramatic decline in herb forest areas, whereas farmers are encouraged and supported to grow more herbs by various agencies. However, Thai herbs are still of low quality and substandard, which affect the quality and standard of herbal products as well as Thailand's performance according to the relevant international agreements. Besides, Thailand is still unable to deal with the bio-piracy problems of many Thai plants or herbs such as Thai jasmine rice (*Khao Hom Mali*), *plao-noi*, mangosteen and *kwao-khruea*.

Therefore, the strategic framework for upstream herb development should focus on growing more herbs for import substitution and recreate biodiversity by supporting community reforestation in parallel with reforestation according to various standards, especially Organic Standards. Efforts should also be made to ensure consumer safety and linkage to the use of starting herbal materials for manufacturing herbal products according to various manufacturing standards such as the Thai GMP and ASEAN GMP. Meanwhile, local communities should be supported to take part in monitoring the stealing of herbs from their community origin for

unsustainable use. And other efforts should include the development of herb information system for herb protection purposes (linking to the international protection system), the development of mechanism for Thai plant variety and wisdom protection to prevent bio-piracy, and the support for community participation in managing, maintaining and refertilizing the forest to revitalize the previously destroyed herbs due to deforestation, and recreating balanced and sustainable biodiversity.

(2.2) Midstream herb development framework. This effort is associated with that for upstream herb development purposes. As previously mentioned, most Thai herbs used as starting materials are substandard and of low quality, and most herbal product manufacturers are not GMP-certified, particularly for OTOP products. Upon Thailand's entering the ASEAN Community in 2015, the country will be at a disadvantage compared with other ASEAN and global trade partners. Meanwhile, research on herbal knowledge creation is unfavourable to raising the herbal product manufacturing process according to the quality and safety standards as there are few GLP-certified laboratories and GCP-certified clinical research studies.

Therefore, the emphasis for midstream herbal development should be placed on capacity building and standard raising for herbal product manufacturing by establishing a national medium-sized herbal factory with GMP, PIC/S and GLP certifications. The aim is to produce herbal drugs for small-scale herbal drug factories. In this connection, more efforts are to be linked to: the development of upstream raw herb quality involving good agricultural practice or organic agriculture and good harvesting; the provision of herbal drug analysis services to state health facilities and private factories in a proactive manner; the setting up of standards for traditional and herbal drug factories including OTOP producers to obtain the GMP certification; the support for establishing a laboratory for herbal analysis to enhance the



capacity of Thai herbal drug industry according to the ASEAN harmonization requirements; and the development of researchers' capacity in full-cycle research management involving research question determination as per the manufacturing sector's needs and linking to the national development goal. This is to help raise the quality and safety standards of herbal drug manufacturing.

(2.3) Downstream herb development framework. As the herbal use trends have returned to be a way of life of the Thai people, resulting from the country's becoming an ageing society and the popularity of alternative health care, more people pay more attention to disease prevention and self-healthcare before getting ill. As a result, herbs' additional values have been created to meet the needs in various business and service systems such as health business, health tourism, health-promoting products and OTOP products.

Thus, the strategy for downstream herbal development should focus on promoting the safe use of Thai traditional and herbal drugs in parallel with enhancing the competitive capacity for herbal product manufacturers in the global trade forums. The significance should also be attached to the inclusion of more Thai traditional and herb-derived drugs in the National List of Essential Medicines, the promotion and use of such drugs in the health-care system for the country's self-reliance purposes, and the development of mechanisms for controlling the standards of health services and herbal products to ensure public confidence in their safety.

2) Strategic framework for TTM workforce development

Previously, according to the Practice of Healing Arts Act B.E. 2542 (1999), TTM practitioner means a person who was registered and licensed to be a practitioner of the healing arts in Thai traditional medicine and applied Thai traditional medicine. But currently, the practices of TTM

and applied-TTM practitioners are under the Thai Traditional Medical Professions Act B.E. 2556 (2013), which also covers “Thai indigenous medicine” as another branch of TTM. Thus, the TTM professions today include: Thai medicine, Thai pharmacy, Thai midwifery, Thai massage and Thai indigenous medicine.

According to various Thai policies and strategies, it is expected that TTM wisdom will be a significant science for treating illnesses, in an integrated manner with modern or Western medicine, of local residents. And it is the science that needs to be protected, conserved, revived and preserved. As the popular trends in TTM/AM services are on the rise, the public sector has provided and expanded such services in the health-care system. The private sector has also invested in TTM/AM services. However, regarding the TTM workforce development, the production capacity is not compatible with the rising health-care demand in terms of both quantity and quality. It is thus a major obstacle in further developing TTM to achieve its expected goal.

(1) Situations and trends in TTM workforce development.

A situation review of TTM workforce development and health services, in the past until today, has found major issues as follows:

(1.1) The role of the popular sector’s health institutions or facilities in TTM workforce production has been declining despite having been existed for nearly 100 years. Section 12 (2)(A) of the 2013 TTM Professions Act prescribes that a “TTM practitioner” means a person who has been trained at a health-care institute and facility (recognized by the TTM Council) by a licensed TTM practitioner with a permit to teach other persons and has passed the licensing examination as provided in the Bye-law of the TTM Council. The TTM workforce is very important and regarded as the foundation of TTM services in the popular sector’s health-care system, which has the teaching-learning system transmitted

from the previous generations for nearly 100 years. The training process is generally organized at various TTM associations by TTM practitioners who have learned the practices from experienced TTM teachers and textbooks.

A review of the number of TTM practitioners shows that, since 1929, cumulatively the number is 30,371 (Bureau of Sanatorium and Healing Arts, February 2013), including applied-TTM practitioners; the number of those who died during the period is unknown. This group of workforce also includes those who passed the licensing examination during the period 2007–2012, an average increase of 2,514.4 persons per year, most of whom are in the branch of Thai pharmacy (4,528), followed by Thai midwifery (3,333), Thai medicine (2,949), and Thai massage (1,763). And among the licensed Thai massage therapists during the period 2010–2012, 34 are visually impaired persons.

With regard to the production of TTM workforce at the health institutions or facilities certified by the TTM Profession Commission, totally there are 105 institutions, including 26 in the popular sector, 18 in the private sector (Thai medicine) and 61 in the public sector; and among them, 7 are health facilities for persons with disabilities. Since 2001, many state agencies have offered TTM training programmes (almost all in Thai massage), resulting in the public sector playing a greater role in Thai massage training than those in the popular and private sectors. Meanwhile, when reviewing their Thai massage professional curricula, it has been found that each curriculum has 6 groups of courses including 25 courses and 2 elective courses; but the 3 textbooks recognized by the TTM Profession Commission are those primarily used for the Thai medical assistants curriculum and may be used for only 3 to 5 courses. It is apparent that the principal textbooks are insufficient for the TTM training system, especially for at least 20 courses. Thus, it is necessary to revise and develop the curricula to meet the needs for TTM workforce development. And in the long run, if no policy is revised

to support the popular sector's training programmes, many TTM associations may have to discontinue their role in workforce production even though they have been doing it for nearly 100 years.

(1.2) Educational institutions have to develop a TTM workforce information system and textbooks of acceptable standards. According to Section 12(2) of the 2013 TTM Professions Act, the TTM workforce includes licensed TTM practitioners as per Section 33(1)(b) and licensed applied-TTM practitioners as per Section 33(2) of the 1999 Healing Arts Practice Act. The new law [Section 12(2)] prescribes that a TTM practitioner must be “a person who has received a bachelor's degree or a certificate equivalent to a bachelor's degree in Thai traditional medicine or applied Thai traditional medicine from an institution recognized by the TTM Council and passed the licensing examination prescribed in the Bye-law of the TTM Council”.

At present, 19 educational institutions are recognized by the TTM Profession Commission (TTM Medicine Branch), 11 of which are in the TTM branch and 8 in the applied-TTM branch. As there is no central reporting system for compiling the data on the numbers of students admitted to the TTM and applied-TTM programmes, the numbers of graduates from such programmes, and the workplaces and workplace transfers or the residences of TTM practitioners, no formal report can be done on the loss of TTM workforce. Meanwhile, when considering the data on applied-TTM practitioners as per Section 33(2) of the old law, the data are not accurate; only a rough estimate can be reported at 1,158 persons (as of 30 September 2012). Some of the applied-TTM practitioners have taken a TTM licensing examination (Thai pharmacy branch) as per Section 33(1)(a) as a licensed Thai pharmacist can open a Thai drugstore or supervise a Thai traditional drug manufacturing industry as required by law.

In addition, it has been found that the 11 Thai massage training institutions offer a variety of massage courses such as oil massage, foot massage (reflexology), *Lanna* (northern Thai) massage, *Thaksin* (southern Thai) massage, sports massage, Swedish massage, chiropractic, applied Thai massage (royal massage), and indigenous massage (*kannuad phuenban*). As a result, there are no standards for Thai massage teaching in such institutions. Regarding Thai massage textbooks, there are only two principal textbooks: one is Textbook on Thai Therapeutic Massage (*Tamra Hatthavejakam Thai*, or royal massage) published in February 2005 and the other is Textbook on Basic Massage (*Tamra Kannuad Phuenthan*) published in 2012. This reflects the fact that there are very few textbooks on Thai massage, and there is no evidence of any massage knowledge recorded before 2005.

(1.3) There is no instructional (or teaching/learning) system for Thai indigenous medical workforce and the lack of learners to preserve this branch of practices in Thai society. At present, there are 53,035 indigenous healers (*moh phuenban*) in Thailand (Central Registrar's Office, Bureau of the Protection of Thai Traditional Medicine Knowledge, DTAM, March 2013), 161 of whom are those who have passed the indigenous medicine knowledge assessment and become licensed TTM practitioners (during 2005–2012), or only 0.3% of all indigenous healers. Of all the licensed healers, 115 are herbalists (*moh samunphrai*) and the another 36 are bone healers (*moh kradook*), aged 41–93 years, mostly (63.4%) 41–93 years.

The major problems of indigenous medicine being faced today and those being future development constraints are related to the production and development of indigenous medicine workforce. In the past, the knowledge was transmitted from one generation to another without any instructional system; there were no instructional institutions either. Even though, today there is one educational institution in the North and another one in the North-east that have compiled the indigenous

healing knowledge in the regions and set up a course as a part of their TTM curricula. However, it is noted that the students taking the course are from different cultural, social and economic backgrounds (which is different from those in the original system); and thus they are unable to absorb the true spirit of indigenous healing as much as those learning from the ancestors. Meanwhile, most of the existing indigenous healers are elderly persons without any followers; and Thais of new generation are not interested in learning or preserving this practice. The most recent investigation has revealed that, of the 161 licensed indigenous healers, at least 7 have died. Thus, old age death will be the major cause of workforce loss among Thai indigenous healers. And most importantly, the loss of empirical knowledge of indigenous healers, coupled with fewer young generation healers, in the future it is worrisome that indigenous medicine will become extinct from Thai society. So, the problem needs to be resolved urgently and systematically, especially the synthesis of lessons learned and the documentation of healers' knowledge as well as the encouragement of the new generation to preserve the practices.

(1.4) TTM services under the Universal Health Coverage Scheme (UCS) have a high expansion trend and focus on enhancing the standards of TTM personnel. Currently, the delivery of TTM services is undertaken in two principal schemes: the Civil Servant Medical Benefit Scheme (CSMBS) covering 5 million people or approximately 8% of the Thai population, whereby the Comptroller General's Department allows the reimbursement of TTM expenses, and the UCS covering 47 million people or approximately 75% of the Thai population with the payments for medical expenses to the contracted units of primary care (CUP) made by the National Health Security Office (NHSO), including those for TTM services through NHSO's TTM System Development Fund.

Regarding the utilization of TTM services under the two principal health insurance schemes, it has been found that, for the CSMBS, the medical spending for TTM services including traditional Chinese medicine (TCM) care in 2010 was 121.3 million baht (for TTM and acupuncture), or 0.22% of the total health spending for civil servants. As for the UCS, TTM services have been rapidly extended at the subdistrict level, i.e. from 921 *tambon* (subdistrict) health promoting hospitals (THPHs) in 2009 to 4,531 THPHs in 2012. Concerning the TTM expenses in three categories: Thai massage (massage, steam bath, and compress for pain relief, and rehabilitation for paresis/paralysis patients), postpartum care, and use of herbal drugs in the National List of Essential Medicines (NLEM), it was found that, during 2009–2013, the number of Thai massage clients increased rapidly from 313,352 (or 1,162,292 visits) in 2009 to 1,282,170 (or 5,248,946 visits) in 2012, accounting for 4.1% of all UCS beneficiaries or eligible persons. Regarding postpartum rehabilitative care, the number of clients rose from 1,701 (or 6,909 visits) in 2010 to 15,982 (or 53,814 visits) in 2012 with a rising trend for 2013. And the use of NLEM's herbal medicinal products was noted at 8,652 health facilities in 2012; and the highest utilization rates were noted in community (district) hospitals (89.3% of all community hospitals).

Besides, the NHSO has attached importance to the development of TTM service quality under the UCS by getting the Clinical Practice Guideline of Thai Massage (CPG-TMS) prepared in 2007, using the standard guideline for TTM service development at state health facilities prepared by DTAM in 2008, and promoting the standards of TTM personnel beginning in 2007. In such efforts, each THPH is supposed to have one Thai massage therapist who has completed the 330-hour curriculum for TTM assistants and each community or regional/general (provincial) hospital or CUP is to have one Thai massage therapist who has completed the 800-hour professional Thai massage curriculum. And in 2013, the common criteria

(minimum requirements for each health facility) are established to require that there must be one Thai traditional medical doctor (licensed TTM practitioner) at the CUP.

Currently, most of the TTM personnel are TTM assistants (numbering 6,244, or 42.7%), followed by TTM workers with a qualification lower than that for TTM assistants (numbering 5,606, or 42.3%), and licensed TTM practitioners (numbering 1,394, or 10.5%). This means that not all CUPs have a licensed TTM practitioner.

(2) Strategic framework for TTM workforce development

With the situation and trends in TTM workforce development as well as issues gathered from the review of policies and strategies previously stated, the issues that need to be seriously addressed are those particularly related to the instructional system, educational curricula, and workforce information system. To be consistent with the rising needs for TTM services, the significance should be attached to the following issues in TTM workforce development:

(2.1) Linking TTM to the health service plan and moving towards service excellence. With the rising trends in TTM services in the UCS, various policies and strategies have focused on medical care with the integration of TTM/IM/AM, getting prepared for the launch of the ASEAN Community in 2015 and driving Thailand towards being a Medical Hub of Asia.

Therefore, the strategic framework should be aimed at setting up a staffing pattern for the TTM workforce of the Ministry of Public Health (MoPH) as well as performance standards for TTM services in the health-care system. For example, at a general level, a certain standard has to be specified; and when it becomes a centre of excellence, comprehensive health services have to be provided, based on the client satisfaction. Besides, clear operating and evaluation mechanisms have to be established by the central

administration agencies that serve as the regulatory bodies such as the Department for Development of Thai Traditional and Alternative Medicine and the Office of the Permanent Secretary for Public Health, while provincial service facilities serve as service providers.

(2.2) Developing a TTM research centre in a full-cycle manner to support and raise the TTM services to the level of excellence. At present, the TTM system has many weak points regarding the scattered body of knowledge with very little evidence of original knowledge and there has been no major revision of such knowledge so that all of its elements are moving in the same direction. In particular, Thai massage is weak in research that aims to seek scientific evidence to enhance the quality, efficacy and safety of TTM services, while things in the world are highly competitive. In this regard, more regional economic forums have been formed, resulting in the setting up of trade protection mechanisms. So, the TTM system has to adapt itself for survival and increasing its competitive capacity, using research as tool for development.

Thus, the strategic framework for development should aim to create a TTM research centre on a full-cycle scale to carry out upstream, midstream, and downstream research activities, whose results will be used to raise TTM services to the excellent level. Such efforts will have to be linked to the instructional system at the institutions offering a doctoral degree programme. This is to further extend the TTM/IM knowledge and generate new knowledge, which will also enhance the workforce capacity, quality and readiness to become an excellent TTM system.

(2.3) Developing the instructional systems and curricula with high standards and TTM spirit. Today, the production of TTM workforce is undertaken by three groups of institutions or people: health institutions or facilities, educational institutions, and indigenous healers. Each group has some weak points that are a major obstacle to the preservation and

development of TTM to be more reliable and safe for service recipients, i.e. the teaching and learning process at various health institutions or facilities are not strong due to the lack of government support, while most of the TTM educational institutions offer a bachelor's degree programme with various courses. In particular, for Thai massage and indigenous medicine, the instruction is normally done by passing on the knowledge from the ancestors to the younger generations. Today, most indigenous healers are elderly persons and very few young people are interested in pursuing this practice; even though many educational institutions have tried to synthesize the knowledge for teaching/learning purposes in their TTM programmes, they are unable to instil the indigenous healer's spirit in the students. In addition, all the three groups of educational institutions/people are still facing the problems related to the lack of textbooks as there are very few principal textbooks; the body of knowledge is not of the same standard; there is no database and data linking on the number of graduates, their workplaces, work transfers, and residences of TTM and applied-TTM practitioners, and the loss of workforce.

Regarding the registration and licensing of healing art practitioners according to the old law (Practice of Healing Arts Act, 1999), or TTM and applied-TTM practitioners according to the new law (TTM Professions Act, 2013), there is still some double counting as one individual practitioner can take more than one licensing examination to get registered in two or more TTM branches. So, the data are inaccurate and unclear, which will result in developing an unsuitable TTM workforce development plan in the future, based on the policy, situation and timeframe of plan implementation.

Therefore, the development strategy should focus on revising the educational curriculum of each workforce production institution, using the same direction and standard. The mechanism of the TTM Council should be deployed to push this matter forward. For those in the health institutions or facilities (or Category A) using the individual teacher-learner preceptorship

and the Institute of Thai Traditional Medicine (ITTM), the focus should be on strengthening the network. For the formal educational institutions (Category B), a clear quality development framework should be drawn up; for example, the bachelor's degree level should have specified aspects of TTM for the students to learn; the master's degree level should have a focus on analytical and synthesis skills as well as TTM's spirit; and the doctoral level should focus on further creation of new knowledge.

For the group of indigenous healers (or Category C), urgent actions should be taken on synthesizing lessons learned and documenting the knowledge from indigenous healers, enhancing the capacity of indigenous healers, and helping them to transmit the knowledge to the new generation, especially youth to preserve the community's indigenous healing wisdom. Besides, the significance should be given to developing the TTM workforce information system, linking the information about the numbers of graduates, the workplaces, work transfers and residences of TTM and applied-TTM practitioners, and the loss of workforce. The system should be developed to reflect the true numbers of licensed TTM and applied-TTM practitioners.

(2.4) Mobilizing resources from all relevant networks to help develop the TTM workforce development plan in line with the national development direction. As the TTM workforce planning is constrained by the insufficiency of data on TTM workforce production and demand, while many other agencies, not only the MoPH, are involved, the action has to be linked to the policy-makers, the networks of workforce production and health facilities in both public and private sectors, and the research as well as service recipients' networks. This is because it is a long-term plan, and it needs to be revised periodically according to the policy, situation and timeframe while being implemented.

Thus, the TTM workforce planning should be principally based on the participation of all relevant sectors, sharing the information and ideas from all sectors, i.e. health institutions or facilities (or Category A), formal educational institutions (Category B), and indigenous healers (or Category C). The plan is to be in response to the needs of the health-care systems in both public and private sectors; and it has to be accepted by all sectors concerned so that its implementation will lead to the achievement of its goals.

2.4 Conclusion

The key to TTM/IM/AM development is to make it become the health-care science that is reliable, safe and acceptable. So, the plan implementation requires the policy and strategic framework for upstream, midstream and downstream development activities. Such activities include the development and protection of TTM wisdom and medicinal plants or herbs, and further development of such products or services to be reliable and safe by improving the manufacturing standards for herbal medicines and herbal products as well as the standards for TTM workforce production. Further efforts are also needed for research and development to seek scientific evidence for ensuring the TTM's quality, efficacy, safety, and ultimately consumers' acceptance and satisfaction.

The challenge to TTM/IM/AM development in line with the country's situation and development direction in the next decade is the move towards being a Medical and Wellness Hub, or centre of excellence in health care in Asia. The emphasis is placed on developing and producing qualified TTM workforce in sufficient quantities to reach the excellence status. Thus, the development strategy is to link TTM to the health service system, develop the TTM research centre in a full-cycle manner, improve

the TTM educational development system based on the good standards and TTM's spirit, and develop herbs or medicinal plants to be of higher values with higher competitiveness and revenue for the country. In this connection, the focus should also be placed on growing more herbs for import substitution and returning biodiversity to nature, improving the potential and standards of herbal products, and enhancing the competitive capacity of herbal product manufacturers in the global trade forums.

However, the success in the implementation of the TTM/IM/AM policies and strategies requires the power and support from all relevant sectors that will collaboratively take actions based on the fact that TTM is the wisdom heritage that has been passed on from previous generations for a long time. It is valuable wisdom and regarded as the identity of Thailand that is worth preserving and further developing for our next generations in a sustainable manner.





Thai Traditional and Indigenous Medicine Services Systems

The systems of Thai traditional medicine (TTM) and indigenous medicine (IM) services have special features that are different from those in the modern medical system in that TTM/IM practices have been a Thai lifestyle since ancient times with the Buddhist temples (or *wat*) being the centres of TTM instruction or teaching/learning as well as treatment of illnesses. Besides, the story about TTM was first evidenced in the directory of feudal status in terms of farmland (or *sakdina* in *rai*, which is equivalent to 1,600 sq.m. (0.4 acre) enacted by King Trailokanat in 1455 for civil servants in various departments, i.e. Departments of Medical Services (*Krom Phaettaya*), Pharmacy (*Krom Phaettaya Rongphra-osot*), Internal Medicine (*Krom Moh Ya*), Massage Therapy (*Krom Moh Nuad*), Ophthalmology (*Krom Moh Ya Ta*), and Tuberculosis (*Krom Moh Wannarok*).

Later on, Western or modern medicine was introduced during the reign of King Chulalongkorn (Rama V) when a medical school was established in 1900; and both TTM and modern medicine disciplines were taught during the first phase of the school's operations. Until the reign of King Rama VI, the TTM teaching and learning at the medical school

was discontinued in 1915, resulting in TTM not being supported by the government. However, some TTM practitioners assembled and got many TTM associations established for teaching or training in TTM and providing TTM services. Then the TTM system was chiefly run by the popular sector and the teaching was undertaken only for their children or grandchildren who were interested in learning the traditional practices. So, TTM services continue to be provided to those who still have faith and confidence in such services until today.

When the World Health Organization (WHO) declared the “Health for All by the Year 2000” or primary health care (PHC)” policy in 1978 and Thailand also adopted the PHC policy in its national health plans beginning in 1977, the use of herbs or medicinal plants and Thai traditional medicine has been promoted and widespread across the country. Moreover, indigenous medicine has been more acceptable with a more apparent role in community health care. When Thai massage (*kan nuad Thai*) is widespread and highly popular at the international level, the state health-care system has turned to provide more support for TTM services particularly Thai massage for the clients.

Actually, the TTM/IM services systems have taken root in the popular health sector for a long time since ancient times, and today the public sector has begun to play a greater role in the TTM system management, essentially in allocating the government budget for health services in the public sector.

This chapter provides some information about: TTM/IM workforce, especially indigenous healers who are TTM practitioners as per Section 12(2)(a) and (b) of the TTM Professions Act B.E. 2556 (2013); TTM (service) facilities: accessibility/utilization of services; and TTM expenditure/budget in the three major health insurance schemes, namely the Social Security Scheme (SSS), the Civil Servant Medical Benefit Scheme (CSMBS), and the Universal Health Coverage Scheme (UCS).

3.1 TTM/IM workforce: The workforce includes indigenous healers and TTM practitioners as per Section 12(2)(a) and (b); this section deals with:

1. Workforce situation and trends
2. Production situation
3. Workforce distribution
4. Workforce loss

3.2 TTM facilities

1. Situation and trends of TTM facilities
2. Distribution of TTM facilities
3. Standards of TTM services

3.3 Access to and utilization of TTM services

1. Number of service recipients

3.4 TTM programme expenditure

3.1 TTM/IM workforce

According to the **Practice of Healing Arts Act B.E. 2542 (1999)**, a “**practitioner of healing arts**” means a person who has been registered and licensed to be a practitioner of the healing arts by the Profession Commission”; and according to **Section 33**, the applicant for being registered and licensed as a practitioner in each branch of the healing arts shall have the following knowledge:

(1) Branch of Thai traditional medicine

(a) having been trained or passed on knowledge from the practitioner of healing arts who is permitted to pass on knowledge in the institution or medical centre certified by the TTM Profession Commission under the rules, procedures, and conditions prescribed in the Ministerial Regulation and passed the test of the TTM Profession Commission; or

(b) having been trained from the Thai traditional medical institution certified by the TTM Profession Commission; the Commission may test the applicant's knowledge according to the rules, procedures, and conditions prescribed by the Commission; or

(c) being certified by a relevant government agency and passed an evaluation under the conditions set forth by the TTM Profession Commission.

(2) Branch of applied Thai traditional medicine; the applicant must have obtained a degree or certificate from an institution certified by the Applied TTM Profession Commission; and the Commission may test the applicant's knowledge according to the rules, procedures, and conditions prescribed by the Commission.

At present, the **TTM Professions Act B.E. 2556 (2013)** prescribes that "Thai traditional medicine profession" means a profession dealing with the practices of Thai traditional medicine profession and the practices of applied Thai traditional medicine profession"; and according to **Section 4**, Thai traditional medicine professions include:

(1) The practices of TTM professions, i.e. the professional practices of Thai medicine (*wetchakam thai*), Thai pharmacy (*phesatchakam thai*), Thai midwifery (*kanphadungkhan thai*), Thai massage (*kannuat thai*), Thai indigenous medicine (*kanphaet phuenban thai*), or any other branch of Thai traditional medicine as the Minister shall announce according to the advice of the TTM Profession Commission.

(2) The practices of applied TTM profession; according to Chapter 2, Section 12, a member of the TTM Council shall have the following qualifications and shall not possess any of the following prohibitions:

(2) Having the knowledge of TTM profession as follows:

(a) having been trained in the institution or medical centre certified by the TTM Council and by the TTM practitioner who is permitted

to pass on knowledge, and passed the test prescribed in the Bye-law of the TTM Council; or

(b) having obtained a degree or certificate equivalent to a degree in Thai traditional medicine or applied Thai traditional medicine from an institution certified by the TTM Council, and passed the test prescribed in the Bye-law of the TTM Council; or

(c) being a person whose knowledge of indigenous medicine is certified by a relevant government agency by passing the evaluation or test prescribed in the Bye-law of the TTM Council.



Thus, the licensed TTM practitioners and licensed applied TTM practitioners according to the Practice of Healing Arts Act of 1999 have become the licensed practitioners in their respective branch according to the TTM Professions Act of 2013.

In addition, the practices of TTM professions have included “Thai indigenous medicine” as another branch of TTM professions; thus, the TTM professions currently include Thai medicine, Thai pharmacy, Thai midwifery, Thai massage, and Thai indigenous medicine.

The TTM educational and training system is divided into two levels: one is the institutions or medical centres certified by the TTM Council with a licensed TTM practitioner who is permitted to pass on knowledge to the learners, according to Section 12(2)(a), which corresponds to Section 33(1) of the old law.

The other level is the degree or certificate equivalent to the degree in TTM or applied TTM from an educational institution certified by the TTM Council as per Section 12(2)(b), which corresponds to Section 33 (1)(b) of the old law; the practice of applied TTM has been included in this Section.

This Chapter deals with the TTM and applied TTM workforce according to the TTM Professions Act of 2013.



A. Indigenous healers

1. Situation and trends of the workforce

An **indigenous healer**¹ means a person who is knowledgeable and capable of providing health care using local medical wisdom or knowledge. Normally, in every village there is a villager who is known to and acceptable by the community as an indigenous healer.

According to the database of the Central Registrar's Office of DTAM's Bureau of the Protection of Thai Traditional Medical² Knowledge, Thailand has 53,035 indigenous healers (March 2013), classified by their healing expertise into six groups, namely ritual healers (*moh phithi-kam*), masseurs or massage healers (*moh nuad*), traditional birth attendants (*moh tam-yae*), bone healers (*moh raksa kra-dook*), and others; among them, 16,000 have had more than 20 years of experiences.

Regarding the knowledge assessment and licensing of indigenous healers, DTAM's Bureau of Thai Indigenous Medicine conducted such tasks from 2005 until 2012 and has given a license to 161 TTM indigenous healers (June 2013).

1.1 Healing expertise

Among the 161 licensed TTM practitioners (indigenous medicine), each individual healer may have one or more skills in the healing practices. However, most of them (115) are herbalists (herbal healers), and some others (36) are bone healers.

¹ Statute of National Health System B.E. 2552 (A.D. 2009).

² A person who is knowledgeable and capable of providing health care as well as health promotion to local residents using Thai local wisdom, based on community culture, passed on from generation to generation and recognized by at least 10 members of the community, or certified by the local government organization (in that locality).

Table 3.1 Expertise of Thai indigenous healers, 2013

Indigenous healers, by expertise	Number (persons)
Herbalists	115
Bone healers	36
Masseurs, hot oil tramping (<i>yamkhang</i>), tapping line or hammer massage (<i>nuad toksen</i>), herbal splitting/scraping (<i>ched-haek</i>)	13
Ritual healers (<i>moh phithi-kam</i>), exorcists (<i>moh tham</i>)	3
Snakebite healers, poison healers	4
General indigenous healer (<i>moh wetcha-kam</i>)	1

* One indigenous healer has more than one healing specialty.

Source: Bureau of Thai Indigenous Medicine, June 2013.

1.2 Age of indigenous healers

Among the 161 licensed indigenous healers, their age range is 41 to 93 years, and 102 (63.4%) of them are 61 to 80 years old.

Table 3.1 Age groups of Thai indigenous healers, 2013

Age group (years)	Number (persons)
41-50	6
51-60	16
61-70	47
71-80	55
81-90	13
91-100	2
Unspecified	22
Total	161

Source: Bureau of Thai Indigenous Medicine, June 2013.

2. Workforce production

As mentioned earlier, the production and development of indigenous healers has been undertaken by the passing of knowledge from generation to generation since ancient times, without any formal instructional or institutional system. Currently, most indigenous healers do not have any followers or successors due to young people's lack of interest in such healing practices. Therefore, the number of young indigenous healers is very small, not keeping up with the loss of indigenous healers due to old age.

Even though there are two educational institutions as per Section 33(1(b), one in the North and the other in the North-east, having synthesized the knowledge of regional indigenous medicine and used it for their courses in the TTM curriculum, it is noteworthy that their students are from the cultural, social and economic backgrounds that are different from those of the indigenous healers.

3. Workforce distribution

1.3 Quantities and distribution

According to the TTM Profession Commission's assessment of the knowledge of indigenous healers who had applied to be a registered/licensed TTM practitioner (Thai medicine branch) between 2005 and 2012, 161 passed the assessment. Among them, 35 were in the North, 16 in the Centre, 18 in the East, 47 in the North-east, and 45 in the South.



Table 3.3 Quantities and distribution of licensed Thai indigenous healers by region, 2013

Region	Number (persons)
North	35
Centre	16
East	18
North-east	47
South	45
Total	161

Source: Bureau of Thai Indigenous Medicine, June 2013.

4. Loss of workforce

As the majority of indigenous healers are elderly persons and do not have any followers or successors of their practices, death due to old age is the major cause of loss in the indigenous medical workforce. Most importantly, it is also the loss of empirical knowledge of such indigenous healers. Thus, there is an urgent need for the synthesis of lessons learned and the documentation of such knowledge as well as the mechanism for encouraging young people to preserve the knowledge.

According to the database on Thai indigenous healers, of all 161 licensed healers, at least 7 have died.

B. Licensed TTM practitioners as per Section 12(2)(a)

According to Section 12(2)(a) of the TTM Professions Act of 2013, a licensed TTM practitioner means a person who has been trained in the institution or medical centre certified by the TTM Council (previously, TTM Profession Commission) and by a licensed TTM practitioner who is permitted to pass on knowledge, and passed the test prescribed in the Bye-law of the TTM Council.

These practitioners are the key persons in the TTM workforce; and they are the foundation of TTM services in the popular sector's health-care system. This is because they have preserved the TTM teaching/learning system since ancient times, and many TTM practitioners have learned such practices from the traditional teachers as well as textbooks.

Later on in 2001, many state agencies began to set up a TTM educational programme at this level, but almost all of them focused only on Thai massage due to high demands for such services especially among foreigners. No training programmes were organized in Thai medicine, Thai pharmacy and Thai midwifery.

Besides, this situation report also presents the data on TTM practitioners (Thai massage branch) who are visually impaired persons (the blind). For the first time, such persons are eligible to apply for and take a licensing examination to become a TTM practitioner (Thai massage branch). That is regarded as a new phenomenon in Thai society as there are only four countries in the world that legally recognize the blind's right to become a licensed medical practitioner.

1. Situation and trends of TTM workforce

Between 1929 and 2012, cumulatively there are 56,875 licensed TTM practitioners as per Section 12(2)(a), or practitioners of healing arts as per the old law (Department of Health Service Support, MoPH, 30 September 2012). Over the period of 83 years, it is believed that many of them may have died. But as there is no data verification system, the true number of TTM practitioners is not available.

Of this number, 19,645 are practitioners in Thai medicine branch, 26,872 in Thai pharmacy branch, 7,692 in Thai midwifery branch, and 2,666 in Thai massage branch.

As one TTM practitioner may be registered to practice in more than one branch of TTM practices. For example, one individual may be

registered to practise all four TTM branches, and some may get registered in two or three branches. Thus, the Bureau of Sanatorium and Healing Arts (previously, Medical Registration Division) has reviewed the status of individual practitioners and revealed that actually there are 30,370 TTM practitioners (February 2013), including TTM practitioners and applied TTM practitioners. That is the accumulative number since 1929, but the number of those who have died is unknown.

Table 3.4 Cumulative number of licensed TTM practitioners, 2012

Type of licensed TTM practitioners*	Number (persons)
1. Thai medicine	19,645
2. Thai pharmacy	26,872
3. Thai midwifery	7,692
4. Thai massage	2,666
Total	56,875

* Including licensed TTM profession practitioners as per Section 12(2)(a) and TTM healing art practitioners as per Section 33(1)(a).

Source: Bureau of Thai Indigenous Medicine, June 2013.

According to the review of the data on licensed TTM practitioners as per Section 33(1)(a) for the period 2007–2012 and the announcement of the TTM Profession Commission, the number of such practitioners increased by 2,514.4 per year on average – 2,949 in the Thai medicine branch, 4,528 in the Thai pharmacy branch, 3,333 in the Thai midwifery branch, and 1,763 in the Thai massage branch (the licensing exam beginning in 2010).

Thus, among all licensed TTM practitioners, those in the Thai pharmacy branch are in the largest group. However, some of the TTM practitioners as per Section 33(1)(a) are those who have been trained in a TTM educational institution certified by the TTM Profession Commission



(Category B) or those who have received a degree or certificate from an educational institution certified by the TTM Profession Commission and passed the licensing examination in Category A as mentioned previously.

Table 3.5 Number of licensed TTM practitioners registered as per Section 33(1) (a), 2007-2012

Type of practitioners (Category A)	No. of practitioners						
	2007	2008	2009	2010	2011	2012	Total
Thai medicine	272	667	544	461	549	456	2,949
Thai pharmacy	1,189	405	426	657	1,367	484	4,528
Thai midwifery	984	669	974	65	354	287	3,333
Thai massage	-	-	-	529	699	535	1,763
Total	2,445	1,741	1,944	1,712	2,969	1,762	12,573

Source: Bureau of Thai Indigenous Medicine, June 2013.

TTM (Thai massage) practitioners who are visually impaired or blind masseurs

Visually impaired or blind persons have played a role in providing health care, especially Thai massage, for the people to relieve muscle pain since 1983 when the agencies working for the blind began setting up a massage training programme for them. Since then, trained blind masseurs can make a decent living while performing a good massage that is satisfactory to the clients.

Between 1983 and 2008, at least 6 organizations working for the blind organized massage training courses for 1,129 blind persons. But the trained blind masseurs were ineligible to take a licensing examination to become a licensed TTM/massage therapist as the Practice of Healing Arts Act of 1999 did not permit such licensing for persons with disabilities.

In 2001, Thai massage was included as a branch in TTM practices as per MoPH's Notification of B.E. 2544 (2001) related to this matter.

In 2005, there was a notification of the TTM Profession Commission on prohibitive diseases, which disallowed any person with any of such diseases to be registered/licensed as a TTM practitioner, lifting the ban on disabled persons being a licensed healing art practitioner.

Between 2009 and 2012, five organizations working for the blind, i.e. (1) the Foundation for the Blind in Thailand (Rehabilitation Centre for the Blind in Pak Kret and Sam Phran Vocational Training Centre for the Blind), (2) the Thailand Association of the Blind (Centre for Vocational Learning and Demonstration for the Blind in Thon Buri), (3) the Thailand Caulfield Foundation for the Blind under the Royal Patronage of HRH Princess Maha Chakri Sirindhorn, (4) the National Association for the Promotion of Blind Thai Classical Massage, and (5) the Association for Employment Promotion of the Blind, in cooperation with the Health and Development Foundation, the Foundation for Children with Disabilities and other Thai massage associates implemented the **Capacity Building for the Blind to Become Licensed TTM Practitioners (Thai Massage) Project**, a three-year project implemented from 1 September 2009 to 31 August 2012 with funding from the Thai Health Promotion Foundation (ThaiHealth). After the extension, the project ended on 30 June 2013.

The project's objectives include developing a teaching/learning programme for the organizations working for the blind, according to the Thai healing arts practice law, and enabling the trained blind masseurs to be eligible to take a licensing examination to become licensed TTM practitioners (Thai massage branch), or licensed Thai massage therapists.

In 2010, only one blind masseur was eligible to take such an examination and became the first licensed TTM practitioner (Thai massage) of Thailand.



In 2011, another 20 blind masseurs were eligible to take the licensing examination, but only one passed the exam and became another licensed TTM practitioner (Thai massage).

In 2012, another 69 blind masseurs were eligible to take the licensing examination, 32 of whom passed the exam and became licensed TTM practitioners (Thai massage) – the year with a large number of newly licensed blind Thai massage therapists.

Totally, between 2010 and 2012, there are 34 licensed TTM practitioners (Thai massage), or licensed TTM/massage practitioners.

2. TTM workforce production

The production of licensed TTM practitioners as per Section 33(1) (a) of the old law or Section 12(1)(a) of the new law is to be undertaken by the institution or medical centre certified by the TTM Profession Commission under the rules, procedures, and conditions prescribed in the Ministerial Regulation; and to be licensed, the practitioners must have passed the test given by the TTM Profession Commission.

According to the Ministerial Regulation on Training or Knowledge Transmission in Thai Traditional Medicine for Persons Who Apply for Registration and Licensing as TTM Practitioners B.E. 2550 (A.D. 2007), the requirements are as follows:

Section 1. A person who applies for registration and licensing as a TTM practitioner must possess a certificate of acceptance of a student (apprentice, or trainee) for training or knowledge transmission purposes as per the form prescribed by the TTM Profession Commission and a certificate of completion of training or knowledge transmission from the TTM teacher or preceptor at the institution or medical centre certified by the TTM Profession Commission, according to the following TTM branches and time periods:

(1) Thai medicine: at least three years by the teacher of TTM/
Thai medicine

(2) Thai pharmacy: at least two years by the teacher of TTM/Thai
pharmacy

(3) Thai midwifery: at least one year by the teacher of TTM/Thai
midwifery

(4) Thai massage: at least two years by the teacher of TTM/Thai
massage

Among the four TTM workforce production programmes, the one for Thai massage is better prepared. At present, there are 105 certified Thai massage training or teaching institutions or medical centres, while there is only 1 certified institution each for Thai medicine and Thai pharmacy. The complete listing of Thai massage training institutions certified by the TTM Profession Commission is shown below.

Table 3.6 List of educational institutions or medical centres certified by the TTM Profession Commission to pass on knowledge for producing TTM healing art practitioners (TTM/massage practitioners) using the standard curriculums: Curriculum for TTM Practitioners (Thai Massage Branch) B.E. 2550 (2007) and Curriculum for TTM Assistants B.E. 2550 (2007), totalling 105 institutions

No.	Name of institution or medical centre	Prof'l Thai massage curriculum	TTM assistant curriculum	Province	Educat'l region	Year certified
Associations, foundations, professional organizations, schools						
1	Thai Healthy Lifestyle Promotion Centre		/	Songkhla	12	2007
2	Thai Massage School	/	/	Bangkok	1	2007 2012
3	Wat Pho Thai Traditional Medical and Massage School	/	/	Bangkok	1	2007

Table 3.6 (continued)

No.	Name of institution or medical centre	Prof'l Thai massage curriculum	TTM assistant curriculum	Province	Educat'l region	Year certified
4	Thai Professional Massage Association	/	/	Nonthaburi	1	2008
5	Thai Traditional Medicine Association	/	/	Chumphon	11	2008
6	Chetawan Thai Traditional Massage School	/		Bangkok	1	2008
7	Pisit Thai Traditional Medicine School	/	/	Bangkok	1	2008
8	Thai Traditional Medicine and Health Promotion Centre		/	Lop Buri	2	2009
9	Thai Traditional Health Promotion Centre (Wat Mai Ban Don)		/	Nakhon Ratchasima	5	2009
10	Thai Traditional Medicine Development Foundation			Nonthaburi	1	2009
11	Thai Traditional Massage School, Phuket			Phuket	11	2009
12	Phenkhae Thai Traditional Medical School	/	/	Pathum Thani	1	2009
13	Thai Traditional Medical School Shivagakomarpaj	/	/	Chiang Mai	10	2009
14	Lanna Thai Massage School	/	/	Chiang Mai	10	2009 2010
15	Thai Wisdom Promotion School		/	Udon Thani	6	2009
16	Boonruang Vocational Massage and Spa School		/	Surat Thani	11	2009
17	Vejasak Clinic Thai Traditional Medical Training Centre		/	Bangkok	1	2009
18	Thai Traditional Medicine Association Phetchaburi-Prachuap Khiri Khan	/		Phetchaburi	4	2011

Table 3.6 (continued)

No.	Name of institution or medical centre	Prof'l Thai massage curriculum	TTM assistant curriculum	Province	Educat'l region	Year certified
19	Doi Namsap Thai Traditional Massage & Herbal Compress School	/	/	Bangkok	1	2011
Network of organizations for the blind and children with disabilities						
1	Foundation for Children with Disabilities	/	/	Bangkok	1	2011
2	Association for Promotion of Thai Massage for the Blind	/	/	Bangkok	1	2011
3	Sam Phran Vocational Training Centre for the Blind, Foundation for the Blind in Thailand	/	/	Nakhon Pathom	4	2011
4	Rehabilitation Centre for the Blind, Foundation for the Blind in Thailand	/	/	Nonthaburi	1	2011
5	Thailand Caulfield Foundation for the Blind	/	/	Bangkok	1	2011
6	Centre for Vocational Learning and Demonstration for the Blind, Thailand Association of the Blind	/		Bangkok	1	2011
7	Foundation for Employment Promotion of the Blind	/	/	Bangkok	1	2012 2009
Private health or health-care facilities						
1	Thai Traditional Medical Clinic (<i>Clinic Vejjakamthai</i>)		/	Songkhla	12	2007
2	Dr. Napa's Thai Traditional Medical Clinic	/	/	Nonthaburi	1	2008 2011
3	Phasicharoen Thai Traditional Medical Clinic	/	/	Bangkok	1	2009



Table 3.6 (continued)

No.	Name of institution or medical centre	Prof'l Thai massage curriculum	TTM assistant curriculum	Province	Educat'l region	Year certified
4	Dr. Ladda's Thai Traditional Medical Clinic	/	/	Nakhon sawan	8	2009 2012
5	Tao Poon Thai Traditional Medical Clinic	/	/	Bangkok	1	2009
6	Prasat Thai Traditional Medical Clinic	/		Lop Buri	2	2009
7	Chanthanee Thai Traditional Medical Clinic and School		/	Chang Rai	10	2009
8	Ban Suan Polyclinic	/	/	Bangkok	1	2009
9	Ophasi Thai Traditional Medical Clinic		/	Surin	5	2009
10	Thai Traditional Medical Clinic	/		Samut Sakhon	4	2011
11	Dr. Boon's Thai Traditional Medical Clinic	/		Rayong	3	2011
12	Taipan Thai Traditional Medical Clinic	/		Bangkok	1	2011
13	Thai Traditional Medical Clinic for Health, Lop Buri		/	Lop Buri	2	2012
14	Thai Traditional Medical Clinic	/		Rayong	3	2012
15	Saengdao Applied Thai Traditional Medical Clinic		/	Ubon Ratchathani	7	2012
16	Sanan Traditional Medical Clinic	/	/	Khon Kaen	2	2012
17	Amornrat Thai Traditional Medical Clinic	/	/	Lop Buri	2	2012
18	Sudarat Thai Traditional Medical Clinic	/	/	Ubon Ratchathani	7	2012

Table 3.6 (continued)

No.	Name of institution or medical centre	Prof'l Thai massage curriculum	TTM assistant curriculum	Province	Educat'l region	Year certified
Government hospitals						
1	Singhanakhon Hospital		/	Songkhla	12	2007
2	Chaophraya Abhaibhubejhr Hospital	/	/	Prachin Buri	3	2008
3	Kanchanadit Hospital		/	Surat Thani	11	2009
4	Damnoen Saduak Hospital		/	Ratchaburi	4	2009
5	Ban Lat Hospital		/	Phetchaburi	4	2009
6	Phanat Nikhom Hospital	/		Chon Buri	3	2009
7	Photharam Hospital		/	Ratchaburi	4	2009
8	Ratchaburi Hospital		/	Ratchaburi	4	2009
9	Somdej Phraphutthaloetla Hospital		/	Samut Songkhram	4	2009
10	Huai Yot Hospital			Trang	12	2009
11	Hua Sai Hospital	/	/	Nakhon Si Thammarat	11	2009 2011
12	Surat Thani Hospital		/	Surat Thani	11	2010
13	Chaiyaphum Hospital		/	Chaiyaphum	5	2011
14	Prapokkdao Hospital		/	Chanthaburi	3	2011
15	Phana Hospital		/	Amnat Charoen	7	2012
16	Sao Hai Chaloeprakiat Hospital		/	Saraburi	2	2012
17	Wat Salakul Health Centre		/	Nonthaburi	1	2012
Provincial Public Health Offices						
1	Chachoengsao		/	Chachoengsao	3	2009
2	Nakhon Nayok		/	Nakhon Nayok	2	2009
3	Prachuap Khiri Khan		/	Prachuap Khiri Khan	4	2009

Table 3.6 (continued)

No.	Name of institution or medical centre	Prof'l Thai massage curriculum	TTM assistant curriculum	Province	Educat'l region	Year certified
4	Phayao		/	Phayao	10	2009
5	Phetchaburi		/	Phetchaburi	4	2009
6	Mukdahan		/	Mukdahan	7	2009
7	Yala		/	Yala	12	2009
8	Lop Buri		/	Lop Buri	2	2009
9	Lampang		/	Lampang	10	2009
10	Loei		/	Loei	6	2009
11	Si Sa Ket		/	Si Sa Ket	7	2009
12	Sa Kaeo		/	Sa Kaeo	3	2009
13	Ang Thong		/	Ang Thong	1	2009
14	Amnat Charoen		/	Amnat Charoen	7	2009
15	Sakon Nakhon		/	Sakon Nakhon	6	2010
16	Udon Thani		/	Udon Thani	6	2010
17	Chai Nat		/	Chai Nat	2	2011
18	Chumphon		/	Chumphon	11	2011
19	Chiang Mai		/	Chiang Mai	10	2011
20	Maha Sarakham		/	Maha Sarakham	5	2011
21	Nakhon Pathom		/	Nakhon Pathom	4	2011
22	Nakhon Ratchasima		/	Nakhon Ratchasima	5	2011
23	Suphan Buri		/	Suphan Buri	2	2011
24	Phra Nakhon Si Ayutthaya		/	Phra Nakhon Si Ayutthaya	1	2011
25	Surat Thani		/	Surat Thani	11	2011
26	Phatthalung		/	Phatthalung	12	2011
27	Uttaradit		/	Uttaradit	9	2011
28	Ubon Ratchathani		/	Ubon Ratchathani	7	2011

Table 3.6 (continued)

No.	Name of institution or medical centre	Prof'l Thai massage curriculum	TTM assistant curriculum	Province	Educat'l region	Year certified
29	Phrae		/	Phrae	9	2012
30	Nong Bua Lam Phu		/	Nong Bua Lam Phu	6	2012
Regional Training Centres for Primary Health Care Development						
1	Northern Region, Nakhon Sawan		/	Nakhon Sawan	8	2002 / 2007
2	Southern Region, Nakhon Si Thammarat	/	/	Nakhon Si Thammarat	11	2009
Educational Institutions						
1	Sirindhorn College of Public Health, Chon Buri		/	Chon Buri	3	2009
2	Sirindhorn College of Public Health, Khon Kaen		/	Khon Kaen	6	2009
3	Faculty of Medicine, Chiang Mai University		/	Chiang Mai	10	2009
4	Thai Traditional Medicine College, Rajamangala University of Technology Thanyaburi		/	Pathum Thani	1	2009
5	Sirindhorn College of Public Health, Phitsanulok		/	Phitsanulok	9	2010
6	Kanchanabhisek Institute of Medical and Public Health Technology		/	Nonthaburi	1	2010
7	Mahidol University Nakhon Sawan Campus Establishment Project		/	Nakhon Sawan	8	2011
8	Centre for Research and Development of Thai Traditional Medicine, Khon Kaen University		/	Khon Kaen	6	2012



Table 3.6 (continued)

No.	Name of institution or medical centre	Prof'l Thai massage curriculum	TTM assistant curriculum	Province	Educat'l region	Year certified
Ministry of Social Development and Human Security						
1	His Majesty the Queen's 72 nd Birthday Anniversary Commemoration Centre		/	Lamphun	10	2010
2	Centre for Skill Development Centre, Kanchanaburi		/	Kanchanaburi	4	2010
3	Centre for Skill Development Centre, Nakhon Nayok		/	Nakhon Nayok	2	2011
Department for Development of Thai Traditional and Alternative Medicine						
1	Institute of Thai Traditional Medicine	/	/	Nonthaburi	1	2008

Source: Bureau of Sanatorium and Healing Arts, June 2013.

All 105 certified TTM educational/training institutions or medical centres may be categorized as follows:

Group of institutions or centres	No. of institutions or centres
Associations, foundations, professional organizations, schools	19
Networks of organizations working for the blind or children with disabilities	7
Private health (health-care) facilities	18
Government hospitals	17
Provincial public health offices	30
Regional training centres for PHC development	2
Educational institutions	8

Group of institutions or centres	No. of institutions or centres
Ministry of Social Development and Human Security	3
Department for Development of Thai Traditional and Alternative Medicine	1

By educational region, the numbers of certified TTM educational/training institutions or medical centres are as follows:



Educational region	No. of institutions or centres
Region 1	25
Region 2	10
Region 3	8
Region 4	11
Region 5	5
Region 6	8
Region 7	7
Region 8	3
Region 9	2
Region 10	7
Region 11	9
Region 12	6

Region 1 (Bangkok, Ayutthaya, Nonthaburi, Pathum Thani, Ang Thong, and Samut Prakan) has the largest number of certified TTM educational/training institutions, while Region 9 (Phitsanulok, Phichit, Phetchabun, Phrae, Nan, and Uttaradit) has the smallest.

The certified TTM educational/training institutions under the organizations that work for persons with disabilities are:

1. Rehabilitation Centre for the Blind (Pak Kret), Foundation for the Blind in Thailand
2. Vocational Training Centre for the Blind (Sam Phran), Foundation for the Blind in Thailand

3. Centre for Vocational Learning and Demonstration for the Blind, Thailand Association of the Blind

4. Thailand Caulfield Foundation for the Blind under the Royal Patronage of HRH Princess Maha Chakri Sirindhorn

5. Association for Promotion of Thai Massage for the Blind

6. Foundation for Employment Promotion of the Blind

7. Foundation for Children with Disabilities

In summary, of all the TTM educational/training institutions or medical centres certified by the TTM Profession Commission, 26 are in the popular sector, 18 in the private sector (Thai medicine), and 61 in the public sector. It is noteworthy that, at present, the public sector has played a greater role in Thai massage training than the popular and private sectors; and the government budget is primarily allocated for the training programmes organized by state agencies. Thus, in the long run, if the government does not change its policy to support the popular sector's training courses, their Thai massage training capacity will not be able to compete with that of the public sector. And as a result, many associations may have to cancel or discontinue such operations that have been undertaken for nearly 100 years.

3. Workforce distribution

As there is no workforce information system for collecting and updating the database on licensed TTM practitioners as per Section 12(2) (a), the information on this matter is not available.

Regarding the blind who are licensed TTM/massage practitioners, most of them are private practitioners, some are massage teachers or instructors at the organizations working for persons with disabilities, and the rest (3–5 persons) work at *tambon* (subdistrict) health promoting hospitals (THPHs).

4. Loss of TTM workforce

As there is no workforce information system for collecting and updating the database on licensed TTM practitioners as per Section 12(2)(a), the information on this matter is not available.

C. Licensed TTM practitioners as per Section 12(2)(b)

According to Section 12(2)(b) of the TTM Professions Act of 2013, the provisions on licensed TTM practitioners as per Section 33(1)(b) and applied TTM practitioners as per Section 33(2) of the Healing Arts Practice Act of 1999 are combined. The new law requires that a licensed practitioner must be a person “who has obtained a degree or certificate equivalent to a degree in Thai traditional medicine or applied Thai traditional medicine from an institution certified by the TTM Council, and passed the test of knowledge prescribed in the Bye-law of the TTM Council”.

1. Situation and trends of workforce

The exact number of licensed TTM practitioners as per Section 33(1)(b) is unavailable as one individual who has graduated with a category (b) degree can take up to four licensing examinations to become a licensed practitioner in up to four TTM branches; so the number of individual practitioners cannot be told as the registration is made for each category of healing art practices. That is different from the applied TTM branch as one applied TTM graduate is eligible to take only one branch of licensing examination, resulting in the same number of individuals and practitioners.



Table 3.7 Numbers and branches of licensed TTM practitioners as per Section 33(1)(b), 2007–2012

Year	Branch and number of practitioners				Total
	Thai medicine	Thai pharmacy	Thai midwifery	Thai massage	
2007	95	112	29	107	343
2008	60	65	28	71	224
2009	70	23	19	81	193
2010	95	64	34	113	306
2011	165	195	134	247	741
2012	138	219	134	187	678
Total	623	678	378	806	2,485

* One licensed TTM practitioner has more than one licence for practising various TTM branches.

Source: Bureau of Sanatorium and Healing Arts, June 2013.

As of 30 September 2012, the number of applied TTM practitioners as per Section 33(2) is 1,158; some of them have taken a licensing examination to register as a licensed TTM practitioner (Thai pharmacy), who can open a Thai traditional drugstore or supervise the Thai traditional drug-manufacturing process in a Thai drug factory as required by law.

Table 3.8 Number of persons who passed the test and became licensed applied TTM practitioners, 2007-2012

Year	No. of persons who passed the test and became licensed applied TTM practitioners
2007	59
2008	25
2009	104
2010	236
2011	311
2012	423
Total	1,158

Source: Bureau of Sanatorium and Healing Arts, June 2013.

2. Workforce production

In producing TTM workforce to become licensed TTM practitioners as per Section 33(1)(b) and applied TTM practitioners as per Section 33(2) of the old law, Section 12(2)(b) of the new law requires that a licensed TTM practitioner must be a person “who has received a degree or certificate equivalent to a degree in Thai traditional medicine or applied Thai traditional medicine from an institution certified by the TTM Council, and passed the test of knowledge prescribed in the Bye-law of the TTM Council”.

Currently, there are 11 TTM educational institutions certified by the TTM Profession Commission as shown in Table 3.9.

Table 3.9 TTM educational institutions certified by the TTM Profession Commission

TTM educational institution	Degree offered	Year certified
1. Chiang Rai Rajabhat University	Bachelor of Thai Traditional Medicine (Thai Traditional Medicine)	2003
2. Rangsit University	Bachelor of Science (Thai Traditional Medicine)	2003
3. Prince of Songkla University	Bachelor of Science (Thai Traditional Medicine)	2005
4. Ramkhamhaeng University	Bachelor of Thai Traditional Medicine (Thai Traditional Medicine)	2006
5. Ubon Ratchathani Rajabhat University	Bachelor of Thai Traditional Medicine (Thai Traditional Medicine)	2009
6. Rajamangala University of Technology Isan	Bachelor of Thai Traditional Medicine (Thai Traditional Medicine)	2009
7. Bansomdejchaopraya Rajabhat University	Bachelor of Thai Traditional Medicine	Not available (n/a)
8. Surin Rajabhat University	Bachelor of Thai Traditional Medicine	n/a
9. Yala Rajabhat University	Bachelor of Thai Traditional Medicine (Thai Traditional Medicine)	n/a
10. Muban Chombueng Rajabhat University	Bachelor of Thai Traditional Medicine (Thai Traditional Medicine)	n/a
11. Phetchaburi Rajabhat University	Bachelor of Thai Traditional Medicine (Thai Traditional Medicine)	n/a

Source: Bureau of Sanatorium and Healing Arts, June 2013.

There are eight applied TTM educational institutions certified by the Applied TTM Profession Commission as shown in Table 3.10.

Table 3.10 Applied TTM educational institutions certified by the TTM Profession Commission

Applied TTM educational institution	Degree offered	Year certified
1. Faculty of Medicine Siriraj Hospital, Mahidol University	Bachelor of Applied Thai Traditional Medicine (Applied Thai Traditional Medicine)	2003
2. Faculty of Medicine, Thammasat University	Bachelor of Applied Thai Traditional Medicine (Applied Thai Traditional Medicine)	2005
3. School of Health Science (Applied Thai Medicine Programme), Mae Fah Luang University	Bachelor of Applied Thai Traditional Medicine (Applied Thai Traditional Medicine)	2007
4. Suan Sunandha Rajabhat University	Bachelor of Applied Thai Traditional Medicine (Applied Thai Traditional Medicine)	2007
5. Faculty of Public Health, Naresuan University	Bachelor of Applied Thai Traditional Medicine (Applied Thai Traditional Medicine)	2007
6. Faculty of Medicine, Maha Sarakham University	Bachelor of Science (Applied Thai Traditional Medicine)	2007
7. Faculty of Abhaibhubejhr Thai Traditional Medicine, Burapha University	Bachelor of Applied Thai Traditional Medicine (Applied Thai Traditional Medicine)	2007
8. Thai Traditional Medicine College Rajamangala University of Technology Thanyaburi	Bachelor of Applied Thai Traditional Medicine (Applied Thai Traditional Medicine)	2007

Source: Bureau of Sanatorium and Healing Arts, June 2013.

Note: The Faculty of **Abhaibhubejhr** TTM was upgraded as a faculty in 2008.



As there is no central information system for collecting data on the numbers of admitted students and graduates in the TTM and applied TTM programmes of each institution, the accurate information on this matter is not available.

3. Workforce distribution

As there is no workforce information system for collecting the information on the workplaces and workplace transfers of licensed TTM practitioners as per Section 12(2)(b), the information on this matter is not available.

4. Workforce loss

As there is no workforce information system for collecting and reporting data on licensed TTM practitioners as per Section 12(2)(b), the information on this matter is not available.

3.2 Health facilities providing TTM services

At present, Thailand has three major health insurance schemes, namely:

A. **Social Security Scheme (SSS)** covering 10.5 million people (2011), or approximately 16% of the Thai population.

B. **Civil Servant Medical Benefit Scheme (CSMBS)** covering 5 million people, or approximately 8% of the Thai population.

C. **Universal Health Coverage Scheme (UCS)** covering 47 million people, or approximately 75% of the Thai population.

A. Social Security Scheme

Under the Social Security Scheme, there is no system for reporting TTM services rendered by health facilities as it is considered to be up to each of them. And there is no policy or measure to support and promote such services. In fact, it may be said that health facilities under the SSS have no TTM services for their beneficiaries.

Table 3.11 Number of health facilities under the Social Security Scheme, 2007–2011

Health facilities	2007		2008		2009		2010		2011	
	Public	Private								
Main health facilities (main contractors)	153	113	153	104	152	98	151	92	152	90
Health facilities (sub-contractors)	944	1,586	963	1,499	975	1,338	964	1,256	1,025	1,116
Total	1,097	1,699	1,116	2,719	1,127	1,436	1,115	1,348	1,117	1,206

Source: Social security Office, June 2012.

1. Situation and trends of TTM facilities

As the health facilities under the SSS do not provide TTM services for their clients and there is no TTM service reporting system, the information on this matter is not available.

2. Distribution of TTM facilities

The same as item 1 (situation and trends of TTM facilities), i.e. the information on this matter is not available.

3. Standards of TTM services

The same as item 1 (situation and trends of TTM facilities), i.e. the information on this matter is not available.

B. Civil Servant Medical Benefit Scheme

Under the CSMBS, the Comptroller General's Department (of the Ministry of Finance) promotes and supports TTM services; so, CSMBS clients can receive TTM services and then get reimbursed for the service fees. Thus, health facilities provide TTM services chiefly for civil servants. The information on TTM facilities can be found in the section on the Universal Health Coverage Scheme.

C. Universal Health Coverage Scheme

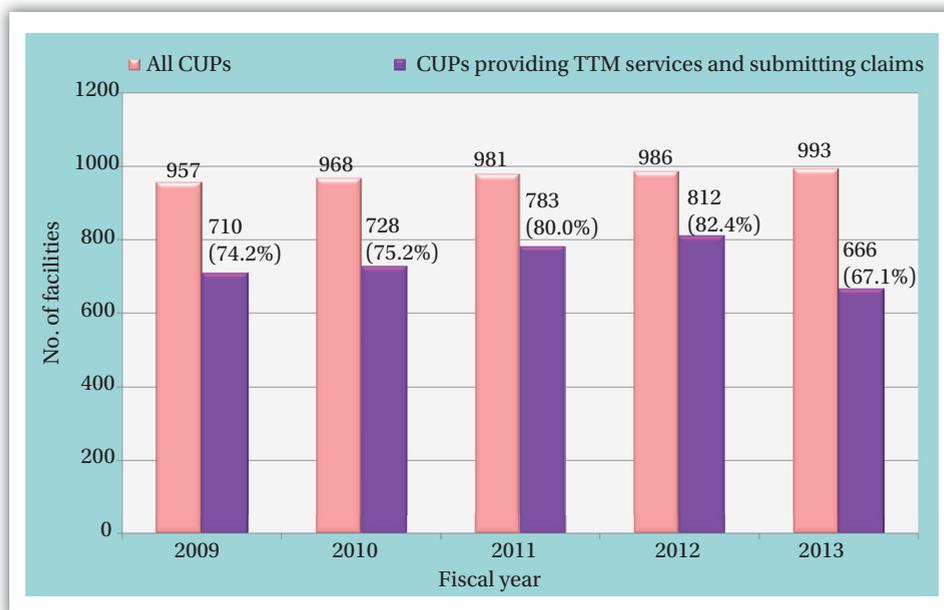
1. Situation and trends of TTM facilities

Before 2007, the provision of TTM services for UCS beneficiaries was dependent on the administrator of each health facility as the service fees had been included in the capitation budget similar to that under the SSS. So, most of the health facilities under the UCS did not promote TTM services for their beneficiaries. Thus, in 2007 the National Health Security Office (NHSO) set up the Thai Traditional Medicine System Development Fund (TTM Fund) to pay contracted units of primary care (CUPs) for the TTM services provided to UCS beneficiaries. Since then the proportion of CUPs providing TTM services has risen to 80% of all CUPs across the country.

2. Distribution of TTM facilities

By type and level of health facilities, ranging from *tambon* health promoting hospitals to community hospitals and provincial/regional hospitals, the number of such facilities providing TTM services rose rapidly

Figure 3.1 Number of contracted units for primary care (CUPs) or health facilities providing Thai massage services, 2009–2013



**Excluding those under the Bangkok Metropolitan Administration (BMA).

Source: NHSO - OP Individual Database, TTM Programme, and e-claim Programme, as of November 2012.

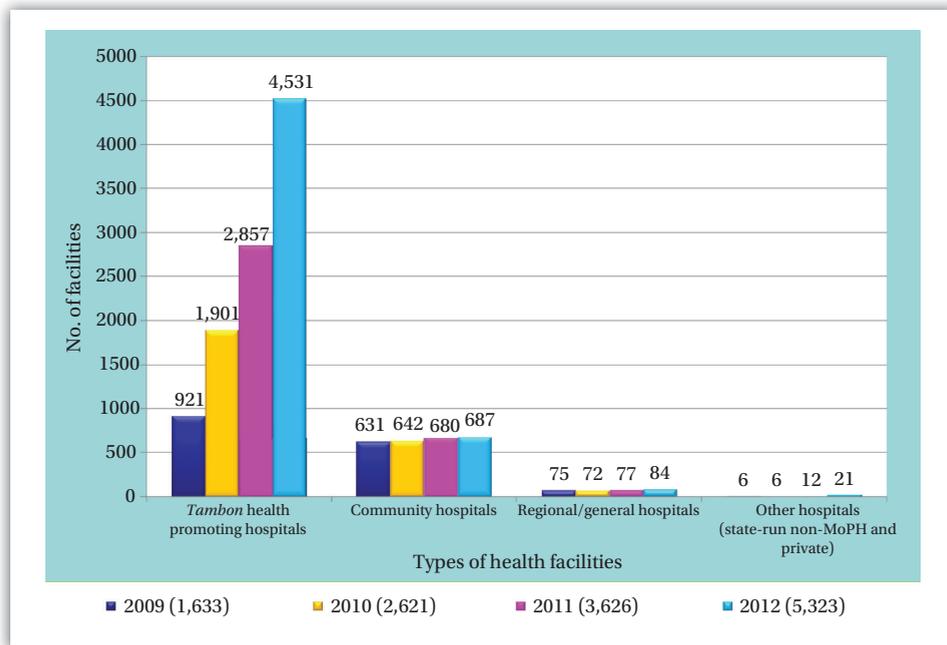
from 921 in 2009 to 4,531 in 2012. This indicates that TTM services have been distributed to all levels of care – primary, secondary and tertiary.

3. Standards of TTM services

The NHSO has established the TTM service standards at CUPs by doing the following:

- a. Developing the Thai Massage Clinical Practice Guidelines. Under the UCS, the clinical practice guidelines were developed for Thai massage to relieve pain and rehabilitation in patients with paresis and paralysis in 2007 and for health promotion in postpartum women in 2010.

Figure 3.2 Types of health facilities providing Thai massage services



Source: NHSO – OP Individual Database, TTM Programme, and e-claim Programme, as of November 2012.

Later on, in 2013 the NHSO set up a working group to review the TTM practice guidelines of the NHSO and DTAM, and agreed in principle that all health facilities including CUPs across the country should use the same clinical practice guidelines; and it was proposed that DTAM revises and develops the clinical practice guidelines to be used by all health facilities providing TTM services throughout the country.

b. Using the **Standards of TTM Services in State Health Facilities** developed by DTAM in 2008, covering five elements of services, namely premises (including tools, equipment, and the environment), personnel, operations, quality control and service delivery.

Besides, the standards are set for two levels of health facilities, i.e. one for hospitals and the other for subdistrict health centres, which have been upgraded as *tambon* health promoting hospitals.

c. **Promoting the standards of TTM personnel.** After the TTM Fund was established in 2007, positive measures have been set up to promote the recruitment of qualified personnel to provide TTM services, requiring that:

1) For each of the subdistrict health centres (presently upgraded as tambon health promoting hospitals), a Thai masseur should be the person who has completed the 330-hour TTM assistant curriculum prepared and announced by the TTM Profession Commission in 2002, and revised/ approved in 2007.

2) For each of the community and regional/provincial hospitals, a Thai masseur should be the person who has completed the 800-hour Thai massage curriculum approved and announced by the TTM Profession Commission in 2007.

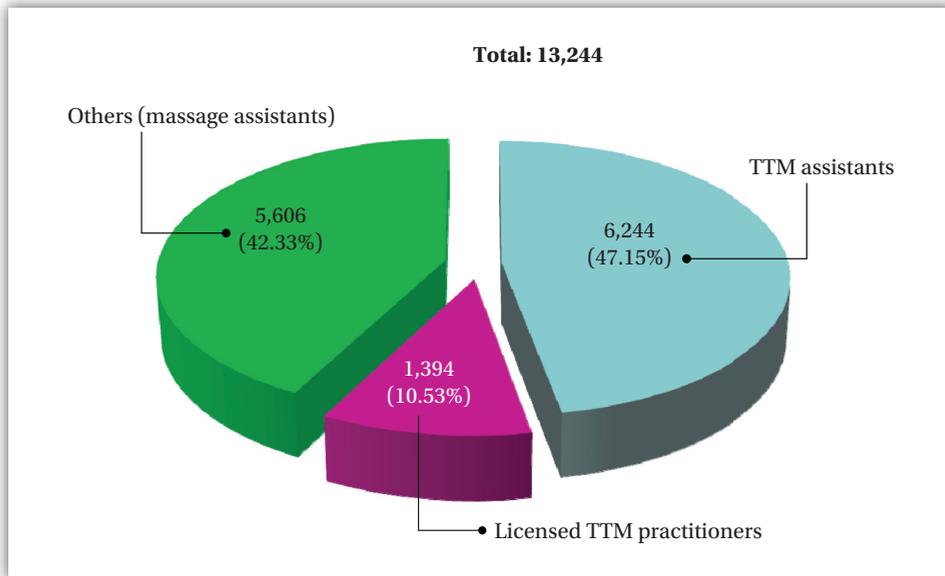
In this connection, a positive measure should be used by allocating more subsidies to the health facilities hiring personnel with specified qualifications than to those hiring personnel with lower-than-specified qualifications.

3) In 2013, a set of common criteria (minimum requirements for a CUP) was set up, specifying that there must be a Thai traditional medical doctor (*nakkanphaet phaenthai*) stationed at a service unit (a Thai traditional medical doctor is a person who has completed a bachelor's degree in Thai traditional medicine and is a licensed TTM practitioner (Thai medicine branch) or a licensed applied TTM practitioner). This is to encourage more state health facilities to provide standardized TTM services.

According to NHSO's statistics, of all TTM service providers, 1,394 (10.5%) are licensed TTM practitioners, 6,244 (47.2%) are TTM assistants, and 5,606 (42.3%) are those with qualifications lower than TTM assistant.



Figure 3.3 Number of TTM personnel in the Universal Health Coverage Scheme



Source: NHSO, TTM Programme, August 2012.

3.3 Access to and utilization of TTM services

A. Social Security Scheme

Under the SSS, outpatient and inpatient services data are reported as the number of visits without any details on the types of medical care and TTM services.

Table 3.12 Rate of medical service utilization under the Social Security Scheme, 2007-2011

Year	Medical service utilization	Type of care	
		Outpatient	Inpatient
2007	No. of visits	24,765,729	491,020
	Rate of visits (visits/person/yr)	2.59	0.051
2008	No. of visits	25,784,650	520,992
	Rate of visits (visits/person/yr)	2.61	0.053
2009	No. of visits	26,233,804	479,116
	Rate of visits (visits/person/yr)	2.68	0.049
2010	No. of visits	26,870,226	528,547
	Rate of visits (visits/person/yr)	2.70	0.053
2011	No. of visits	27,636,042	550,017
	Rate of visits (visits/person/yr)	2.61	0.053



B. Civil Servant Medical Service Scheme

The report of the Central Office for Healthcare Information does not contain any data on the medical service utilization of civil servants; neither does it show the data on TTM services.

C. Universal Health Coverage Scheme

In 2007, the NHSO set up the TTM Fund to pay CUPs for TTM services provided to its beneficiaries, especially for massage services to relieve pain and help rehabilitate the patients with paresis and paralysis.

Later on in 2010, the Thai massage clinical practice guideline was prepared for use in providing postpartum women with massage for health promotion purposes.

Figure 3.4 Comparison of the numbers of clients and visits receiving Thai massage services, 2009–2013



Sources: For 2009–2011, TTM Programme; for 2012–2013, OP/PP Individual Database.

Since 2011, an additional budget has been allocated to pay for herbal drugs that are in the National List of Essential Medicines (NLEM).

1. Access to Thai massage services

According to the Thai massage service database, between 2009 and 2013, the numbers of massage clients and visits increased rapidly from 313,352 persons (1,162,292 visits) in 2009 to 1,282,170 persons (5,248,946 visits) in 2012 (4.1% of all UCS beneficiaries). This clearly indicates that the monetary support for TTM services has increased the people's access to Thai massage services.

However, regarding the distribution of Thai massage services, it is noteworthy that the number of visits was lowest (570) for Region 13 (Bangkok) and highest (328,439) for Region 7 (Khon Kaen, Kalasin, Maha Sarakham,

Figure 3.5 Number of clients who received Thai massage services (massage, compress and steam bath), fiscal year 2012



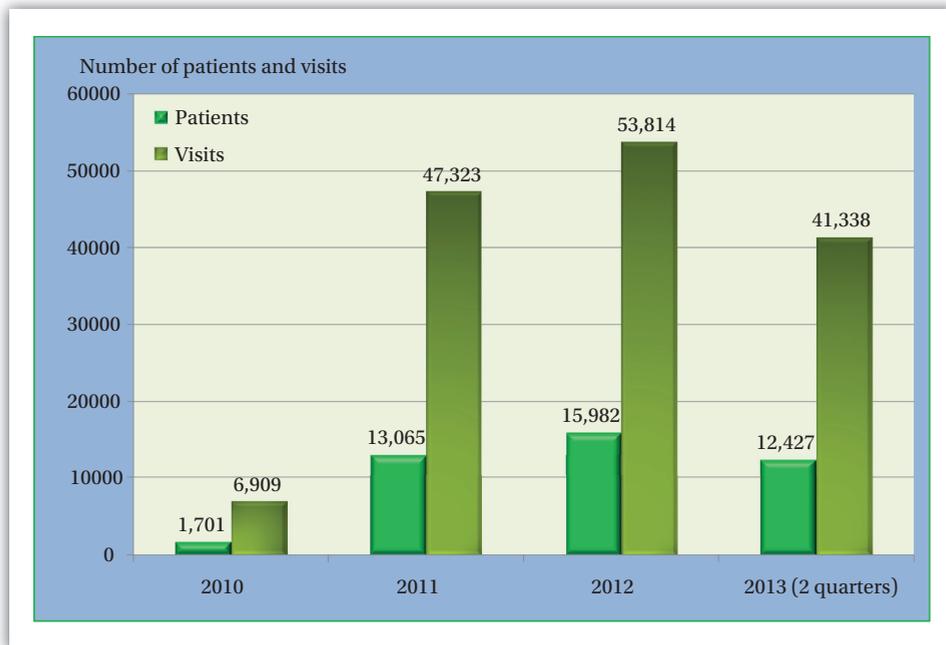
Source: NHSO – OP Individual Database, TTM Programme, and e-claim Programme, as of November 2012.

and Roi Et) even though both regions had about the same number of UCS beneficiaries of 3.59 million and 3.81 million, respectively.

Besides, the rates of Thai massage visits were rather low, less than 10 per 1,000 UCS population, in Region 13 (Bangkok), Region 4 (Saraburi), Region 11 (Surat Thani), and Region 6 (Rayong).

Therefore, an analysis should be undertaken to identify the causes of low Thai massage utilization in such regions, particularly in Bangkok, under the UCS service system; why the beneficiaries cannot get access to Thai massage. This is to make the services accessible to such people.

Figure 3.6 Number of postpartum women receiving health rehabilitation services, fiscal years 2010–2012



Sources: For 2010–2011, TTM Programme; for 2012–2013, OP/PP Individual Database.

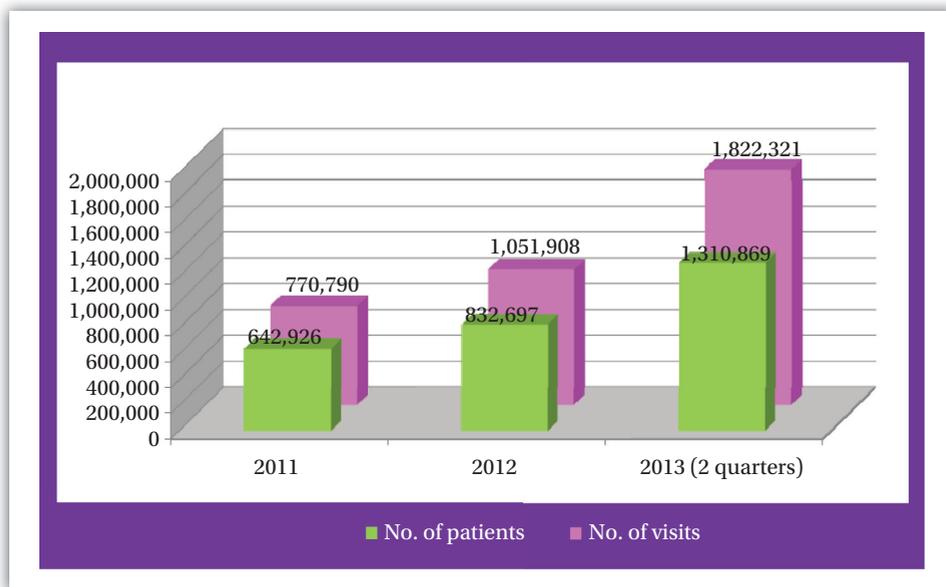
2. Access to health rehabilitation services of postpartum women

It was found that the number of postpartum rehabilitation recipients increased from 1,701 (6,909 visits) in 2010 to 15,982 (53,814 visits) in 2012 with a rising trend for 2013.

3. Access to herbal drugs in the National List of Essential Medicines

Since 2011, when the expenses for NLEM herbal drugs began to be reimbursable, the quantities of such herbal drug use have risen as follows:

Figure 3.7 Numbers of patients and visits with prescriptions of NLEM herbal drugs, 2011-2013

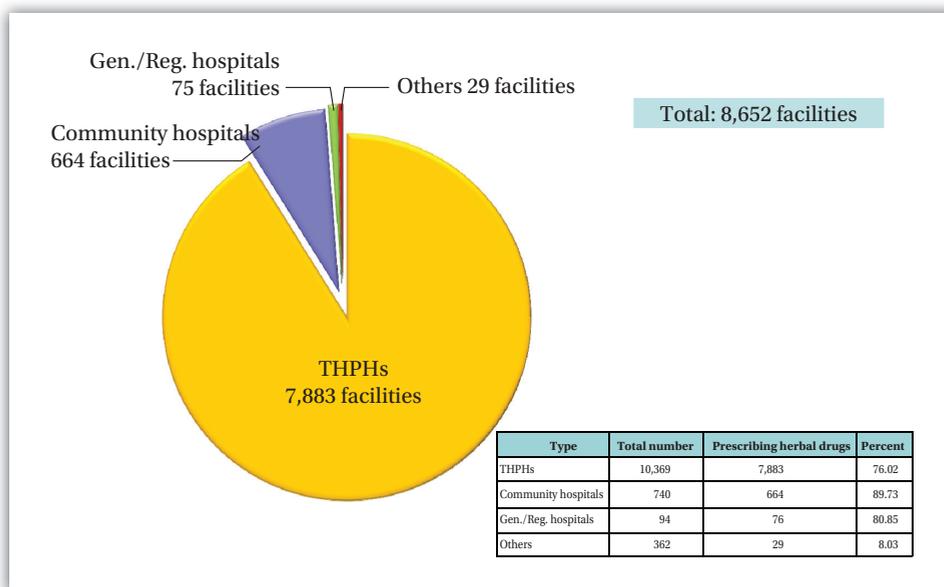


Source: OP/PP Individual Database.

Regarding the values of NLEM herbal drug use, please see Chapter 4, Herbal drug system and the use of Thai medicines.

Among 8,652 health facilities of the three levels of care, the proportions of *tambon* health promoting hospitals, community hospitals and provincial/regional hospitals that prescribed NLEM herbal drugs in 2012 were close to each other; however, the highest was noted for community hospitals (89.7% of all community hospitals).

Figure 3.8 Number of health facilities prescribing herbal drugs by type of facilities, fiscal year 2012



Source: NHSO - OP Individual Database, TTM Programme, and e-claim Programme, August 2012 (excluding those under BMA).

3.4 Expenditure and budget for TTM services

A. Social Security Scheme

Under the SSS, there is no system for reporting TTM services rendered by health facilities as it is considered to be up to each of them to provide such services. And there is no policy or measure to support and promote such services. This is different from those under the CSMBS and the UCS.

A comparison of health-care benefits when ill for insured persons or beneficiaries in 2011, the number of SSS beneficiaries being twofold of that for the CSMBS (10.5 million under the SSS, compared with 5 million under the CSMBS), showed that the SSS health-care and childbirth benefits amount was about half (57%) of that for civil servants (30,676 million baht under the SSS, compared with 53,801 million baht under the CSMBS).

Table 3.13 Health-care benefits for SSS beneficiaries, 2007-2011

Year	Beneficiaries and health-care benefits	Type of health-care benefits		
		Illness	Childbirth	Disability
2007	No. of beneficiaries	26,935,417	282,199	5,318
	Health-care benefits (million baht)	17,083.06	5,539.52	240.79
2008	No. of beneficiaries	28,467,919	295,455	5,766
	Health-care benefits (million baht)	18,528.15	5,746.14	262.86
2009	No. of beneficiaries	28,984,350	291,966	6,148
	Health-care benefits (million baht)	22,471.87	5,746.90	277.27
2010	No. of beneficiaries	29,802,623	282,277	6,760
	Health-care benefits (million baht)	23,418.22	5,594.85	304.59
2011	No. of beneficiaries	30,981,222	291,376	7,318
	Health-care benefits (million baht)	24,517.14	6,159.45	341.11

Source: Social Security Office, 2012.

Note: For 2013, the exchange rate is approximately 32 baht per U.S. dollar.

B. Civil Servant Medical Service Scheme

In the report of the Central Office for Healthcare Information for fiscal years 2003 through 2012, TTM service expenses were included in the traditional Chinese medicine (TCM) expenses (reimbursement for acupuncture fees is allowed by the Comptroller General's Department).

Thus, there are no accurate data on TTM spending even though the TCM spending is less.

In terms of medical care expenditure, the total amount for 2010 was 55,125.5 million baht including 121.3 million baht for TTM and acupuncture services, or 0.22% of the total expenditure, while the physiotherapy cost was 351.7 million baht or 0.64% of the total spending. However, the value of TTM services for outpatients in 2008 was lower than reality compared with that for 2009 and 2010 as the data were available only for September and there was no expenditure report for 2011 and 2012.

In summary, the proportion of expenditure for TTM (including acupuncture) services was very low compared with that for modern medical care. There has been no increase in the outpatient TTM service budget, but there was a decrease in the budget for inpatient TTM services despite the rapid rise in overall medical care cost.

Table 3.14 Health expenditure for civil servants: outpatient services, 2008–2012

Type of services	Expenditure (million baht)				
	2008	2009	2010	2011	2012
Acupuncture and other medical services	8.4	112.4	113.0	0.0	0.0
Physiotherapy	19.7	250.9	287.5	344.5	383.3
Total	2,922.1	37,840.0	39,361.8	37,826.2	38,000.2

Note: For 2008, the data for September only; but no data for 2011 and 2012.

Source: Central Office for Healthcare Information, 2013.

Table 3.15 Health expenditure of civil servants: inpatient services, 2003–2012

Year	Expenditure by type of services (million baht)		
	Acupuncture and other medical services	Physiotherapy	Total
2003	14.45	38.22	10,782.79
2004	19.01	41.56	11,648.71
2005	24.45	55.23	13,517.47
2006	21.12	62.39	14,970.72
2007	13.42	69.59	15,400.01
2008	8.56	59.87	15,255.21
2009	9.32	58.02	15,459.07
2010	8.27	64.22	15,763.69
2011	8.17	67.67	15,974.81
2012	6.36	76.82	16,292.34

Source: Central Office for Healthcare Information, 2013.

C. Universal Health Coverage Scheme

In 2007, the NHSO set up the TTM Fund to pay CUPs for TTM services provided to its beneficiaries, especially for massage services to relieve pain and help rehabilitate the patients with paresis and paralysis.

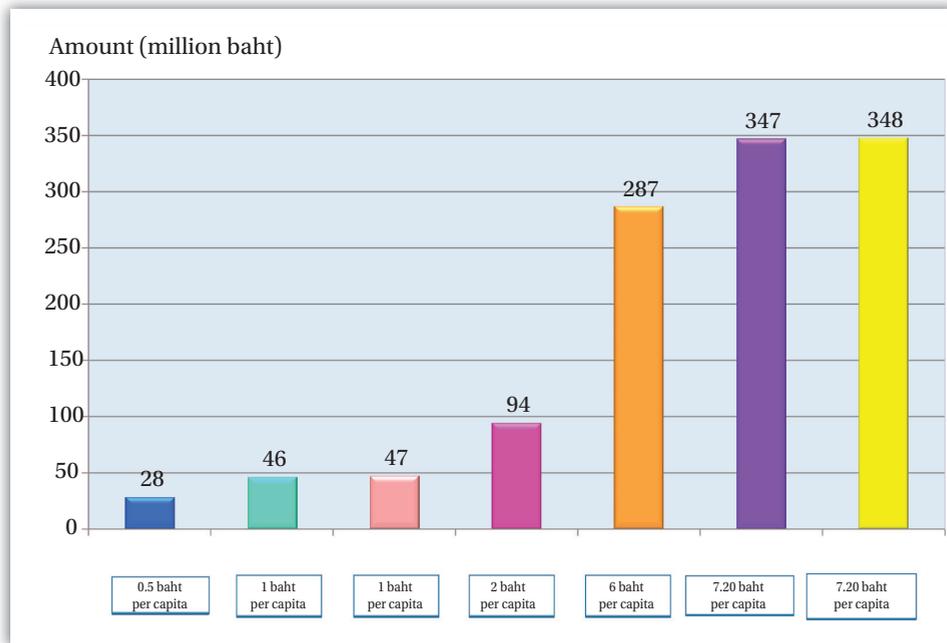
Later on in 2010, the TTM Fund began to allocate an additional budget for health promoting massage for postpartum women.

In 2011, the TTM Fund began to also allocate an additional budget to pay for NLEM herbal drugs.

The budget for the TTM Fund was initially 0.50 baht per capita in 2007 and rose to 7.20 baht in 2013.



Figure 3.9 The budget of the TTM Fund, 2007-2013



Source: National Health Security Office, 2013.

Herbal Drug System and Thai Traditional Drug Utilization

4.1 Policy on promotion and production of herbal drugs

1) The 11th National Economic and Social Development Plan (2012–2016)

During the period of the 11th National Plan, Thailand is faced with rapid and complex internal and external changes, and it is necessary to speed up the strengthening of the people's capacity as well as the country's social and economic systems to appropriately respond to such changes and further move forward. The aim is to create a green and happy Thai society with Thai people's continuous learning capacity, well-being, good morality, appropriate economic growth and good quality environmental condition. This is in accordance with the Plan's second strategy dealing with the reduction of health risks in a holistic manner and the promotion of Thais' physical and mental well-being, healthy public policy process participation, health-care system development, alternative medicine promotion, life-long learning, and social institution's empowerment.

2) The 11th National Health Development Plan (2012–2016)

The 11th Health Plan focuses on development efforts using the Sufficiency Economy Philosophy, creating unity and good governance in the health system, giving importance to multisectoral collaboration, universal health coverage scheme (UCS) with broad and equitable services, empowerment of the people, local communities, and partners in health promotion as well as disease prevention, control and monitoring, using a proactive and efficient health system which involves four development strategies. In this regard, Strategy 1 deals with strengthening the capacity for health promotion, disease prevention, international cooperation (at the international, regional, and border levels), and knowledge management of Thai traditional medicine (TTM), indigenous medicine (IM) and alternative medicine (AM) to ensure quality, standards and safety in traditional medical care, and to enhance the acceptability and use for self-reliance in health.

3) The 2nd National Strategic Plan for Thai Wisdom and Thai Healthy Lifestyle Development, 2012–2016

The 2nd National Strategic Plan continues to conserve the intent of the 1st Strategic Plan, but more emphasis is placed on popular sector and local community involvement. The Plan contains six major strategies, namely: (1) knowledge creation and management, (2) community health and health-care system development, (3) workforce development, (4) development of herbal drug system and herbal products, and (5) development of systems and mechanisms for TTM wisdom or knowledge protection. The targets related to herbal development are as follows:

1) The wisdom, knowledge and rationality are used in the development of technical capacity and body of knowledge based on the original knowledge base to ensure maximum benefit, worthiness, effectiveness or efficacy, and safety.

2) The TTM/AM service systems meet the established service standards with regard to knowledge, premises, personnel, clinical practices, information system, drug system, and all UCS benefit packages.

3) The national drug system is secure with the use of herbal drugs, whose items accounting for at least 10% of all drug items in the National List of Essential Medicines (NLEM).

4) The TTM wisdom is protected at the local up to the national and international levels.

4) The Statute on National Health System

According to the National Health Act B.E. 2550 (A.D. 2007), the National Health Commission (NHC) was established with the duties and powers to draw up a Statute on National Health System for use as a framework and guide for setting policies, strategies and operational procedures of health programmes of the country. Section 56 under Chapter 7 of the Statute on National Health System of 2009 prescribes that the number of herbal drug items in the NLEM should be at least 10% of all drug items. And at the 2nd National Health Assembly, the panel on TTM/IM/AM resolved that the delivery of TTM/IM/AM services should be accelerated in parallel with modern medical care in all public and private health facilities, whose TTM/IM/AM expenses should be covered by the UCS funding. Such services should also be made available at *tambon* health promoting hospitals (THPHs) through community participation and with a suitable referral system. The operational guidelines are as follows:

1) Accelerate the setting up of a mechanism to conduct a feasibility study of passing a law related to herbal medicines to promote herbal drug use.

2) Draw up an action plan and allocate the budget for developing national herbal drug formulas so as to have at least 100 formulas within 3 years.



3) Coordinate with the National Drug System Development Committee to consider including at least 20 herbal drugs in the NLEM within 3 years.

4.2 Policy on TTM of the National Health Security Office (NHSO)

According to Section 3 of the National Health Security Act of 2002, the health services for the UCS beneficiaries also cover Thai traditional and alternative medicine, but the service availability or accessibility was then rather low. Thus, in 2007 the NHSO set up the TTM System Development Fund (TTM Fund) to allocate additional budget to cover TTM service fees. This additional funding of 0.50 baht per each eligible person, a separate amount from the capitation budget, is regarded as a monetary incentive for the service providers.

In 2011, the TTM service budget was increased to 6 baht per eligible person, of which 4.50 baht was specifically earmarked for Thai massage services for pain, paresis, paralysis, and postpartum rehabilitation and the other 1.50 baht for herbal drug use promotion. That was an important turning point that has made state health facilities become interested in using more herbal drugs.

In 2013, the TTM service funding per capita was raised to 7.20 baht, divided into two parts: the first part, 6.85 baht per eligible person for therapeutic and rehabilitative TTM services including Thai massage, steam baht, herbal compress, postpartum massage, and herbal medications at health facilities as well as in the communities, and the other part, 0.35 baht per eligible person, for TTM service support and promotion as well as provincial mechanisms for TTM service development.

4.3 Coding of Thai traditional drugs

To promote systematic drug use, the integration into the MoPH's health information system and effective database linkages, the Thai traditional drug coding system was introduced in 2010, each drug code having a 24-digit number.

4.4 Selection of herbal drugs for use in the health-care system

The important tool for promoting drug use in the Thai health system is the National List of Essential Medicines, initiated in 1999 by the NLEM Development Working Group. It was then deemed that a list of herbal medicinal products (herbal drugs) should be drawn up, including original and newly developed drug formulas for inclusion in the NLEM to promote self-reliance in drugs, make TTM more acceptable to the public, raise the standards of Thai herbal drugs, and encourage research and development in this regard. Later, the NLEM of 2006 was released, based on a similar principle, i.e. revival and promotion of the use of Thai traditional medicine wisdom and medicinal plants in the national health system.

In preparing that NLEM version, the focus was on the selection of herbal drugs with clear indications for use in resolving health problems (preventing and curing diseases) of the Thai people in combination with the use of Western treatment procedures in health facilities and primary health care. The use of such drugs had to be based on their quality, efficacy and safety. The most recent drug list is the NLEM's List of Herbal Medicinal Products A.D. 2012, prepared according to a different philosophy, i.e. to promote the herbal drug use system, local wisdom or knowledge about health, Thai traditional medicine, indigenous medicine and alternative medicine so that it is a mechanism for TTM promotion in parallel with that



of modern medicine in the health-care system. This is for the people to choose and access various medical service systems in an equitable manner according to the sufficiency economy philosophy.

Even though there are differences in the preparation of the new list, the criteria for drug selection are still similar, emphasizing the existing evidence of efficacy, quality and safety of the drugs.

1) Criteria for selecting herbal drugs for inclusion in the current NLEM's List of Herbal Medicinal Products of 2012

1) Standard criteria

The selection criteria for all items of herbal drugs (Thai drugs or medicines, Thai traditional drugs and herb-derived drugs), registered with the Thai Food and Drug Administration (Thai FDA) or those produced for use in hospitals as per the Thai Hospital Herbal Formulary are as follows:

(1.1) The drug selection must be based on the needs primarily for preventing diseases and resolving health problems of the country.

(1.2) The herbal drug (to be selected) must be safe and of acceptable standards with clear indications, ingredients as per the specified formula, and the approval of drug registration from the Thai FDA (except for the drug that is exempted as per the provisions of the Drug Act such as hospital formulary drugs or those under other relevant laws).

(1.3) The drug has been produced according to the good manufacturing practice (GMP) for traditional medicine or other requirements of the Thai FDA, passed the quality control mechanism such as the analyses for pathogenic microbial contamination, heavy metals, weight variation, disintegration time, and a label showing its manufacturing and expiry dates.

(1.4) For a raw herbal material, it must have been selected according to the TTM knowledge or the drug formula stated in the Minister's announcement or equivalent, or meet the requirements of the raw material and the formula specified in the Thai Pharmacopoeia (TP), and/or the Thai Herbal Pharmacopoeia (THP). Relevant agencies must have mechanisms and procedures for developing herb-derived drugs to meet the acceptable quality and standard requirements.

(1.5) For the drug with a modified dosage form and manufacturing process, its indications must have the evidence of the use of its original formula and dosage form development to ensure its indications and stability as well as the results of its acute toxicity test, sub-chronic toxicity test or chronic toxicity study as appropriate as per WHO's requirements as well as a clinical trial.

(1.6) In case of a herbal drug whose properties meet the inclusion requirements, but there is no registration of the drug formula, the drug is to be included in the NLEM and proposed as an orphan drug; and the information will be used for setting policy and strategy for resolving the problem of drug's accessibility.

(1.7) In case a drug is used for any indication beyond those approved in the drug registration record or off-label indication, but there is more technical information or necessity to use it with patients, to protect the patient's access to such a drug and to set the practice standard, the TTM and applied TTM practitioner can ask his/her health facility to select the drug as per the following criteria:

- a) Ask for the Thai FDA's help in requesting the drug operator to get the drug registered properly using the new indication;
- b) In case the action stated in item a) above cannot be taken, or the action is still being taken, the Subcommittee on NLEM Development has set the following criteria for considering the indication that is not in the drug registration record:

(1) having clear evidence supporting the indication or benefit of the drug, and

(2) having indication acceptable to TTM or applied TTM practitioners at the health facility; although the drug is not registered in Thailand, its use is approved by the Subcommittee on NLEM Development.

c) Ask for Thai FDA's help in closely monitoring the use of the drug.

2) Specific criteria

2.1) For the herbal drugs whose drug formulas have been registered, they are divided into two groups, each with specific criteria as follows:

Group A. Thai drugs or Thai traditional drugs are herbal drugs that have been used according to traditional knowledge or Thai traditional textbooks and applied Thai traditional drugs or drug preparations using the TTM or Thai pharmaceutical principles. The drug selection criteria are as follows:

1) For each of such drugs, there must be the information about contraindications, warnings, precautions, and side effects due to drug use, based on TTM textbooks and original knowledge, drug use experience, or any other scientific evidence related to drug safety or toxicity of the drug's main ingredients.

2) The drug has been used widely in humans since ancient times with the efficacy as per the medicinal properties specified in the textbooks announced by the Minister such as the Textbook of Medicine (*Tamra Phaetsart Songkroh*), Thai pharmacopoeia and Thai herbal pharmacopoeia, or other country's pharmacopoeia announced by the Minister.

3) The drug has suitable ingredients and indications with an oral dosage and dosage strength as per the specified limit.

Group B. Herb-derived drugs are modern herbal drugs or herb-derived drugs including single and combined preparations. The drug selection criteria are as follows:

- 1) There must be the evidence of drug safety for human use.
- 2) The herb-derived drug has efficacy as per the medicinal properties (specified in the Thai pharmacopoeia and other country's pharmacopoeia) and the information about raw material specifications, drug formula, GMP-certified manufacturing process, specifications of finished product, and acceptable scientific evidence of drug safety.
- 3) The health facility (using the drug) must set up a drug safety monitoring system to follow up on the adverse drug reactions in patients; any adverse reaction that occurs must be closely monitored and reported urgently to the Subcommittee on NLEM Development for action as appropriate.

2.2) For herbal drugs produced for use in hospitals as per Hospital Herbal Formulary:

- 1) The herbal drugs selected for inclusion in the “Hospital Herbal Formulary” must have the formulas that are safe and efficacious and the quality assurance system to ensure that the essential herbal drugs are adequate to meet the people’s health-care needs or to replace modern drugs, for self-reliance purposes at the community and national levels. The drugs are mostly produced by state hospitals (for use in disease prevention or curative care), especially those with the potential and readiness regarding personnel, premises, tools, equipment and technology, production process, and quality assurance in accordance with the GMP for herbal drug production in hospitals. To ensure drug’s safety, efficacy and quality, the drug formulas must be those primarily using local raw herbal materials to support the community’s herb growing efforts using organic or pesticide-free agriculture for safety from pesticide and environmental balance purposes. And the formulas must have the references regarding their therapeutic



outcomes, properties, dosage forms, strengths, dosages, contraindications, and precautions stated in the traditional medicine textbooks and any other reliable technical documents. The drug selection criteria are as follows:

a) The herbal drug formula must be the one contained in the traditional Thai pharmacopoeia (the pharmacopoeia announced by the Minister or the MoPH); or

b) The herbal drug formula must have research-proven results or been used for a long time in the community or technical evidence from documentary review of the Thai pharmacopoeia, technical reports, research or experimental results from within or outside the country; or

c) For the herbal drug formula, there must be the information on its use with at least 1,000 patients; or

d) The herbal drug formula is the one produced and used in a Thai hospital for at least 10 years.

2) The herb-derived drug formula must have clearly specified ingredients, properties, dosage and contraindications or precautions.

3) The health facility (using the drug) must set up a drug safety monitoring system to follow up on the adverse drug reactions in patients; and any adverse reaction that occurs must be closely monitored and reported urgently to the Subcommittee on NLEM Development for action as appropriate.

2) Drug quality assurance

The Thai FDA and the Department of Medical Sciences as well as other relevant agencies must have measures in place to monitor, inspect and evaluate the quality of the NLEM herbal drugs as per the specified standards on an annual basis. And the herbal drug quality promotion measures should include the dissemination of TTM and herbal knowledge for all branches of health-care practitioners and the organizing of campaigns

on high-quality herbal drug production such as a standard products contest and training on good manufacturing processes. As of March 2010, 15 herbal drug manufacturers had received an ASEAN GMP certificate and, as of December 2010, 27 traditional drug manufacturers had received a Thai GMP certificate (Thai GMP standards, 2005).

In general, many hospitals prepare drugs in various forms for their own use. Thus, it is not difficult or impossible for them to prepare herbal drugs as many of such drugs are included in the NLEM. So the hospitals should prepare or produce herbal drugs according to the GMP requirements.

The quality issues that should be focused on are, for example, the analyses of quality markers, pathogenic microbial contamination, heavy metal contamination, and drug stability.

3) Drug safety

For new herbal or Thai traditional drugs or those with new indications or new dosage forms in the NLEM, there must be a health product monitoring or vigilance system. For such a purpose, the Thai FDA's Health Product Vigilance Centre (HPVC) has developed the guidelines for creating confidence among drug consumers and systematically compiled the information about herbal drug safety.

As for NLEM herbal drugs, there must be a system for voluntarily reporting the adverse drug reactions to the HPVC, which submits a monthly summary report on adverse drug reactions from NLEM herbal drug use (based on NLEM, 2012) to the Thai FDA.



4) List of Herbal Medicinal Products in the National List of Essential Medicines of 2012

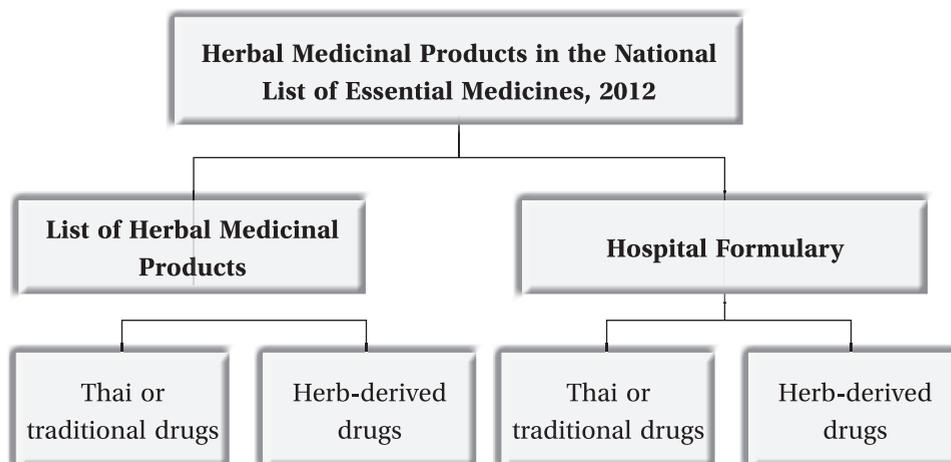
Herbal drugs or herbal medicinal products are divided into two categories according to the herbal drug selection criteria, namely herbal drugs according to the list of herbal drugs (with registered drug formulas) and herbals under the hospital formulary; but according to the drug forms, there are two categories, namely Thai or traditional drugs and herb-derived drugs.

(1) **Thai drugs or Thai traditional drugs**, 50 items, including:

1.1) Drugs for treating circulatory symptoms (*kae-lom*):

yahom-thip-osot, yahom-theppajit and yahom-nawakoat, yahom for syncope/fainting, *yahom-inthajak*.

Figure 4.1 Categorical structure of herbal drugs in the National List of Essential Medicines, 2012



1.2) Drugs for treating gastrointestinal symptoms:

- ☼ Drugs for relieving flatulence or abdominal distension: *ya-thart-banjob, ya-thart-obchoei, ya-benjakul, ya-prasakaprao, ya-prasakanplu, ya-prasa-jetpangki, ya-mantha-thart, ya-mahajak-yai, ya-wisampaya-yai, ya-apai-sali.*

- ☼ Drugs for relieving constipation: Epsom salt, *ya-thorani-santhakart.*

- ☼ Drugs for relieving diarrhea: *yalueang-pidsamut.*

- ☼ Drugs for relieving hemorrhoid: *ya-petsangkart, ya-ritsiduangmahakan.*

1.3) Drugs for treating obstetric and gynecological symptoms:

ya-prasa-phlai, ya-pluk-faithart, ya-fai-pralaikan, ya-fai-ha-kong, ya-luead-ngam, ya-satri-langklod.

1.4) Drugs for treating fever:

ya-khiao-hom, ya-janlila, ya-prasa-jandaeng, ya-prasa-proh-yai, ya-mahanin-thaengthong, ya-ha-rahk.

1.5) Drugs for treating respiratory symptoms:

- ☼ Drugs for cough relief: cough mixture with clove, cough mixture with *ma-khampom*, cough mixture with pickled lime, *Isan* indigenous cough mixture, *ya-prasa-mawaeng, ya-ammarrueka-wathi.*

- ☼ Drug for relieving cold: *ya-prap-chompu-thawip.*

1.6) Blood tonic.

1.7) Drugs for treating musculoskeletal symptoms:

- ☼ Oral drugs: *ya-kasaisen, ya-kaelom-ammarruek, ya-thorani-santhakart, ya-pasom-ko-klan, ya-pasom-thaowanpriang, ya-sahastara.*

- ☼ External use drugs: *phlai* balm (*ya-khipueng-phlai*), herbal compress.

1.8) Herbal tonics (*ya-bamrung-thart, ya-prapthart*):

ya-kesonmat, ya-tri-pikat, ya-benjakul, ya-plukfaithart.

(2) Herb-derived drugs, 21 items

2.1) Drugs for treating gastrointestinal symptoms:

✿ Anti-flatulent drugs: turmeric drug (*ya-khamin*), ginger drug (*ya-khing*).

✿ Laxatives: *chumhedthet* drug, senna drug (*ya-makhamkhaek*).

✿ Anti-diarrhoeal drugs: banana drug (*ya-kluai*), *fa-thalai-jon* drug.

✿ Drugs for peptic ulcer: banana drug.

✿ Anti-emetics: ginger drug.

2.2) Drugs for treating respiratory symptoms: *fa-thalai-jon* drug.

2.3) Drugs for treating skin symptoms: *thongphanchang* tincture, betel tincture, Asiatic pennywort drug (*ya-bua-bok*), mangosteen shell drug, *phaya-yor* drug.

2.4) Drugs for treating musculoskeletal symptoms:

✿ Oral drug: *thaowanpriang* drug.

✿ External use drugs: chilli drug, *phlai* drug, *phlai* oil drug.

2.5) Drugs for treating urinary tract symptoms: red roselle, cat's whisker drug (*ya-ya-nuat-maeo*)

✿ Antipyretics and anti-internal heat drugs: Asiatic pennywort drug (*ya-bua-bok*), wild bitter gourd drug (*ya-mara-khi-nok*), thunbergia drug (*ya-rangjued*), drug *Murdannia loriformis* (angel grass or *ya-pakking* drug).

✿ Antidote to toxic substances: *ya-rangjued* (*Thunbergia aurifolia*)

✿ Smoking cessation drug: little iron weed or *ya-dokkhae* drug (*Vernonia cinerea*)

4.5 Herbal drug production

1) Production quantities and values

Thai traditional and herbal drug producing units in the public sector are the Government Pharmaceutical Organization (GPO) and more than 80 community and general hospitals, mostly producing such drugs for their own use. Most of the drugs are single herbal preparations such as turmeric, senna, *fa-thalai-jon* and *thaowanpriang* capsules and very few are combined formulas or preparations in the National List of Essential Medicines. Regarding private sector manufacturing, according to the Thai FDA, the number of manufacturers (family to industrial scale) rose to 1,085 in 2012 – a 40.9% increase compared with that for the year 2000. The values of traditional drugs also rose to 3,146.7 million baht in 2010 – a 365% increase over the past 10 years (Tables 4.1 and 4.2).



Table 4.1 Number of Thai traditional drug manufacturers, 2000–2012

Year	No. of manufacturers
2000	770
2001	831
2002	883
2003	903
2004	912
2005	879
2006	947
2007	996
2008	1,013
2009	973
2010	1,004
2011	1,117
2012	1,085

Source: Division of Drug Control, Food and Drug Administration, MoPH.

Table 4.2 Values or ex-factory prices of Thai traditional drugs, 2000–2010

Year	Ex-factory prices of traditional drugs (million baht)		
	Drugs for human use	Drugs for animal use	Total
2000	675.337	1.34	676.676
2001	736.906	1.609	738.515
2002	868.883	1.495	870.378
2003	1,203.390	1.705	1,205.096
2004	1,388.669	3.376	1,392.046
2005	1,484.838	2.802	1,487.641
2006	2,197.26	3.432	2,200.723
2007	2,183.97	4.39	2,188.12
2008	2,543.15	4.15	2,547.30
2009	2,799.29	4.86	2,804.15
2010	3,139.87	6.86	3,146.73

Source: Division of Drug Control, Food and Drug Administration, MoPH.

2) Industries with GMP certification

The Good Manufacturing Practice (GMP) for herbal drug production was issued in the year 2000 for improving the manufacturing process and creating confidence in the industrial process. This is to minimize the errors that might occur in the manufacturing process and ensure that the products are of good quality according to the established standards. If there is any error, the inspection and correction can be undertaken rapidly. To date, of all 988 traditional drug manufacturers, only 25 (2.5%) are GMP-certified (according to the Thai FDA, MoPH).

According to the strengths, weaknesses, opportunities, and threats (SWOT) analysis of Thai traditional and herbal drug industries, conducted by Assoc. Prof. Dr. Noppamas Soonthornchareonnon and colleagues of

the Faculty of Pharmacy, Mahidol University, in 2006, not meeting the GMP requirements is a threat to the Thai traditional and herbal drug manufacturers. That is because most of them are small and family-run businesses, using obsolete machinery, having no research and development capacity, and lacking the budget for improving towards achieving the GMP standards. In addition, there is no agency directly responsible for promoting and developing the Thai traditional drug industry, resulting in the lack of incentives for improvement to meet the established standards.

In creating and managing the knowledge for the development of Thai traditional and herbal drug industries, measures that might be taken according to their capacity are as follows:

For the drug industries that have been GMP certified, such industries are regarded as having had acceptable manufacturing standards and further development is needed for them to be certified as a plant with good laboratory practice (GLP). Then their products will have good physical characteristics and a quality control system is to be set up for raw materials to ensure cleanliness and acceptable amounts of active ingredients. This is linked to the systematic management of raw materials such as good agricultural practice (GAP), good agricultural and collection practice (GACP), or organic agriculture standards. Finally, the development effort is to be made to adopt the good clinical practice (GCP) principles as a proof that the product is safe and efficacious for human use.

For the drug industries that have not been GMP certified but have development potential, according to the 2006 statistics, 1-2% of the traditional drug industries are of medium to large size and have been expanded from the old ones. Thus, it is difficult to enforce the GMP requirements as it will cost a lot of money and they lack the understanding. So, state agencies concerned have to play a role in the knowledge management by creating a technical support group to give advice to the business operators. Such a group may comprise experts in various fields,



some factory owners with GMP experience, and engineers knowledgeable about machinery for producing herbal drugs.

For the drug industries that have not been GMP certified and have low development potential, they include small-scale family-run industries; and it is hard to follow the GMP requirements as they need a lot of investment. The industries have normally been passed on from generation to generation for a long time, using the drug formulas with proven efficacy. If the government enforces the “GMP regulations” for herbal drugs, it will be a destruction of the old production system and some of the drug formulas might be lost. To resolve this problem, such industries may hire a GMP-certified industry or a hospital that has been producing herbal drugs to produce the drugs of such formulas for them. This can be done through a joint knowledge management process, in terms of both production process and raw material management with the assistance of a knowledge-management organization dealing with moving towards the GMP certification.

For the industries whose production standards cannot be improved, the sale/distribution or use of their products has to be limited only to within their own community or locality.

4.6 Herbal drug distribution in Thai society

The distribution channels of herbal drugs to consumers are as follows:

1) Distribution through traditional and modern drugstores with a licensed practitioner. According to the Drug Control Division of the Thai FDA, nationwide there are 1,382 licences for selling traditional drugs and 8,822 licences for selling modern drugs.

2) Distribution through general shops. The drugs that can be sold at any shops are household drugs or remedies according to the MoPH's Notification on Household Remedies B.E. 2556 (2013). Such drugs include anti-flatulent drugs, laxatives, anti-diarrhoeal drugs, antipyretics, anti-internal heat drugs, chickenpox remedies, anti-fainting drugs, cough remedies, expectorants, *ka-sai-sen* drugs or analgesics (both oral and external use), haemorrhoid remedies, anthelmintics, skin allergy remedies (both oral and external use), Whitfield's ointment, scabies remedies, abscess/wound remedies, burn remedies, insect-bite remedies, sore-throat remedies, and coated tongue remedies.

In addition, many traditional drugs have been classified as household remedies, namely *ya-prasa-kaprao*, *ya-wisampaya-yai*, *ya-prasa-kanplu*, *ya-saengmuek*, *ya-mantha-thart*, *ya-prasa-jetpangki*, *ya-mahajak-yai*, *ya-tri-hom*, *ya-thorani-santhakart*, *laxatives*, *ya-lueang-pidsamut*, *ya-thart-banjop*, *ya-janlila*, *ya-prasa-jandaeng*, *ya-khiao-hom*, *ya-mahanil-thaengthong*, *ya-hom-theppajit*, *ya-hom-thip-osoth*, *ya-hom-nawakoat*, *ya-ammarueka-wathi*, *ya-prasa-mawaeng*, *ya-prasa-phlai*, and *ya-prasa-proh-yai*.

3) Distribution through health facilities at various levels

• **Distribution through state health facilities providing TTM services**, including 1,932 hospitals and subdistrict health centres (*tambon* health promoting hospitals or THPHs) throughout the country (Strategic Information Centre, DTAM, 14 June 2008). Some of such facilities produce traditional drugs for internal use and sale to other health facilities.

In 2013, the NHSO has issued a policy on promoting herbal drug distribution at THPHs with TTM services using larger amounts of five basic herbal drugs. The coverage targets for 2012 and 2013 are 50% and 70% of all THPHs, respectively; and the quantities of herbal drugs used in 2013 are expected to rise by 10% compared with that for 2012.

• Distribution through private TTM facilities such as private hospitals and TTM clinics.

4.7 Thai traditional/herbal drug utilization and herbal drug prescription under the UCS

1) Thai traditional/herbal drug utilization

According to DTAM's Strategic Information Centre, as of 14 June 2008, based on the completed questionnaires returned from health facilities, 19,060 prescriptions of NLEM and non-NLEM herbal drugs were given at state health facilities over the six-month period from February through September 2007, worth at least 104 million baht.

Of all the prescriptions, at least 15,207 were for herbal drugs in the NLEM, worth at least 35.5 million baht; and at least 3,853 were for non-NLEM herbal drugs, worth at least 68.5 million baht.

It is noteworthy that the value of non-NLEM herbal drugs was higher than that for NLEM herbal drugs, probably due to the fact that there were only 13 herbal drug items in the NLEM, which did not cover many groups of disease symptoms. That was consistent with the data from the Integration of TTM into Modern Health Service System Project in 2006, whose survey on drug use at 333 provincial health facilities showed that they used 65 non-NLEM drug formulas, the number being higher than that for NLEM drug formulas by 52.

And according to a study on situation and obstacles related to herbal drug use in state hospitals, based on the completed questionnaires received from 139 out of 538 MoPH hospitals (a 25.8% response rate), on average the hospitals had only 16.06 herbal drug items, of which 4.15 items were single herb capsules, followed by 3.55 items of herbal drugs for external use, and 2.14 items of herbal tea.

In the hospitals using herbal drugs to replace modern drugs, all (100%) of such hospitals had an average of only 1.27 herbal drug items; and 76.9% of them partially used herbal drugs to replace modern drugs with an average of 3.46 drug items.

In terms of drug values, the average proportion of herbal drug value at hospitals was 2.88% of the total drug value in 2012, a little higher than the 2.55% for 2011. That was actually lower than the 5–10% target set by the MoPH. The herbal drug use trends rose slightly in most (61.5%) of the hospitals, compared with that for 2011.

Even though 79.6% of TTM practitioners have the right to examine/diagnose and prescribe herbal drugs for patients, most or 97.4% of the herbal drug prescriptions were issued by modern physicians and 78.2% were as requested by the patients.

Major obstacles to promoting herbal drug use are the small number of herbal drug items, making them inadequate for use in treating the illnesses and symptoms of the patients, the lack of hospitals' promotion and production measures, and TTM practitioners' having no role in direct patient care (examining, diagnosing and prescribing).

According to DTAM's statistics for 2012, the value of NLEM herbal drug use at state hospitals nationwide was 363 million baht, or 1.82% of the total drug spending. The top three herbal drugs commonly used by the people were curcuma or turmeric drug for the relief of flatulence or upset stomach; *phlai* or *plai* drug for muscle pain, swelling, bruise and sprain; and *fa-thalai-jon* drug for respiratory tract infection, cold and sore throat.

2) Prescription of herbal drugs under the UCS

As all Thai people virtually have access to the Thai health-care system including drugs in the NLEM under the three health insurance schemes, the number of NLEM herbal drug items has risen to 71. But the accurate data on the quantities and drug formulas/names used under the SSS and CSMBS cannot be generated. However, the data on herbal drug use under

the UCS, according to the presentation of Mrs. Orachit Bamrugsakunsawat, director of NHSO's TTM System Development Programme, show the following:

(1) Allocation of the budget for TTM services in 2013. The expenses for NLEM herbal drugs are included in the capitation budget for patient care. But with NHSO's policy on TTM promotion through financial mechanism, an additional budget is provided for TTM services including herbal drugs at 7.20 baht per capita as detailed in Table 4.3, using the payment criteria and rate as shown in Figure 4.2. In this regard, the common criteria for each health facility to practise are as follows:

Having a TTM practitioner at the service unit (TTM practitioner means a person who has completed a degree in TTM and become a licensed TTM/Thai medicine practitioner or a licensed applied TTM practitioner.)

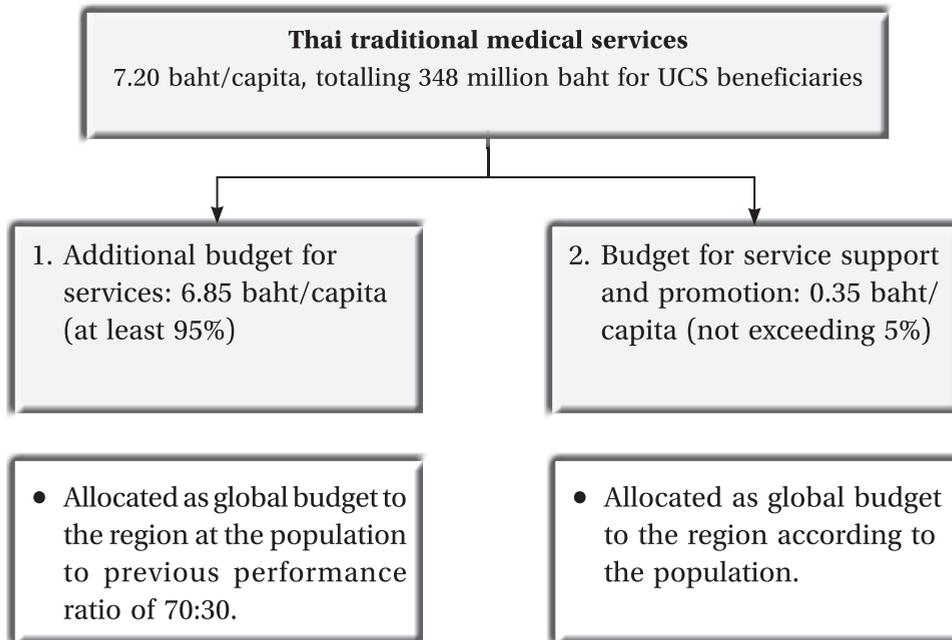
Having a Thai traditional medical clinic at the health facility with a conspicuous signboard for easy access by the people.

Having action plans and network support mechanisms comprising a service plan, an essential resource mobilization plan (covering personnel, herbal drugs, and service budget allocation to primary care units, based on actual performance).

Table 4.3 Criteria, conditions and rates of service fee payment

Part	Criteria	Eligible service units	Conditions	Rate of payment
1	Capacity	Contracted units of primary care (CUPs)	Meeting the common criteria and local criteria.	Not exceeding 200,000 baht/CUP as approved by the Regional Health Security Subcommittee (RHSS).
2	Performance	All service units actually providing TTM services	Meeting the criteria approved by the RHSS.	The rates approved by the RHSS.

Figure 4.2 Diagram of TTM service budget allocation, 2013



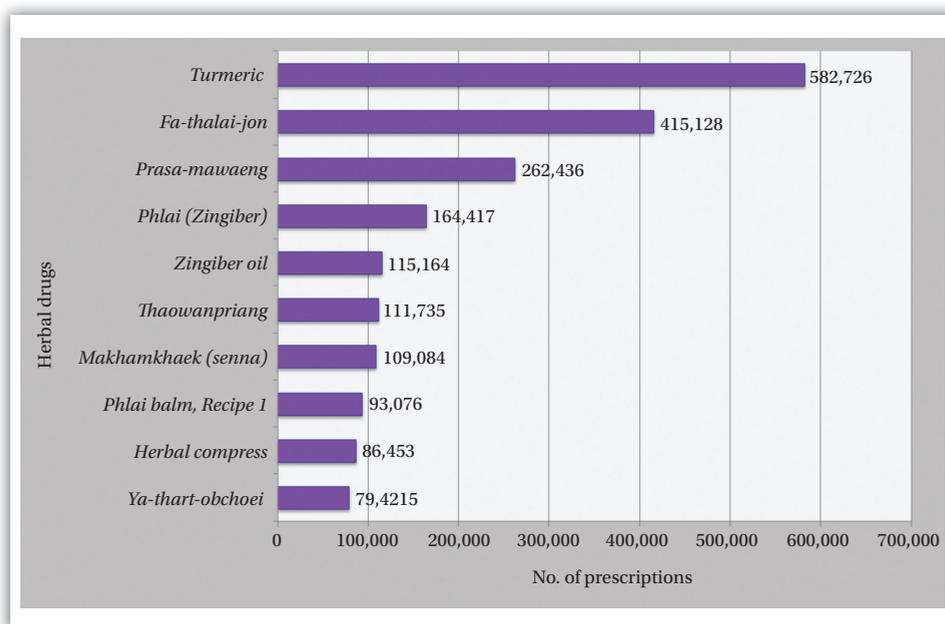
(2) The number of herbal drug items actually prescribed.

In fiscal year 2012, 65 (91.5%) out of 71 herbal drugs were in the NLEM herbal drug list; and 285 items were non-NLEM herbal drugs. The NLEM herbal drugs accounted for 18.6% of all prescribed herbal drug items.

The list of top ten herbal drugs mostly prescribed is shown in Figure 4.3

(3) In fiscal year 2012, as many as 8,185 state health facilities prescribed herbal drugs; the facilities are classified by facility type as shown in Table 4.4.

Figure 4.3 Top ten NLEM herbal drugs mostly prescribed, 2012



Source: NHSO, OP Individual Database, November 2012, excluding BMA facilities.

Table 4.4 Number of health facilities prescribing herbal drugs by type of facilities, fiscal year 2012

Type	Health facilities		
	Total	Prescribing herbal drugs	Percent
Tambon health promoting hospitals	10,369	7,883	76.02
Community hospitals	740	664	89.73
General/regional hospitals	94	76	80.85
Total	362	29	8.03

Situation and Development of Thai Massage

Introduction

Thai massage, or *nuad thai*, has been a way of life of the Thai people since ancient times. To date, the knowledge of this art has been extensively extended but there has been no national strategic direction for Thai massage development to effectively respond to the massage business expansion. In this regard, some businesses have used the Thai massage knowledge inappropriately, resulting in the lowering image of Thai massage and there might be efforts to unknowingly disseminate the Thai massage practices in foreign countries without any development direction or legal measures for knowledge protection. Finally, Thai massage, a valuable Thai heritage, might become an intellectual property of other countries.

Definition of “Thai massage”

(1) According to the Protection and Promotion of Thai Traditional Medicine Wisdom Act B.E. 2542 (1999), Thai massage is an element of Thai traditional medicine (TTM) as defined below:

“Thai traditional medicine” means the medical processes dealing with the examination, diagnosis, therapy, treatment, or prevention of diseases, or promotion and rehabilitation of the health of humans or animals, midwifery, Thai massage, as well as the preparation and production of Thai traditional drugs and the making of devices and instruments for medical purposes. All of these are based on the knowledge or textbooks that were passed on and developed from generation to generation.

(2) According to the “*Thai Traditional Medicine Professions Act B.E. 2556 (2013)*”, Thai massage is more clearly defined as follows:

“Thai massage” means the examination, diagnosis, therapy, treatment, or prevention of diseases, and promotion and rehabilitation of health, using the knowledge and arts of Thai massage, based on the procedures of Thai traditional medicine.

The analysis and review of the situation of Thai massage in relation to Thai massage development for use as a reference and information in knowledge sharing are one of the processes in the knowledge management of Thai massage in a systematic manner, leading to sustainable research and development of Thai massage in the following aspects:

5.1 History

5.2 Regulations, laws, policies, information system and other relevant matters

5.3 Thai massage knowledge development and wisdom protection

5.4 Thai massage standards in the service system and workforce development

5.5 Partnerships and consumer protection

5.6 Linkages with the service business sector and foreign trade

5.7 Thai massage service utilization

5.1 History

Thai massage is the body of knowledge as well as experiences, that has been accumulated, selected and adapted for healing illnesses and health care in the family and community, including the touching, palpation, pressing, and squeezing; the knowledge and practice has been transferred from generation to generation and regarded as the nation's traditional wisdom for more than 700 years until it has crystallized as the principles with a specific identity with clear historical evidence as follows:

During the Sukhothai Period (1220–1438), an inscription on massage prepared during the period was discovered in present-day Khiri Mat district, Sukhothai province; and there is evidence on the names of illnesses that occurred during the period as stated in an ancient book entitled “*Triphum Praruang*, or Three Worlds” that:

“Scabies, leprosy, chloasma (liver spots), wart, node, bump/lump, paralysis, fatigue, eye disease (ta-fu), deafness, infected wounds, weakness, flatulence, abdominal distention, upset stomach, blurred vision, tiredness, and disabilities; such diseases will afflict the people during a certain period of time.”

During the **Ayutthaya Period** (1350–1767), the evidence on Thai massage is the following:

During the **reign of King Trailokanat** (1448–1488), there is evidence showing the directory of feudal status in terms of *sakdina* or farmland in *rai* (1,600 sq.m. or 0.4 acre) for civil servants (law relating to civil servants' status). The law remained in force until the early Rattanakosin (Bangkok) Period, under which there were Departments of Medical Services (*Krom Phaettaya*), Pharmacy (*Krom Phaettaya Rongphra-osot*), Internal Medicine (*Krom Moh Ya*), Massage Therapy (*Krom Moh Nuad*), Ophthalmology (*Krom*



Moh Ya Ta), and Tuberculosis (*Krom Moh Wannarok*). It is evident that the Massage Therapy Department was one of the seven departments that had full-time civil servants as follows:

Civil servant/position in the Massage Therapy Department	Position in the Massage Therapy Department	<i>Sakdina (rai)</i>
Luang Rajraksa	Director-General, Right (<i>Chao Krom Moh Nuad Khwa</i>)	1,600 each
Luang Racho	Director-General, Left (<i>Chao Krom Moh Nuad Sai</i>)	1,600 each
Khun Phakdi-ong	Assistant Director- General, Right (<i>Palad Krom Khwa</i>)	800 each
Khun Ongraksa	Assistant Director- General, Left (<i>Palad Krom Sai</i>)	800 each
Muen Kaeoworalueak		600 each
Muen Wayowat		600 each
Muen Wayochai		600 each
Muen Wayonat		600 each
Khun Naikrom		400 each
Muen Naikrom		200 each
Phun Naikrom		100 each
Phun Moh		100 each
Nai Parong		80 each

During the reign of King Narai the Great (1656–1688), Monsieur De La Loubere, ambassador of France’s King Louis XIV, based in Siam between 1687 and 1688 during the reign of King Narai during the Ayutthaya Period, wrote in one section of the Royal Chronicles of Siam about masseurs: “*They like to squeeze or pinch all over the body. Whenever someone is sick in Siam, the masseur will step or tread on the patient’s body. Even a woman also likes to have a child tread on her back so that she will have an easy childbirth.*”

During the **Rattanakosin Period** (1782–present), there is evidence regarding Thai massage as follows:

The reign of King Rama I (1782–1809): King Buddha Yodfa Chulalok (Rama I), who had the old Wat Photharam (or What Pho) renovated as a royal Buddhist temple or monastery and renamed it Wat Phra Chetuphon Vimolmangklaram. That was regarded as the beginning of the evolution of Thai traditional medicine as the King also ordered the compilation and inscription of drug formulas as well as *ruesi dadton* (self-stretching) postures on the temple’s cloisters in 1788.

Thus, it was assumed that the Thai *ruesi dadton* sculptures were derived from India’s ancient hermits but for different purposes. The Indian body stretching postures of hermits were performed after a long period of one sitting yoga (*asana yoga*) position in the process of asceticism in search of freedom from suffering (*mokkha-dhamma*). But the Thai *ruesi dadton* postures were intended for relieving body aches as stated in the “Ruesi Dadton Poem” inscribed during the reign of King Rama III.

Nevertheless, the art and sculptures of *ruesi dadton* might not definitely begin in Thailand in the reign of King Rama I because at least they should also exist during the late stage of the Ayutthaya period through the early Rattanakosin period. But they could not be found as they might have been completely destroyed during the second fall of Ayutthaya. Luckily, TTM



practitioners and sculptors were able to transmit the *ruesi dadton* practices from the Ayutthaya period to the early Rattanakosin period.

The reign of King Rama III (1824–1851): King Nang Klao (Rama III), while being Prince Jetsadabodin during the reign of Rama II, had Wat Jomthong renovated as a royal monastery and renamed it Wat Ratchaorasaram. During the renovation, the Prince had textbooks of drug formulas and massage as well as *ruesi dadton* postures inscribed on the boundary walls (*kamphaeng kaeo*) of the Buddhist chapels (*phra vihara* and *phra ubosot*) of the monastery.

In 1832 (on Wednesday, the 10th day of the waning moon of the 10th lunar month, in the year of dragon), the King commanded the renovation of Wat Phra Chetuphon (Wat Pho) again and the assembling of experts in various fields to select and revise textbooks. Then the texts were inscribed on marble tablets for decorating in the temple; and the temple also has paintings and sculptures for use together with the textbooks by the general public regardless of their family or social status to learn any subject from the temple's inscriptions as they wish.

It can be said that Wat Pho or Wat Phra Chetuphon is Thailand's first open university of Thai traditional medicine that aims to disseminate the knowledge of Thai traditional medicine to the general public on a wide scale.

The marble or stone inscriptions in Wat Phra Chetuphon are divided into four major categories: *ruesi dadton* (self-stretching), medicine (*vejasart*), pharmacy, and massage. For the subject of *ruesi dadton*, the king had *ruesi dadton* sculptures done, bestowed four parts of a royally written poem on *ruesi dadton*, and had civil servants as well as monks write a poem for each of the 80 *ruesi dadton* postures. The work was completed in 1836; and later on, the king had the *ruesi dadton* postures copied into a

Thai notebook in 1838. The renovation of the temple was headed by Phraya Sripipat and Phraya Phetphichai, while the inscriptions were supervised by Prince Krom Muen Nuchitchinorot. Regarding the inscriptions on medical care, according to the records or archives of the temple's renovation, there were totally 37 writers, 3 of whom only are mentioned below:

1. King Nang Klao (Rama III): *ruesi dadton* poems (1) self-stretching for relieving body ache (*khi-kiat*); (2) self-stretching for relieving waist and leg stiff (*eo-khod khadkha*); (3) self-stretching for relieving flatulence and waist ache (*lom-nai-ok-nai-eo*); (4) self-stretching for relieving waist sprain (*khad-eo*); and (5) self-stretching for relieving headache (*lom-puad-si-sa*).

2. Prince Krom Muen Nuchitchinorot: *ruesi dadton* poems (1) self-stretching for relieving heel sprain (*son-tao*); (2) self-stretching for relieving stomach ache and angle sprain (*puadthong* and *kho-tao*); (3) self-stretching for loosening the phlegm in the throat and for relieving arm ache (*lom-nai-khaen*); (4) self-stretching for relieving flatulence (*lom-nai-ok*); (5) self-stretching for relieving shoulder, chest and abdomen pain (*kae-lai, kae-thong and kae-ok*); (6)) self-stretching for relieving vertigo (*lom-wian-si-sa*).

3. Prince Krom Muen Kraisornwichit: *ruesi dadton* poems (1) self-stretching for healthiness and longevity (*damrong-kai a-yu-yuen*), (2) self-stretching for relieving leg pain (*kae-kha*).



Table 5.1 Knowledge about Thai traditional medicine in the inscriptions in Wat Phra Chetuphon (Wat Pho)

Branch of knowledge	Knowledge media	Source of knowledge
Medicine		
- 82 <i>ruesi dadton</i> sculptures	Sculptures made of zinc-tin alloy	Verandas of all cloisters (multi-purpose pavilions, or <i>sala rai</i>)
- Poems on <i>ruesi dadton</i>	Marble tablet inscriptions	Walls of cloisters around temple
- 60 pictures of human massaging	Paintings	Pavilion in front of the northern great stupa.

Source: History of the development of Thai traditional, indigenous and alternative medicine in Thailand, 2000.

The Reign of King Rama IV (1851–1868): Phrabat Somdet Phra Chom Klao Chao Yu Hua (King Mongkut, or Rama IV), the country began to change and adjust itself towards the new era, especially the Western-approach development. Although the king, royal family members and senior noblemen were in favour of Western medicine, the general public still favoured Thai traditional medicine for healing their illnesses. The documentary evidence for that period showing the names of officials in the Massage Therapy Department under the Boworn Sathanmongkol Palace of King Pinklao, or Front Palace officials, as follows:

Phra Worawongraksa	Jangwang (Senior Royal Attendant)
Luang Samphahaphaet	Assistant Jangwang
Luang Samphahaphakdi	Assistant Jangwang
Luang Prasartwijit	Director-General, Left
Luang Prasit-hattha	Director-General, Right
Khun Wata-phinat	Assistant Director-General, Right
Khun Srisamphaha	Assistant Director-General, Left

It is noteworthy that, during the reign of King Rama IV, Western physicians began being appointed as royal physicians in the royal court officially with noble titles (*bandasak*) like those during the Ayutthaya period.

The Reign of King Rama V (1782–1811): Phrabat Somdet Phra Chulachomklao Chao Yu Hua (King Chulalongkorn, or Rama V) deemed that the textbooks on Thai traditional medicine and indigenous drug formulas were extremely useful as they had been studied, transcribed and passed on for generations with perseverance among physicians and interested persons. All the revised textbooks were called **Royal Textbook of Medicine** (*Vejasart Chabap Luang*), which led to the preparation of the **Textbook of Medicine** (*Tamra Phaetsart Songkroh*), the principal textbook of Thai traditional medicine that has been used until today. In the revision of the medical textbook, the Thai massage patterns and *ruesi dadton* postures as evident in the Vajiranana Library were included in the King Rama V Royal Textbook of Thai Massage B.E. 2449 (1906), or *Tamra Phaen Nuad Chabap Phrarajathan* of King Rama V. And the walls of the preaching hall at Wat Matchimawat (Wat Klang) in Songkhla province were painted to depict 40 *ruesi dadton* postures.

The Reign of King Rama VI (1910–1925): Phrabat Somdet Phra Mongkut Klao Chao Yu Hua (King Vajiravudh, or Rama VI) graciously enacted the Medical Services Act B.E. 2466 (1923), the first health law of the country that clearly contained “massage” (or *kan nuad*) in the definition of the art of traditional medical practice.

The Reign of King Rama VII (1925–1934): During this reign, the teaching of Thai traditional medicine at the Royal Medical School (Rajaphaettayalai School) was discontinued and the Medical Services Act was promulgated in 1923 for controlling the practice of healing arts. Later on in 1929, a ministerial regulation was issued, categorizing the healing



art practitioners into modern and traditional disciplines and defining the traditional practitioner as a person who had practised the healing arts based on his observations and skills that were passed on from previous generations or the ancient textbooks, not scientifically based. And the practices were divided into various branches, namely medicinal therapy, pharmacy, midwifery, and massage.

According to the ministerial regulation, the registration including licensing of traditional medical practice was undertaken for the first time in the Thai history. The old statistics on traditional practitioners showed that, in 1934 there were totally 5,482 medicinal healers (classes 1 and 2), traditional pharmacists, traditional midwifery or birth attendants and massage therapists (Table 5.2).

Table 5.2 Number of licensed traditional practitioners, 1934

Branch	No. of practitioners
Medicinal therapy, Class 1	44
Medicinal therapy, Class 2	3,629
Traditional pharmacy	1,020
Traditional midwifery	494
Massage therapy	295
Total	5,482

Source: Source: History of the development of Thai traditional, indigenous and alternative medicine in Thailand, 2000.

Later on, the Act for the Control of the Practice of Healing Arts B.E. 2479 (1936) was promulgated, repealing the Medical Services Act of B.E. 2466 (1923) and maintaining the traditional and modern disciplines of medical practices. The healing arts law classified the healing art practices into only three branches: traditional medicine (*vejakam*), traditional pharmacy,

and traditional midwifery, but the massage branch was not mentioned as in the older law.

In 1932, the year when there was a coup and change in the country's administrative structure, banning the gathering of five or more people, which caused Thai physicians, who previously used to hold regular meetings, to set up the "Traditional Medicine Practitioners Association of Thailand" to serve as a forum for meeting and knowledge sharing among its members. It is the first society for Thai traditional medicine practitioners in Thailand whose first president was Moh Yai Sitawathin. Currently located in Wat Parinayok, the association's major activities include teaching/training in traditional medicine, traditional pharmacy and traditional massage for those who want to take the examination to become a licensed healing art practitioner.

The Reign of King Rama VIII (1934–1946): During this period, the Ministry of Public Health (MoPH) was established in 1942; its policy on herbal medicine was to search for the knowledge of properties of medicinal herbs and other drugs in the country for modification or processing as Western drugs and for producing more drugs in terms of formulas and quantities. And the Act for the Control of the Practice of Healing Arts B.E. 2479 (1936) was promulgated, deleting the Thai massage branch without any transitory provision.

The Reign of King Rama IX (1946–2013)

In 1951, the "Traditional Medical School of Thailand" was established to offer the Thai traditional medicine curriculum for the first time at Wat Pho, which covered the branches of Thai medicine, Thai pharmacy, and Thai massage or manual therapy. Later on, the knowledge and practice of traditional medicine has spread throughout the country.



In 1982, Prof. Dr. Ouay Ketusingh established the Foundation for the Promotion of Thai Traditional Medicine aiming to revive the knowledge of Thai traditional medicine, promote the education and practice of Thai traditional medicine so that it has a higher standard, and promote the research on and use of medicinal plants for better health of the people, in coordination with other charity organizations. Moreover, the foundation also established Ayurvedvidhayalai School (Jevaka Komarapaj), to accept high-school graduates with a science background to study in the three-year programme in Thai traditional medicine. Upon completion, they received a diploma and became an *ayurved* medical practitioner (*phaet ayurved*) with the capacity to provide Thai traditional medical services and basic modern medical care as they could communicate well with the patients and modern medical doctors on such matters, as well as make and take referrals. (Presently, it is Ayurved Thamrong School under the Centre of Applied Thai Traditional Medicine, Faculty of Medicine Siriraj Hospital, Mahidol University, offering a four-year Bachelor of Applied Thai Traditional Medicine programme.)

In 1985, the Thai Massage Revival Project was established by several non-governmental organizations (NGOs), namely the Health and Development Foundation, the Folk Doctor Foundation, and the NGOs Coordinating Committee for Primary Health Care in collaboration with other traditional healers associations. Later on such NGOs formed the Federation of Thai Traditional Medicine Associations with a membership of more than 20 associations; they all played an extremely crucial role in reviving and improving TTM especially Thai massage until it is acceptable by the people.

In 1989, the Ministry of Public Health, with the Cabinet's endorsement, set up the "Centre for Thai Traditional Medicine and Pharmacy Development Cooperation" under the Office of the Permanent Secretary for Public Health. Later on, the Coordination Centre was upgraded as the

“Institute of Thai Traditional Medicine (ITTM)” under the Department of Medical Services in 1993 to develop, coordinate, and support the MoPH’s Thai traditional medicine programme.

Later on, the Practice of Healing Arts Act of B.E. 2542 (1999) was enacted, in which the term “traditional medicine” was changed to “Thai traditional medicine (TTM)” comprising only Thai medicine, Thai pharmacy, and Thai midwifery. In 2001, the MoPH issued a notification recognizing Thai massage as a branch of Thai traditional medicine.

In the year 2000, the **Protection and Promotion of Thai Traditional Medicine Wisdom Act B.E. 2542 (1999)** came into force and prescribed that the ITTM was an agency under the MoPH’s Office of the Permanent Secretary. The ITTM’s duties include taking actions on the protection and promotion of education and training, research, and development of TTM wisdom or knowledge and medicinal herbs, and serving as the administrative and technical office of the Committee on the Protection and Promotion of Thai Traditional Medicine Wisdom.

In 2002, there was a royal decree establishing the **“Department for Development of Thai Traditional Medicine and Alternative Medicine (DTAM)”** as the MoPH’s agency taking actions as prescribed in the law on the protection and promotion of Thai traditional medicine wisdom as well as other relevant laws. The DTAM has powers and responsibilities related to Thai traditional medicine, indigenous medicine, and other alternative medicine practices, essentially in connection with research studies, analyses, development, knowledge and technology transfer, standard development, promotion and support of the health service system management, and recommendations for consumer protection concerning Thai traditional medicine, indigenous medicine, and other alternative medicine practices.

Recently in 2013, the TTM Professions Act B.E. 2556 (2013) was enacted with a provision indicating that Thai traditional medicine include



Thai medicine, Thai pharmacy, Thai midwifery, Thai massage, and Thai indigenous medicine.

5.2 Laws, regulations, policies, information systems and others related to Thai massage

The review and analysis of policies, laws, regulations, information systems, and other relevant matters are required for use in formulating strategies for supporting and promoting laws and regulations to be favourable to the improvement of Thai massage so that it is strong, reliable and acceptable internationally, and for it to be raised from Thailand's heritage and recognized as the world's heritage. The important issues in Thai massage development are as follows:

1) The service system and workforce development - the major policy and legal issues are the following:

(1) Thai massage workforce and professional development has focused on curriculum and standard development, knowledge certification, and licensing as follows:

✿ According to the TTM Professions Act of 2013 (enacted on 1 February 2013), Section 31 of Chapter 5 on the control of TTM and applied TTM practices prescribes that no one shall perform the TTM or applied TTM practices unless he/she is a licensed TTM or applied TTM practitioner, except in the following cases:

- (1) the traditional medical practice performed on one's self;
- (2) giving aids to the patient while performing his/her legal duties, on the ground of humanitarian or moral obligations regardless of benefit,

(3) the students or trainees under the control of the government's TTM educational institutions, the TTM educational institutions authorized by the government, the government's medical institutions, other educational institutions or medical institutions recognized by the TTM Council under the supervision of the trainers who are licensed TTM or applied TTM practitioners;

(4) the persons who are authorized by the Ministries, Sub-Ministries, the government departments, Provincial Administrative Organizations, *Tambon* (Subdistrict) Administrative Organizations, the Bangkok Metropolitan Administration, the City of Pattaya, or other local administrative organizations prescribed by law, or the Thai Red Cross Society, to perform TTM practices under the supervision of a licensed TTM or applied TTM practitioner, or a licensed medical practitioner, in compliance with the regulations issued by the Minister and published in the Government Gazette;

(5) the persons, who work in health facilities according to the law on sanatorium, perform TTM or applied TTM practices under the supervision of a licensed TTM or applied TTM practitioner, or a licensed medical practitioner, in compliance with the regulations issued by the Minister and published in the Government Gazette;

(6) the TTM or applied TTM practices carried out by the government's advisers or experts, according to the criteria, procedures and conditions prescribed by the Committee of the TTM Council;

(7) the indigenous healers who are knowledgeable and capable of providing health promotion and health-care services using the TTM wisdom as per community's culture passed on from older generations for at least ten years and acceptable to or recognized by the community, and such practices have been proposed by the village committee or the local government organization for approval by the agency designated by the MoPH,



in compliance with the regulations issued by the Minister and published in the Government Gazette;

- Section 80(2) of the 2007 Constitution of Thailand prescribes that the person having duty to provide health services whose act meets the requirements of professional and ethical standards shall be protected as provided by law.

- The 11th National Economic and Social Development Plan also gives importance to the development of health personnel as appropriate with regard to the production and distribution, skill and knowledge enhancement, based on the traditional and contemporary arts and culture as well as the use of technology, to create the differences and prominence of the goods and services according to the market needs, and improve the businesses and professions in line with international standards.

(2) The occupation in Thai massage. The focus is on creating jobs at the community level and enhancing the competitiveness in the country and abroad.

- The 11th National Plan supports the grouping of occupations with the linkage to local wisdom and culture, extending to become a community enterprise, the vocational development in the full-cycle of the value chain, and the quality or standard improvement so that the goods and services are acceptable domestically and internally.

- The government policy and state administration plan attach importance to competition and creative economy of high value and quality, aiming to enhance human capacity with a knowledge base, expertise, and creativity, further develop innovations from research works, and develop or create new brands of goods based on local wisdom.

(3) Thai massage service facilities. There are both public and private massage facilities related to the laws on sanatorium and entertainment places.

✿ According to Section 3 of the Entertainment Places Act B.E. 2504(1961), there are two categories of entertainment places that provide Thai massage services, namely Category A, the entertainment places with licensed practitioners according to the Practice of Healing Arts Act and being medical facilities according to the sanatorium law, and Category B, the places for health promotion or beautification whose standards are specified by the Ministry of Public Health with the concurrence of the Ministry of Interior. Regarding Category B facilities, their operations involve both ministries because of the government's policy on resolving the sex trade problem in massage parlours and on promoting massage for relaxation using the Thai massage techniques in "spas", resulting in certain places having modernized their Thai massage services.

(4) Development of service database. This involves the overall and in-depth databases for the service branches with higher potential. Much importance has been given to the development of information systems during the 11th National Plan, but in practice there has been no database on Thai massage.

2) Knowledge development and Thai wisdom protection.

There are major policy and legal issues as follows:

(1) Wisdom preservation and restoration: Section 66 of the Constitution deals with the community's right to preserve and restore local wisdom; and Section 86(2) deals with the preservation and development of local wisdom and Thai wisdom.

(2) Participation. Section 66 of the Constitution covers the community's right to participate in the management, maintenance and utilization of natural resources, the environment and biological diversity in a balanced and sustainable fashion.



(3) Protection: Section 86(2) of the Constitution emphasizes the protection of intellectual properties; and the Convention on Biological Diversity (CBD) also mentions about the protection of the knowledge of indigenous and local communities regarding the conservation and sustainable use of biological resources.

(4) Knowledge management: The government policy, the state administration plan, and the 11th National Plan emphasize the importance of empirical research by the community, systematic knowledge management in the community, leaning management in the community, and the transfer of wisdom to enhance occupational skills, as well as the use of research results for innovation, and the support for research and development for enhancing the competitiveness and creativity of service businesses.

3) Financing related to Thai massage: There are two major issues as follows:

(1) **Provision of standard health services in a thorough and efficient manner.** This issue is emphasized in Section 66 of the Constitution, the government policy statement, and the state administration plan, and it is related to the health-care delivery under the Universal Health Coverage Scheme (UCS). For example, massage services are provided for therapeutic and rehabilitative purposes, and herbal steam bath and herbal compress are rendered for postpartum women, with the capitation budget allocated by the National Health Security Office (NHSO). The budget for such services in 2012 was allocated at the rate of 7.20 baht per capita, of which 82.4% was for 812 (out of all 986) health facilities or contracted units of primary care (CUPs) nationwide. As shown in Figures 3.1 and 3.2, the number of state health facilities providing Thai massage services, including CUPs, primary care units (PCUs) and *tambon* (subdistrict) health promoting hospitals (THPHs), increased rapidly from 921 in 2009 to 4,531 in 2012.

(2) During the 11th National Plan, the **sustainable financing measure** was encouraged to improve the quality and coverage of the health-care system. Moreover, the monetary and tax measures are also used to enhance the country's competitiveness with other competing countries.

4) Partnerships and consumer protection. It is noteworthy that the 2007 Constitution of Thailand, the 2007 National Health Act and the 11th National Plan emphasize the participation of three partners, namely the communities, the private sector, and the Health Assembly, all of which have to get involved in development efforts that are linked to Thai massage as follows:

The Constitution provides that the communities have the right to conserve and restore local wisdom, to manage, maintain and use natural resources as well as biological diversity, and to participate in health development and service delivery. The National Health Act stresses the participation of the people and state agencies in the form of Health Assembly to set healthy public policies for the people's healthy conditions. Under the 11th National Plan, the focus is on local knowledge development, community's empirical research, systematic knowledge management in the communities, creation of learning societies, and community participation in setting guidelines for community development, chiefly based on the community's potential, wisdom, lifestyles, resources and environment so that they are empowered and self-reliant.

5) Connectivity with other sectors at home and abroad. There are four major policy and legal issues that are connected to Thai massage as follows:

(1) Health tourism with high quality and additional value. It is the current government's policy to double the country's revenue from tourism within five years. According to the state administration



plan, there are strategies for various development activities, especially the promotion of innovations and skills, language skills, and service and management measures, for enhancing the competitive capacity of the Thai service sector and expanding the production and marketing bases in the entire region.

(2) Movement for Thailand to become Asia's excellence centre of health products and services. This is another government's policy to improve health service business to meet international standards; improve health-care facilities, personnel and products; develop mechanisms for service and product standard control; and promote the standards of health products and services.

Meanwhile, the 11th National Plan still focuses on the use of Thailand's biodiversity, culture and identity as well as new knowledge and technology in developing goods and services and investing in potential service businesses in response to the free trade policy and the trends in global needs.

(3) Protection of intellectual properties. This issue is prescribed in the Constitution and unnegligible if the strategy is to make Thai massage connected to other sectors at home and abroad.

(4) Creation of networks for service business cooperation in foreign markets. Under the 11th national Plan, the focus is on the promotion of networks for business cooperation regarding investments overseas to expand Thailand's potential service businesses.

6) The databases on Thai massage are scattered. The Thai massage databases are located in various relevant agencies; some have a database but no consistent data entry is undertaken, resulting in the data being out of date. And there is no central mechanism for linking the data, making them unusable for Thai massage policy setting, workforce development planning, service system development, marketing system development, wisdom protection, and consumer protection.

5.3 Development and protection of Thai massage knowledge and wisdom

1) Thai massage wisdom of Thailand

(1) **The ancient documents or texts on Thai massage.** The body of knowledge about Thai massage is regarded as the country's traditional wisdom that was inscribed or recorded in ancient documents and has been used for more than 700 years. Such knowledge was crystallized with a specific identity, and its historical evidence has been noted for the Sukhothai Period (1220–1438) and the **Ayutthaya Period** (1350–1767). The record of Thai massage, during the Ayutthaya Period, was noted during the **reign of King Trailokanat** (1448–1488) in the directory of feudal status in terms of *sakdina* or farmland for civil servants. Such a system remained in force until the early Rattanakosin (Bangkok) Period. Over the past 100–200 years, the knowledge of Thai massage inscribed and transmitted from one generation to the other was evident in four sources as follows:

(1) Wat Pho Inscriptions (stone inscriptions at Wat Phra Chetuphon (Wat Pho), created by King Rama I and renovated during the reign of King Rama III).

(2) Textbook of Poems on Diseases (*Tamra Rok Nithan Khamchan* 11) written by Phraya Wichayathibodi (Klom).

(3) Textbooks of Inscribed Formulary of Wat Ratcha-orasaram (*Tamra Ya Jaruek Wat Ratcha-orasaram Ratchaworawihan*).

(4) Textbooks of Thai Massage 1 and 2 (*Khamphi Phaen Nuad 1 and 2*) in the Royal Textbooks of Medicine (*Tamra Vejasart Chabap Luang*) of King Rama V.

(2) **Medical knowledge and theory of Thai massage wisdom.** According to the four sources of Thai massage wisdom, the medical theory of Thai massage is the aetiology, symptoms and therapeutic



massage patterns along the ten primary energy lines (*sen prathan sip*) and various points as follows:

(1) The aetiology related to Thai massage, symptoms and therapeutic massage procedures.

(2) The aetiology related to the obstruction of wind paths or energy lines. The entire human body has 72,000 wind paths, including the ten primary energy lines (*sen prathan sip*), and various pressure points connected to the energy lines. The Thai massage aetiology is based on the belief that when the wind path is obstructed, the disease and abnormal symptoms will occur; and massaging along the energy lines and pressure points will normalize the wind paths and heal the illness.

(3) The Thai massage wisdom describing the abnormal signs and symptoms caused by the main energy lines and various pressure points, including the methods for examination and diagnosis, using the TTM principles.

(4) Therapeutic massage involving the techniques of massaging along the ten main energy lines and various pressure points for healing illnesses.

(3) Knowledge in the inscriptions and principal records. The inscriptions at Wat Phra Chetuphon (Wat Pho) were made on marble tablets, including 60 pictures of massage patterns or postures. The first 18 pictures deal with the ten primary energy lines or paths (*sen prathan sip: ida, pingala, sumna (sushumna), kalathari, sahasrangsi, dwari, chandabhusang, rujam, sukumang, and sikhani*); and the 19th to 60th pictures deal with massage patterns regarding aetiological diagnosis. The **Textbook of Poems on Diseases (*Tamra Rok Nithan Khamchan 11*)** contains *Klao Sen Sib* poems written by Phraya Wichayathibodi (Klom), former Chanthabun governor during the reign of King Rama II, describing each of the ten primary energy lines in detail as well as how to use medicines in combination with

therapeutic massage. The **Royal Textbooks of Medicine (*Tamra Vejasart Chabap Luang*) of King Rama V (Massage Patterns or *Phaen Nuad 1 and 2*)** also deal with the ten primary energy lines including 29 pictures of massage patterns, positions of pressure points and lines to be pressed and massaged all over the body, poems on the origins and directions of the ten primary energy lines, illnesses and symptoms related to the abnormality of each primary energy line, and therapeutic massage. The **Textbooks of Inscribed Formulary of Wat Ratcha-orasaram (*Tamra Ya Jaruek Wat Ratcha-orasaram*)** are mostly about drug recipes, but two of them deal with leach therapy (*phaen pling*), one on prone or lying-face-down massage, and others on fainting and other symptoms.

In summary, the situation review and analysis reveal that there are many sources of records of original Thai massage knowledge that are conserved and used as the learning sites or textbooks for the Thai massage profession. Such knowledge is complete in terms of the principles and theory of Thai massage, including aetiology, symptoms and therapeutic massage techniques along the ten primary energy lines and pressure points. The DTAM should publish such records of original Thai massage wisdom in the form of books or textbooks; and then such textbooks should be recognized by the TTM Council for use in the TTM professional training. Whereas the opportunity of the Thai massage arises when the marble inscriptions at Wat Phra Chetuphon (Wat Pho) was recognized and listed by UNESCO in the **Memory of the World Register in 2011**, it is recommended that an announcement and recognition of the Thai massage knowledge in the four sources of inscriptions and records should be made so that it becomes the nation's original Thai massage wisdom. In this connection, there should be an independent and flexible mechanism for translating and explaining the national wisdom as well as a Traditional Knowledge Digital Library (TKDL) so that the knowledge will be widely accessible and useable.



Memory of the World Register in 2011

However, the analysis has pointed out some weaknesses that should urgently be addressed as follows:

(1) There are very few Thai masseurs who know, understand and, in practice, use the original massage knowledge, especially about the ten primary energy lines.

(2) The language used in the original records is the old Thai language, making it hard for young Thai masseurs to thoroughly understand the text.

(3) There is no national mechanism that is efficient in compiling and recognizing Thai massage as national wisdom.

(4) There is no explanation of the content of the textbooks and clinical research that will lead to further use in a systematic manner.

2) Knowledge about the preservation/training system of Thai massage profession

Regarding the knowledge in the traditional transmission system and in the Thai massage professional training curricula in TTM and applied TTM education institutions, an analysis was undertaken on the curricula, educational institutions, textbooks used in the instruction, teachers/preceptors and budgetary support of three systems, namely the Thai massage professional training (Category A), the teaching of Thai massage in TTM education institutions (Category B), and that in applied TTM education institutions (Category B).

Thai massage profession (Category A)

1) The curricula approved by the TTM Profession Commission.

The **Curriculum for TTM Practitioners (Thai Massage) B.E. 2550 (2007)** was approved on 19 December 2007 and the Curriculum for TTM Assistants B.E. 2550 (Amendment No. 1, 2007) on 18 October 2007, based on the Curriculum for TTM Assistants B.E. 2545 (2002). The training programmes for the persons applying for registration as licensed TTM/Thai massage practitioners must be organized as per the curricula prescribed by the Commission.

The Curriculum for TTM Practitioners (Thai Massage) B.E. 2550 (2007) is an 800-hour programme over a 2-year period, comprising at least 245 hours of theoretical studies, at least 255 hours of practical training, and at least 300 hours of practical/professional experience (with at least 100 case reports), under the supervision of a full-time “teacher/preceptor”. At present, there are many institutions offering royal massage training using the 800-hour Thai massage professional curriculum and the 330-hour TTM assistants’ curriculum.

2) Training institutions. The Thai massage training programme must be carried out by institutions or medical centres certified by the TTM Profession Commission¹. Such institutions include organizations, clubs, associations and others; when they want to transfer the knowledge or offer the TTM training courses to their students or learners, they need to follow the law on this matter to become certified institutions to offer the Curriculum for TTM Practitioners (Thai Massage) B.E. 2550 (2007) and the Curriculum for TTM Assistants B.E. 2550 (2007).

¹ The person who graduates from an institution or medical centre that is not certified by the TTM Profession Commission, or has no “teacher/preceptor” as required, will not be eligible to apply for the examination to become a licensed TTM/Thai massage practitioner or TTM assistant, according to the law on healing art practice.



At present, there are 36 certified institutions (June 2013) offering the 800-hour curriculum for TTM practitioners (Thai massage) of 2007, 6 of which are organizations for the blind, and another 92 certified institutions (June 2013) offering the 330-hour TTM assistants' curriculum of 2007, including 6 NGOs for the blind (see Figure 3.6).

3) Textbooks for the teaching/learning. The TTM Profession Commission has announced the list of 19 textbooks for use as a guide for the persons who wish to study TTM and become licensed TTM practitioners (as of June 2012). Such textbooks include, for example, Textbooks of General Traditional Medicine (Thai Medicine, Thai Pharmacy and Thai Midwifery Branches), Textbook of Medical Study (*Tamra Vejasueksa*), Textbook of Medicine (*Tamra Phaetsart Songkroh*), and Medicinal Plants in Primary Health Care.

Among all the TTM textbooks, three are on Thai massage, namely (1) Textbook of Thai Massage (*Tamra Phaen Nuad*) in the Royal Textbook of Medicine (*Tamra Vejasart Chabap Luang*) of King Rama V, Volumes 1 and 2, Department of Fine Arts, Ministry of Education, B.E. 2542 (1999); (2) Textbook of Wat Pho Traditional Massage (*Tamra Moh Nuad Wat Pho*), Inscriptions at Wat Phra Chetuphon; and (3) Textbook of Thai Massage (*Tamra Kan Nuad Thai*) Volume 1, Health and Development Foundation, third edition, B.E. 2550 (2007).

The review of the Thai massage professional curriculum shows that the curriculum has 6 groups of courses including 25 massage courses and 2 elective courses; but the 3 textbooks recognized by the TTM Profession Commission are those primarily used for the TTM assistants' curriculum and may be used for only 3 to 5 courses. It is apparent that the principal textbooks are inadequate for the Thai massage professional training system (Category A), especially for at least 20 courses.

4) Teachers/Preceptors. According to the law, to apply for Thai massage teacher/preceptor certification, the licensed Thai massage practitioner must have had at least 5 years of therapeutic massage experience; and one preceptor can accept no more than 40 students or learners per year. Besides, it is required that, for the practical massage training, there must be at least one TTM assistant for every 10 students to help the preceptor teach the students. However, in addition to the TTM/massage courses, there are many other courses to be taken such as anatomy, first aids, medications, pains, and laws, which need to be taught by experts in such fields. These are limitations in the teaching of the Thai massage professional curriculum using the close preceptor-learner relationship at small training institutions and in the community.

5) Budgetary support from the public sector. Private TTM or applied TTM training institutions do not receive any state funding, while those at state universities receive a lot of government support in terms of budget, premises, teaching and support staff, teaching aids, supplies and equipment. That seems unfair in the promotion of massage training in the popular sector.

In summary, the review of the teaching/learning system at institutions, foundations, associations and clubs suggests that urgent actions should be taken regarding the preparation of textbooks according to the Thai massage curricula, the networking of such institutions, the development of teachers/preceptors, and government funding for Category A training institutions in the private sector, similar to that for Category B TTM educational institutions and applied TTM educational institutions.



Thai massage teaching at TTM educational institutions (Category B)

1) Curriculum structure. Each institution has a different curriculum structure; however, at every institution, the total number of credit hours of Thai massage courses must not be less than 12 (comprising the courses with theoretical-practice-self-study parts, 9 credit hours, and professional practical training, at least 3 credit hours). For the theoretical massage learning, the courses are Thai Massage Therapy 1, Thai Massage Therapy 2, and Thai Massage 3, every institution emphasizing the applied Thai massage (royal massage) style. Anyhow, for Thai Massage Therapy 3, various methods of massage will be taught depending on the institution's preference such as oil massage, foot massage, *Lanna* (northern Thai) massage, *Thaksin* (southern Thai) massage, sports massage, Swedish massage, chiropractic, applied massage, and indigenous massage. It is noteworthy that such a variety of massage methods may cause some confusion among the students, mixing some of them together and probably resulting in inappropriate practices.

2) Institutions certified by the TTM Profession Commission. According to Section 12(2)(b) of the TTM Professions Act B.E. 2556 (2013), to date 11 educational institutions have been certified by the TTM Profession Commission as shown in Table 3.9 on certified TTM and applied TTM educational institutions.

3) Textbooks used in Thai massage instruction. It has been found that nearly all institutions use various kinds of Thai massage textbooks with inconsistent contents, resulting in students' confusion. Some institutions teach Thai massage according to the applied Thai massage style as per the applied TTM principles, while some teach Western massage, whereas Category B institutions may not understand the principles and knowledge of traditional Thai massage wisdom.

4) Thai massage teachers and practitioners. Most institutions are faced with the lack of Thai massage teachers and practitioners, especially those who teach the massage practice. According to the requirements for Category A institutions, for the practical training, there must be one TTM assistant for every 10 students. The teacher/students ratio is considered to be very low, which results in a problem in the massage practice sessions. Another major issue is that most massage instructors at various institutions are newly graduated practitioners, whereas for Category A, the massage teacher/preceptor who can accept the students must be the person who has practised Thai massage for at least five years. So, the quality of massage teachers has to be improved in terms of patient-care experience as well as teaching expertise and experiences.

Recommendations based on the review of instructional situation:

The Thai massage curriculum structures have to be standardized similar to the Thai massage curricula approved by the Profession Commission. The Thai massage curriculum design must be based on the Thai massage professional curriculum as it is for the practice of TTM profession. And importantly, the development of Thai massage teachers is to be undertaken in terms of both qualities and quantities.

Teaching of Thai massage at applied TTM educational institutions (Category B)

The Thai massage in the practice of applied TTM is called royal massage, whose teaching began in 1982 at Ayurvedvidhayalai School (Jevaka Komarapaj), under the supervision of the Ministry of Education until 2002. During that period, the school offered a three-year traditional medicine curriculum under the leadership of school founder Prof. Dr. Ouay Ketusingh, who realized the importance of TTM especially royal massage. So royal massage was included as one of the courses of Ayurved traditional



medicine and taught by Moh Narongsak Bunyarathiran, a royal massage teacher. (Since 2003, the school has been relocated to Siriraj Medical School and offers a four-year bachelor's degree programme on applied Thai traditional medicine, which continues teaching royal massage). At present, there are 1,158 licensed applied TTM practitioners; see Table 3.8 for more details about the number of such practitioners who were licensed during 2007–2012.

1) Curriculum structure. The curriculum covers the teaching of 19 credit hours of Thai traditional therapeutic massage courses during the first 3 years and then practise the massage as well as undergo practical experience in therapeutic massage during the fourth year. In addition, the students are to take 6 credit hours of elective courses on selected experiences in therapeutic massage.

2) Educational institutions certified by the Applied TTM Profession Commission. For the 4-year bachelor's degree programme, there are 8 institutions that have been certified by the Applied TTM Profession Commission. See Table 3.10 for the list of such institutions.

3) Textbooks on royal massage. Initially, textbooks on general Thai traditional massage such as the Inscriptions at Wat Phra Chetuphon (Wat Pho) and the Textbook of Traditional Massage (*Khamphi Phaen Nuad*) Volumes 1 and 2 were used. Later, the Textbook of Thai Traditional Therapeutic Massage (*Hattavejakamthai*, royal massage) was published by the Foundation for Promotion of Thai Traditional Medicine and Ayurvedvidhayalai School (February 2005). Today, for teaching Thai royal massage at the bachelor's degree level at the institutions certified by the Profession Commission, many Thai royal massage textbooks have been prepared and published such as textbooks on **Thai Traditional Therapeutic Massage** (*Hattavejakam Phaenthai*, **Thai Royal Massage**) and Basic

Massage by Ayurvedvidhayalai School and Ayurved Thamrong School of the Centre of Applied Thai Traditional Medicine, Faculty of Medicine Siriraj Hospital, Mahidol University (in developing the textbook on Thai royal massage, the content was divided into 3 parts: **basic massage, signal point massage, and conditions treatable with Thai traditional therapeutic massage**) and other textbooks being prepared by each university.

The applied TTM teaching situation analysis reveals that such institutions are strong as they have received government budget for organizing the teaching/learning activities as well as textbooks, teachers, technical staff and experienced personnel in TTM and modern medicine. Thus, their academic capability is quite strong while an emphasis is to be placed on the development of Thai royal massage textbooks to cover the broader course content in the curriculum.

3) Knowledge about indigenous massage is diverse for each region. In the North, there are several massage procedures such as hot iron tramping (*yamkhang*), hammer massage (*nuad toksen*), nerve-touch massage (*nuad jabsen*), bone-setting massage (*nuad dad yiab dueng and kod kra-dook*), and acupressure (*kodjud*). In the Central Region, the massage techniques are acupressure (*kodjud*), nerve-touch massage (*nuad jabsen*), hot iron tramping (*yiab lek daeng*), and bone-setting massage (*kod-dueng kra-dook*); in the North-east, they have nerve-touch and tendon-pulling (*khidsen and dueng-en*) and hot iron tramping (*yiab lek daeng*); and in the South, they have sole-scraping (*khao kwang khoo fa-thao*), acupressure, nerve-pulling (*duengsen*), and nerve-pressing (*reedsen*).

Knowledge analysis: The gathering of indigenous massage knowledge is chiefly undertaken by recording what is told by the indigenous healers as there is no record of such practices in the palm-leaf textbooks (*khamphi bai-lahn*) of the four regions of the country. That is probably because the massage practice emphasizes its practical aspect rather than



theory. So, the recording of massage procedures is hard to do; and the knowledge is transferred verbally or acquired by actual observation of the practices.

Knowledge management for indigenous massage: Even though indigenous massage does not mention about aetiology, it focuses on massaging mainly the energy lines (*sen*) such as hammering (*kahn-tok*), massage, and tramping (*kahn yiab*). All is done along the ten primary energy lines (*sen prathan sip*), based on the Thai massage principles, but they are not called Thai massage, except that the hot iron tramping (*yiab lek daeng*) at Wat Nong Ya Nang is performed by tramping along the Thai massage practice. Thai massage textbooks recorded at various temples or by indigenous healers are mostly transcribed along the Thai massage principles.

It can be preliminarily summarized that the indigenous massage practices are region-specific such as hot iron tramping (*yiab lek daeng*), hammer massage (*toksen*), and nerve-pressing. Such practices are regarded by some masseurs as being probably derived from neighbouring countries like Myanmar, China and Cambodia, but no confirmation has been made yet.

However, regarding the knowledge management of indigenous medicine wisdom, currently there is no strong technical mechanism for dealing with such existing wisdom as there are no records of indigenous massage in the palm-leaf textbooks of Thailand's four regions. Such massage primarily emphasizes the practical aspect rather than theory, making it difficult to write down the massage procedures. The knowledge transfer has been normally done by verbal communication and practicing under the experienced healer's guidance. Normally, the healers do not mention about aetiology, but focus on massage practice mostly along the energy lines including hammering, massage, and tramping, especially on the ten primary energy lines (*sen prathan sip*) and based on the Thai massage principles.

There names, however, are not in accordance with the Thai massage practice, except for the hot iron tramping at Wat Nong Ya Nang, which follows the Thai massage tramping lines. Thus, the knowledge has to be compiled, examined, analyzed and synthesized as indigenous knowledge. The recording of diverse indigenous massage practices from indigenous healers has to be urgently undertaken systematically; and then get them analyzed to see whether there is any theory that supports such practices, or identify their specific procedures. This is to set up a clear knowledge system for the benefit of the communities.

4) Research on Thai massage. According to the compilation of research publications on the Sciencedirect and PubMed databases between 2001 and 2012, based on the search term of “Thai massage”, 6 publications were found on Sciencedirect and 7 publications on PubMed, totaling 13 publications in English; and all had been prepared by Thais and carried out in Thailand.

Regarding the Thai database, the search on the ThaiLIS-Thai Library Integrated System of the Office of the Higher Education Commission, using the search term of “*nuad thai*” (Thai massage), reveals that there are 31 thesis papers whose abstracts are undownloadable. The database of the library of the Institute of Thai Traditional Medicine shows that there are 5 research papers, 17 technical (research) presentations at the National Herb Expositions 2011 and 2012 (all with abstracts) and another 8 research papers published in the Journal of Thai Traditional & Alternative Medicine, totaling 30 papers. The papers are classified according to their use as follows:

(1) Survey research papers. The studies focussed on gathering data on what happened in the past and present situations during the study periods from interviews or using questionnaires regarding the behaviours of Thai massage clients, satisfaction with Thai massage services, and Thai massage service development.



(2) Clinical research studies. The studies were conducted either in patients or healthy volunteers to determine the efficacy and safety of Thai massage, mostly involving common illnesses or conditions with two result-measurement methods, i.e. one using general tools such as pain scale and angular movement scale, and the other using modern devices such as electroencephalogram. Most studies carried out in Thailand did not have a comparison group, but those published in international journals did, such as a comparison with other types of massage such as Swedish massage or other therapeutic procedures, namely acupuncture. It was found that Thai massage is efficacious in reducing pain or increasing the movement angles in the study conditions.

(3) Knowledge management. Over the past decade, very few studies were undertaken on the synthesis of knowledge from Thai massage therapists. Among such syntheses, most of them involved indigenous massage such as the synthesis of indigenous healing for paresis and paralysis.

Situation analysis of Thai massage research - Over the last 10 years, the situation of Thai massage research was as follows

(1) Most of the studies were clinically oriented. Most of the research studies aimed to find out the efficacy of Thai massage for relieving common health problems such as muscle pain, back pain, knee osteoarthritis, frozen shoulder, and myofascial pain, followed by survey research on determining the compensation of Thai masseurs, service-seeking behaviours and client satisfaction with Thai massage, and finally the studies dealing with the mechanism of action of Thai massage in modern medicine's perspective such as physiological, electroencephalogram and bone changes. Besides, there were efforts to determine the mechanism of action according to the ten primary energy lines (*sen prathan sip*). During the past 2 or 3 years, applied research were undertaken to determine the efficacy of certain Thai

massage techniques such as hot-salt pot compress (*kahn tab-moh-kluea*) in postpartum women, reflexology in healing diabetic foot numbness, and hot-salt pot compress for relieving pain.

(2) There are few professional researchers on Thai massage. More than half (31 out of 43) of Thai massage research studies were master's and doctoral theses. Most of the researchers were medical personnel such as physicians, nurses, physical therapists, pharmacists, and health technical officers; and very few studies had Thai masseurs or TTM practitioners on the research teams.

Recommendations for Thai massage research development

(1) Designing a clear research direction.

(2) Developing a mechanism for supporting Thai massage research to improve research quality, timely completion, and adherence to the established direction. Such a mechanism should ensure adequate budget as well as adequate and qualified research personnel.

(3) Developing and supporting system research. As mentioned earlier, there has been no system research undertaken over the past 10 years. It is thus very important to support such research for use in setting national policies on this matter.

(4) Designing Thai massage research according to the TTM theory. As Thai massage has a different concept and theory compared with modern medicine, research on Thai massage's efficacy, safety and action mechanism for any particular condition or symptom needs to be based on the concept and theory of Thai massage. In addition, Thai massage therapy usually involves other healing procedures such as herbal compress or oil massage, depending on each individual client's conditions; and it is an art that is different for each individual case.



(5) Developing professional researchers. Researchers are the key to success in research operation. It has been noted that there are very few Thai massage researchers, so it is necessary to select those who are interested in this kind of research and provide them with on-the-job training to be knowledgeable and capable of doing such research, based on the Thai massage concept and theory. This is to have more Thai massage research studies in the future.

5) Protection of Thai massage wisdom

(1) Legal protection. The law related to this matter is the Protection and Promotion of Thai Traditional Medicine Wisdom Act B.E. 2542 (1999). In this connection, in Chapter 2 on TTM wisdom protection and promotion, Section 16 prescribes that there are 3 categories of TTM wisdom: (1) national Thai traditional drug formulas or national textbooks of Thai traditional medicine; (2) general Thai traditional drug formulas or general textbooks of Thai traditional medicine; and (3) personal Thai traditional drug formulas or personal textbooks of Thai traditional medicine.

An MoPH's notification is being issued to designate the TTM inscriptions or records of Thai massage wisdom from the four sources as national textbooks of Thai traditional medicine. Such records are Marble Inscriptions at Wat Phra Chetuphon, Textbook of Poems on Diseases (*Tamra Rok Nithan Khamchan* 11), Textbooks of Inscribed Formulary of Wat Ratcha-orasaram (*Tamra Ya Jaruek Wat Ratcha-orasaram*), and Textbooks of Thai Massage 1 and 2 (*Khamphi Phaen Nuad 1 and 2*) in the Royal Textbooks of Medicine (*Tamra Vejasart Chabap Luang*) of King Rama V]. The draft Ministerial Regulation on Criteria and Procedures for Designating National Thai Traditional Drug Formulas or Thai Traditional Medicine is now being reviewed by the Office of the Council of State.

(2) Conservation and dissemination. The TTM textbooks and inscriptions that are collected for publication and disseminated for educational purposes include the 60 tablets of marble inscriptions at Wat Phra Chetuphon (Wat Pho) – all are still used for teaching/learning purposes today; the Textbook of Poems on Diseases (*Tamra Rok Nithan Khamchan*) – still used for teaching/learning purposes; the Royal Textbooks of Medicine (*Tamra Vejasart Chabap Luang*) of King Rama V]; and the Textbooks of Inscribed Formulary of Wat Ratcha-orasaram (*Tamra Ya Jaruek Wat Ratcha-orasaram*). The last two textbooks were published by the National Library and were approved by the TTM Profession Commission for use by the persons who apply for TTM examination and licensing.

(3) Social protection. The body of knowledge that is generally accepted by the general public is the inscriptions at Wat Phra Chetuphon (Wat Pho), which were compiled and inscribed as per the royal command of King Nangklao or Rama III (1834–1860) on the walls and columns of the temple’s cloisters and other places for learning by the general public. That is regarded as the first open university and library for the people in East Asia.

On 21 February 2008, the UNESCO Memory of the World Regional Committee for Asia-Pacific (MOWCAP) in Canberra, Australia, passed its resolution recognizing Wat Pho’s inscriptions as documentary heritage “**Asia/Pacific Memory of the World Register in 2008**”; and again on 27 May 2011 endorsing the inclusion of Wat Pho’s inscriptions in the “**Memory of the World Register in 2011**” at the University of Manchester in the United Kingdom. The celebrations of the recognition were held on 24 December 2011 – 2 January 2012 at Wat Phra Chetuphon (Wat Pho).



The message text inscriptions and *ruesi dadton* (self-stretching exercise) sculptures (made of zinc-tin alloy) at Wat Phra Chetuphon are essentially important Thai massage texts passed on to the present generation. Thus, they should be promoted and developed under the theme “Thai Massage as Thai Heritage towards World Heritage” by expediting the issuance of a ministerial regulation on criteria and procedures for designating national Thai traditional drug formulas or national Thai traditional medicine textbooks. And a mechanism is to be developed to standardize and certify Thai massage training programmes and Thai massage services according to the national Thai massage wisdom.

5.4 Standards of Thai massage in the health-care system and workforce development

1) Thai massage standards in the health-care system

Thai massage is a profession in the Thai traditional medicine practice that plays a significant role as a health-care option in Thailand’s public health system. The law presently in effect on this matter is the **TTM Professions Act B.E. 2556 (2013)**, which prescribes that Thai massage is a “Thai Traditional Medicine Profession” according to Section 4 of the Act. Thus, a licensed Thai massage practitioner or therapist under this law has the same rights and privileges as those in other TTM professions.

In this regard, MoPH’s Department of Thai Traditional and Alternative Medicine, in cooperation with TTM-related network members, has undertaken many Thai massage development actions, i.e. curricula, sanatoriums or medical facilities, clinical practice guidelines, standards of educational/training institutions, and standard textbooks as follows:

1) Curriculum standards according to the TTM Professions Act B.E. 2556 (2013) covering two educational levels, one as per Section 12(2) (a) corresponding to Section 33(1)(a) and the other as per Section 12(2) (b) corresponding to Section 33(1)(b) – see details in section 5.3 on Thai massage knowledge development and wisdom protection, subsection 2) on knowledge in the traditional transmission system and the professional training system.

2) Standards of health facilities. The standards of TTM services at state health facilities prepared by DTAM in 2005 and revised in 2008 are used for five service components at two levels of health facilities: hospitals and health centres. The five components are related to premises (including supplies, equipment, tools and environment), personnel, operations, quality control, and service delivery.

Later on during 2012–2013, the Thai Traditional Medicine and Integrative Medicine Promoting Hospital Standards (TIPhS) was established to ensure that provincial health facilities are able to efficiently provide TTM services. The standards for such facilities are divided into three levels: the standard for regional/general hospitals, the standard for community hospitals, and the standard for *tambon* (subdistrict) health promoting hospitals (THPHs), each covering the five service components for state health facilities.

3) Clinical practice guidelines

Thai Massage Clinical Practice Guidelines were prepared under the UCS for massage services in relieving pain and rehabilitation for patients



with paresis and paralysis in 2007 and for health promotion in postpartum women in 2010. In this connection, it was agreed in principle that all health facilities including CUPs across the country should use the same clinical practice guidelines; and it was proposed that DTAM revise and develop the clinical practice guidelines to be used by all health facilities providing TTM services throughout the country.

4) Standards of educational or training institutions as required by the TTM Professions Act of B.E. 2556 (2013), classified into two levels:

(1) The institutions or medical centres certified by the TTM Council with a licensed TTM practitioner certified to pass on the knowledge as the teacher or trainer as per Section 12(2)(a), which corresponds to Section 33(1)(a) of the Practice of Healing Arts Act B.E. 2542 (old law). There are currently 105 certified institutions of this category as detailed in Table 3.6 in Chapter 3.

(2) The institutions offering a bachelor's degree or a certificate equivalent the bachelor's degree in TTM or applied TTM and certified by the TTM Council as per Section 12(2)(b), which corresponds to Section 33(1)(b) of the old law. There are currently 11 TTM institutions and 8 applied TTM institutions certified by the TTM Profession Commission as detailed in Tables 3.9 and 3.10 in Chapter 3.

5) Standards of textbooks

(1) Textbooks for use in teaching Thai professional massage (Category A). The TTM Council (formerly, TTM Profession Commission) has approved and designated three Thai massage textbooks for use by the persons who apply for Thai massage licensing examination, namely (1) Textbook of Thai Massage (*Tamra Phaen Nuad*) in the Royal Textbook of Medicine (*Tamra Vejasart Chabap Luang*) of King Rama V, Volumes 1 and 2,

Department of Fine Arts, Ministry of Education, B.E. 2542 (1999); (2) Textbook of Wat Pho Traditional Massage (*Tamra Moh Nuad Wat Pho*), Inscriptions at Wat Phra Chetuphon; and (3) Textbook of Thai Massage (*Tamra Kan Nuad Thai*) Volume 1, Health and Development Foundation, third edition, B.E. 2550 (2007) (as of June 2012). However, principal textbooks are lacking for at least 20 courses in the teaching of Category A Thai professional massage.

(2) Textbooks of TTM educational institutions (Category B).

It has been found that nearly all institutions use various textbooks; they should focus on the understating of the principles and knowledge of Thai massage according to the traditional Thai massage wisdom.

(3) Textbooks of applied TTM educational institutions (Category B). In the initial stage, massage textbooks for general TTM were used such as the inscriptions of Wat Phra Chetuphon (Wat Pho), *Khamphi Phaen Nuad Volumes 1 and 2*. Later on, there are the textbooks of Thai traditional therapeutic massage (royal massage) and basic massage (covering basic massage, signal point massage, and conditions in Thai traditional therapeutic massage), and other textbooks being prepared by each university.



2) Workforce development

Thai society has been more aware of Thai traditional medicine over the past three decades due to people's interest in alternative health care, while the trends in indigenous health wisdom among local NGOs are also expanding and more acceptable by the public sector. This has resulted in the movement for reviving the TTM/IM knowledge. In 2009, the Second National Health Assembly (NHA) passed seven resolutions, one of which was related to the integration of TTM/IM/AM into the mainstream national health-care system. And in 2010, the National Health Assembly passed an

issue-specific resolution endorsing the Second National Strategic Plan for Thai Wisdom and Thai Healthy Lifestyle Development (2012–2016). So, the policy implementation to integrate TTM/IM/AM into the health insurance schemes has been undertaken more consistently and systematically.

The strategies for TTM workforce promotion and development at the national level are now clearer, but the movement for improving the capacity of TTM including Thai massage service providers, especially in the public sector, is important as they are the key persons in rendering health services to the people. Thus, one of the most important factors is having adequate TTM and Thai massage service providers in terms of quantities, skills and qualities. And such personnel have to be distributed to thoroughly cover all various population groups.

Regarding the TTM workforce situation, according to the Thai Traditional and Alternative Health Profile, 2009–2010, there were 1,987 TTM graduates with a bachelor's degree in 2007, while 3,179 students were studying. And for the same year, Dr. Tinakorn Noree conducted a study on TTM workforce projections for hospitals over the following 10 years, especially for 2 groups of personnel (at primary, secondary and tertiary health facilities), i.e. (1) Thai traditional medical doctors who are licensed TTM or applied TTM practitioners and (2) Thai traditional medical assistants who have completed the TTM assistants' curriculum from the institution certified by the TTM Profession Commission and can practise the healing arts as assigned.

Based on the staffing patterns and the numbers of MoPH health facilities (95 regional/general hospitals, 731 community hospitals and 9,746 health centres), there was a projected demand for 10,789 TTM doctors and 22,378 TTM assistants even though there might be some changes over the following 10 years. And a survey on exiting workforce at state health facilities conducted by the NHSO revealed that there were 1,394 licensed TTM practitioners (10.5%), 6,244 TTM assistants (47.2%) and 5,606 TTM

providers lower than TTM assistants (42.3%) (see more details in Table 3.3 on TTM personnel under the UCS).

With regard to the TTM workforce production or supply from the educational institutions, nearly all (except Ayurved School) accepted students during 2002–2007 and produced 1,987 graduates, while 2,818 students were studying. However, the analysis did not take into account the data on the supply of Thai massage professionals (Category A) or those who were trained by licensed/certified massage practitioners/teachers at an institution or medical centre certified by the TTM Profession Commission.

In 2005 and 2007, 81 and 373 licensed Thai massage practitioners as per Section 33(1)I, respectively, received a certificate of Thai massage teacher/preceptor according to the Ministerial Regulation on Training or Passing on Professional Knowledge to Persons Applying for a TTM Licence B.E. 2550 (2007). In 2011 and 2013, there were 699 and 535 licensed Thai massage practitioners as per Section 33(1)(a) – see more details in Table 3.5 on the number of registered/licensed TTM/Thai massage practitioners in Chapter 3. However, such persons had not submitted the preceptor acceptance certificates; and no analysis has been made to determine the actual number of Thai massage practitioners as all TTM practitioners could provide Thai massage therapy and the TTM assistants' curriculum chiefly teaches Thai massage.

In developing this kind of staffing pattern, the Category A Thai massage workforce would be affected as those with a Thai massage licence were not included in the analysis. So, the Thai massage staffing pattern as well as career path should be developed in the health-care system.

Problems and constraints

(1) The Thai massage professional and occupational standards have been established for raising the capacity of service providers and supporting the production of adequate numbers of Thai massage personnel.



However, the programmes for producing Thai massage personnel are diverse regarding the curricula, teachers, resource persons, and practice sites as they are not of the same standards, resulting in the graduates possessing different levels of Thai massage knowledge and skill. Moreover, there are no staffing patterns for service units; and the employment systems are not favourable to the development of Thai massage personnel, most of whom being daily-wage employees.

(2) The production of Thai massage personnel does not meet the demand due to the restrictions on the qualifications of massage personnel. According to the professional standards, a massage practitioner must complete the established curriculum, i.e. the 330-hour curriculum for TTM assistants and the 800-hour curriculum for professional massage practitioners.

(3) There is no database for Thai massage workforce to be used for workforce requirement analysis and long-term workforce planning purposes.

(4) To date, there are many public and private Thai massage personnel producing agencies using diverse curricula and textbooks, resulting in graduates or trainees with varying knowledge and skills.

(5) Each of the public and private service facilities needs Thai massage personnel with different skills (massage therapy and massage for health promotion and beauty)

(6) There is no core agency for certifying the standards of Thai massage skills.

(7) There is no core agency for registering trained Thai massage professional graduates or trained practitioners for employment placement purposes.

(8) There is no curriculum designed for knowledge and skill development in response to social needs.

(9) Demand is rising for Thai massage personnel in state health facilities, based on the standards for Thai professional massage requirements as required by the law on healing art practice (therapeutic massage), but state agencies do not have any staffing patterns or vacancies or welfare for such personnel.

Policy recommendations

(1) The MoPH should emphasize the promotion of TTM services in the district health system (both primary and secondary care) as there have been TTM personnel working at such facilities. As the district service delivery system is not too difficult and complex to manage, the integration of TTM services into the modern medical system will be easily successful.

(2) A principal agency and mechanism should be established to deal with the standards of Thai massage professional and occupational skills; and another agency should be set up to keep a register of skill-certified Thai massage practitioners for employment purposes; and Thai massage curricula should be improved to raise the skill levels in response to demand.

(3) Local government organizations are an important option in developing TTM personnel at the local level as they can take actions related to requirement planning, production financing, and establishing the staffing pattern as well as career path for such personnel at MoPH's or their own health facilities.

(4) A system should be developed for collecting core indicators to be used in making projections with other methods; and then the future workforce planning will be more accurate. Such data are, for example, productivity data, analysis of mobility characteristics of each population group, utilization rates, and personnel loss rates.



(5) The curricula and instructions should be revised or improved according to the quality and standard requirements of the Ministry of Education and the certification of the TTM Profession Commission, in collaboration with other relevant network members, educational institutions, the TTM Council, and the MoPH.

(6) The development of teachers in terms quantities and qualities should be expedited as they will be an important factor for determining the workforce production capacity in the future.

(7) The personnel development efforts should be geared towards the existing TTM service providers who graduated from the institutions that made them ineligible to apply for licensing examination, and those who completed various unqualified training programmes according to the TTM Council's requirements, so as to raise their educational qualifications for higher productivity.

3) Service system

At present, there are three categories of massage service facilities, namely state facilities (10,592) and private facilities (289) as shown in Table 5.3.



Table 5.3 Number and percentage of health of facilities providing Thai massage services

Type of health facilities	Facilities, total number	Facilities providing massage services		Facilitates without massage services	
		Number	Percent	Number	Percent
- State facilities	10,592	3,183	30.05	7,409	69.92
1. Community hospitals	734	579	78.88	155	21.12
2. Regional/ general hospitals	94	39	41.48	55	58.51
3. <i>Tambon</i> health promoting hospitals	9,764	2,565	26.27	7,199	73.73
- Private facilities	-	298	-	-	-

Source: Thai Massage Group, Institute of Thai Traditional Medicine, DTAM, 31 March 2012.



It is noteworthy that 69.9% of state health facilities do not provide any massage services. Having a clear policy and direction in terms of staffing, budget for improving the facilities, and others will help increase the number of health facilities with massage services, increase staffing, and create job security as well as quality of life of the Thai massage personnel, who will sustainably preserve the Thai massage identity.

(1) Promotion, prevention, therapy and rehabilitation

Thai massage is one branch of the TTM sciences for health care in regard to health promotion, disease prevention, medical treatment, and rehabilitation via the two channels of state health services, namely:

1) Receiving examination and diagnostic services at modern medical clinics, where modern physicians lack the understanding of the Thai traditional medical treatment guidelines, resulting in not prescribing

or referring for Thai traditional medical care. Moreover, there are many steps when receiving such services; so TTM services at health facilities are not widespread.

2) Receiving examination and diagnosis services at Thai traditional medical clinics, where the responsible persons may not be licensed TTM practitioners. Most of such providers are, for example, nurses, pharmacists, health technical officers, and physical therapists. Thus, training programmes should be organized for relevant personnel on this matter, or get licensed TTM practitioners to work at all services units.

Therefore, to strengthen TTM services at state health facilities, a TTM training programme should be organized for modern medical doctors; and the TTM knowledge should be incorporated into the modern medical education system. Besides, for the TTM services to be standardized to meet the international standards, the TTM service systems in both public and private facilities should be improved, in parallel with the development of the systems for manufacturing herbal drugs and products that are used in Thai massage services to be of high quality and standards. This is to make Thais of all age groups as well as foreigners confident in receiving Thai massage services.

The Thai massage in the health system is divided into two types: therapeutic/rehabilitative massage and health promoting massage. Thus, the development of service systems for enhancing the efficacy and safety has focused on delivering the good quality services of acceptable standards and assuring the service quality as follows:

(1) The public sector. Delivering Thai massage services at state healthy facilities emphasizes massage for therapeutic and rehabilitative purposes. Relevant agencies set a policy to promote and implement the provision of Thai massage in the health system.

1.1) The Ministry of Public Health, through the Department for Development of Traditional and Alternative Medicine, has established

the standards of TTM services at state health facilities in five components: (1) premises including supplies, equipment, tools and environment; (2) personnel; (3) operations; (4) quality control; and (5) service delivery.

Two sets of TTM services standards have been prepared for two levels of state health facilities: one for hospitals and the other for subdistrict health centres (currently, *tambon* health promoting hospitals, or THPHs). For the two sets, their **similarities** are related to premises (supplies, equipment, tools and environment), operations, and quality control, while the **differences** are related to personnel and service delivery. Regarding **personnel**, each type of facilities has different kinds of providers handling the history taking, physical examination, diagnosis and treatment prescription, and the TTM service delivery at the subdistrict health centres (THPHs) do not have a licensed medical doctor (modern medicine), except some with a part-time doctor occasionally providing outpatient services. Concerning **service delivery**, the health centres focus on herbal medications, whereas the hospitals can provide herbal medications as well as therapeutic massage.

As for other types of state health facilities, the TTM service standards for hospitals are also applicable to TTM educational institutions (universities), while other facilities can adopt either the standards for hospitals or the standards for health centres as appropriate, depending on their characteristics. For example, if they are operating like a hospital, they can adopt the hospital standards, but if they are more like a health centre, they can choose the health centre standards.

1.2) The NHSO has annually allocated the budget for the “TTM System Development Fund under the Universal Coverage Scheme” to cover the TTM service fees for UCS beneficiaries. The TTM Fund’s aims are to support and develop TTM services to be a health-care option with good quality, safety, efficacy and high standards; and it also supports and develops TTM/AM services to link to modern medical services appropriately

in each context so that the health system will be sustainable, participatory, and self-reliant in the long run.

In this connection, the NHSO has set up the TTM service standards for use as guidelines for developing and assessing the TTM services. The NHSO's standards are similar to DTAM's standards with regard to the operations, service delivery, personnel, and quality control, while the differences are related to the premises regarding the number of beds, equipment, tools, and the environment. The NHSO's standards are based on those developed by the Bureau of Sanatorium and Healing Arts, Department of Health Service Support. Regarding the personnel, it is required that TTM service providers should be the persons who have completed the 330-hour TTM assistants' curriculum, the 800-hour Thai professional massage curriculum, and licensed TTM practitioners or applied TTM practitioners (depending on the level of service facility).

(2) The private sector. TTM services in the private sector mostly focus on massage for health promotion and health spa. The state health agency involved in such services is the Department of Health Service Support through its two units, i.e. the Bureau of Sanatorium and Healing Arts and the Office of Health Business Promotion; the first one deals with the issuance of permits for opening clinics according to the TTM professional standards, while the latter deals with those for health business operations.

Both the Bureau and the Office have developed the standards for TTM services at private health business facilities and assessment guidelines, which have been sent to provincial public health offices for further action.

In summary, in implementing the policy on TTM promotion in both public and private sectors, relevant agencies focus on providing good quality services according to the established standards and assessing the

services for quality certification purposes. However, there have been no linkages with relevant agencies.

The **problems and obstacles** encountered include the lack of coordination in developing the standards of TTM services in the same direction for the public and private sectors. Such agencies are the Department for Development of Thai Traditional and Alternative Medicine, the National Health Security Office, and the Department of Health Service Support (which has two offices, each setting standards to serve their own purposes).

It is recommended that, based on the situation review, in implementing the policy on TTM service development, all relevant public and private agencies should be involved through a coordinating mechanism. They all should have the same direction in such a development effort with a mechanism or core agency doing the inspection, assessment and certification of service standards.



(2) Levels of services (primary, middle, and high)

The TTM services in state health facilities are classified into four levels as follows;

Level 1: Facilities providing one of the following services: herbal medication, massage, herbal steam bath, and herbal compress.

Level 2: Facilities providing two services: either massage and herbal medication or massage and herbal compress.

Level 3: Facilities providing the services in Level 2 and offering training courses on TTM.

Level 4: Facilities providing the services in level 3 and producing herbal drugs in the facilities.

Most of TTM services in state health facilities are designated by the regional health inspection team. Generally, all regional, general, and community hospitals are to provide Level 2 services and subdistrict health

centres provide Level 1 services. Currently, it has been found that the upgrading of TTM services is dependent on the readiness and needs of each locality. So the advancements of TTM services in state health facilities are in different stages.

The networking of health services is undertaken according to the UCS principles in all three levels of health services (primary, secondary and tertiary), covering health promotion, disease prevention, medical treatment and rehabilitation.

The TTM/AM services are mostly provided at primary care units even though such services can be potentially rendered at primary, secondary, and tertiary care levels, but they are less acceptable. That is why the services are provided mostly at the primary care level. Some of the weak points are as follows:

(1) There is no up-to-date data on TTM services at different levels of health facilities.

(2) The physical structures of state health facilities are rather limited; they cannot be adequately used for providing massage services as a large space is needed for massage steam bath and herbal compression according to the TTM service standards.

(3) The lack of massage therapists as most massage training institutions produce only masseurs in their <150-hour curricula for those working on health promoting massage.

(4) There are no staffing patterns for employing Thai massage personnel.

(5) The lack of budget for development activities.

5.5 Partnerships and consumer protection

The review of partnerships in the movements of local health including TTM/IM/AM wisdom reveals the following:

1. In 2001, the National Health Reform Office, through the Subcommittee on Drafting National Health Act, prepared the draft conceptual framework for national health system for distribution to various forums for comments. In that connection, the TTM/IM/AM network and AM community promotion project was established to support the participation of 4 networks in 18 forums to develop a desirable health system conceptual framework and defined the term “**Thai Healthy Lifestyle System**” to cover Thai traditional, indigenous and alternative medicine. After the Health Expo, the recommendations from the National Health Assembly and the positive support for local health wisdom led to the drafting of the National Health Act.

2. The drafting of the National Health Act was undertaken through multisectoral partnerships with all sectors including the civil society, the academic or professional sector, and the public policy sector during the National Health Assembly of 2002. Finally, Thailand’s first law on health system was promulgated as the National Health Act B.E. 2550 (2007). Section 47(7) in Chapter 5 of the Act prescribes that there must be a support mechanism for the use and development of local health wisdom including Thai traditional medicine, indigenous medicine, and other alternative medical practices.

3. The Statute on National Health System B.E. 2552 (2009) supports the movement of TTM/IM/AM as a core health-care system of the country in parallel with the modern medical system. This can be done by raising the management system involving the financial support for resources allocation, personnel production and distribution, and drug and service system



management. The aims are to widely promote the use of such services in the health system and to ensure people's equal access to all medical service systems.

4. According to the Second National Health Assembly's resolution no. 7 of 18 December 1999 says, "**Development of TTMIM/AM to be a core health-care system of the country in parallel with the modern medical system.**" And other NHA's resolutions related to partnership strengthening are, for example: (1.1) Support the setting up of provincial mechanisms to promote the roles and capacity building of indigenous healers and TTM practitioners in providing health care to the people. (1.2) Promote the partnerships and networking of local government and civil society organizations to establish a self-reliant health system as well as patient and consumer protection systems. (1.3) Support the networking of TTM practitioners to set up a TTM professional council. (1.4.5) Support THPHs to provide TTM services. (1.4.6) Establish model TTM hospitals - a progress report on this effort was presented at the Fourth NHA on 4 February 2012, including five sub-issues, namely 1) provision of IM/TTM/AM services at THPHs; 2) promotion and support of IM systems; 3) establishment of model TTM hospitals; 4) promotion of Thai traditional and herbal medicines; and 5) consumer protection related to IM/TTM/AM.

5. The MoPH appointed the Committee on Formulating the First National Strategic Plan for Thai Wisdom and Thai Healthy Lifestyle Development (2007-2011) comprising representatives from relevant agencies and partners in the public and private sectors as well as civic and community groups. And in the Statute on National Health Assembly B.E. 2552 (2009), Chapter 7 on promotion, support, use and development of local health wisdom, Thai traditional medicine, indigenous medicine, and other alternative medicine, Section 61 prescribes that the Committee on Development of Local Health Wisdom under the National Health Commission shall provide advice and recommendations to the Commission

and the cabinet in the areas of advocacy, implementation, monitoring and evaluation of the national strategic plan.

6. In drafting the Second National Strategic Plan for Thai Wisdom and Thai Healthy Lifestyle Development (2012–2016), the specific-issue health assembly process was used in soliciting ideas from relevant agencies and network members in the public, political, and academic sectors as well as civil society. The cabinet endorsed the appointment of the committee on formulating the second national strategic plan on 20 May 2012.

7. The Thai Massage Revival Project has been operational since 1985 by massage teachers or masters from various institutions in Thailand in cooperation with senior health experts. Under the project, research studies have been jointly conducted to develop the massage knowledge until Thai massage is accepted by the people and health personnel; and many of them are interested in learning Thai massage. Regarding the establishment of the Institute of Thai Traditional Medicine in 1994, it was actually pushed by the popular sector and personnel from various sectors, while the then minister of public health was also confident in the concept of self-reliance with TTM. Later on, the Department for Development of Thai Traditional Medicine was established in 2002.

8. The consumer protection network, whose membership includes educational institutions offering TTM and applied TTM programmes, TTM Profession Commission, TTM service facilities in the public and private sectors as well as those under Thai massage NGOs, networks of indigenous healers, networks of health promoting massage, civic groups or Thai/foreign associations dealing with consumer protection, and funding agencies such as the NHSO and LGOs.

9. Regarding the protection of consumers and service providers, the TTM Professions Act B.E. 2556 (2013) was enacted on 1 February 2013.



Summary of the policy recommendations on partnerships and consumer protection

1) Strengthening the practice of healing arts of Thai and indigenous massage practitioners

(1) Coordinate with the agencies dealing with laws and regulations such as the TTM Profession Commission so that they can perform the duties impartially, rapidly and efficiently; and the Bureau of Sanatorium and Healing Arts should create a database on licensed practitioners, publicize all relevant information in a timely manner, and assign responsible officers for aspects of the database.

(2) Ensure that funding agencies such as NHSO and LGOs should allocate the budget for promoting the education or training in Thai professional massage and local indigenous massage; the NHSO should continue supporting the “Fund for Development of TTM System” in furtherance of improving TTM personnel’s efficiency in the state health-care system.

(3) Urge the Bureau of Thai Indigenous Medicine to promote and develop the service and educational standards of indigenous healers through the screening and management of indigenous massage knowledge to create curriculum standards for certification by the established Working Group on Curriculum Development. This is for indigenous healers to practise the healing arts using the Thai indigenous wisdom with dignity.

(4) Support the establishment of an independent quality assessment agency or audit system for Thai massage facilities and the institutions transferring the Thai massage knowledge.

2) Promoting and developing certified institutions to transfer the knowledge according to the standards required by law for the purpose of producing good practitioners

(1) Have in place a central administration agency that can support the educational institutions certified by the TTM Council and coordinate the joint effort in improving the teaching/learning system according to the standardized curriculum on TTM profession (Thai massage) – by DTAM.

(2) Improve the educational quality that would lead to the development of Thai masseurs' quality by strictly inspecting and monitoring the instructional systems of educational institutions – by the Bureau of Sanatorium and Healing Arts of the Department of Health Service Support and the TTM Council.

(3) Raise the level of Thai massage training by setting up a strong institutional certification system as well as a system for auditing the instructional quality by the Profession Commission or an independent agency, and an educational quality assurance system; and there should be standard textbooks as well as appropriate practical training and examination standards in order that the graduates or trainees will be Thai massage practitioners with the Thai massage knowledge and skills, consumers' risk prevention capacity, and morality as well as ethics – by the TTM Council.

3) Tactics for promoting and developing mechanisms for consumer protection in Thai massage in connection with the existing consumer protection system

(1) Encourage health facilities and others related to Thai and indigenous massage to collaboratively develop the consumer protection capacity by creating a mechanism for monitoring the safety and quality of



Thai massage services to ensure efficacy and quality for protecting massage recipients and massage providers - by DTAM.

(2) Ensure that all consumers' groups are universally eligible to receive Thai massage services - by DTAM.

(3) Empower the consumers by working collaboratively with consumer protection agencies or NGOs in providing correct and up-to-date information via the media channels that are easily accessible to the consumers - by NGOs working consumer protection.

(4) Disseminate the knowledge and information to the people who are directly affected by Thai massage to choose and use Thai massage services. The education and training in Thai massage is also extremely important. The protection of the people should be extended to foreigners as Thai massage is widely popular among and acceptable to them; such actions will also help conserve the reputation of Thai massage that is the identity of the nation - by DTAM and the Department of Health Service Support.

(5) Promote the participation of all relevant sectors in dealing with the problems of and suggesting solutions to the services and advertisements of healing art practices and other actions that affect the consumers and the Thai massage profession - by DTAM.

(6) Establish state policies on TTM development especially Thai massage in a unity manner, to the extent that they are not contrary to the existing laws - by DTAM and the Department of Health Service Support in coordination with the TTM Council.

(7) Create a civic sector mechanism to accept complaints and insure against damage arising from the services; such an effort has to be easily accessible to consumers, efficient, and linked to other relevant agencies in rapidly resolving service recipients' problems.

5.6 Linkages with the service business sector and foreign trade

1. Review and analysis of Thai massage markets

The promotion of Thai massage, a valuable wisdom acceptable to Thais and foreign tourists, for it to be disseminated from being Thai heritage to become world heritage, requires a review and analysis of the situation regarding the linkages with service business partners and others, focusing on the two types of Thai massage markets: domestic markets and overseas markets. As for the domestic markets, the service clients may be Thais or foreigners coming to Thailand as tourists, businessmen, residents or for other purposes such as education, training or seminar, while international markets, the clients may be Thais, local residents, or other expatriates in foreign countries.

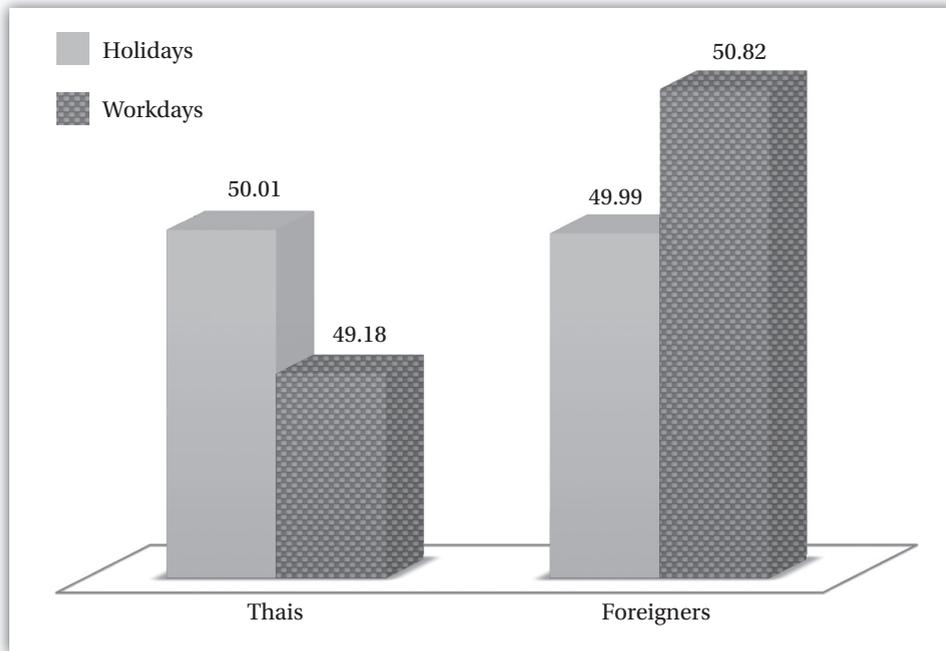
The review and analysis of the domestic and overseas markets of Thai massage services show the following:

1) Domestic markets: Thai massage services at present are available at three types of health facilities/providers, namely (a) state health facilities, 3,183 (30%) out of 10,592 facilities provide Thai massage services mostly for therapeutic purposes, whose service fees are reimbursable; (b) 298 private health facilities with Thai massage services; and (c) 8,246 indigenous healers providing massage services at their residences.

According to the database on tourism markets of the Tourism Authority of Thailand (2012), the overall spa business including Thai massage is regarded as the health business that is supported by the Thai government in line with the National Economic and Social Development Plan, whose strategy is to develop Thailand as the Wellness Capital of Asia. It was revealed that during the high tourist season, the number of Thai and



Figure 5.1 Proportions of spa/massage clients on holidays and workdays during the high tourist season, 2012

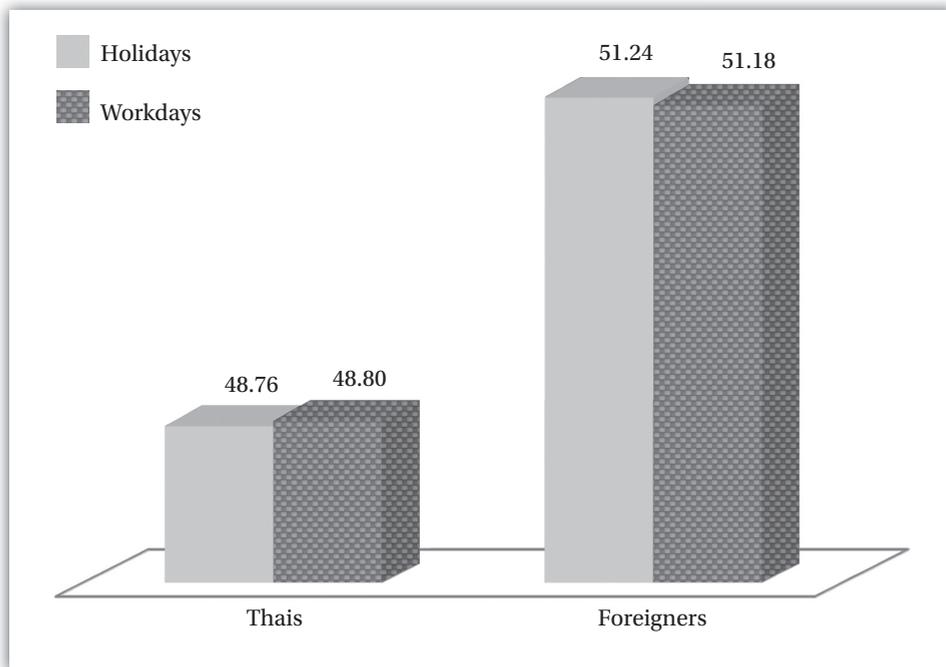


Source: Marketing database by tourism characteristics, Tourism Authority of Thailand, 2012.

foreign spa/massage clients was on average 14,482 per day, on holidays at 19,946 per days, and on workdays at 12,046 per day, and half (50%) of them were Thais, whereas during the low season, the average number of clients per day dropped to 9,539, on holidays to 13,756 and on workdays to 7,740 (51.2% foreigners, 48.8% Thais).

Regarding the foreign tourists using spa services, most of them were Asians from Japan, Korea, Singapore, Hong Kong and Taiwan, followed by those from Europe and America. According to the survey, the maximum spa service capacity is for approximately 13.55 million tourists per year, while the actual number of service recipients is around 4.61 million per year, or

Figure 5.2 Proportions of spa/massage clients on holidays and workdays during the low tourist season, 2012



Source: Marketing database by tourism characteristics, Tourism Authority of Thailand, 2012.

34% of the maximum capacity. That means the oversupply is as much as 66%; so as many as 8.94 million more tourists can be serviced each year. That is a golden opportunity of the Thai spa business, which has already had the potential and readiness to accept more Thai and foreign tourists, resulting in social acceptance as well as a higher economic growth and competitiveness in the world market.

In connection with the behaviours of foreign tourists using Thai spa/massage services, a survey on 382 foreign spa/massage clients showed that 80% of them came to Thailand for sightseeing, 13% on business, 10% to visit families and friends, 5% for health and medical care, and 1% to study, training or seminars.

The significant domestic trends in the Thai spa/massage market (Thailand Spa Benchmark Report, December 2009), based on the opinions of executives of spa/massage and support businesses as well as foreign experts, are as follows:

(1) Of all the foreign spa/massage clients, 18% are foreigners residing in Thailand and 82% are tourists. So, a high growth is expected for those from East Asia and Southeast Asia such as Japan, China, Hong Kong, Taiwan and Singapore, while those from the Middle East are also rising. That is a result of the popularity of health tourism and their high purchasing power.

(2) The business executives forecast that the overall market growth is 20–30%.

(3) There are more groups of tourists, especially young adults (aged 25–30) and health conscious males. And the number of tourists who are lovers as well as those using spa/massage services while traveling is also rising.

(4) There are more diverse products and services such as a full-cycle service package (including spa, wellness and Thai massage), massage in hotel guest-rooms, and more creative or group-specific products.

(5) Health and beauty industries such as spa/Thai massage and health tourism very much require identities because the products and services with a local identity will result in differences among spa premises as well as higher standards. So the certification for business operators is very important.

(6) The important factors for pushing forward the markets in the future include, for example, the word-of-mouth advertising, convenient location, communications and public relations, receipt of awards of business operators, stress alleviation, spiritual happiness seeking, and physical-mental balances of humans.

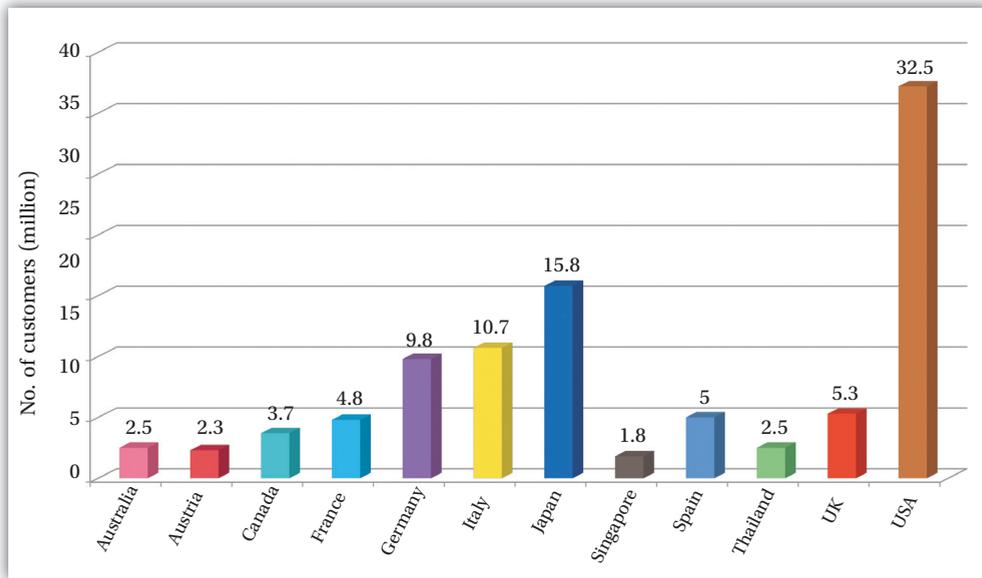
2) Overseas markets. The targets are the service recipients in each country whereas the service providers are Thais and locals in such countries.

(1) Situation of overseas service recipients. At present, most of spa and Thai massage businesses overseas are jointly operated by Thai and local investors as they can help facilitate the establishing of such operations, especially when dealing with regulatory requirements for sending Thai personnel to work in their countries. In comparison with other seven Asian-Pacific countries (Singapore, Indonesia, Malaysia, Hong Kong, Australia and New Zealand), regarding Thai spa and massage, Thailand pays more attention to Asian, European and Middle Eastern markets. As for Asia, the focus is on high potential ASEAN+6 markets such as Vietnam, China, India, Laos, and Cambodia as they are familiar with the Thai service model. Meanwhile, European markets have customers with a high purchasing power and more interest in oriental relaxation or therapies, for example, Russia and Turkey. In the Middle East, there is not much restriction on the labour force and imports of products and services; so, the markets are attractive to foreign investments in opening such a business.

As for spa (including Thai massage) services in foreign countries, the level of popularity in each country is different. The top six countries with high numbers of spa customers are the USA, 32.2 million; Japan, 15.8 million; Italy, 10.7 million; Germany, 9.8 million; England, 5.3 million; and Spain, 5 million.



Figure 5.3 Number of spa customers in various countries, 2007



Regarding Thailand's rivals in spa/massage business, most of them are neighbouring countries, i.e. Singapore, Malaysia, Indonesia and Hong Kong. Each of such countries has a high growth of spa/massage business, especially Singapore as it is prepared to expand the business to overseas markets and has eased a number of rules favourable to the operators, for example, allowing the businesses to open 24 hours. As for Indonesia, the country has a highlight as the prototype of oriental spa and country-specific massage, which is a major source of national revenue.

(2) Thai massage situation in foreign countries. According to the aforementioned information, Thai spa/massage services are provided in three global regions: (1) Asia - according to a study conducted by MoPH's Department of Health Service Support, Thai spa/massage services are popular in Hong Kong, Singapore, and the United Arab Emirates; (2) Europe - according to the Department of Export Promotion, Ministry of

Commerce, such services are popular in Germany and the United Kingdom of Great Britain and Northern Ireland; and (3) America and the South Pacific – according to the Department of Export Promotion and Thai embassies, the services are popular in the USA and Australia.

Currently, there are no accurate data on the numbers of Thai massage establishments and practitioners in foreign countries. However, a data analysis reveals that overall the business operators need international certification, technical support, Thai professional massage development and licensure, service quality and standard promotion, competitiveness enhancement, and publicity of Thai identity and wisdom for international recognition and acceptance.

The problems and obstacles of Thai massage service delivery encountered overseas include the negative image of Thai massage among foreigners as it is generally viewed as involving indirect sex trade. A study on foreigners' behaviours and trends related to Thai spa/message shows that what the clients need the most are the certification of service premises, personnel, and products, full-cycle services, the use of authentic Thai services and products with identity, and the services with no hidden sex trade.

The impacts on Thailand and the health service preparedness for integration into the ASEAN Economic Community (AEC). As the ASEAN member states agreed to establish the ASEAN Free Trade Area (AFTA) in 2003 and continually supported their joint economic growth, the Eighth ASEAN Summit held in Cambodia in 2002 endorsed the actions towards the AEC, which is like the European Economic Community (EEC), by 2015 in being a single market and single market base, with free flows of goods, services, investments, capitals, and skilled labour. In this connection, the free trade mechanisms are implemented in 11 priority sectors, namely tourism, aviation, automobiles, wood products, rubber products, textiles, electronics, agricultural products, fisheries, information and communication technology, and health. Later on logistics was added as the 12th priority area. In this



effort, the customs duties among ASEAN members were expected to be reduced to zero by 2010 for old members and by 2015 for new members (Myanmar, Laos, Cambodia and Vietnam) under AFTA.

Therefore, to be prepared for the AEC integration according to the government's policy on establishing Thailand as a regional hub of health services including TTM as well as Thai massage and spa services, it is necessary that all agencies concerned understand the situation and revise relevant rules, regulations and laws to ensure operational flexibility, and then establish a mechanism for inspecting and monitoring the performance. In this regard, the impacts on Thailand and its preparedness actions are as follows:

(1) Certain laws would likely be amended to ease or repeal the restrictions on foreigners coming into Thailand for medical treatment or health care. To make such services more conveniently accessible, a six-month medical visa might be issued and renewable once.

(2) The free flow of labour would be allowed and then it would be an opportunity for Thai workers to more conveniently work in other ASEAN countries. On the contrary, the chances of foreign workers to come and work in Thailand would be greater too.

(3) Thai private businesses would be encouraged to form clusters for medial care and health promotion to respond to foreign customers' needs according to the target service areas such as a cluster for dental services, a cluster for physical checkups, a cluster for holistic health care, and a cluster for integrated TTM/AM services, using various international marketing strategies as well as domestic and overseas agents, or working in partnership with other ASEAN countries.

(4) Development of public-private partnership (PPP) to promote joint investments as well as exchange and use of resources.

(5) Development of standards and harmonization requirements of health products, drugs and non-drug medical supplies in terms of quality,

inspection, and health professional licensing; the revision of rules, regulations and requirements; and the acceptance of each other's standards as well as harmonization requirements.

(6) Creation of additional values of health products and services for the entire supply chain (upstream to downstream) by/via sharing resources and business partnerships with other ASEAN members that results in a higher comparative advantage and lower production costs.

(7) Establishment of a clear role of Thailand, which is the leader of health spa in ASEAN, in setting up a collaborating mechanism or a mutual recognition agreement in creating, developing and publicizing ASEAN Spa Standards to be used as a selling point of the prominent services of the region, and in serving as a database on the promotion of the use of the standards for consumer protection in health, remedies for those affected by such services, and integrated actions on the promotion of Thai spa as a spa model of ASEAN.

(8) Creation of an ASEAN inter-country collaborating mechanism in establishing the role of ASEAN in negotiating with other countries or major groups of trade partners to set joint marketing targets by designating Thailand as the centre of health tourism of ASEAN in the form of "Ring of ASEAN Sense Destination".

(9) Development of transport infrastructure and facilities, keeping in mind the benefit of the disadvantaged and environmental protection principles as well as the concept of Ring of ASEAN Sense Destination.

(10) Development of the standards of relevant personnel with a linkage and systematic management system involving those related to education, employment, labour protection and skill development.

(11) Organization of an ASEAN Health Tourism Festival to promote tourism marketing and activity packages based on the concept of Ring of ASEAN Sense Destination among ASEAN member states as a global event similar to the International Travel Trade Show in Berlin (ITB Berlin).



In implementing the policy in a concrete manner, with respect to the management of the impacts, the government has to set the targets and control measures, keeping in mind the externalities, to eliminate or lessen the negative impacts to the acceptable level. Concerning the policy management, the capacities and structures as well as the roles and management procedures of implementing agencies must be revised or improved to apply the systematic thinking and connectivity methods. And they have to implement the policy according to the technical principles, develop programmes and projects in line with the country's feasibility, measure the efficiency and cost-effectiveness in a systematic manner, and create a good understanding thoroughly with relevant stakeholders so that they all can implement the policy consistently in a balanced manner.

5.7 Thai massage service utilization

Thai massage is in the service sector that can benefit service recipients and generate marketing values worth tens of billions of baht each year. With the domestic markets being the main source of revenue, the overseas markets are currently expanding at a slow pace, but their future trends are promising when linked to health tourism that is expanding in line with rising interest and health consciousness. The analysis of Thai massage situation reveals the following:

1) The trends of Thai massage in the domestic markets are on the rise for both therapeutic and health promoting purposes. The analysis of Thai massage services has taken into account all three types of massage facilities or providers, namely therapeutic massage facilities (public and private), health promoting massage facilities, and indigenous healers' places. Regarding the therapeutic massage markets, most clients are Thais. According to the data on Thai massage services at state health

facilities under the UCS, more Thais have a tendency to use TTM services, mostly therapeutic massage, the number rising from 313,352 cases in 2009 to 889,225 cases in 2011, or from 0.66% of the UCS population to 1.87% during the same period (see Table 5.4). In connection with massage and related services, the number of Thai massage service visits increased constantly the most from 612,710 visits in 2009 to 1.05 million visits in 2010 and 2.05 million visits in 2011. Regarding the visits for herbal compress and herbal steam bath, the numbers of both services also rose more than two-fold during 2010–2011 (see Table 5.5).

Table 5.4 Number of Thai massage clients at state health facilities, 2009–2011

Population and clients	No. of clients		
	2009	2010	2011
No. of UCS beneficiaries	47,423,134	47,779,909	47,557,262
Thai massage clients, number	313,352	509,050	889,225
Thai massage clients, as % of UCS beneficiaries	0.66	1.07	1.87

Source: Service data from the TTM service programme, November 2011; the number of UCS beneficiaries from the Registration Centre, based on the total population in July of that year.

Table 5.5 Number of Thai massage and related service visits, 2009–2011

Type of service	No. of service visits		
	2009	2010	2011
Thai massage	612,710	1,049,649	2,050,188
Herbal compress	436,328	621,541	1,455,194
Herbal steam bath	113,254	178,827	408,731

Source: Service data from the TTM service programme, November 2011.



1.1) Marketing of health promoting massage services. For this kind of services, the clients are both Thais and foreigners. A marketing survey by tourism characteristics (Tourism Authority of Thailand, 2008) shows that each year as many as 4.61 million Thai and foreign tourists use Thai spa and massage services. During the high tourist season, the average number of Thai and foreign clients is 14,482 per day, much higher than that for therapeutic massage. Concerning foreign clients, 82% of them are tourists, and the rest or 18% are residents in Thailand; and among the foreign tourists, most of them are Asians (from Japan, Korea, Singapore, Hong Kong, and Taiwan), followed by Europeans and Americans.

1.2) Massage services provided by indigenous healers. Most indigenous massage services are rendered for therapeutic purposes, mostly to local clients living in the communities. If the massage therapists are highly competent, by word-of-mouth communications, there will be more non-locals coming in to use their services.

Regarding the marketing promotion to encourage more clients to use massage services, most health promoting massage premises normally emphasize sale promotion packages more than those providing therapeutic massage. So, the number of clients using health promoting massage is many times higher than that for therapeutic massage.

2) Thai massage has expanded with Thai spa's popularity, but there is no agency definitely supporting Thai massage overseas. At present, Thai massage is generally known abroad under the name of Thai spa, whose markets are located in three regions: Asia, Europe and America & South Pacific. For Asia, Thai spa/massage is popular in Hong Kong, Singapore and the United Arab Emirates (UAE), and Vietnam. Thailand attaches importance to the ASEAN+6 markets (China, Japan, Korea, India, Australia and New Zealand) as the customers in such countries are familiar with the Thai service patterns. For Europe, the services are popular in

Germany and the United Kingdom and Northern Ireland. Other European countries are also Thailand's targets such as Russia and Turkey as their people have high purchasing power and a lot of them are more interested in the oriental methods for relaxation and therapy.

For **America and South Pacific**, the services are popular in the USA and Australia. In such countries, Thailand's massage rivals are nearby countries such as Singapore, Malaysia, Indonesia, and Hong Kong. In particular, the businesses in Singapore are regarded as Thailand's significant competitors as they are ready to expand to other countries; and they have also eased legal measures for the benefit of business operators, for example, allowing the 24-hour opening of services. Whereas Indonesia has got outstanding features as the pioneer of the oriental spa as well as the country-specific massage model. In addition, the Middle East markets are also important for Thai massage expansion; and their restrictions are not many regarding the imports of labour, products and services.

In connection with the number Thai massage practitioners going to work overseas, it has been emphasized that the aforementioned markets have the potential for Thai massage expansion. According to the database on Thai masseurs registered at the Office of Thailand Overseas Employment Administration (January 2012–June 2013), approximately 1,200 Thai masseurs went to work abroad, mostly in Europe (approx. 620), chiefly Russia, Ukraine, Czech Republic, and Hungary; followed secondly by Asia (approx. 520) mostly to Malaysia, Singapore, the UAE, Bahrain, and Qatar; thirdly to Africa (approx 50) including Egypt, South Africa, and Tanzania; and lastly to Australia, South Pacific and America (approx. 10), i.e. New Zealand, Mexico, the USA and Brazil (Office of Thailand Overseas Employment Administration, Department of Employment, Ministry of Labour, 2012).

As for Thai workers going to work overseas as Thai traditional massage practitioners via the Department of Employment, Ministry of Labour, between 2010 and 2012, it is evident that there is a huge demand



for professional Thai massage practitioners. The Thai labour database shows that in 2010 there were 2,995 Thai massage practitioners going to work mostly in 10 out of 85 countries, such as Russia, the UAE, Hungary, Czech Republic, India and Malaysia (Table 5.6).

Table 5.6 Thai massage practitioners going to work in foreign countries, 2010

Rank No.	Country	Thai massage practitioners	
		Number	Percent
1	Russia	399	13.32
2	United Arab Emirates	355	11.85
3	Hungary	269	9.88
4	Czech Republic	255	8.51
5	India	233	7.44
6	Malaysia	196	5.64
7	Turkey	107	3.57
8	Bahrain	83	2.77
9	Egypt	73	2.43
10	Kuwait	72	2.40

Source: Department of Employment, Ministry of Labour, 2010.

For 2011, the Thai labour database shows that 3,153 Thai massage practitioners went to work overseas mostly in 10 out of 81 countries, such as Russia, the UAE, Hungary, Czech Republic, India and Turkey (see the list and ranking in Table 5.7).

Table 5.7 Thai massage practitioners going to work in foreign countries, 2011

Rank No.	Country	Thai massage practitioners	
		Number	Percent
1	Russia	576	18.26
2	United Arab Emirates	503	15.95
3	Hungary	229	7.26
4	Czech Republic	226	7.04
5	India	169	5.36
6	Turkey	106	3.36
7	Ukraine	104	3.29
8	Kuwait	79	2.50
9	Brunei	69	2.18
10	Egypt	67	2.12

Source: Department of Employment, Ministry of Labour, 2011.



For 2012 (January–April 2012), the Thai labour database shows that 1,225 Thai massage practitioners went to work overseas mostly in 10 out of 69 countries, such as Russia, the UAE, Malaysia, Czech Republic, Hungary, and Ukraine (see the list and ranking in Table 5.8).

Table 5.8 Thai massage practitioners going to work in foreign countries, 2012

Rank No.	Country	Thai massage practitioners	
		Number	Percent
1	Russia	239	19.51
2	United Arab Emirates	166	13.55
3	Malaysia	100	8.16
4	Czech Republic	85	7.04
5	Hungary	70	5.71
6	Ukraine	62	5.06
7	Turkey	47	3.83
8	Bahrain	34	2.77
9	Brunei	28	2.28
10	Kuwait	26	2.12

Source: Department of Employment, Ministry of Labour, 2012.

It is noteworthy that skilled Thai workers particularly Thai traditional massage practitioners are in great demand. Therefore, the capacity building of Thai workers to suit the market demand is an important matter, while the measures for protecting the quality of life of Thai workers overseas have to be pursued thoroughly with the integrated efforts of relevant agencies such as the Department of Employment, Ministry of Labour, the Ministry of Foreign Affairs, the Ministry of Social Development and Human Security, and the Ministry of Public Health through the Department for Development of Thai Traditional and Alternative Medicine.

In summary, even though Thai spa is popular overseas, the image of Thai massage among foreigners is still negative as it is regarded as involving indirect sex trade. A study on Thai spa/massage clients' behaviours and consumers' trends shows that what the clients need the most are the confidence in massage premises, services, personnel and products with standard certification, full-cycle services, the use of authentic Thai services and products with identity, and the services without hidden sex trade.

Meanwhile, several relevant Thai agencies abroad have not had any clear actions to eliminate the negative image, create the value of Thai massage, and raise the Thai massage marketing status. Thus, the standard certification, the full-cycle services, and the use of authentic Thai services and products with identity are the challenges of Thai massage development and export to other countries.





One Decade of the Protection of Thai Traditional Medicine, Indigenous Medicine and Medicinal Plants

For over 100 years, Thailand has been the origin of abundant natural resources with diverse plant varieties, biological resources, social cultures, and local wisdom including herbs or medicinal plants, Thai traditional medicine (TTM) and indigenous medicine (IM) wisdom, as well as the process of thinking and using such things in line with Thais' traditional ways of life. It has been estimated that there are about 800–1,000 varieties of herbs or medicinal plants that are known to the communities about their properties and usefulness in various aspects. Later on, a situation report shows that more than 100 herbs are endangered or near extinction primarily due to rising demand for natural herbs for use in people's daily lives and commercial purposes.

At present, the trends in using herbs in lieu of modern medicines and the loss of herbal origins due to conservation area encroachment with rising populations have resulted in an increased demand for agricultural land. Moreover, social problems and people's poverty as well as government's policy on allocating land for the people over a certain period of time have resulted in more conserved land areas being used to earn a living. So, the

changes in land conditions have caused the rapid reduction in the varieties and amounts of herbs; and certain herbs may finally become extinct.

The most recent forest survey of Thailand conducted in 2006 revealed that the country's total forest area dropped from 104.7 million rai (approximately 41.4 million acres) in 2004 to only 99 million rai (39.1 million acres) in 2007. The forests are classified as conservation areas including 123 national parks and 58 wildlife sanctuaries and other forest areas including national reserved forests (1,221), non-hunting zones, botanic gardens or nature parks. The management systems of such areas are under different laws or regulations and implemented by various agencies which pay close attention to the prevention and suppression of land encroachment as well as ecosystem conservation. However, such problems still occur in several forest areas, so the agencies concerned need to perform their duties more strictly.

In the conservation areas which cover national parks, national reserved forests, wildlife sanctuaries and other special zones with strict law enforcement, the collection of forest products or herbs is forbidden, except for research purposes. But in the case of national reserved forests, a certain use of the forests is allowed according to the traditional way of life of local communities such as herb collection. Such an action is allowed as the local communities normally have a careful procedure that is based on the sustainability and future use of the forests. But currently, it is apparent that herbs in natural sources are illegally collected in some areas with no regard for the impact on, and the capacity of, the natural ecosystem.

Under the trends of globalization and borderless communications, the pressure on Thailand from the Western patterns and foreign technological advancements is rapidly getting more intense. It is thus so worrisome that some diverse biological resources and local wisdom of the nation will be lost due to a certain step, process or mechanism of various form of research, knowledge or technology transfer between Thailand and domestic and

foreign institutions, companies, agencies or organizations. The loss might also be due to the stealing by some Thais and foreigners.

Based on the concept of maintaining and creating natural justice and the benefits in various forms of personal rights and the overall rights of the community, legal measures of the country have been established with the aim of preventing foreigners from accessing or taking away such wisdom. That is the major aim of protecting Thailand's TTM wisdom, which is consistent with the system for intellectual property protection at the international level.

However, before describing the details of each situation or impact related to the traditional wisdom of Thai traditional medicine, indigenous medicine, tribal medicine and each community's medicine, a common understanding about the definition of such wisdom should be established in the same direction.

Most Thais use the terms "wisdom (*phoompanya*), folk wisdom, local wisdom and Thai wisdom" in the same meaning, but each of them are actually used to linked to their localities. When compared with the term "traditional knowledge" (*phoompanya thongthin*), it is deemed that it does not cover the nation's principal wisdom. If the term "Thai wisdom" is used, it will indicate only the wisdom of ethnic Thais, not that of other diverse ethnic groups living in Thailand. So, it has to be made clear that the word "Thai" in "Thai wisdom" means the wisdom of Thailand or all ethnic groups in the Kingdom of Thailand.

To ensure a common understanding for passing a legislation or setting standards or mechanisms for protecting such wisdom, this report focuses only on the wisdom of Thai traditional medicine, indigenous medicine and herbs (medicinal plants) in Thailand; all regarded as the same group of wisdom dealing with the treatment of diseases, health promotion, disease prevention and rehabilitation, including tangible and intangible aspects. This is consistent with the provision of Section 3 of the



Protection and Promotion of Thai Traditional Medicine Wisdom B.E. 2542 (1999), which prescribes that “Thai traditional medicine wisdom” means the fundamentals of knowledge and capability relating to Thai traditional medicine” and “Thai traditional medicine means the medical processes concerned with examination, diagnosis, therapy, treatment or prevention of diseases, or promotion and rehabilitation of the health of humans or animals, midwifery, Thai traditional massage, and shall includes the preparation and production of Thai traditional drugs, and the invention of medical devices and instruments, based on the knowledge or texts (textbooks) that have been passed on and developed by succession”.

The measures for protecting such wisdom should be based on the nation’s relevant laws in establishing the levels of the protection of core wisdom at the national, general and individual levels. The situation in detail is discussed below.

6.1 Legal measures and operations in the country for TTM wisdom protection

The legal measures and mechanisms related to the management of national treasure and biodiversity herby involve and include the wisdom of Thai traditional medicine, indigenous medicine, and herbs, both tangible and intangible.

Thailand has legislated two laws in this regard prescribing the timeframe and features for enforcement, i.e. the Plant Varieties Protection Act B.E. 2542 (1999) and the Protection and Promotion of Thai Traditional Medicine Wisdom Act B.E. 2542 (1999). Such laws are regarded as legal innovations in the *sui generis system*, generally known as sister laws, aiming to serve as a national fence in protecting the nation’s traditional medical wisdom or treasure as well as natural biological resources before ratifying the Convention on Biological Diversity (CBD).

However, in this connection, over the past several years many laws have been promulgated for enforcement by several agencies, but there has been no integration of such efforts. The laws directly and indirectly related to this matter are the following:

- 1) Forest Act, B.E. 2484 (1941), Amendment B.E. 2532 (1989)
- 2) National Park Act, B.E. 2504 (1961)
- 3) National Reserved Forest Act, B.E. 2507 (1964)
- 4) Commercial Forest Plantation Act, B.E. 2535 (1992)
- 5) Plant Varieties Act, B.E. 2518 (1975), Amendment B.E. 2535 (1992)
- 6) Plat Quarantine Act, B.E. 2507 (1964)
- 7) Plant Varieties Protection Act B.E. 2542 (1999)
- 8) Protection and Promotion of Thai Traditional Medicine Wisdom, Act B.E. 2542 (1999)
- 9) Fishery Act, B.E. 2490 (1947)
- 10) Animal Breeding Development Act, B.E. 2504 (1961)
- 11) Wild Animal Reservation and Protection Act, B.E. 2535 (1992)
- 12) Beasts of Burden Act, B.E. 2482 (1939)
- 13) Animal Infectious Disease Act, B.E. 2499 (1953)
- 14) Wild Elephant Protection Act, B.E. 2464 (1921)
- 15) Communicable Disease Act, B.E. 2523 (1980)
- 16) Pathogen and Animal Toxin Act, B.E. 2504 (1961)
- 17) Patent Act, B.E. 2522 (1979), Amendment B.E. 2542 (1999)
- 18) Copyright Act, B.E. 2537 (1994)
- 19) Trade Secret Act, B.E. 2545 (2002)
- 20) Act on Protection of Geographical Indications Act, B.E. 2546 (2003)
- 21) Ancient Monument, Antique, Object of Art and National Museum Act, B.E. 2504 (1961), Amendment (No. 2) B.E. 2535 (1992)



- 22) Improvement and Conservation of National Environmental Quality Act, B.E. 2535 (1992)
- 23) Public Health Act, B.E. 2535 (1992)
- 24) Fertilizer Act (No. 2), B.E. 2550 (2007)
- 25) Export and Import of Goods Act, B.E. 2522 (1979)
- 26) Control of Slaughter and Distribution of Meat Act, B.E. 2535 (1992)
- 27) Regulation of the Office of the Prime Minister on Conservation and Use of Biological Diversity (No. 1), B.E. 2543 (2000)
- 28) Regulation of the Office of the Prime Minister on Conservation and Use of Biological Diversity (No. 2), B.E. 2548 (2005)
- 29) Regulation of the Committee on Conservation and Use of Biological Diversity on Criteria and Procedures for Access to and Receipt of Compensation from Biological Resources, B.E. 2554 (2011)
- 30) Regulation of the Royal Forest Department on Technical Research or Studies in Forest Areas, B.E. 2542 (1999)
- 31) Regulation of the Royal Forest Department on Application for Permit to Conduct Technical Research or Studies in National Forest Areas, B.E. 2542 (1999)

In addition, there are other related laws that are in the legislation process or being amended as follows:

- 1) (Draft) Community Forests Act, B.E.
- 2) (Draft) Plant Varieties Protection Act, B.E.
- 3) (Draft) Local Wisdom Act, B.E.
- 4) (Draft) Biological Safety Act, B.E.

The laws that the Department for Development of Thai Traditional and Alternative Medicine (DTAM) of the MoPH has to follow and enforce directly are the Plant Varieties Protection Act B.E. 2542 (1999), the Wild

Animal Reservation and Protection Act B.E. 2535 (1992), and the Patent Act B.E. 2522 (1979), Amendment B.E. 2542 (1999).

The policies or mechanisms to be implemented have to be consistent with the 11th National Economic and Social Development Plan (2012–2016), the 11th National Health Development Plan (2012–2016), the Second National Strategic Plan for Thai Wisdom and Thai Healthy Lifestyle Development (2012–2016), the Statute on National Health System under the National Health Act B.E. 2550 (2007), and the Protection and Promotion of Thai Traditional Medicine Wisdom Act B.E. 2542 (1999). The MoPH's policies and strategies leading to DTAM's vision, mission, policy and strategy as well as duties and programmes/projects according to the annual plan of action related to the protection of Thai traditional medicine, indigenous medicine and herbs are as follows:

1. The Protection and Promotion of Thai Traditional Medicine Wisdom Act B.E. 2542 (1999). This is the only *sui generis system* or special kind law in the world and an innovation related to intellectual property law that aims to protect and promote TTM wisdom, biodiversity and relevant local wisdom.

The movement for such conservation, protection and promotion requires various forms of integrated mechanisms depending on local conditions and situations in collaboration with partners at all levels, particularly the Protection and Promotion of TTM Wisdom Committee at the national level. According to Section 5 of the TTM wisdom protection law, the Committee has the power to appoint a subcommittee to carry out various duties. And another important mechanism is the action according to Section 12 of the law, which prescribes that the DTAM has the power to carry out duties related to the protection and promotion of education, training, research and development of TTM wisdom and herbs as well as the administrative and technical functions of the Committee. In addition,



Section 13 of the law prescribes that the DTAM's director-general serves as the central registrar and the provincial chief medical officer in each province as the provincial registrar (of the TTM wisdom register).

1) Concerning the system and mechanism for conserving, protecting and monitoring TTM wisdom, the DTAM has prepared technical documents and provided information for the drafting of subordinate legislation according to the Protection and Promotion of Thai Traditional Medicine Wisdom Act B.E. 2542 (1999). Totally, 19 rules/regulations have been prepared and endorsed by the Protection and Promotion of TTM Wisdom Committee, including:

- ✿ 5 ministerial regulations
- ✿ 10 MoPH's notifications
- ✿ 2 regulations of the Committee
- ✿ 2 notifications of the Committee

2) Selection of honourable members on the Protection and Promotion of TTM Wisdom Committee according to the Ministerial Regulation on Criteria and Procedures for Selecting Honourable Committee Members B.E. 2546 (2003) and the Ministerial Regulation on Criteria and Procedures for Selecting Honorary Committee Members (No. 2) B.E. 2552 (2009). Five selections were undertaken:

First selection: 2003–2004

Second selection: 2005–2007

Third selection: 2008–2009

Fourth selection: 2007–2011

Fifth selection: 2012–2013

According to section 4 of the abovementioned Ministerial Regulation, the Central Registrar and the Provincial Registrars are required to prepare a register of experts of various groups with personal information for use in the selection of honourable committee members.

1. The register of licensed TTM practitioners (numbering 56,875) in all four branches, namely Thai pharmacy, Thai medicine, Thai midwifery, and Thai massage (see Table 3.4, Number of licensed TTM practitioners). Regarding applied TTM practitioners, please see Table 3.8, Number of persons who passed the test and became licensed applied TTM practitioners, 2007–2012.

2. The register covers personal information about the TTM practitioners or personnel of various groups in the database of the Central Registrar’s Office for use in the secretion of honorable committee members. The numbers of such persons are shown in Table 6.1 below.

Table 6.1 Personal information register – numbers of TTM practitioners or personnel of various groups for use in the secretion of honorable committee members

Group of TTM practitioners or personnel	Number (persons)
Indigenous healers	53,225
Herb growers or processors	2,734
Thai drug producers or sellers	1,862
NGO personnel working on TTM	564
TTM technical officers	1,944
Total	60,329

Source: Central Registrar’s Office, 31 May 2013.

3) Section 10 of the Act prescribes that the Committee has the powers to appoint subcommittees to consider or perform any tasks assigned by the Committee. To date, nine subcommittees have been appointed under four missions as follows:



Missions	Subcommittees
1. TTM wisdom protection	1) Subcommittee on Protection of Thai Drug Formulas and TTM Textbooks 2) Subcommittee on Herb Protection 3) Subcommittee on Conservation of Herbs and Their Origins 4) Subcommittee on Preparation of Reference Textbooks on Thai Herbal Drugs 5) Subcommittee on Technical Services and Preparation of TTM Glossary
2. Legal affairs	6) Subcommittee on Development of TTM Laws
3. Support for TTM wisdom protection	7) Subcommittee on Protection of Rights Related to TTM Wisdom 8) Subcommittee on Promotion and Development of the Use of TTM Wisdom
4. Indigenous medicine	9) Subcommittee on Development of Indigenous Medicine

4) Cooperation on the formulation of “Policy, measures, and plan for the conservation and use of biodiversity, 2013–2017”, which includes five tactics, namely:

- (a) Protecting the components of biodiversity
- (b) Supporting the sustainable use of biodiversity
- (c) Reducing the threats to biodiversity
- (d) Promoting research, training, counseling and awareness on/of biodiversity
- (e) Enhancing Thailand’s capacity in undertaking actions stipulated in international agreements related to biodiversity

In this connection, the DTAM is directly responsible for implementing tactic (a) above, i.e. protecting biodiversity components. A short-term management plan has been designed for projecting the herbs in the conservation zones according to the timeframe specified by each locality.

Besides, the DTAM also provides technical support in the implementation of other tactics.

5) Implementation of the CBD Programmes of Work on Protected Areas by serving as the focal point in endeavouring to achieve the goal of the Convention. The primary goal is to be the source of products and services from the ecosystem and the site for preserving natural and cultural heritage by designating protected areas as well as their roles in several important programmes such as:

- (a) Programme of Work on Marine and Coastal Biodiversity
- (b) Programme of Work on Inland Water Ecosystem Biodiversity
- (c) Programme of Work on Dry and Semi-humid Land Biodiversity
- (d) Programme of Work on Forest Biodiversity
- (e) Programme of Work on Mountain Biodiversity

Thus, the Programmes of Work on Protected Areas are extremely important tools in achieving the goal of the CBD as they are most effective in the biodiversity conservation efforts and have to be urgently undertaken. This is to improve the conditions of the protected areas so that they have the characteristics that are representative of various ecosystems and for their management systems to be more efficient at the national, regional and global levels.

The major objectives of the Programmes of Work on Protected Areas are twofold:

- 1) To support the establishment and maintenance of the network systems of protected areas that are representative of the ecosystems with efficient and effective management mechanisms at the global level by 2010 for land areas and by 2012 for marine areas. This will result in the declining rates of biodiversity losses at the national, regional and global levels.



2) To support the programmes on poverty reduction and sustainable development in line with the objectives of the CBD's strategic plan.

Each CBD's Programme of Work on Protected Areas has four inter-connected elements as follows;

Element 1: Direct actions for planning, selecting, establishing, promoting and managing the protected area

Element 2: Management, participation, equality and benefit allocation

Element 3: Support activities

Element 4: Standards, evaluation and monitoring

In each element of the Programme of Work, the objective, target and activities are clearly stated.

6) Implementation according to the important international agreements or laws related to, or having an impact on, the protection of local and indigenous medicine wisdom as well as herbs.

6.1 Measures and mechanisms according to the World Intellectual Property Organization or WIPO's Agreement on the Protection of Traditional Knowledge or Wisdom, Genetic Resources and Cultural Expression. The WIPO is headquartered in Geneva, Switzerland.

For Thailand, the Department of International Economic Affairs of the Ministry of Foreign Affairs is the lead agency responsible for the implementation of WIPO's frameworks or mandates since voluntarily being a member state; and all 184 member states across the world agree to work together for the common benefit in promoting the protection of intellectual property through collaborative efforts.

In various WIPO's forums, DTAM's representatives together with others from the Ministry of Foreign Affairs, the Ministry of Culture, the Ministry of Commerce, the Ministry of Agriculture and Cooperatives, and the Ministry of Natural Resources and Environment participated in three

WIPO Intergovernmental Committee (WIPO IGC) meetings each year to review the details of each item of the protection rule and accord the rights to relevant member states in sharing the benefits, and define and specify the scope of protection. Regarding member states' intellectual property rights, they include the rights to traditional knowledge or local wisdom, genetic resources and cultural expressions. At WIPO's General Assembly, over the past 10 years, the DTAM was represented in some of its sessions only, due budgetary limitation, on local wisdom; however, the progress on this matter has been followed up periodically from other relevant agencies.

At each session of the WIPO IGC on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, different substantive objectives is set, involving traditional knowledge or local wisdom, genetic resources and cultural expressions. For the 24th session, the emphasis was placed on the definition, scope and subject matter of protection, and beneficiaries of traditional knowledge for WIPO member states.

Concerning the criteria for right protection, who will be protected, who is to maintain the property, and who will be given the rights (the owner, the possessor, or the community), these issues are linked to the passage from generation to generation; when the rights begin and end; if there is consent, which level of acceptance will occur. To date, there has been no conclusion on such matters as there have been several propositions with different thoughts, contexts and specificities of different countries. The review has not been finalized either on such matters as the restrictions and scope of protection as the subject matter of such protection as well as the limitation and exceptions are still related to other items, concerning the definition and scope of protection.

For such IGC meetings, it is DTAM's duty to prepare a technical document and get involved in the negotiations on TTM wisdom conservation and protection as well as laws. The document is to be used as guidelines for the safeguard of the country's biodiversity, herbs and local wisdom as well



as those of other member states. In the future, other relevant actions should be undertaken, namely (1) drawing up a programme or project in response to WIPO's mandate to send DTAM's representatives to attend the meetings, (2) preparing a summary report for submission to the subcommittees concerned, and (3) disseminating the information on important points to inform other stakeholders or affected persons and solicit their comments on a broad scale.

However, a programme or project should be developed to continually accelerate the capacity building of relevant personnel with regard to foreign languages and negotiation skills. Besides, the DTAM has accorded importance to various national level meetings by regularly sending representatives to attend; and it has realized the importance of the mechanisms for the protection and monitoring of TTM wisdom.

According to Section 15 of the Protection and Promotion of TTM Wisdom Act B.E. 2542 (1999), the DTAM is required to compile the information about TTM wisdom especially drug formulas and textbooks from all over the country for establishing a TTM wisdom register. In this effort, the Register of TTM Wisdom has been set up according to the Regulation of the Committee on TTM Wisdom Protection on Establishing a Register of TTM Wisdom, B.E. 2548 (2005); and its achievements are as follows:

1. Development of a database for setting up the TTM Wisdom Register for the Offices of the Central and 76 Provincial Registrars, and provision of services related to the registration of personal rights of TTM wisdom.

2. Compilation of 117,763 items of TTM wisdom from all over the country including TTM textbooks and Thai drug formulas. To date, 11 volumes of such textbooks have been published and the publishing of additional volumes will be expedited. In addition, a number of items of TTM wisdom have been reviewed and selected as national and general TTM wisdom according to the established criteria on such matter, including

TTM textbooks and Thai drug formulas. The plan and target have been set to publish at least 16 additional volumes for more than 17,076 items of wisdoms (Table 6.2)

Table 6.2 Number of TTM wisdom items compiled, published and classified by the Offices of the Central Registrar and all 76 Provincial Registrars

TTM wisdom (items)		TTM wisdom published in volumes 1-11 (items)		TTM wisdom selected as national and general wisdom (items)	
Formulas	Textbooks	Formulas	Textbooks	Formulas	Textbooks
111,094	6,669	68,659	5,325	4,202	95
117,763		73,984		4,297	

Source: Central Registrar's Office, DTAM, 31 May 2013.

The aforementioned database has been used for the analysis, development, use, conservation and monitoring of TTM wisdom to be designated as national or general TTM wisdom as per Sections 17, 18 and 19 of the Act and the registration of personal rightholders of TTM wisdom as per Sections 20 and 21. The right to TTM wisdom under the Act shall be valid throughout the lifetime of the rightholder and still valid until the expiration of 50 years as from the date of decease of the rightholder.

Another measure or mechanism undertaken is the development of the database of TTM/IM wisdom and herbs in a modern and efficient format for use in technical and legal management, especially in the analysis, referencing, examination and confirmation of the Thainess of the wisdom to protect against the stealing or inappropriate use of the wisdom.

Besides, the DTAM has undertaken activities for the monitoring of TTM and 25 major herbs, namely roselle (*kra-jiab-daeng*), black fingerroot (*kra-chai-dam*), white *kwao khrua* (*Pueraria* spp.), senna or malabar tamarind (*som-khaek*), kariyat (*fa-thalai-jon*), turmeric (*khaminchan*),



ringworm bush (*chumhed-thet*), Asiatic pennywort (*bua-bok*), mulberry, *phlai* (*Zingiber* spp.), peppercorn, mangosteen, Siam tulip (*kra-jiao*), flame lily (*dongdueng*), cocculus (*khamin-khruea*), *kamphaengjedchan* (*Salacia* spp.), bamboo grass (*ya-nang*), laurel clockvine (*rangjued*), Indian gooseberry (*makhampom*), eagle wood (*kritsana*), *plao-luead* (*Croton robustus*), drumstick (*ma-room*, *Moringa* spp.), Thai massage (*nuad Thai*), and *ruesi dadton* (self-stretching). In this effort, the patent information is searched for in the relevant patent category (A 61) in seven groups of countries associated with certain patent agencies, namely the World Intellectual Property Organization, the Japan Patent Office, the European Patent Office, the U.S. Patent Office, the Chinese Patent Office, the Korean Patent Office, and the Thai Patent Office; and then the report will be submitted to relevant subcommittees. In case of violation of or similarity to TTM wisdom or Thai herbs, actions on protest/revocation will be taken.

Moreover, technical cooperation is supported to examine the trademarks that have been registered with the Department of Intellectual Property to see whether such trademarks are the same as, or similar to, TTM wisdom or Thai herbs. If so, further protest /revocation actions will be undertaken.

6.2 Implementation of measures and mechanisms according to the Convention on Biological Diversity – the CBD Secretariat is headquartered in Montreal, Canada.

The implementation of the CBD and the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from Their Utilization to the Convention on Biological Diversity includes those prescribed in 36 articles of the Protocol, i.e. general provisions (Articles 1–3), core provisions (Articles 4–18), and supportive provisions (Articles 19–36). These include genetic resources and culturally transmitted knowledge of genetic resources, and benefits arising from the use of such resources or knowledge, according to the principles of biodiversity

conservation and sustainable use as well as the intent of the CBD. In this regard, as a member state, Thailand has taken actions prescribed in the Protection and Promotion of TTM Wisdom Act B.E. 2542 (1999) as well as the CBD Programme of Work on Protected Areas for plant conservation and the use of biodiversity resources.

Tasked with the enforcement of the Protection and Promotion of TTM Wisdom Act B.E. 2542 (1999), the DTAM has been taking actions regarding the conservation, protection and monitoring of herbs and their origins as well as biodiversity. Such actions include the issuance of a notification designating the herbs which are valuable for study and research or having economic value, or which may be endangered, as controlled herbs as per Section 44 of the Act. According to Section 57, for the purpose of protection of herbs and its place of origin which is in natural ecological systems or in biologically diverse areas, or which may simply be affected by any act of humans within the area designated as a conservation area, the Minister shall, with advice of the Committee, prepare the action plan so-called “Herbs Protection Management Plan” and propose it to the Council of Ministers for approval.

Under Section 61, in any area which is a place of origin of herbs and the natural ecological system or biological diversity of such area may be destroyed or affected simply by any act of human, or the entering into such area for utilization of herbs may be at risk of extinction or genetic reduction, or the state aims to enhance public participation in managing, administering, developing and utilizing of herbs in that area, if such an area has not been designated as conservation area and the land does not belong to, or is not occupied according to the Land Code by, a person or entity that is not an administrative department, the Minister, with advice of the Committee, has the power to issue a Ministerial Regulation designating that area as herbs protected area.



And under Section 64, in order to enhance public participation in protecting, promoting and developing of herbs, the owner or possessor of the land which is the place of origin of herbs or which may be used for the plantation of herbs shall have the right to register such land with the Registrar for assistance or support under this Act.

Over the past 10 years, the operations for conserving and protecting herbs with research or economic values, or nearing extinction, have been undertaken according to Sections 44 and 45 of the Act.

According to Section 44, for the purpose of herbs protection, the Minister, with advice of the Committee, has the power to notify in the Government Gazette prescribing types, characteristics, species and names of herbs which are valuable for study and research or having economic value, or which may be extinct, to be controlled herbs.

1) Herbs which are valuable for study and research mean herbs that should be further studied for medical, public health, economic or livelihood benefits.

2) Herbs which are of economic importance mean herbs that have market demand.

3) Herbs which may be extinct means herbs that appear only in specific areas, are hard to propagate, grow only in a specific ecosystem and have a high demand for utilization.

The MoPH issued the Ministerial Notification on Protected Herb (*Kwao Khruea*) B.E. 2549 (2006) on 11 January 2006 and effective 2 August 2006, with the aim of protecting and promoting the sustainable use of the herb, establishing a database on the herb, and appropriately sharing the benefits from the use of such herb. Essentially, the Notification requires that the possessor, user, caretaker, keeper or transporter, and grower of three varieties of the herb (white *kwao khruea*, red *kwao khruea*, and black *kwao khruea*) notify the Central and Provincial Registrars of the herb information using the form prescribed by the Committee on TTM Wisdom Protection

and Promotion (Forms Phor Thor 3, Phor Thor 4 and Phor Thor 5). In this case, the DTAM is the Central Registrar's Office and the Provincial Registrar's Office is the Provincial Public Health Office of each province.

In fiscal years 2010 and 2011, the DTAM supported research studies on 12 important herbs, namely eagle wood (*kritsana*), small Indian civet or *chamodched* (*Viverricula indica*), *kamphaengjedchan* (*Salacia* spp.), flame lily (*dongdueng*), cocculus (*khamin-khruea*), *plao-luead* (*Croton robustus*), smilax or *khao-yen-nuea* (*Smilax* spp.), smilax or *khao-yen-tai*, *ra-yom-noi* (*Rauwolfia serpentine*), *ra-yom-yai* (*Rauwolfia verticillata*), *pitsanaht* (*Artemisia indica*), and *non-tai-yahk* (*Stemona tuberosa*). The aim was to assess their values and importance as to whether they should be designated as protected herbs. Upon study completion, the Committee on TTM Wisdom Protection and Promotion has resolved that such herbs should not be regarded as protected herbs yet. However, the Committee suggested that the herbs should be conserved, further studies should be undertaken on growing and propagation, their usage should be promoted, and the study results should be disseminated.

Later on in fiscal years 2012 and 2013, another 12 herbal studies were undertaken on *thaowanpriang*, *kamlangwua-thaloeng*, *jetamunploengdaeng*, *nera-pusi*, *hor-saphai-khwai*, *kamlang-suea-khrong*, *jan-khao*, *jan-daeng*, *sabu-luead*, *sa-moh* (all kinds), *phaya-rakdam*, and *sae-ma-thalai*, by Assoc. Prof. Dr. Nijisiri Ruangrunsi and colleagues. Upon completion, the Committee on TTM Wisdom Protection and Promotion has resolved that four of the herbs (*thaowanpriang*, *nera-pusi*, *jan-daeng*, and *lakkajan*) should be proclaimed as protected herbs. All the four herbs are now being reviewed by relevant officials for drafting a ministerial notification to be submitted to the Subcommittee on TTM Legal Affairs for further action.

Concerning the conservation, protection and monitoring of herbs and their origins, Section 57 of the Protection and Promotion of



TTM Wisdom Act B.E. 2542 (1999) prescribes that the Minister shall, with the advice of the Committee on Protection and Promotion of TTM Wisdom, prepare a “Herbs Protection Management Plan” and propose it to the Cabinet for approval. The aim is to ensure cooperation among relevant agencies and communities in the protection of herbs and their origins in nature with biodiversity as they might be easily affected by human undertakings in the conservation areas.

In practice, in accordance with Section 57 of the Act, since 2008 the Herbs Protection Management Plans have been approved by the Cabinet and implemented for 27 protected areas in 26 provinces, accounting for 7.14% of all the areas that should be protected.

Such Plans aim primarily to protect the herbs and their places of origin in the protected areas according to their natural ecosystems or biodiversity in cooperation with relevant state agencies and communities in their implementation.

Besides, actions have been undertaken according to Section 61 of the Act regarding the compilation and conservation of herbs and their origins outside the protected areas by surveying herbs in community forests, public forests, and village holy forests (*don pu-ta*); and then the information is used for designing a plan for herb conservation and sustainable utilization. To date, four localities have been covered.

In addition, the DTAM has attached importance to measures and mechanisms related to other relevant international agreements as follows:

1. Making recommendations and providing the information according to Article 8(j) of the Convention on Biological Diversity, specifying (1) regional measures undertaken for transboundary protection of local wisdom related biodiversity; (2) participatory actions of indigenous and local communities; (3) development of mechanisms that specify the countries of origins of local wisdom and resources when they access or utilize in such

countries' localities; (4) developing standards and guidelines for protecting local wisdom and genetic resources from inappropriate or unlawful use; (5) guidelines and best practices for the repatriation of information as well as cultural property to facilitate the restoration of local wisdom related to biodiversity with transboundary protection and the evaluation of such operations; (6) the information about the protection efforts and the promotion of customary use according to the conservation and sustainable use requirements; and (7) the information about the management of ecosystems, ecological services, and protected areas related to the protection and promotion of local wisdom utilization.

2. Participating in the meeting of the Ad Hoc Intergovernmental Committee for the Nagoya Protocol with four key issues:

2.1 Operating procedures for disseminating the information on access and sharing of the benefits through legal, managerial and policy measures related to the access to such information, the information about the central coordinating agency and national expert agencies, and the permit issued when accessible, or by developing examples of statement for dissemination as suggested by the expert panel and then submitted to the Secretariat for review of such systems for monitoring and examination of the utilization of genetic resources and related local wisdom.

2.2 Measures for systematically enhancing organizational development and personnel capacity at all (international, regional, national, community and individual) levels by proposing that an expert panel or meeting be held to develop strategic guidelines for capacity building, probably focusing on ASEAN member states' programme on traditional and indigenous medicine as well as herbs or medicinal plants.

2.3 Measures for raising awareness about the importance of genetic resources and related local wisdom using four operational tactics, namely communication situation analysis, key message



creation for communications, development of ABS communications manuals and holding of a regional workshop; and a curriculum might be developed for educational institutions to raise awareness and perception among relevant persons.

2.4 Collaboration process and organizational mechanisms for promoting the operations according to the Protocol and for consideration in case of default. Thailand has proposed that the Secretariat conduct an analysis for developing the components and alternatives using the process described in the Cartagena Protocol on Biosafety as the basis for following the Nagoya Protocol.

6.3 Implementation of mechanisms according to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

The CITES is regarded as the most beneficial and sustainable mechanism for the utilization of natural resources by the people. In this regard, the Parties or member countries of CITES have been doing their best in the protection of their wildlife (wild animals and plants), and international cooperation is extremely essential for protecting certain animals and plants against over-utilization in international trade. Thus, the member states have realized the rising values of wildlife in the aesthetic, scientific, cultural, recreational and economical aspects. Under CITES, the international practical frameworks have been drawn up on the trade in endangered species of animals and plants, requiring that both the exporting and importing countries be jointly responsible for achieving the objectives of the Convention. The cause of establishing CITES is the huge value of wildlife across the world directly affecting human livelihood, and the quantities of certain species have been declining rapidly - some being endangered due to trafficking, second only to illegal drug trade.

The goal and intent of CITES are the conservation of wild animals and plants especially endangered species in the world for the benefit of

mankind in the current and future generations. It is intended for creating networks all over the world to control international trade in wild animals and plants as well as their products.

In Thailand, the first law promulgated on this matter is the Wild Animal Reservation and Protection Act B.E. 2503 (1960). The law aimed to primarily preserve and protect wildlife in Thailand, not those with their places of origin in other countries which were imported commercially for the zoos or breeding purposes. Thus, Thailand had been punished by other CITES member states by imposing their trade ban on wildlife and products with Thailand since 1991.

Later on, Thailand promulgated the Wild Animal Reservation and Protection Act B.E. 2535 (1992) with the provisions on the import, export, and transit of CITES-listed species to and from Thailand. And the Department of Royal Forest informed the CITES Secretariat of Thailand's genuine attempt and intention in abiding by the CITES requirements. As a result, in April 1992, the CITES Secretariat lifted the trade ban with Thailand – the ban resulting in an estimated billions of baht in economic loss.

According to the Wild Animal Reservation and Protection Act, B.E. 2535 (1992), Section 23 (of Chapter 4) prescribes that the import, export and transit of CITES-listed animal species require the approval of the Director-General, and the setting up of a wild animal checkpoint, in principle, means an international checkpoint.

As for the types of CITES-controlled wild animals and plants, they are specified in Appendices 1, 2 and 3 of the CITES Convention. The Appendices state in principle that:

Appendix 1: 51 items of species of wild animals and plants whose trade is strictly prohibited as they are endangered (near extinction), except for research study and propagation purposes, but with the consent of the importing country; and then the exporting country can issue an export permit, bearing in mind the survival of such a variety.



Appendix 2: 130 items of species of wild animals and plants that are not quite endangered; so their trade can be permitted, but the protection of such species is to be undertaken so that they will not be damaged and their quantities will not decrease rapidly to the near-extinction level. The exporting country has to issue an export permit and certify that each export does not affect the existence of such species in nature.

Appendix 3: 17 items of species of wild animals and plants that are protected by law of any country and member states' cooperation is requested to oversee the import, i.e. having an export permit from the country of origin.

6.4 Convention for the Safeguarding of Intangible Cultural Heritage. Essentially, the Convention aims to protect intangible cultural heritage by respecting such heritage of relevant communities, groups of people and individuals. In this effort, the awareness has to be raised of intangible cultural heritage for common appreciation at the local, national and international levels; and the international cooperation and assistance as well as legal, technical, service and financial measures are needed for adopting the programme on intangible cultural heritage, which leads to the protection of such heritage with community participation.

The Cabinet endorsed the Convention and Thailand's membership on 4 June 2013 for further submission to the Parliament for deliberation. Regarding the benefits Thailand will receive in connection with this Convention include measures and mechanisms for conservation and protection of, access to and benefit sharing negotiation on, such intangible heritage. That will help intensify the effort for protecting TTM wisdom according to the Protection and Promotion of TTM Wisdom Act B.E. 2542 (1999). In this connection, the Ministry of Culture is drafting a Cultural Heritage Protection Act, which may be based on the concept or model or measures of the TTM wisdom protection law, for future actions.

Under the Ministry of Culture, the Department of Cultural Promotion serves as the core agency in (1) drawing up the guidelines for the notification and registration of cultural wisdom heritage and (2) coordinating and supporting the registration of various kinds of world heritage with the United Nations Educational, Scientific and Cultural Organization (UNESCO). In this regard, a representative from DTAM serves as an honourable member on the committee on preparing, presenting and screening items of cultural wisdom heritage to be submitted for registration and notification.

Since 2005, the Ministry of Culture has developed and operated the database for compiling the information on intangible cultural wisdom heritage in paper and digital formats, including 350 items of performance arts, 500 items of traditional handicraft, and 40 items of oral literature (*mukkha-pa-tha*). In this connection, 150 items of such cultural wisdom heritage have been registered and notified since 2009 through the community participation process for use as the database of cultural wisdom heritage in Thailand's territory. Among such items, *ya-hom*, indigenous bone therapy, and herbal compress, under the responsibility of DTAM, were registered and notified as cultural wisdom heritage on 14 December 2012.

Thailand has had good data, databases, and information systems that are valuable knowledge, information and wisdom as well as diverse biological resources for further analysis and synthesis for use according to the law and mandate of each agency. Thus, a clear policy direction in managing such efforts is important in efficiently and effectively protecting TTM wisdom and herbs as local wisdom and Thai wisdom under Thailand's sovereignty.



6.2 International laws for the protection of traditional medical wisdom

The concept for developing legal or social mechanisms or measures for protecting traditional medical wisdom, at the national and international levels, is the effort of many countries including Thailand in protecting Thai wisdom as the national property and diverse biological resources so that their everlasting values are preserved.

The concepts of the aforementioned mechanisms or measures adopted in relevant international forums wisdom that should be considered when dealing with TTM wisdom protection are as follows:

1. International agreements on intellectual property of the World Intellectual Property Organization (WIPO) and the mandates of the Intergovernmental Committee (WIPO IGC) on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore

Under the auspices of the United Nations, WIPO was established to develop a balanced international property system in terms of rewarding the rightholders that will lead to the development of innovations, economic growth and protection of public benefits. The concrete results are the international agreements that many countries have voluntarily agreed to join as member states. Established in 1974, WIPO was previously known informally as BIRPI between 1893 and 1960 in Berne, according to the Berne Convention. In 1960, BIRPI was moved to Geneva, Switzerland, with the name change to WIPO and carrying out the mission on intellectual property protection, particularly when the WIPO Convention was adopted in 1967, in collaboration with its member states and other international agencies. Headquartered in Geneva, WIPO currently has 186 member states.

Regarding the Thailand-WIPO relationships, Thailand has been a member state of the Berne Convention for the Protection of Literary and

Artistic Works (a convention implemented by WIPO since 1886) and the WIPO Convention since 1990. Later, Thailand has been a member state of the Paris Convention for the Protection of Industrial Property since 2 May 2008, effective 2 August 2008 and a party to the Patent Cooperation Treaty (PCT) since 24 September 2009, effective 24 December 2009.

The DTAM has been involved with WIPO by participating in the WIPO General Assembly regularly as appropriate; and it gives importance to the meetings of WIPO's various committees by sending some representatives to attend regularly and to monitor the protection of TTM wisdom, which is based primarily on the Protection and Promotion of TTM Wisdom Act B.E. 2542 (1999).

2. Convention on Biological Diversity (CBD)

Biodiversity or biological diversity deals with living organisms and means the existence of a wide variety of plant and animal species in their various ecosystems which are their habitats all over the world with different species, genetics, and ecosystems. The various ecosystems are biodiversity that is complex as evident in the various types of ecosystems such as tropical rain forests, grasslands, mangrove forests, lakes, ponds, swamps, beaches, coral reefs, and manmade ecosystems such as rice fields, reservoirs, or urban communities. Such ecosystems have different kinds of living organisms in different habitats.

At the international level, the United Nations is the focal point in overseeing or protecting the biodiversity, based on the **Convention on Biological Diversity (CBD)**, which is the important convention endorsed at the world environmental conference in Rio de Janeiro, Brazil, in 1992 as an international law. The CBD was drawn up to create global cooperation in the conservation and sustainable use of biological diversity (or biodiversity) in an equitable manner in response to a number of biodiversity-related problems such as the destruction of tropical forest ecosystems (the origins



and habitats of numerous living organisms), extinction of living organisms, and trafficking of endangered species. To cope with all such problems, international cooperation is required as no single country can successfully resolve them.

Biodiversity, according to the CBD, means the diversity of species, genetics and ecosystems. Thus, the CBD is the first international convention that covers the management of three aspects of biodiversity, i.e. conservation, sustainable use, and equitable sharing of benefits. It contains 42 articles and 2 annexes on arbitration for resolving conflicts and has a membership of 198 countries.

As a country with biodiversity, Thailand signed the CBD during the UN Conference on Environment and Development (also known as Earth Summit) on 12 June 1992 in Rio de Janeiro, Brazil, and ratified it on 31 October 2003, effective 29 January 2004, being the 188th member state of the Convention. The Biological Diversity Division of the Office of Natural Resources and Environment Policy and Planning, Ministry of Natural Resources and Environment, serves as the focal point in coordinating with other relevant agencies on the actions required by the CBD.

The Department for Development of Traditional and Alternative Medicine, MoPH, is the agency taking actions required by the Protection and Promotion of TTM Wisdom Act B.E. 2542 (1999), with respect to the biodiversity of herbs, ecosystems of herbs origins, TTM wisdom and use of herbs.

3. International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGR)

Originally, the ITPGR was an international practice guide with no legal binding and established by the UN Food and Agriculture Organization (FAO) in 1983, according to the resolution of the FAO general meeting No. 8/83, called: “International Undertaking on Plant Genetic Resources (IUPGR).

The scope of the ITPGR is confined only to “plant genetic resources for food and agriculture”, whereas the CBD covers all kinds of biodiversity, but has no provision on the plant genetic resources outside their habitats (*ex situ* collection) and the rights of farmers. So, this Treaty is regarded as a supplement to the CBD.

The ITPGR recognizes the sovereign rights to the plant genetic resources for food and agriculture, which is a change from the old principle which was an international undertaking that plant genetic resources were regarded as “common heritage of mankind” and no one could keep it only for oneself. Under the new Treaty, a Multilateral System of Access and Benefit-Sharing is to be established for 64 items of plant genetic resources listed in Annex 1 of the Treaty so that they will be the public property under the management and control of the governments of the member states. Such actions are, for example, being gathered in the bank of plant genetics and being monitored by a state agency of the member state’s government and the international centre for agricultural research of the Consultative Group on International Agricultural Research (CGIAR). However, the Treaty has no enforcement clause for plant genetic resources possessed by private individuals. So the member states are supposed to establish measures for persuading and inviting such individuals to voluntarily join the Multilateral System.

Under the Multilateral System, the access to plant genetic resources for food and agriculture can be made by member states including their citizens and juristic persons with the following criteria: (1) the access must be for the use and conservation of plant genetic resources for food and agriculture related to research, variety improvement, and training, excluding those related to commercial use involving chemical products, medicines, and/or other businesses that are not related to food industry or animal feeds; (2) the minimum access fees must be specified; (3) the permit holder must not apply for the protection of any intellectual property right or any



other right that will limit the access to plant genetic resources or their genetic parts or components, in the form received from the Multilateral System; and (4) the access to any protected plant genetic resources must be undertaken according to relevant international agreements as well as internal laws of each country.

And to achieve concrete results in practice, the Treaty's Governing Body has set up the Standardized Material Transfer Agreement (MTA) that comprises various essential conditions for the access, and specified the benefit sharing principles and other conditions in line with the Treaty. Anyway, if the received plant genetic resource is transferred to another person or organization, the third person that receives the plant genetic resource must abide by the conditions stated in the transfer agreement of such a plant genetic resource.

The Treaty does not prohibit any application for intellectual property protection of any "newly developed plant variety", but require that the benefits be fairly and equally shared from the commercial use of such a new variety with the fund. However, several exceptions are specified regarding the benefit sharing in such a way that it seems unlikely for the fund to have any share in the benefits; that is like creating the legitimacy for the commercial rightholder not to share any benefit from the use of the new variety developed under the Multilateral System. Besides, a high priority is given to least developed countries and transitional economies that might be the owners of the resources.

The Treaty promotes the recognition of "farmers' rights" and emphasizes the importance and role of indigenous and local communities as well as farmers in the conservation and development of plant genetic resources, including (1) the right to protect local wisdom of plant genetic resources; (2) the right to take part in sharing the benefits arising from the use of plant genetic resources; and (3) the right to participate in making decisions related to the conservation and use of plant genetic resources at

the national level. However, the Treaty does not prescribe as a mandate that the member states have to protect farmers' rights, but leaves such a matter to be pursued according to each country's law.

Thailand's membership to the Treaty has both advantages and disadvantages. The negative impacts may include (1) the need for amendments to relevant Thai laws regarding the monitoring of, and access to, plant genetic resources, as well as sharing of benefits arising from the use of such resources, which are public properties and under the state's management and control; (2) Thailand's loss of revenue that will be obtained from the sharing of benefits arising from the use of such plant genetic resources, seemingly like agreeing in principle to have the plant genetic resources snatched to gain intellectual property rights over such resources; and (3) the decline of Thailand's sovereignty in the control of *ex situ* plant genetic resources naturally existing in the country as it has to comply with the Treaty's requirements, especially when the Multilateral System is introduced for use instead of the Plant Varieties Protection Act B.E 2542 (1999).

But the Treaty may provide some positive effects for Thailand, including (1) the opportunities to share the benefits arising from the use of plant genetic resources, which are the country's public properties kept at the Plant Germplasm Bank of the International Centre for Agricultural Research, and (2) an increased opportunity for Thailand to get access to plant genetics of other member states that are public properties. In this regard, it has been proposed that Thailand expeditiously carry out actions in compliance with the Treaty's general provisions on the conservation and sustainable use of genetic resources, which are good principles, according to Articles 5 and 6 of the Treaty, and get prepared to relieve the negative impacts when joining the Treaty, by reducing the number of Thai plant genetic resources to be under the Multilateral System to the maximum possible. This may be achieved by distributing



or transferring as many public properties as possible to belong to the communities.

1) The changes in policy and criteria for accessing plant genetics of old members of the International Centre for Agricultural Research after the Centre joins the Multilateral System of the Treaty.

2) The criteria and conditions for allowing a company or private agency researcher to access plant genetic resources after the Treaty has come into force for two years.

3) The interpretation of certain clauses of the Treaty is still ambiguous, especially the scope of the Multilateral System (as per Article 11.2), the intellectual property protection (as per Article 12.3) and the amendment of the provisions to cover private agencies (as per Articles 11.3 and 11.4).

4) The reactions of other countries and other Germplasm banks towards becoming a member of the Treaty, especially industrialized countries and those having plant genetic resources as public properties under government control at the level similar to Thailand.

5) The relationships between the CBD and the ITPGR regarding the management of plant genetics that are outside the Treaty's Multilateral System.

4. Cartagena Protocol on Biosafety to the Convention on Biological Diversity

Article 19 of the CBD prescribes that each member state (or contracting party) has to consider the need for and the modalities of a protocol setting out appropriate procedures, including in particular, advance informed agreement, in the field of the safe transfer, handling and use of any living modified organism resulting from biotechnology that may have an adverse effect on the conservation and sustainable use of biological diversity. Besides, Article 8 of the CBD deals with *in situ* conservation

requiring the establishment of a system for conserving biological diversity; and according to Article 8(j), each member state is to establish or maintain means to regulate, manage or control the risks associated with the use and release of living modified organisms resulting from biotechnology which are likely to have adverse environmental impacts that could affect the conservation and sustainable use of biological diversity, taking into account the risks to human health.

At the First Meeting of the Conference of the Parties to the Convention on Biological Diversity (CBD-COP 1) in 1994, held in the Bahamas, an ad hoc expert group on biosafety was established to consider the guidelines for preparing a Protocol on Biosafety. In 1995, at a meeting held in Madrid, Spain, the Madrid Report was prepared and then endorsed at the CBD-COP 2 held in Indonesia in 1995; which passed a resolution to prepare a Protocol on Biosafety, especially in relation to the cross-border transfer of living modified organisms and an advance informed agreement, and to set up an ad hoc working group on biosafety. The working group finished the draft Protocol on Biosafety at the CBD-COP 6 in 1999, in Cartagena de Indias, Colombia; and the Protocol was endorsed at the ExCOP held in January 2000 in Canada and officially named: “Cartagena Protocol on Biosafety to the Convention on Biological Diversity”.

5. Agreement on Trade-Related Aspect of Intellectual Property Rights

The Agreement on Trade-Related Aspect of Intellectual Property Rights (TRIPS Agreement) is an international agreement on intellectual property protection adopted at the conclusion of the Uruguay Round of Trade Negotiations, specifying the levels of fundamental protection that each member state of the WTO has to provide, taking into account the balance between the short-and long-term benefits for society. That is similar to the principles of the General Agreement on Tariffs and Trade (GATT) and the



General Agreement on Trade in Services (GATS). The TRIPS Agreement also prescribes the principles of practices related to non-discrimination, national treatment, and most-favoured-nation treatment. In addition, the TRIPS Agreement also provides that the intellectual property protection should support innovation creation and technology transfer for the benefits of the producer and the user as well as the economic and social systems. Moreover, the TRIPS Agreement also takes into account the principles and obligations of the World Intellectual Property Organization (WIPO), which had been existing before the WTO was established. Besides, there are another two important international agreements, namely the Paris Convention for the Protection of Industrial Property prescribing the principles on patents, industrial designs, etc., and the Berne Convention for the Protection of Literary and Artistic Works, specifying the principles on copyrights that are basic to intellectual property protection.

And there are also additional important principles and the levels protection for various matters, the types of intellectual properties under the TRIPS Agreement such as copyright and related rights, trademarks including service marks, geographical indications, industrial designs, patents, layout-designs or topographies of integrated circuit, and undisclosed information, including secrets. In summary, the TRIPS Agreement deals with various types of intellectual property as follows:

1) Copyright. The TRIPS Agreement prescribes the principles for protecting computer programmes (similar to that for literary works according to the Berne Convention) and databases. It also extends the international requirements on copyrights to cover the commercial leasing of computer programmes for producing songs and movies to prevent any action that may affect the benefits of the work-owner. The TRIPS Agreement states that the actors/actresses have the right to prevent any photographing or videoing without permission as well as reproducing and broadcasting their live shows for a period of not less than

50 years, whereas the songwriters have the right to prevent any reproduction for 50 years.

2) Trademarks. The TRIPS Agreement prescribes the types of marks that can be protected as “trademarks” and the basic rights to being protected for goods and services. Besides, the well-known marks of certain categories will also be protected.

3) Geographical indicators. The indicators indicate the special features resulting from the geographical origins of the goods such as champagne, Scotch and tequila. Using a specific name of the goods that are not produced from the real source will cause misunderstanding for consumers and result in unfair competition. Thus, the TRIPS Agreement prescribes the principles for preventing the incorrect use of a place’s name. However, there are some exceptions for certain names that have been protected as “trademarks” or become the words that have been used as “generic terms”.

4) Industrial designs. Under the TRIPS Agreement, the protection period of industrial designs has been set for 10 years.

5) Patents. The TRIPS Agreement specifies the period of innovation protection for not less than 20 years, and the patent will cover the goods as well as the manufacturing process. However, the government may refuse to issue a patent if there is a compelling reason for public benefits or people’s morality. Besides, the issuance of patents can be refused for any diagnostic, therapeutic, and surgical methods including plants and animals and biological process essential for producing plants and animals. However, plant varieties will be protected by patent registration or by a specific system such as the Union for the Protection of New Varieties of Plants (UPOV). The TRIPS Agreement specifies the exemptions from patent protection for various cases; for example, when the patent-owner does not produce the goods for the market with a deliberate intention, the TRIPS Agreement allows the government of a member state to announce the compulsory licensing (CL) measure.



That is to allow other manufacturers to produce such goods or use the patented goods. The issues that have been widely raised as important issues over the recent years are the drug patent protection and the access to drugs of patients in poor countries. Such case studies occurred in various countries including Thailand where the CL measures were used for the public benefits. The meeting of the ministers of WTO member states held in November 2001 issued a special statement saying that the TRIPS Agreement “does not” and “should not” prevent member states from using the CL measures for protecting the public health, which stresses that member states can use the flexibility clause of the TRIPS Agreement. Besides, the period for the exemption of drug patent protection for least-developed countries has been extended until 2016. And on 30 August 2002, there was an agreement in principle to provide an exemption to the countries without any drug-producing capacity to use the flexibility clause in importing the drugs produced with the CL measures.

6) Integrated circuit layout-designs (topographies). The protection of topographies under the TRIPS Agreement is based on WIPO’s Washington Treaty on Intellectual Property in Respect of Integrated Circuits and expands the period of protection to at least 10 years.

7) Undisclosed information and trade secrets. Such secrets are protected from any violation and other dishonest or unfair action. However, the rights owner has to follow the secret safeguarding principles. For instance, in the case of an experimental result that the producer submits to the government to ask for a permit to produce a new drug or a chemical product for agricultural use, the result has to be protected from unfair trade.

6. Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity

The Nagoya Protocol is established in accordance with the objective of the Convention on Biological Diversity and specifies the principles for fair and equitable sharing of the benefits arising from the use of genetic resources. It also supports the actions related to the efficient access to and sharing of benefits under the CBD. The Protocol was endorsed at the 10th CBD Conference of Parties held in Nagoya, Japan, on 18–29 October 2010. That is an extremely important international measure for genetic resources and local wisdom related to genetic resources as it aims to protect the access to genetic resources (not human genetic resources) and the fair and equitable sharing of the benefits arising from the use of such resources. For both monetary and non-monetary benefits, the fair and equitable sharing of benefits arising from their use is based on the “state sovereignty over the natural resources”.

The Nagoya Protocol essentially has the following components: (1) scope and guidelines for benefit-sharing; (2) international cooperation in promoting the capacity of developing countries, in terms of knowledge and funding support; (3) sustainable use of genetic resources; (4) access to genetic resources; (5) mechanisms for multilateral benefit-sharing at the global level; (6) mechanisms for information distribution and exchange; (7) monitoring and inspection of the use of genetic resources; (8) compliance with relevant laws or rules; (9) transboundary cooperation; and (10) local knowledge or wisdom.

The Nagoya Protocol uniquely prescribes the participation of indigenous and local communities in various aspects such as providing data and opinions on the use of wisdom; it also specifies that women can take part in the conservation of biodiversity.



7. Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

The CITES, or Washington Convention, of which Thailand is the 80th member state (or party) as signed in 1975 and ratified on 21 January 1983, primarily aims to conserve wild animal and plant varieties in the world for the benefits of mankind. Its focus is on endangered or threatened species whose numbers are declining and they may become extinct. The CITES conservation methods include the creation of a global network for controlling the international trade in wild animals, plants and their products, but not controlling the domestic trade in native species.

The CITES Committee of Thailand, under the Ministry of Agriculture and Cooperatives, is tasked with undertaking various activities and giving advice to the minister on matters related to CITES. In this regard, the ministry has designate the Royal Forest Department to take charge of the control of wild animals and plants as well as products, the Department of Agriculture to take charge of wild plants, and the Department of Fisheries to take charge of aquatic animals. At present, in its wildlife protection efforts to prevent wildlife population from declining or extinction, the Royal Forestry Department has coordinated with other countries by establishing 49 wildlife checkpoints at international airports, ports and border-crossings to prevent illicit trade, import, export, and transit of wild animals that are against the Wild Animal Reservation and Protection Act B.E. 2535 (1992).

CITES was established when the International Union for Conservation of Nature (IUCN) convened an international meeting in 1973 in Washington, D.C., to draft the CITES Convention; in the meeting, representatives from 83 countries including Thailand participated. Later in 1975, IUCN set up the CITES Secretariat in Geneva, Switzerland, to take charge of the administration of CITES with the current membership of more than 140 countries. As for Thailand, its CITES membership fees

between 1993 and 1995 were paid from budget of the Royal Forestry Department at 112,000 baht each year.

Regarding its administrative structure, CITES has the following:

1) The Secretariat responsible for organizing the meetings of the Conference of the Parties (COP) and facilitating the participation of member states (parties) in the meetings as well as performing duties prescribed in Articles 15 and 16 of the Convention.

2) The Standing Committee responsible chiefly for providing policy guidance to the Secretariat in implementing the Convention and comprising nine members including six representatives from six major geographic regions (Africa, Asia, South America, Europe, North America and the Oceania; each representative is elected by the member states of each region and serves for a period of two COP meetings), one from the Depository Government (Switzerland), one from the Party that hosted the previous COP meeting, and one from the Party that will host the next COP meeting (the two committee members also serve for a period of two COP meetings. The chairperson and vice-chairperson are elected by the members from the six major regions and only the six representatives have the voting rights; while the member from the Depository Government may only vote to break a tie.

3) The Animal Committee (at the Secretariat) serving as a technical committee responsible for checking and reviewing the numbers of wild animals for determining the increase or decrease in the number on the list of endangered species, and comprising six representatives from the six major geographic regions.

4) The Plant Committee having duties similar to those of the Animal Committee and also comprising six representatives from the six major geographic regions.

5) The Identification Manual Committee responsible for preparing manuals for the identification of wild animals and plants for use



by the officials of member states when issuing a permit and comprising volunteer committee members.

6) The Nomenclature Committee responsible for considering the scientific names of wild plants and animals in Appendices I, II and III and comprising volunteer committee members.

Whereas each CITES member state has the duties to:

(1) Take appropriate measures to enforce the provisions of the Convention and to prohibit trade in specimens in violation thereof; such measures include penalizing the traders and possessors of such specimens and confiscating or returning to the State of export of such specimens;

(2) Set up international wildlife checkpoints to control and inspect the trade in and safe transport of wild animals and plants as required by CITES regulations;

(3) Prepare annual reports covering statistics on the trade of wild animals and plants of the country and transmit to the Secretariat;

(4) Establish a Management Authority and a Scientific Authority within the country to control the trade in wild animals and plants;

(5) Make a request for changes in the list of endangered species in Appendices I, II and III for consideration by other member states.

According to the CITES monitoring system, the international trade in wild animals, plants and products is controlled by using the permit system. That means the trade in CITES-listed species requires a permit for their import, export, transit and re-export.

8. Convention for the Safeguarding of Intangible Cultural Heritage

At UNESCO's 32nd Session of General Conference, held on 17 October 2003, the Convention for the Safeguarding of Intangible Cultural Heritage was endorsed; and it entered into full force on 20 April 2006 when 30 member states had ratified it. Among ASEAN member

states, six have become members of the Convention, except Myanmar, Singapore, Malaysia and Thailand. Therefore, if Thailand does not urgently become a member of the Convention, it might lose opportunities in various international forums.

The DTAM has the powers and duties to enforce a *sui generis* law, i.e. the Protection and Promotion of TTM Wisdom Act B.E. 2542 (1999), especially in compiling, conserving, protecting and promoting TTM wisdom, which is an integral part of Thai cultural wisdom/heritage. So, Thailand should become a member of the Convention for the Safeguarding of Intangible Cultural Heritage as it has a lot of important and valuable social, cultural and wisdom heritage that has been passed on for a long time from generation to generation.

A member of the Convention has the right to the protection of intangible cultural heritage as the Convention has provisions on the conservation and protection of, and access to, such heritage, which leads to the negotiation on sharing of benefits arising from the sustainable use of cultural heritage. That will help intensify the TTM wisdom protection effort according to the TTM wisdom protection law of 1999. Currently, the Ministry of Culture is drafting a Cultural Heritage Protection Act, which may be based on the concept or model/mechanism of the TTM wisdom protection law, for future actions.

The aforementioned international laws are the framework for policy advocacy related to the development of laws in the country especially in drafting or amending laws or legal measures so that they are efficient in the conservation and protection efforts in the same and suitable direction for the current conditions.



6.3 The impact of Free Trade Agreements (FTA) on the protection of traditional medical wisdom

The traditional medical wisdom of each country including TTM and Thai indigenous medical wisdom is regarded as the medical system of the people in Thailand's territory. The wisdom's significance and potential are related to the management of the health system at the family, community, social and national levels as their policies can be pushed forward and the services can be developed further for being accepted at the international level under the framework of multilateral, trilateral or regional FTA negotiations.

The importance, value and identity of traditional medical wisdom of the Thai people or any other nationals in the world are uniquely diverse depending on their social, economic, political, environmental and policy contexts. But the common feature in all countries is its acceptance, to a certain extent, by the people of each country, informally at the individual or family level. Such practices or real-life experiences have been accumulated for a long time and passed on or transmitted from generation to generation in the recorded and unrecorded forms. Some of such practices have tangible evidence, while some do not; many of them have been verbally transmitted in an abstract form.

The management guidelines for efficiently protecting such wisdom are not so easy for the government of each country, particularly Thailand, to implement. Under the rather violent political movement and despite the existence of traditional medical wisdom protection law, the obstacles and constraints in the implementation need to be expeditiously resolved and eliminated, in parallel with the protection of traditional medical wisdom under the intellectual property system. That is because using the international

legal system might be another option in dealing with this matter, but the internal management process must be strong enough in terms of creating the knowledge understanding and awareness for the people within the country. Efforts must also be made to set up a register of the name and address of each item or branch of wisdom, a database to show the identity within the country's territory, and an internal legal measure that is able to fight and compete with other countries; such a measure must be consistent with the international system and reflect the difficult and complex management mechanism.

As a member state of several international organizations such as WHO, WTO, and WIPO, some of which are important in dealing with the protection of traditional medical wisdom, Thailand has prepared to create a mechanism for creating a regional free trade mechanism.

With the abundance of traditional medical wisdom and biological resources, Thailand has to establish a vigilance mechanism or system for state agencies concerned as well as for the popular sector and society to realize the importance of traditional wisdom protection at the international level. This is with respect to Thailand's legislation in response to the requirements of the WIPO IGC, which has drafted the provisions on the protection of traditional wisdom or knowledge, genetic resources and cultural expressions for review at the next WIPO IGC. If such provisions become an international agreement, it is likely that Thailand will be a signatory to such an agreement, which will be a framework for developing an internal law of each member state. As Thailand has to abide by such an agreement, it may have to amend its existing laws or promulgate a new law on traditional medical wisdom protection.

However, it is not so worrisome because Thailand has had a specific law system for protecting its traditional medical wisdom; and it has also had an intellectual property legal system that is adequate to deal with such a matter in case a free trade agreement comes into effect. Thailand



has already been prepared with a reference and examination database, a register of properties and resources, knowledge creation, and understanding/awareness raising regarding the safeguarding of national traditional wisdom specifically for the Thai people. In case there is a reciprocal measure concerning traditional medical wisdom, it will only involve a study or analysis of strengths and weaknesses or those jointly agreed to by both member states.

Regarding the strengths in terms of policy and infrastructure, the government has established the National Intellectual Property Policy Committee as well as relevant subcommittees and working groups as per the Regulations of the Prime Minister's Office on National Intellectual Property Policy Committee B.E. 2555 (2012), dated 27 August 2012 and effective 2 September 2012. The Committee, chaired by the Prime Minister, comprises members who are representatives from 18 relevant agencies and 3 honourable persons designated by the prime minister, and the Director-General of the Intellectual Property Department as member and secretary. Its powers and duties are to set policies and strategies on intellectual property system development, and promote, protect, prevent and suppress the violation of intellectual property rights within the country and overseas.

The National Intellectual Property Policy Committee has appointed subcommittees and relevant working groups as follows:

- 1) Subcommittee on National Intellectual Property Rights (IPR) Centre of Enforcement, or NICE, as per the Committee's order no. 2556/2, dated 18 February 2013, chaired by the Commerce Minister or a Deputy Commerce Minister assigned by the Minister with the Director-General of the Intellectual Property Department as member and secretary, and comprising representatives from 25 relevant agencies. Its powers and duties are to formulate a plan of action or measures for suppressing the violation of intellectual property rights in line with the policies and strategies set by the Committee.

2) Subcommittee on Preparation for the Conference of the WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (WIPO IGC) as per the Committee's Order No. 2556/3, dated 18 February 2013, chaired by the Foreign Affairs Minister and comprising representatives from several relevant agencies.

3) Subcommittee on Protection of Intellectual Property, Genetic Resources, and Thai Culture as per the Committee's Order No. 2556/4, date 18 February 2013, chaired by the Commerce Minister and comprising representatives from several relevant agencies.

4) Working Group on Monitoring the Implementation of the Intellectual Property Strategic Plan, 2013–2016, as per the Committee's order no. 2556/5, date 18 February 2013, chaired by the Commerce Minister and comprising representatives from several relevant agencies.

In addition, the NICE has appointed six working groups to carry out various functions as follows:

1) Working Group on Investigation and Suppression of IPR Violations

2) Working Group on Integrated Law Enforcement

3) Working Group on Prevention and Suppression of IPR Violations on the Internet

4) Working Group on Linking of Databases on Suppression of IPR Violations

5) Working Group on Campaigns for Raising Awareness in Respecting IPR

6) Working Group on Restoration and Remedies for Small Business Operators

In this effort, many state agencies or organizations are involved, whereas the MoPH has designated DTAM to take actions according to



the Protection and Promotion of TTM Wisdom Act B.E. 2542 (1999) as they are related to the conservation, protection, monitoring and suppression of the violations of intellectual property rights including biological resources, medicinal herbs, and TTM wisdom. Such a measure/mechanism is an important tool in getting prepared for the integration of ASEAN Community, and it is believed that there will be positive effects for Thailand in relation to policy, strategic directions, proactive/integrated action plans, public and social awareness raising, globalization, and worldwide free trade agreements. Therefore, every country has to create awareness among all society members about competition in all aspects especially in the context of traditional medical wisdom protection. In connection with the free trade agreements, Thailand has to expedite the creation and development of database for its TTM wisdom for technical reference, examination and analytical purposes according to the intent of the law.

At present, the government tends to make Thailand benefit the most from free trade agreements, carefully taking into account the worthiness as well as pros and cons when holding public hearings with various sectors concerned, for instance:

1) The Thailand-Bahrain and Thailand-Qatar cooperation in public health, according to the consultation framework between relevant ministers of Thailand, Bahrain and Qatar in 2012, which covers seven areas.

2) The Thai-European Union free trade negotiations covering four areas, namely (1) intellectual property right protection, (2) drugs and medical supplies, (3) biological resources and local wisdom, and (4) geographical indicators.

The four-area negotiation framework has direct and indirect impacts on, and is important, for Thailand. It is thus necessary to create understanding and show our position on the items that are reserved

only for the Thai people. Such a position must be clear, i.e. accept, or it's alright to accept, or accept with conditions, or not to accept at all, especially for the definition of intellectual property right, the observations according to international commitments, the measures for suppressing IPR and trademark violations, the country's traditional medical wisdom, as well as the internal law enforcement mechanisms in relation to the country's development level.

3) The Thailand-Peru negotiation framework for IPR cooperation. The Republic of Peru is the country that has had a very rapid pace of *sui generis* or specific legal system development in a concrete manner. Peru's IPR law enforcement has been extended to the protection of biological resources at the molecular level even though, before doing that, some Peruvian officials had actually visited Thailand to share knowledge and learn about the Thai laws.

Within the negotiation framework, Thailand has to carefully take into consideration the conditions, flexibilities, practical procedures, advantages and disadvantages. So the decision-making on such matters of authorized officials has to be undertaken based on clear information.

However, relevant information in all aspects has to be prepared for drawing up Thailand's negotiation positions, i.e. (1) the feasibility and process of preparing the agreement; (2) the information about laws related to origins of goods; (3) the matters that Thailand can accept or needs flexibilities during negotiations; and (4) the guidelines for the liberalization of investments in agriculture and service business - Thailand to accept investments or to be investor. Importantly, the government has to create internal strengths for Thailand to have competitive capacity at the international level. Thai goods of high quality and world-class Thai style services are the answers and how free trade agreements will affect various activities in Thailand.



6.4 The impact of ASEAN Harmonization on traditional medical wisdom

Currently, many countries are using intellectual property and technology as the foundation for developing their competitiveness and generating revenues for themselves. For Thailand, whose economic system is international trade dependent, its adjustment is essential to suit the rapidly changing situations and technologies by modernizing the intellectual property system so that knowledge, innovations, and intellectual property can be transformed into various goods and services; and they can be used to enhance the country's competitiveness at the global level under the Intellectual Property Strategic Plan, 2013–2016.

Various branches of traditional medical wisdom of Thailand, particularly Thai traditional medicine, indigenous medicine, local medicine, tribal medicine, and the use of herbs, have become the upstream sources of raw materials that are important and fundamental for further development using new technology. Meanwhile, the preparation or use according to the traditional social and cultural practices is still important and necessary in line with the mission and strategic framework.

The DATM the core agency that monitors, oversees, and takes charge of the operations according to the Protection and Promotion of TTM Wisdom Act B.E. 2542 (1999), which is the innovation of intellectual property law. It is the only law in the world that protects the country's traditional medical wisdom as a specific (*sui generis*) law and was published in the Government Gazette, Vol. 116, Part 120a, dated 29 November 1999, and effective 27 May 2000, under which 19 subsidiary laws have been promulgated and come into force.

The Act's intent is to protect Thai traditional medicine wisdom (TTM formulas or textbooks), medicinal plants and their origins as well as biodiversity including:

1) TTM wisdom including Thai drug formulas and TTM textbooks. The protection covers three levels of wisdom, i.e. (1) TTM textbooks or Thai drug formulas that are useful or specially valuable for medicine or public health as national TTM wisdom; (2) TTM textbooks or Thai drug formulas that are used widely as general TTM wisdom; and (3) personal Thai drug formulas or TTM textbooks, by establishing the TTM wisdom database covering the entire Kingdom in response to the property right registration system for protecting and monitoring TTM wisdom.

2) Herbs that are valuable for study and research or having economic value, or which may be extinct, by establishing a herbal database, covering also Thai drug formulas, for use in examining the right registration information and linking the information on property right registration.

3) Origins of herbs (in and outside conservation zones as well as private land) that are in various ecosystems.

In case of conservation zones, the maps for herb protection have been drawn and endorsed by the Cabinet for 27 zones or areas.

The DTAM has also cooperated with other Thai agencies or organizations in reflecting the concept of integration for developing a database of lists of properties or assets of Thailand as references and for future use, such as the TTM wisdom database (national or general formulas or textbooks), the TTM personnel database (7 groups), important herbs database as reference and examination (more than 1,000 items), and the database on personal TTM wisdom registration.

Such mechanisms are linked to the policies and primary goals of Thailand and regional forums or seminars, especially those related to the ASEAN Community, where such issues are always emphasized and mentioned about. Preparation efforts are to be made to respond to the requirements of all 10 ASEAN member states (probably plus 1, 2, 3 or more countries as appropriate) and to enhance their negotiation powers as well



as competitiveness with other regions through its three pillars, namely (1) ASEAN Political and Security Community, (2) ASEAN Economic Community, and (3) ASEAN Socio-Cultural Community.

A major concern is to follow the ASEAN Harmonization requirements, whereas in reality, each of the member countries is doing its own way, following at least one of its laws, according to the intent of the law as well as its own outstanding characteristics and socio-cultural context of its ethnic groups and traditions. Thus, the consistent and harmonized guidelines or models seem to be difficult to accomplish and such actions might affect their management context for traditional medical wisdom protection as follows:

1) The integration of the ASEAN Community is a new approach in the region and the practical mechanisms in each member country are lacking; most of them are being prepared in various aspects.

2) The integration of Like-Minded Countries on an International Instrument for Protection of Genetic Resources (GR), Traditional Knowledge (TK) and Traditional Cultural Expressions (TCE) is regarded as an example of preparedness actions for the integration of ASEAN Community; it is also beneficial for ASEAN member states in connection with their positions or operational guidelines for dealing with intellectual property rights and the protection of traditional medical wisdom.

3) The mechanism for assessing the situation and capacity of the use of biological resources and local wisdom for economic purposes, based on the development and use of technology and indigenous medical wisdom in Thai society would be a way out of the impact of AEC. The groups of biodiversity-based economic development are divided into three levels according to their levels of production and use of production technology as follows:

3.1 The group of biodiversity-based economic development activities at the community level (basic level for self-reliance). The

production in this group is carried out by the family for use or sale using the knowledge and production technology for self-reliance; its production process or feature is derived directly from the biological resources for self-reliance regarding food and health. This is in accordance with the community's traditional lifestyles when using such resources as food, medicines, fuel, shelters, or income sources (collecting and selling forest products such as honey, lac, and rattan). The communities with such capacity are located around forest areas.

3.2 The group of development activities that are linked to local culture and wisdom and scattered everywhere. With respect to herbal remedies, approximately 800–1,500 types of herbs, including fresh and dried plants, animals and minerals, are used for health care in Thailand, mostly in the traditional forms. The users are those who are knowledgeable about medicinal herbs, especially housewives, local indigenous healers, and traditional healers.

3.3 The group of biodiversity-based community enterprises using local resources and wisdom for commercial production. Their development process is important as a starting point of community's biodiversity-based economic development. At present, such enterprises are at the beginning stage, but their opportunity is high to be developed or strengthened so that they can produce new products from biological resources and local wisdom.

The aforementioned use of local resources and local wisdom reflects the preparedness of, and positive impact on, the people and communities. It also helps relieve the poverty problem even though the created economic values are not significant; however, it is the action that empowers the community to be self-reliant in food and health security. Such an action is linked to the community's lifestyles and wisdom, while the reliance on resources for survival has made the



community cherish the resources. Then they can protect and allocate the benefits from such resources in an equitable and sustainable manner.

Besides, the production patterns leading to the commercial scale are normally based on the use of biological resources and basic biotechnology or extension of local wisdom in product development principally by small and medium enterprises (SMEs). In such efforts, the community that plays a role as the owner of resources and local wisdom may further use them for commercial purposes; and their market could be widened by creating additional values of the products and diverse services. SMEs dealing with biodiversity-based economic development are those involved in health, beauty, food, drug, and herb-related services; and they can create a mechanism for relevant business cooperation and partnership between the countries that own resources and local wisdom and those that own the technology. This is to be based however on the equitable benefit sharing according to international mechanisms such as the Nagoya Protocol and the WIPO IGC negotiation framework. It is believed that the chances of getting support for the protection of local wisdom and biological resources of their member states will be more or less positive.

It is obvious that the aforementioned natural mechanism of ASEAN Harmonization is a broad framework having both positive and negative impacts on the management systems of various activities within and outside the country. In particular, the management mechanism for protecting traditional medical wisdom under the existing law of the country is rather difficult, complex and time-consuming. Moreover, they have to be consistent with relevant international mechanisms, making the process even more difficult. Thus, the government must dare to invest a lot of money in a short period of time on enhancing the management system to be effective in protecting Thailand's traditional medical wisdom before everything is fused or becomes the property of Thailand or ASEAN as a whole.

6.5 Traditional medical wisdom protection in various countries

Many people may suspect and have a question about the number of countries all over the world – 195 or 192. According to the United Nations, there are 192 countries as Vatican City State, Kosovo and Taiwan are not UN's member states. Some other sources such as the U.S. Department of State may specify that there are 194 countries; that is because, according to its political agenda, the U.S.A. does not recognize Taiwan as a country since that might affect its relationship with China.

Other sources may state that there are 195 countries as Taiwan is included as their friend, but they must risk disaffection with China that does not recognize Taiwan as a country; rather, China regards Taiwan as one of its provinces. Rarely is there anyone using this number.

Some other data sources may specify that there are 257 countries as they count all cities under foreign countries' colonies and special administrative regions such as Hong Kong.

As for Thailand, the UN system is used and the Royal Institute (of Thailand) lists all 193 countries alphabetically, but in its list of countries by continent, there are only 192 countries as follows:

1) Asia, 48 countries: 1) Afghanistan, 2) Armenia, 3) Azerbaijan, 4) Bahrain, 5) Bangladesh, 6) Bhutan, 7) Brunei Darussalam, 8) Cambodia, 9) China, 10) Cyprus, 11) Georgia, 12) India, 13) Indonesia, 14) Iran, 15) Iraq, 16) Israel, 17) Japan, 18) Jordan, 19) Kazakhstan, 20) North Korea, 21) South Korea, 22) Kuwait, 23) Kyrgyzstan, 24) Laos, 25) Lebanon, 26) Malaysia, 27) Maldives, 28) Mongolia, 29) Myanmar, 30) Nepal, 31) Oman, 32) Pakistan, 33) Philippines, 34) Qatar, 35) Saudi Arabia, 36) Singapore, 37) Sri Lanka, 38) Syria, 39) Tajikistan, 40) Thailand, 41) Turkey, 42) Turkmenistan, 43) United Arab Emirates, 44) Uzbekistan, 45) Vietnam, 46) Yemen, and 47) Timor-Leste (dependent in 2002).



2) Australia and Pacific islands, 14 countries: 1) Australia, 2) Fiji, 3) Kiribati, 4) Marshall Islands, 5) Micronesia, 6) Nauru, 7) New Zealand, 8) Palau, 9) Papua New Guinea, 10) Samoa, 11) Solomon Islands, 12) Tonga, 13) Tuvalu, and 14) Vanuatu.

3) Europe, 43 countries: 1) Albania, 2) Andorra, 3) Austria, 4) Belarus, 5) Belgium, 6) Bosnia, 7) Bulgaria, 8) Croatia, 9) Czech, 10) Denmark, 11) Estonia, 12) Finland, 13) France, 14) Germany, 15) Greece, 16) Hungary, 17) Iceland, 18) Ireland, 19) Italy, 20) Latvia, 21) Lichtenstein, 22) Lithuania, 23) Luxemburg, 24) Macedonia, 25) Malta, 26) Moldova, 27) Monaco, 28) Netherlands, 29) Norway, 30) Poland, 31) Portugal, 32) Romania, 33) Russia, 34) San Marino, 35) Slovakia, 36) Slovenia, 37) Spain, 38) Sweden, 39) Switzerland, 40) Ukraine, 41) United Kingdom, 42) Vatican City State, and 43) Serbia and Montenegro.

4) North America, 22 countries: 1) Guatemala, 2) Grenada, 3) Costa Rica, 4) Cuba, 5) Canada, 6) Jamaica, 7) Saint Kitts and Nevis, 8) Saint Lucia, 9) Saint Vincent and Grenadines, 10) Dominica, 11) Barbados, 12) Nicaragua, 13) Bahamas, 14) Belize, 15) Panama, 16) Mexico, 17) United States of America, 18) Dominican, 19) El Salvador, 20) Antigua and Barbuda, 21) Honduras, and 22) Haiti,

5) South America, 13 countries: 1) Guyana, 2) Colombia, 3) Chile, 4) Suriname, 5) Trinidad and Tobago, 6) Brazil, 7) Bolivia, 8) Paraguay, 9) Peru, 10) Venezuela, 11) Argentina, 12) Uruguay, and 13) Ecuador.

6) Africa, 53 countries: 1) Ghana, 2) Gabon, 3) Guinea-Bissau, 4) Guinea, 5) Gambia, 6) Cote d'Ivoire, 7) Congo, 8) Comoros, 9) Kenya, 10) Cape Verde, 11) Cameroon, 12) Djibouti, 13) Chad, 14) Zimbabwe, 15) Sudan, 16) Seychelles, 17) Senegal, 18) Sao Tome and Principe, 19) Sierra Leone, 20) Zambia, 21) Somalia, 22) Tunisia, 23) Togo,

24) Tanzania, 25) Namibia, 26) Nigeria, 27) Niger, 28) Botswana, 29) Burundi, 30) Burkina Faso, 31) Benin, 32) Mauritius, 33) Mauritania, 34) Madagascar, 35) Malawi, 36) Mali, 37) Mozambique, 38) Morocco, 39) Uganda, 40) Rwanda, 41) Libya, 42) Lesotho, 43) Liberia, 44) Swaziland, 45) Congo, 46) Central Africa, 47) Equatorial Guinea, 48) Egypt, 49) Ethiopia, 50) Eritrea, 51) Angola, 52) South Africa, and 53) Algeria.

The grouping of countries in various continents is in accordance with the Notifications of the Prime Minister's Office and the Royal Institute on Names of Countries, Territories, Administrative Areas and Capitals for 2001; so is the spelling of such names.

As for Taiwan, it is a territory that has not been recognized by most other countries.

The features or patterns of laws for the protection of traditional medical wisdom in the ASEAN region and some of the Bengal countries are briefly described as follows:

The Association of Southeast Asian Nations (ASEAN) was founded by the Bangkok Declaration on 8 August 2010 by the five founding nations, namely Indonesia, the Philippines, Singapore and Thailand, whose representatives were then Mr. Adam Malik (Foreign Minister, Indonesia), Tun Abdul Razak bin Hussein (Deputy Prime Minister, Defence Minister and National Development Minister, Malaysia), Mr. Narciso Ramos (Foreign Minister, Philippines), Mr. S. Rajaratnam (Foreign Minister, Singapore), and Colonel (Special) Thanat Khoman (Foreign Minister, Thailand). Later on another five Southeast Asian countries also became member states, i.e. Brunei Darussalam (8 January 1984), Vietnam (28 July 1995), Laos and Burma or Myanmar (23 July 1997) and Cambodia (30 April 1999). Since then, the ASEAN membership has been comprised of 10 member states; and its aims are to promote socio-economic, cultural, technological, and



administrative cooperation and assistance, promote regional peace and security, and promote the cooperation between ASEAN and other countries as well as international organizations.

The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) was initially formed as proposed by Thailand as **B**angladesh-**I**ndia-**S**ri Lanka-**T**hailand Economic Cooperation (BIST-EC) on 6 June 1997 by four founding nations: Bangladesh, India, Sri Lanka and Thailand. When Myanmar joined the group on 22 December 1997, it was renamed as **B**angladesh-**I**ndia-**M**yanmar-**S**ri Lanka-**T**hailand Economic Cooperation (BIMST-EC). Later on in December 2003, upon Nepal and Bhutan joining the group and at the First BIMSTEC Summit, the present-day name of BIMSTEC was adopted to correspond with its objectives and a larger membership. Now BIMSTEC has seven member states including India, Bangladesh, Sri Lanka, Thailand, Myanmar, Nepal and Bhutan.

At the Eighth BIMSTEC Foreign Ministers' meeting, it was resolved that the 6th of June be regarded as "BIMSTEC Day" and member states are encouraged to hold public relations activities on or around that day as appropriate. Under the BIMSTEC framework, the key feature is that it is the forum for integrating the Look East policy of the south Asian nations and the Look West policy of Thailand. It is also a mechanism for promoting trade, investment, and tourism opportunities between Thailand the South Asian Region, aiming to promote socio-economic growth in the region on an equitable basis and to promote the benefits to be derived from economic, social and technological cooperation and assistance among member states in the forms of training and research. Moreover, the international cooperation can also be strengthened to benefit from the agricultural and industrial sectors, the expansion of trade and investment, the improvements of communications and transportation, and the closer ties with international organizations for the betterment of the peoples' livelihood in the region.

However, as the ASEAN and Bengal Bay nations have similar geographic, climatic, and socio-cultural conditions, especially in terms of biodiversity and local traditional wisdom, such resources are normally required by researchers and transnational drug companies. It is thus necessary that systems and mechanisms for national, partnership and regional cooperation be developed for the conservation and protection of such resources in a concrete, continuous and efficient manner.

According to the China-ASEAN Seminar on Intellectual Property and Protection of Traditional Knowledge (TK) and Genetic Resources (GR), held by China's State Intellectual Property Office (SIPO) in collaboration with the ASEAN Secretariat on 9-13 September 2012, in Beijing of the People's Republic of China, there are some brief observations about this matter as follows:

1) The ASEAN member states and China have learned and shared the knowledge about their TK and GR protection efforts including the guidelines and models for developing and establishing databases, patent registration and relevant laws.

2) The information and perspectives on the guidelines and cooperation for protecting TK and GR by China and ASEAN member states were obtained from other international organizations, research reports, and technical as well as legal perspectives.

3) Legal situations regarding the protection of traditional medical wisdom in ASEAN member countries

3.1 Indonesia and Malaysia have clearly developed and set up database systems for local wisdom and biodiversity resources similar to the Traditional Knowledge Digital Library (TKDL) of India, whereas other ASEAN nations have no legal systems specifically for this matter as they are in the study or experimental stage and database development.

3.2 The Philippines promulgated the Traditional and Alternative Medicine Act (TAMA) of 1997 for establishing an agency to



carry out activities related to research, development and control of traditional and alternative medical practices. Regarding traditional medicine, Section 4 of the Act defines that “Traditional medicine” is the sum total of knowledge, skills, and practice on health care, and interrelated with culture, history, heritage, and consciousness.

3.3 China, through the State Intellectual Property Office (SIPO), has coordinated with the private sector in developing the database system for use in searching and analyzing patent information from patent offices across the globe to be used in examining and protesting/revoking the patent that might have been derived by violating China’s local wisdom and genetic resources. That is an important system for such protection and safeguarding. In the private sector, there are experts and staff in various fields who provide patent data search/examination/analysis for both public and private agencies.

3.4 India has five traditional medical systems, namely Ayurveda, Siddha, Unani, Yoga and Homeopathy with the numbers of registered drug formulas as follows:

Table 6.3 Numbers of traditional Indian medical wisdom items in India’s TKDL

Type of traditional Indian medical system	No. of traditional medical items
Ayurveda	91,410
Unani	129,170
Siddha	15,290
Yoga	1,305
Homeopathy	No data available

Source: Information on traditional Indian medical wisdom items presented at Interactive Workshops on IPR and Patenting Issues in Traditional Medicine, 10-13 October 2011, India.

Regarding the registration of traditional drug formulas, India established an institute for registering Ayurveda, Siddha, and Unani medical formulas in 1970 and Homeopathic medical practices in 1973. India's traditional medical education and services have been organized systematically; and the protection of their traditional medical knowledge or wisdom has been undertaken by the Traditional Knowledge Digital Library, which has collected 34 million A4 pages of medical formulas in the four traditional medical systems. The digital database is useful as references and for efficiently examining and protecting the violation of India's traditional medical wisdom such as the cases of neem (*sa-dao*) and Basmati rice.

Concerning the operations according to the Convention on Biological Diversity and the Nagoya Protocol on access to, and benefit sharing of, genetic resources and local wisdom, India has presented a case study on the access to, and benefit sharing of, plant utilization of Kani tribal people. In that regard, they were able to conduct further research, get the patent registered and share the benefits with the tribal people.

3.5 **Sri Lanka**, according to Mrs. J.A. Disna Janaki, Assistant Commissioner (Administration), the Department of Ayurveda of Sri Lanka's Ministry of Indigenous Medicine, has a traditional medical system, so-called "Hela Weda Gedara", to provide traditional medical services at the community level. In the educational system, each new medical graduate is required to attend a three-month training course in Ayurvedic medicine.

Regarding the operations according to the Convention of Biological Diversity, Sri Lanka became a member state in 1994 and has promoted knowledge creation, awareness of local wisdom, and biodiversity at the national level in accordance with the agreement of the World Intellectual Property Organization.

The people's poverty problem has been a major obstacle to the country's capacity development and preparedness. Thus, the country needs support and encouragement from other countries in the sub-region.



3.6 **Myanmar**, according to Prof. Dr. Aung Myint, Director-General, Department of Traditional Medicine, has four systems under the country's traditional medical services as follows:

1) The Desana system - using the Buddhist principles in teaching together with natural phenomena, heat and coldness.

2) The Bhesijja system - using the Indian Ayurvedic medical principles.

3) The Netkhatta system - a medical system based on numerical science and forecasting together with the solar system, time of birth and age.

4) The Vijjadhara system - a medical system related to psychotherapy and meditation, and healing with supernatural phenomena and alchemy under the supervision of the Department of Traditional Medicine.

Myanmar has had an important system and mechanism that can cope with changing situations on a timely basis, including a responsible agency, laws, and regulations related to traditional medicine as well as biodiversity. Its capacity and preparedness for development is similar to those in other countries in the region, especially in relation to local resources and wisdom. However, its social and political systems are the barriers to national development.

3.7 **Thailand**, using pluralistic (diverse) medical systems including Thai traditional medicine (TTM), indigenous medicine, traditional Chinese medicine, and alternative medicine.

Regarding the protection and conservation of traditional medical wisdom, there is a specific law called: "Protection and Promotion of TTM Wisdom Act B.E. 2542 (1999)". The law has outstanding features and becomes an example for other member countries for database development, legal measures, community participation, and ownership

of local wisdom and genetic resources. Other systems and mechanisms have also been set up, such as the TTM wisdom protection committee, the strategies for legal enforcement and national/international monitoring according to the WIPO agreements, and the decentralization of authority to provincial registrars.

The operations in Thailand have been in accordance with the Convention on Biological Diversity and the Nagoya Protocol in terms of steps and processes. The TTM services system has been expanded to cover all geographical areas of the country by deploying TTM practitioners at all primary care units, undertaking the knowledge management of indigenous medicine for use at the community level and establishing a database system for use as a reference and in examining intellectual property right violations. Efforts have been made, in collaboration with at least 20 universities, in producing and developing TTM personnel at the bachelor's degree level to further develop the quality and standards of Thai drugs and TTM services at all levels of state health facilities. However, there are constraints related to laws and regulations implemented by several agencies, which require further policy integration and advocacy.

In the aforementioned situations, recommendations are made as follows:

1) The database system of local wisdom and biological resources should be developed to cover all relevant aspects as the common standards of the country under the supervision of a national agency.

2) Existing legal measures should be expeditiously strengthened and supported so that law enforcement actions could be taken on a timely basis. Other efforts should be made to enhance the development and enforcement of the *sui generis* legal system and to create the understanding among the people as well as personnel and other relevant officials. In connection with intellectual property operations in



BIMSTEC member countries, their actions on the protection and use of traditional medical wisdom and herbs are based on their respective legal frameworks.

3) Studies on Thai traditional medicine and the use of herbs should be supported continuously on short- and long-term bases; and knowledge sharing forums should be organized for inter-regional exchange of information on traditional medicine and herbs for the overall benefits of network members.

4) The use of TTM services and herbs should be promoted in the national medical and health system through the integration of information, research and development of TTM wisdom and herbs.

5) The compilation, conservation, protection and monitoring of TTM/IM wisdom and herbs should be supported for actual use as they are still important and essential for the development of the national medical and health system.

6) The database system of TTM/IM wisdom and herbs should be systematically managed for use in international forums and negotiations, and as technical and legal references.

7) The country's patent office should develop its patent system management mechanism to be flexible and rapid in its examination and searching actions, up to date, and timely, in cooperation with other agencies with similar databases.

However, the concept of the protection of traditional or local wisdom or TTM wisdom, which is traditional medical wisdom in each country, is still new as there has been no international agreement clearly issued on such matter. Thus, the protection measures are generally undertaken in accordance with their own measures as well as general provisions of the aforementioned international legal

frameworks, which might have some limitations for traditional medical wisdom.

Thus, it could be stated that the existing intellectual property laws might not have any provision for the protection of traditional wisdom; and the nature of protection might be different from that for other intellectual property rights concerning the object to be protected, ownership and period of protection. So the existing laws might not be applicable to such protection; and the policy to be set on this matter is to legislate a specific law under the intellectual property right system for efficiently protecting traditional wisdom.

The promulgation of a new law for traditional wisdom protection without any limitation on the types of wisdom is another way to be carried out in line with the international guidelines. Even though the draft international provisions have not come into force, if such provisions become an international agreement in the future, it can be used as a significant basis for drawing up the law for each country.



6.6 Conclusion and recommendations

For over a decade, DTAM's operations according to the Protection and Promotion of TTM Wisdom Act B.E. 2542 (1999) as well as other missions have been related to several other laws of Thailand, such as intellectual property law, the law related to plant variety protection, national parks law, and the law related to wild animal reservation and protection. In addition, DTAM also deals with international laws or agreements such as the Convention establishing WIPO, the Convention on Biological Diversity, the Convention for the Safeguarding of Intangible Cultural Heritage, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of

Benefits Arising from Their Utilization to the Convention on Biological Diversity.

Many relevant sectors always ask “how far Thailand has undertaken in relation to mechanisms or measures for protecting such national property and resources” and “who will do that – the public or private sector, or the people; and how it will be done”. With many of such questions, it has been found that Thailand has created a strong fence (possibly as strong as the Berlin wall or the Great Wall of China) for protecting national property and natural resources, i.e. the Protection and Promotion of TTM Wisdom Act B.E. 2542 (1999), aiming to compile, conserve, protect and promote TTM wisdom and herbs including their origins, and the Plant Varieties Protection Act B.E. 2542 (1999), aiming to protect, promote and support actions related to local domestic plant varieties, general domestic plant varieties, and new plant varieties.

In addition, another fence or mechanism is the Government Reorganization Act B.E. 2545 (2002) that established the Department for Development of Thai Traditional and Alternative Medicine or DTAM. That is the clear answer to such questions – DTAM is the core agency responsible for compiling, conserving, protecting and promoting TTM wisdom, herbs and their origins, in collaboration with all other relevant sectors and partners according to the established processes, regulations, laws and missions.

The implementation of such measures is slowly underway, some using the learning-by-doing approach, under the bureaucratic policy and system with limitations on manpower structure that is unfavourable for moving forward such actions. The capacity and number of personnel do not really correspond to the complex duties or missions; their knowledge and understanding are deficient. Thus, the outcomes and targets have not been achieved as expected.

Moving into the new decade, which way are relevant Thai government agencies, especially DTAM, heading towards? How will they

use the lessons learned in the past? Will the clarity of the national policy, or the national strategy, or integrated concept, or the national agenda be the way out? Will what they suspected be true?

As the past situations have reflected the values and importance of Thailand's biological resources and traditional wisdom, the public sector should develop measures for conserving protecting and safeguarding such natural resources and wisdom. This is to ensure their sustained and balanced use and to promote the opportunities for job creation and increased income through systematic management. Thailand had the Protection and Promotion of TTM Wisdom Act B.E. 2542 (1999) promulgated and published in the Government Gazette, Vol. 116, Part 120a, dated 29 November 1999, and effective 27 May 2000. The law is regarded as a specific (*sui generis*) law, the only law in the world and an innovation of intellectual property law, aiming to protect the country's traditional medical wisdom, herbs, biological resources and relevant local wisdom.

Such conservation, protection, and promotion efforts require various integrated mechanisms, depending on the locality and situation, in collaboration with relevant partners at all levels. At the national level, the TTM Wisdom Protection and Promotion Committee (set up as per Section 5 of the Act) has the powers and duties to set up subcommittees to carry out various activities using operating mechanisms. As per Section 12 of the Act, the DTAM has the powers and duties to perform any act related to the protection and promotion of education and training in, and research and development of, TTM wisdom and herbs, and take responsibility for secretarial and technical work of the Committee. In addition, as per Section 13 of the Act, DTAM's Director-General serves as the Central Registrar and the provincial chief medical officer as the provincial registrar of each province.

Since the Protection and Promotion of TTM Wisdom Act B.E. 2542 (1999) came into effect over a decade ago, the lessons learned



from such a specific law are regarded as an innovation of intellectual property law. The Act serves as a fence and a major tool of the country in dealing with the database on TTM wisdom and herbs in protecting and safeguarding the national property with the mechanism for management, monitoring and evaluation. Such actions are carried out by the TTM Wisdom Protection and Promotion Committee that has powers and duties to give advice or recommendations to the Minister in issuing ministerial regulations, rules or notifications required by the Act. Moreover, the Committee has laid down measures for strengthening stability and coordination among government agencies, state enterprises, communities, and NGOs working on the protection and promotion of TTM wisdom and herbs; and it also gives an approval to the order revoking the registration of right in TTM wisdom, considers and gives a decision on an appeal against an order or decision of the Registrar or the licensor under the Act, issues rules related to rules and procedures for submission and consideration of appeal, gets the register set up for TTM wisdom, takes charge of the management, earning and spending of the Fund, and performs other work concerning the protection and promotion of TTM wisdom and herbs. The achievements of each aspect of the duties are as follows:

Concerning the enactment of subsidiary laws/rules, 19 of such rules have been issued and come into force. In this connection, the register of various groups of 65,926 people has been prepared for use in selecting expert or honourable members of the TTM Wisdom Protection and Promotion Committee.

Concerning the protection of Thai drug formulas and TTM textbooks, registers have been prepared for 117,763 Thai drug formulas and TTM textbooks. Of all the textbooks, 11 volumes for 73,984 drug formulas have been published and 4,202 drug formulas have been analyzed and

classified for notification as national/general TTM drug formulas and 95 drug formulas items are included in national/general TTM textbooks for use at the community level and health facilities and for examination or reference purposes. Efforts have also been made to encourage the use of such wisdom in communities for self-reliance as well as the translation, study, analysis and development of such wisdom as per the established criteria for being classified as national or general formulas or textbooks and for protection registration purposes.

Concerning the conservation and protection of herbs, the Ministerial Notification on Protected Herb (*Kwao Khruea*) B.E. 2549 (2006) was issued as the herb is regarded as having a research or economic value or might be endangered as per Section 44 of the Act. To monitor the use of *kwao khruea* in Thailand, as required by law, the reports on possession and cultivation of the herb were received from 12 and 5 provinces, respectively.

Besides, the DTAM has supported research studies on 25 important herbs as per Sections 44 and 45 of the Act to assess their values and importance so that they can be classified and notified as controlled herbs. However, the TTM Wisdom Protection and Promotion Committee resolved that such herbs should not be classified and notified as controlled herbs, but suggested that they should be conserved with experimental cultivation and propagation, utilization promotion and publication/dissemination of research results. Based on the studies of 12 herbs, 4 of which were approved by the Herbs Protection Subcommittee to be classified as controlled herbs; and the drafting of a notification to this effect is underway. The four herbs are *jan-daeng*, *lakkajan*, *thaowanpriang*, and *nera-pusi*

Concerning the conservation and protection of herbs' origins, the operating mechanisms are dependent on the types and characteristics



of localities, i.e. conservation and non-conservation areas. **A conservation area**, or protected zone for medicinal plants, is an area with a natural ecosystem or biodiversity that might be easily affected by human activities. For such an area, the Minister with the advice of the Committee is to prepare a “Herbs Protection Management Plan” and propose it to the Cabinet for approval. The aim of the Plan is to ensure cooperation among relevant agencies and communities in the implementation of the joint action plan. To date the Cabinet has approved the designation of 27 conservation areas, whose budget has been allocated for operations that will be evaluated in the near future. **As for a non-conservation area**, it is an area outside the conservation area, with a natural ecosystem or biodiversity that might be easily affected by human activities, or the use of herbs is at risk of being endangered or genetic decline, or the government aims to promote public participation in the management of such development efforts or in the use of such an area that has not been designated as a conservation area. In such a case, the Minister can issue a notification designating it as a herb protection area; and government support has been provided for pilot-scale operations of 4 areas in fiscal year 2012 and 10 areas in fiscal year 2013.

Concerning the property right monitoring and protection, the actions in this regard include the monitoring of, and search for, TTM wisdom and herbal patents from the patent offices in 7 groups of countries, especially the 930 patents in Category A 61 that are related to TTM wisdom. As requested, the DTAM has cooperated in the examination of 110,200 trademark applications from the Department of Intellectual Property as some of such applications might be similar to TTM wisdom. Over the past 4 or 5 years, 17 applications were found to have such similarity.

Concerning the support and performance evaluation of Central and Provincial Registrars, according to the Protection and Promotion of TTM Wisdom Act B.E. 2542 (1999), the TTM Wisdom Fund has allocated some budget for hiring personnel to work at all 76 provincial registrar's offices. Their operations, continuously undertaken since 2003, include compilation, conservation, protection and promotion activities in this regard, which reflect major mechanisms for the integration and decentralization of efforts.

Regarding the cooperation with other agencies or the operations according to international laws, DTAM's representatives have participated in international meetings as per the requirements of international agreements. Such meetings are, for example, WIPO's meetings on the protection of biological resources and cultural expressions, the conferences of parties of the Convention of Biological Diversity, and other relevant local and international meetings.

Relevant operations have been underway according to the missions, programmes, projects, or activities of at least nine subcommittees in relation to the conservation and protection of TTM wisdom as prescribed in the TTM law.

Besides, there are other integrated operations undertaken in collaboration with relevant public and private agencies or organizations as per assigned missions or as prescribed by law as follows:

- 1) The operations according to the memorandum of understanding on cooperation for the conservation, protection, and use promotion of herbs and their origins - a tripartite cooperation with the Ministry of Natural Resources and Environment and the Ministry of Agriculture and Cooperatives.



2) The operations on the conservation and protection of cultural wisdom together with the Ministry of Culture under the Convention for the Safeguarding of Intangible Cultural Heritage.

3) The conservation and protection of endangered species of wild animals and plants together the Department of Agriculture according to the Convention on International Trade in Endangered Species of Wild Fauna and Flora or CITES.

4) The cooperation in providing ideas and making recommendations together with other agencies related to other agreements, such as free trade agreements and memoranda of understanding on domestic and international cooperation.

However, the time period of over a decade cannot be reversed as it is regrettable that we could not do certain things and there were unthinkable matters during that time. Much time was wasted due to a lack of understanding of the practical problems, policy constraints, frequent changes in administrators resulting in discontinuity, and unrealized integration, but we are still proud of the measures and mechanisms despite their little achievements.

The aforementioned situations, including data, ideas, recommendations, and solutions to problems, should be regarded as lessons learned for programme improvements. There should be a mechanism for policy management that deals with the monitoring, oversight, integration, and coordination with relevant public and private agencies to ensure that the operations are consistently undertaken in the same direction. This is to ensure that the policy is implemented through efficient and sustainable mechanisms in conserving, protecting and safeguarding Thailand's property and biological resources so that they will remain throughout the next decade and forever for the Thai people and the world community.

Research on Thai Traditional, Indigenous and Alternative Medicine

Research studies and knowledge development on Thai traditional medicine (TTM), indigenous medicine (IM) and alternative medicine (AM) using the concept and methodology appropriate for the specificity of science with the aim of using research results have been on the rise, in terms of overall knowledge acceptance and the reality of medical pluralism in Thai society. However, there are limitations regarding the structure, mechanism, working system, research direction, and support at the national level, which need to be revised in line with the needs for national development.

Upon reviewing research studies conducted during each period of the national development plan, the numbers of studies have been rising, especially those on herbal development, herbal drugs and herbal products, which are useful for developing herbal drug and herbal product industries of the country. Such activities require scientific methods to search for answers, but they lack the direction, management mechanism and support so as to be complete-cycle research, involving upstream, midstream and downstream studies. For example, there is no

research to develop the sources and qualities of herbs with ecological differences.

Whereas qualitative studies, such as research and development (R&D) on working systems in health facilities and communities, TTM/IM/AM knowledge, treatment patterns for diseases and illnesses, and socio-cultural values. Such studies include those involving statistical and descriptive social science analyses as well as definition and interpretation; their numbers have been rising at a lower rate, probably due to limited study timeframe and field study constraints.

After the establishment of the Department for Development of Thai Traditional and Alternative Medicine (DTAM) on 3 October 2003, there was a presentation on direction and strategy for TTM/IM/AM knowledge creation and management by Dr. Komatra Chuengsatiansup at the 2004 annual conference on TTM/IM/AM and national herb expo. It was proposed that there should be three goals of knowledge creation in the three sciences, each with a different focus, using four common research guidelines, namely (1) medical theory and methodology for knowledge creation, (2) working system, structure, mechanism and management or “systematic knowledge”, (3) cultural dimensions of health and medicine, and (4) situations and impacts. In addition, five knowledge creation and management strategies were also proposed; and they have been adopted as working principles ever since.

Besides, the First and Second National Strategic Plans for Thai Wisdom and Thai Healthy Lifestyle Development (2007–2011 and 2012–2016) are regarded as the important master plans for knowledge creation and management for TTM/IM/AM system development so that the services are efficacious, safe, reliable and cost-effective. That is based on an independent and neutral technical mechanism for screening and promoting any kind of service for consumer protection purposes. The Plans’ content and directions have been consistent over the 10-year period.

It is noteworthy that the situations of TTM/IM/AM research cover both opportunities and challenges for developing research aimed at implementing the six national strategies to achieve the established goals. The overall R&D situations, the compilation of research results and situation analyses were presented at the 10th annual TTM conference and national herb expo; and the operational situations of DTAM's agencies responsible for each branch of traditional medicine can reflect the systematic opportunities and constraints as well as major directions for further programme development as follows:

7.1 Overall picture of TTM/IM/AM research and development

1) Research quantities

A review conducted by the **Thai Health Institute** revealed that, over the 10-year period of 2000–2009, there were 693 TTM/IM/AM research studies, including 236 related to indigenous medicine, 193 related to Thai traditional medicine, and 264 related to alternative medicine. Moreover, there were 1,135 studies on herbs or medicinal plants. They all were graduate-degree theses and studies conducted by academics or technical personnel, excluding those unpublished in technical journals.

According to the Thai Traditional and Alternative Health Profile, 2009–2010, DTAM's review of TTM/IM research showed the following:

Assoc. Prof. Dr. Sompop Prathanturarug and colleagues conducted a review during 2000–2004 and classified TTM research into two parts:



Part 1: Research papers published in local and international journals. It was found that 395 papers were published by Thai and/or foreign researchers, 223 of which in technical journals in the international databases and 172 in local technical journals, and over 200 of which were on specific types of herbs.

Part 2: Research on body of knowledge about disease diagnosis, prevention and treatment, and health promotion according to the TTM theory. It was found that not much research has been done on this aspect.

The **Ethical Review Committee on TTM/AM Research in Humans**, whose secretariat is under DTAM, showed that during 2008–2013 there were 92 TTM/IM/AM research studies in humans involving efficacy and safety of herbal drugs, Thai massage, acupuncture, and other related matters – an average of 15 to 16 studies per year; most of which, 52 (58.7%) were on herbal drug efficacy/safety and 15 (16.3%) on Thai massage (as of 26 August 2013).

The **Kasikorn Research Centre** revealed that between 2001 and 2009 there were 7,307 studies, 93 (1.27%) of which were on plants, herbs and local wisdom including 10 on herbs and 2 on local wisdom (as of 26 August 2013); and most of them focused on marketing research.

The Thailand Research Fund (TRF) has R&D database of 6,850 technical research studies (as of 26 August 2013) and 1,036 community-based studies, totalling 7,886 studies, of which 9 were on indigenous medicine, 245 (3.22%) on herbs, and 153 (1.94%) involving R&D.

The Health Systems Research Institute (HSRI), between 2004 and 2013, supported research aimed at making policy recommendations for TTM/IM/AM development. Of all its research papers, 25 were presented at annual TTM/IM/AM conferences and 50 at TTM/IM/AM technical events, and 62 related to herbs.

HSRI's Routine to Research (R2R) Programme supported 1,964 R2R studies between 2009 and 2013, of which 28 (1.43%) were related to TTM/IM/AM.

The **National Research Council of Thailand or NRCT's database**, as of May 2013, showed that it had 244,081 items of information, including 78,159 research papers, 165,922 theses, 14,210 technical documents, 23,669 microfiches and 1,264 digital documents, among all of them, 2,165 (0.89%) were related to TTM/IM/AM and herbs.

The **Annual National Conferences on Thai Traditional, Indigenous and Alternative Medicine**, held in 2004 through 2013 by DTAM, in collaboration with over 100 partners/organizations, had presentations of quantitative and qualitative research and technical papers. As many as 206 full papers and abstracts of pre-clinical, clinical, and social science research studies were published in the Journal of Thai Traditional and Alternative Medicine (as of August 2013), while 701 abstracts were published in the TTAM Journal Supplements.



Table 7.1 Summary of research quantities by data source, 2000–2010

Year	Data source	Research type	Number of papers or items	Remarks
1999 – 2013	Thailand Research Fund (TRF)	Indigenous medicine Herbs	9 245	R&D; community research; for utilization
2000 – 2009	Thai Health Institute	Indigenous medicine Thai traditional medicine Alternative medicine Herbs	236 193 264 1,135	Documentary review and research situation review
2000 – 2004	Assoc. Prof. Dr. Sompop Prathanturug	Herbs	395	223 papers published in international journals; 172 in domestic journals
2008 – 2013	Ethical Review Committee on TTM/AM Research in Humans	Efficacy and safety of herbal drug formulas Thai massage Others related to TTM	54 15 23	Review of protocols for research in humans
2004 – 2013	Health Systems Research Institute (HSRI)	Policy research on TTM/IM/AM Technical papers on TTM/IM/AM	25 102	Presentations at annual TTM conferences, 5 papers per year HSRI Library
2009 – 2013	Health Systems Research Institute (HSRI)	R2R on TTM/ IM/AM	27	R2R development programme: totalling 1,964 studies

Table 7.1 (continued)

Year	Data source	Research type	Number of papers or items	Remarks
2004	Department for	Scientific research	97	Published in Jr. of Thai Trad/Alt Med. (major and supplementary issues, totalling 907 papers)
2013	Development of Thai Traditional and Alternative Medicine	Social science research Abstracts of scientific and social science studies	109 701	
2013	National Research Council of Thailand (NRCT)	Indigenous medicine	911	Cumulatively 2,165 papers until 2013 out of all 244,081 papers
		Thai traditional medicine	171	
		Traditional Medicine	58	
		Herbs	1,025	

Source: Compiled/modified from "Draft master plan for research on TTM, IM and AM, 2011".

Overall, it has been found that there have been quite a number of TTM/IM/AM research studies (over 100 studies per year) even though most of them are theses. However, such studies are diverse with social science, TTM theory, and pre-clinical or clinical aspects. The studies on herbs mostly focus on determining herbal extracts and herbal drug efficacy; and very few policy studies aim for policy and strategy advocacy. As many as 45 quality papers are published in international journals each year.



2) Research qualities

The review of research papers conducted during 2000–2004 by **Assoc. Prof. Dr. Sompop Prathanturarug and colleagues** revealed that 395 papers on herbs of Thai/foreign researchers were published in domestic and international journals, including 223 in the journals listed in the international databases and 172 in Thai technical journals. This shows that the quality of Thai research papers as well as Thai researchers is recognized at both domestic and international levels. However, most of such studies focus on herbs, in which foreign researchers are interested; and most of herb researchers are pharmaceutical lecturers in universities.

A review of research papers conducted by the **Thai Health Institute** (2000–2009) revealed the following:

Research on indigenous medicine: 236 studies on Thai indigenous medicine branch were mostly master's theses; and some of them on indigenous healers's knowledge were superficially undertaken, lacking a clear and correct explanation and synthesis.

However, the data from the above-mentioned technical bureau show that the research paradigm has shifted from conventional to “community-based research” initiated by the Thailand Research Fund, which supported 60 research projects during 1999–2006. The research results have helped villagers at the foundation of society to benefit from such studies.

Research on Thai traditional medicine: of all 193 TTM studies, 111 were related to Thai massage.

Research on alternative medicine: of all 264 studies on alternative medicine, 175 were master's theses, 82 were research-oriented, and only

2 were clinical studies; and most of them were related to nursing and as many as 225 studies were conducted by Chiang Mai University.

A review of data on agencies conducting or supporting research studies between 2009 and 2013, carried out by DTAM's Information and Evaluation Bureau, revealed that agencies with good research management capacity such as the TRF had 254 studies and the HSRI had 25 systematic research studies, 102 relevant studies and 28 R2R studies. The core issues of the Journal of Thai Traditional and Alternative Medicine had 206 research papers, whereas the supplement issues had 701 papers, totalling 907 papers. In addition, there were many other quality research papers of other agencies such as the Department of Medical Sciences and universities.

Overall, the quality of research on medicinal herbs is at the international level as herbal medicines or products have gained a lot of interest worldwide. As for indigenous and Thai traditional medicine as the sciences specific only to Thailand, their dissemination to other countries is rather limited; however, their quality research papers published in domestic journals have been on the rising trend.

3) Situation of researchers

Even though there have been no systematic studies on TTM/IM/AM or herb researchers, most studies were actually carried out by researchers at educational institutions or universities.

However, according to the database on researchers registered with the National Research Council of Thailand, there are 12 branches of researchers with the codes of 01 through 12 and the details of subject groups as shown below:

01. Physical Science and Mathematics Branch including the subject groups of mathematics and statistics, physics, astronomy, earth and space



sciences, geology, hydrology, oceanography, meteorology, environmental physics, and other related subjects.

02. Medical Sciences Branch including the subject groups of medical science, medicine, public health, medical technology, nursing, dentistry, medical social science, and other related subjects.

03. Chemical and Pharmaceutical Science Branch including the subject groups of inorganic chemistry, organic chemistry, biochemistry, industrial chemistry, polymer chemistry, analytical chemistry, petrochemistry, environmental chemistry, chemical technology, nuclear chemistry, physical chemistry, biological chemistry, pharmaceutical chemistry and pharmaceutical analysis, industrial pharmacy, pharmacy, pharmacology and toxicology, cosmetics, pharmacognosy, biological pharmacy, and other related subjects.

04. Agriculture and Biology Branch including the subject groups of plant resources, pest control, animal resources, fishery resources, forest resources, agricultural water resources, agricultural industry, agricultural system, soil resources, agricultural business, agricultural engineering and machinery, agricultural environment, biological science, and other reacted subjects.

05. Engineering and Industrial Research Branch including the subject groups of science and technology, basic engineering, engineering, industrial research, and other related subjects.

06. Philosophy Branch including the subject groups of philosophy, history, archaeology, literature, fine and applied arts, languages, architecture, religion, and other related subjects.

07. Law Branch including the subject groups of public law, private law, criminal law, economic law, business law, international law, procedural law, and other related subjects.

08. Political Science and Public Administration Branch including the subject groups of international relations, policy science, political

ideology, political institution, political life, political sociology, political system political theory, public administration, public opinion, security strategy, political economy, and other related subjects.

09. Economics Branch including the subject groups of economics, commerce, business administration, accountancy, and other related subjects.

10. Sociology Branch including the subject groups of sociology, demography, anthropology, social psychology, social problem and social welfare, criminology, justice process, human ecology and social ecology, social development, local wisdom, social geography, gender equality studies, folkloristics, and other related subjects.

11. Information Technology and Communication Arts Branch including the subject groups of computer science, telecommunications, satellite communication, network communication, survey and remote sensing, geographic information system, information science, communication arts, library science, museum techniques and storehouse, and other related subjects.

12. Education Branch including the subject groups of educational foundation, curriculum and instructions, educational measurement and evaluation, educational technology, educational administration, psychology and educational counselling, non-formal and informal education, special education, physical education, and other related subjects.

The branches related to traditional health wisdom especially Thai traditional medicine, indigenous medicine, and alternative medicine are: 02, Medical science branch; 03, Chemical and pharmaceutical science; 04, Agriculture and biology; and 10, Sociology.

The numbers of researchers in such branches who were registered with NRCT for 2007–2011 are shown in Table 7.2.



Table 7.2 Numbers of researchers registered with NRCT in the branches related to TTM/IM/AM

Branch related to TTM/IM/AM	No. of researchers				
	2007	2008	2009	2010	2011
02. Medical sciences	3,556	4,930	5,300	5,278	5,561
03. Chemical and pharmaceutical science	992	1,260	1,327	1,370	1,444
04. Agriculture and biology	4,500	5,851	6,080	6,074	6,485
10. Sociology	1,024	1,429	1,534	1,580	1,638
Grand total	10,072	13,470	14,241	14,302	15,128

Source: Researchers registered with the National Research Council of Thailand, 2007–2011.

4) Research direction

According to DTAM's report "Thai Traditional and Alternative Health Profile, 2009–2010" and other related documents, the TTM/IM/AM research directions are as follows:

Assoc. Prof. Dr. Sompop Prathantururug and colleagues stated that herbal research was conducted on more than 200 types of herbs or medicinal plants. However, the overall research was not aimed clearly at any particular type of medicinal plant or herbal product; rather, they were scattered and mostly conducted on a self-centred basis. There had been a lot of knowledge gained from basic research, but no extended research was carried out to complete the full cycle of product development. There were very few quality researchers with the capacity to manage a full-cycle research project; and also there were few research laboratories with Good Laboratory Practice (GLP) and clinical research studies with Good Clinical Practice (GCP), resulting in research works being unacceptable internationally and the developed products having inconsistent quality.

The Thai Health Institute's research review (2000–2009) showed that most of the studies on indigenous medicine were master's theses in the branches of sociology and anthropology using the qualitative approach. Their contents were mostly related to surveys on names, status and roles of indigenous healers, how they became healers, and diagnostic and treatment procedures.

Since 1999, the Thailand Research Fund has supported community-based research, resulting in the changes in research concept to involve villagers as co-researchers so that they can directly benefit from such studies.

Regarding TTM research, five directions have been identified, namely TTM theory, Thai massage, TTM services, research for development, and legal aspect as well as TTM wisdom protection.

Research studies on TTM theory were very few and scattered without any clear major research title and continuity.

Research studies on Thai massage were mostly related to the theory and knowledge of Thai massage as well as its illness healing efficacy; but very few were undertaken on the theory of ten energy lines (*sen sib*), which is the heart of Thai massage.

Regarding research studies on TTM services, most of the studies were on client satisfaction, which showed that most clients were very satisfied and expected the benefits from such services, especially from the use of herbal drugs and Thai massage.

As for research for development purposes, most studies aimed to improve the TTM teaching/learning and service processes, the legal aspect of TTM wisdom protection, and the protection system and mechanism; some were related to herb origins, as prescribed in the Protection and Promotion of TTM Wisdom Act B.E. 2542 (1999).



5) **Research mechanisms** – They are as follows:

(1) **Thai Traditional Medical Knowledge Fund.** Established under DTAM as prescribed in the Protection and Promotion of TTM Wisdom Act B.E. 2542 (1999), the Fund's aim is to financially support activities related to TTM wisdom or knowledge including surveys, compilation of knowledge, and research. During the first phase of 2005–2008, the Fund had an average annual budget of 37.5 million baht; and later on between 2009 and 2013, with its outstanding performance on knowledge protection as well as TTM research and promotion, its annual budget has increased to over 120 million baht.

(2) The DTAM has established the **Ethical Review Committee on TTM/AM Research in Humans** to review and approve such research studies; and the approval process has been more smoothly undertaken.

(3) **The DTAM** has served as the core agency in organizing annual TTM/IM/AM conferences since 2004. The conference is an important forum for presenting new knowledge related to knowledge management and research on policy and strategy implementation. Research and technical papers presented at the conferences have been published in DTAM's Journal of Thai Traditional and Alternative Medicine.

(4) **Thai Traditional Medicine System Development Fund (TTM Fund) under the National Health Security Office (NHSO).** The TTM Fund's aim is to cover TTM services including examination and diagnosis, treatment, and rehabilitation under the Universal Health Coverage Scheme (UCS). In 2011, the capitation budget of 6 baht per person (totalling 282 million baht) was allocated for such services; of the amount, 4.50 baht per person was earmarked for massage services to relieve pain, paralysis, paresis, and postpartum rehabilitation, and the other 1.50 baht per person for herbal medication at state health facilities.

In 2012, the budget of 7.20 baht per capita (totalling 347 million baht) was allocated for health facilities, specifically for prescribed herbal drugs at 3.13 baht per capita (totalling 147 million baht). As a result, 8,652 state health facilities, including 7,883 *tambon* or subdistrict health promoting hospitals (THPHs) and 664 community hospitals, were able to prescribe more of the 71 herbal drugs contained in the National List of Essential Medicines (NLEM). The top five mostly prescribed herbal drugs were turmeric, *fa-thalai-jon*, *prasa-mawaeng*, *phlai* (*zingiber*), *zingiber oil*.

In 2013, the TTM Fund receives a budget of 348 million baht to be allocated for TTM services at such health facilities.

Even though the financial support is provided for TTM services, the research direction in this field is affected, especially for studies related to the strengthening of the national herbal drug system and treatment efficacy for chronic and other illnesses. This will lead to the inclusion of such drugs in the TTM service system with the support from the TTM Fund.

(5) **National Research Council of Thailand (NRCT)**. As NRCT is the national agency that screens research programmes/projects of state agencies that request government budget, NRCT-approved research work only will receive state funding. Besides, NRCT is also responsible for allocating government budget directly for research projects.

(6) **Thailand Research Fund (TRF)**. The TRF serves as an important mechanism in supporting community-based research on indigenous medicine and Thai traditional medicine. It also supports research on herbs with the potential to be developed as herbal drugs and products.



(7) **Office of the Higher Education Commission (OHEC).**

The OHEC serves as an important mechanism in supporting all academics/researchers in universities to undertake their research work.

(8) **National Science and Technology Development Agency (NSTDA).** As an agency under the supervision of the Ministry of Science and Technology, the NSTDA plays a role in developing science and technology or innovations and laying down guidelines for developing science and technology personnel in four areas, namely production and development of research personnel, support for technical conferences and professional development, development of personnel in the manufacturing and service sectors, and youth promotion and development.

6) Research budget

(1) MoPH's Department for Development of Thai Traditional and Alternative Medicine, over the past five years (2009–2013), received a total budget of 184.8 million baht from the NRCT for the research projects submitted for funding support – an average of about 37 million baht per year. Most of such research studies aimed to identify herbal extracts and determine herbal drugs' efficacy. However, there has been no plan for developing herbs systematically according to their value chain.

(2) The Thai Traditional Medical Knowledge Fund allocated 132.5 million baht annually on average for research between 2009 and 2013.

(3) The Department of Medical Sciences receives an annual budget of less than 10 million baht for herbal research.

(4) The Thai Health Promotion Foundation (ThaiHealth) allocated approximately 25 million baht for the Health Promotion with Traditional Health Wisdom Programme in 2010–2012 (2 years) and another 41 million baht for the Development of Blind Persons' Capacity as Licensed TTM Practitioners (Thai Massage) Programme during 2009–2013 (4 years).

(5) The NRCT directly allocated 500 million baht (at least 6 million baht per 1 research project) during 2009–2011 for R&D on herbs and indigenous medicine under the biodiversity and pharmaceutical chemistry branches. In 2012, the National Research Management Network (NRMN) was established as a joint effort of six major research funding agencies of the country, with the government budget, in supporting integrated R&D activities on rice, tapioca, rubber, tourism and logistics.

In fiscal year 2013, the NRCT receives a budget of 1,100 million baht for 11 research programmes that aim to respond to the country's development needs, including rice, tapioca, rubber, logistics and supply chain, tourism management, health and bio-medicine, sugarcane and sugar, food, highlands and related issues, palm oil, and rail transportation system. As for health and bio-medicine research, the HSRI has been assigned to develop the programme for research in this field and to improve the health research management capacity of the country with funding of 218.5 million baht for fiscal year 2013.

(6) The Thailand Research Fund, the Office of the Higher Education Commission and the National Science and Technology Development Agency totally allocate approximately 20 million baht each year for R&D on Thai traditional medicine and medicinal plants.

(7) The Ministry of Commerce, the Ministry of Industry, and the Ministry of Agriculture and Cooperatives also allocate the funds received from the Free Trade Agreement Fund for research on Thai traditional medicine and medicinal plants. Beginning in fiscal year 2010, the annual budget of approximately 50–100 million baht has been allocated for this matter aimed at reducing the impact from free trade agreements, including those related to AFTA or EU.

Overall, concerning the agencies undertaking, supporting and promoting research on herbs or medicinal plants and TTM/IM/AM, it has been found that each agency normally formulates its own research



direction based on its principal functions or missions. Thus, the cooperation is lacking in moving together towards achieving the country's development goals; and most researchers tend to do research in the fields of their expertise and interest. However, since fiscal year 2012, the NRCT has attached importance to the research programmes that aim to meet the country's development needs. That is also regarded as the clear overall research signal in responding to the needs of the country.

7.2 Annual National Conferences on Thai Traditional, Indigenous and Alternative Medicine

The first national technical conference on TTM/IM/AM was held in 2004 and has been held annually ever since until this year as the 10th one in 2013. Its aim is to serve as a forum for sharing and developing systematic and technical knowledge, advocating national and local policies and strategies, enhancing the capacities of Individuals, Nodes, and Networks (INN), and promoting Thai cultural wisdom including Thai healthy lifestyles. At the events, the presentations and contests of TTM/IM/AM research papers attracted numerous academics, researchers, and interested individuals to take part. Over the past 10 years, on average there are 70.1 research papers presented at each year's conference; and totally 701 abstracts of such papers that have passed the experts' review are published in the Journal of Thai Traditional and Alternative Medicine (Supplementary Editions).

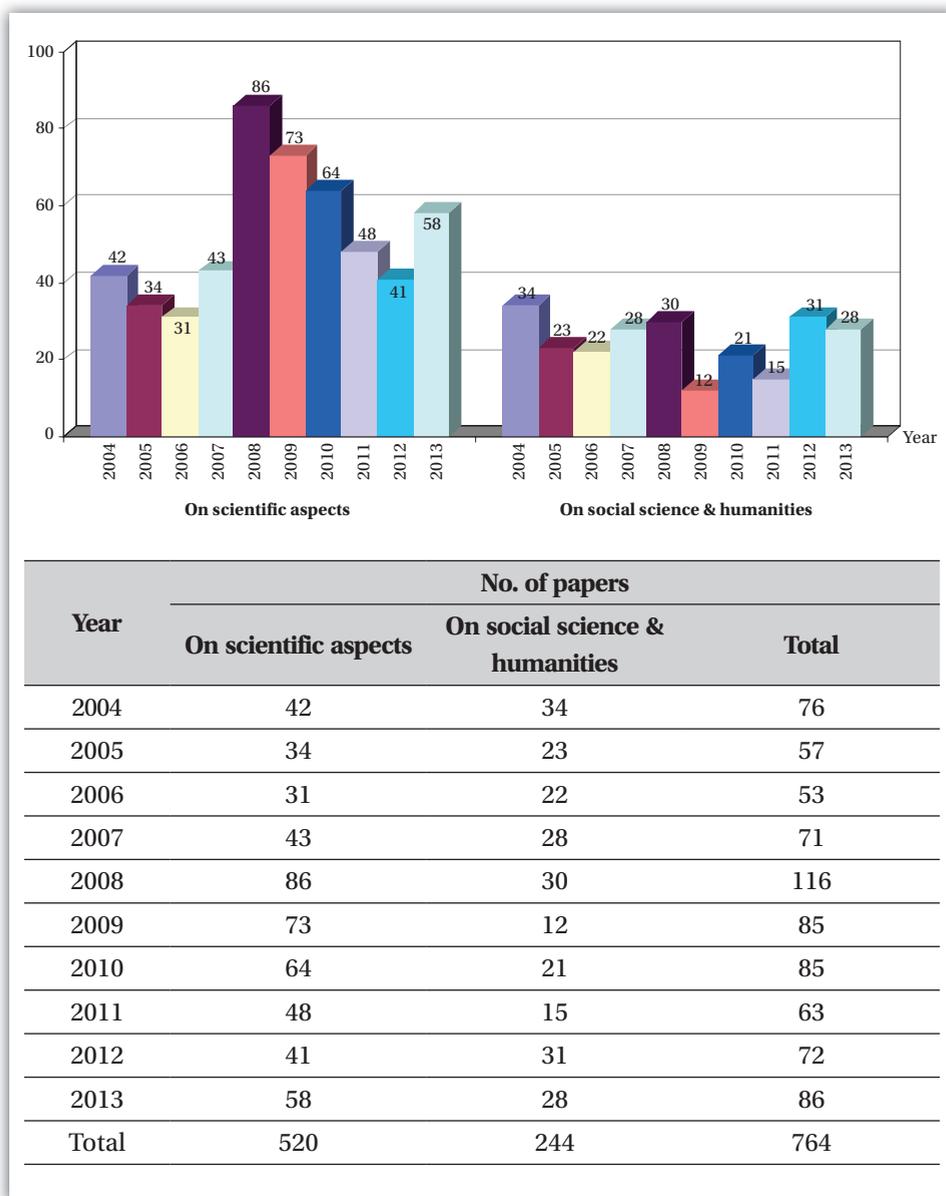
Table 7.3 Technical papers submitted and accepted for presentations at the 1st through 10th Annual Conferences on TTM/IM/AM, 2004–2013

Year	No. of papers		
	Submitted	Accepted	Abstracts published
2004	76	76	76
2005	57	57	57
2006	53	53	53
2007	80	71	71
2008	121	116	116
2009	100	5	85
2010	118	85	85
2011	75	63	63
2012	98	72	72
2013	105	86	36
Total	883	764	701

The technical papers presented at the 1st through 10th annual conferences were classified into two major groups



Figure 7.1 Technical papers presented at the 1st through 10th Annual Conferences on TTM/IM/AM, 2004–2013



7.3 Research and development on Thai traditional, indigenous and alternative medicine, 2007–2013

According to Sections 55 and 59 of Chapter 7 of the Statute on National Health System B.E. 2552 (2009), related to the movement for the creation and management of knowledge, and the Second National Strategic Plan for Thai Wisdom and Thai Healthy Lifestyle Development (2012–2016), the mechanism has been established for allocating government budget for developing traditional health wisdom, including Thai traditional medicine and alternative medicine, which accounts for at least 0.5% of the national health budget. So it has been noted that the proportion of research budget has increased together with other support mechanisms including the establishment of independent agencies, such as the Health Systems Research Institute (HSRI), the Thailand Research Fund (TRF), the Office of the National Research Council of Thailand (NRCT), and DTAM's Thai Traditional Medical Knowledge Fund as well as the TTM System Development Fund (TTM Fund) under the National Health Security Office (NHSO).

The creation and management of Thai traditional wisdom and Thai healthy lifestyle during the past five National Health Assemblies involved the promotion of cooperation and participation in knowledge management in six issues under the national strategic plan. As a result, more networks have been set up for developing research activities and researchers from the local up to national level.

As for DTAM, its major functions include research and development of knowledge and technology related to TTM/IM/AM as well as TTM wisdom conservation, protection and promotion according to the Protection and Promotion of TTM Wisdom Act B.E. 2542 (1999), which is a specific (*sui generis*) law. Concerning TTM knowledge management, importance has been given to the development of process for using research results in the health system, which can be briefly described for each aspect as follows:



1) Research on Thai traditional medicine

DTAM's Institute of Thai Traditional Medicine (ITTM) has been playing a key role in assembling TTM knowledge and had the Thai Traditional Medicine Research Institute (TMRI) established with the aim of supporting clinical research to create clear and acceptable research results. Regarding the TTM theory and diagnostic approach, in the beginning, research on such aspects mostly involved “drug formulas”, whose results are ready to be included in the health system, such as Sahastara drug for replacing diclofenac. More details on such research are as follows:

1. R&D on herbal drugs and herbal formulations

This aspect of R&D is extremely important for DTAM to pursue in strengthening its technical evidence base up to the level that is acceptable to all sectors concerned. Importance should be given to the safety, efficacy, and quality control aspects of Thai herbal medicines, herbal formulations, and therapeutic procedures according to the TTM principles. Efforts have to be made to ensure that the international standards and appropriate methods are used in assessing research results and developing herbal drugs; and scientific evidence is to be obtained to ensure the following:

- ❁ **Drug efficacy:** The drug is to be efficacious; so studies should focus on herbal activity in vitro and lab animals (pre-clinical) and in patients (clinical).

- ❁ **Drug safety:** The drug is to be safe; so studies are to be carried out (1) in lab animals on drug toxicity to ensure that the drug will not cause any dangerous side effects in humans and (2) in patients to see whether there will be any adverse drug reactions.

- ❁ **Drug quality:** The drug is to provide consistent therapeutic effects for all lots of its production, based on the established standards for raw materials, produced drugs and herb cultivation. Good quality herbs only

shall be used in herbal drug preparation; and the drug is to be analyzed to see whether it meets the established standards.

DTAM's achievements in TTM/AM research between 2003 and 2011 are as follows:

1) Clinical studies on the following herbal drugs:

✿ **Turmeric (*khaminchan*) extract** in treating patients with knee osteoarthritis (500 mg, orally, 4 times daily; the drug was found to be as efficacious as ibuprofen (400 mg, 2 times daily).

✿ **Turmeric (*khaminchan*) extract** (curcuminoid mask, experimental product) in treating acne; the extract was found to be as efficacious as or more efficacious than 5% benzoyl peroxide gel, but its product form was unsuitable; so it needs further development.

✿ ***Ya-thart-obchoei* (cinnamon stomachic mixture)** in relieving functional dyspepsia; taken orally 30 ml, 3 times daily for 7-14 days, its efficacy was not different from that of simethicone 105 mg, 3 times daily after meal.

✿ ***Fa-thalai-jon*** in relieving the symptoms of influenza; taken 1.6 grams orally every 6 hours in combination with paracetamol; its preliminary study showed that, in comparison with only paracetamol medication, the combined medication was more efficacious for relieving fatigue and coughing.

✿ ***Kwao khruea*** in relieving hormone-deficiency symptoms in menopausal women; taking 50 mg of the herbal drug daily could relieve such symptoms as hot flashes and night sweats.

✿ **Asiatic pennywort (*bua-bok*)** in treating chronic ulcers in patients with diabetes (a study conducted at Thammasat University Hospital); oral medication of *bua-bok* could heal diabetic wounds faster, while the incidence of keloids was lower, and there were no side effects or adverse drug effects.



❁ **Tamrab ya-hom** (anti-fainting powder): a preliminary study has been conducted on the drug's efficacy and side effects in lowering blood pressure, but according to the Committee on Research in Humans, there is not enough evidence to do a clinical trial.

❁ **Tamrab ya-thai (Prasa-phlai)**: a pre-clinical study has been done in lab animals and a clinical study is being conducted in collaboration with the Faculty of Medicine, Thammasat University.

❁ **A study on community model for drug addiction rehabilitation using TTM wisdom in Thailand**: the results showed that this kind of approach would not have been successful if there had been no knowledgeable persons who could help the youth to learn. Such persons had to be ready to transfer the knowledge and establish the linkages with the school so that the children could learn when they were still young in the educational system. The children and youth should realize the values of Thai cultural and traditional medical wisdom. The resource persons had to be assigned and trained among teachers and students for each community; and then they could train other student leaders to expand this effort. As for the administrators of local organizations, they had to be involved so as to sustain this programme. The programme extension could be done by establishing a rehabilitation centre at Buddhist temples and rehabilitation clinics.

2) Drug safety studies. In collaboration with the Medicinal Plant Research Institute of the Department of Medical Sciences and the Faculty of Medicine at Thammasat University, many herbal drug safety studies were conducted as follows:

❁ Black fingerroot or *kra-chai-dam* (2003) – the dosage used in humans did not cause any toxicity in lab animals.

❁ **Asiatic pennywort (*bua-bok*)** (2003) – the dosage used in humans did not cause any toxicity in lab animals.

✿ *Mahakan* hemorrhoid preparation (2005) – the dosage used in humans did not cause any toxicity in lab animals.

✿ Piperine substance in black peppers (2007 for weight reduction) – the dosage used in humans did not cause any toxicity in lab animals.

✿ *Ya-samrahk* (2008, three-herb remedy for drug addiction treatment) – the dosage used in humans did not cause any toxicity in lab animals.

✿ Toxicity tests of Thai herbal drugs (*kratom* and *kratok-rok*) in drug addiction treatment.

✿ Toxicity test of Thai herbal drug: *Ya-thorani-santhakart* (2009, for degenerative tendonitis or *ka-sai-sen*, constipation or *thao-dahn*) – a high dose of this drug was found to cause a high incidence of degenerative liver cells in mice. Thus, for safety reason, this drug should be taken strictly according to the TTM principles without any overdose and extended period of medication.

✿ Toxicity test of Thai herbal drug: *Ya-tamrab-benja-thip-osot* (2010, for increasing blood circulation and lowering blood pressure) – it was found that the extract of this drug did not cause any acute and chronic toxicity in lab animals.

✿ Toxicity test of Thai herbal drug: *Benja-ammarit* (2011, as laxative and for liver cancer patients) – the study was completed in 2012.

✿ The Herbal Drug Safety Monitoring Project: The project has been undertaken among herbal drug recipients at 10 state health facilities since 2006 for inclusion of such drugs in the National List of Essential Medicines. Ten herbal drugs being monitored include *petsangkart*, wild bitter gourd (*mara-khi-nok*), *thaowanpriang*, *sahastara*, *bua-bok* capsule, *bua-bok* cream, *rangjued*, cat's whisker (*ya-nuat-maeo*), cinnamon stomachic mixture (*ya-thart-obchoei*), haemorrhoid remedy, and blood



tonic. For each drug, data have to be collected from at least 1,000 cases so that it could be proposed for inclusion in the NLEM. And in 2010 enough data could be collected for *petsangkart*, *mara-khi-nok*, *thaowanpriang*, *sahastara*, and *ya-thart-obchoei*; so all five of them were included in the NLEM in 2011.

The development of Thai traditional and herbal drugs for inclusion in Thailand's NLEM is an important issue for the country as the inclusion is part of the effort in improving Thai drug quality and for the patients to get reimbursed for their medical expenses. The actions undertaken are as follows:

- During 2006–2008, studies were carried out on five herbal drugs, including *petsangkart* (for treating haemorrhoid), *mara-khi-nok* (for lowering blood sugar), *sahastara* and *thaowanpriang* (for relieving muscle pain), *bua-bok* capsule (for chronic wounds in people with diabetes), and *bua-bok* cream (for wound healing).

- In 2009, studies were conducted on cat's whisker (*ya-nuat-maeo*), lemon grass (diuretics), *ya-dokkhao* (smoking cessation), drug formulation *Ya-thorani-santhakart* (relieving muscle pain), single herb black pepper (its piperine substance did not cause any toxicity in lab animals), and Thai drug formulation *Ya-samrak* (for drug addiction treatment; its human dosage did not cause any toxicity in lab animals). And since 2011, toxicity studies have been underway on other Thai herbal drugs for drug addiction treatment (*kratom* and *kratok-rok*).

- During 2010–2011, the Institute of Thai Traditional Medicine initiated the “Acceleration of Herbal Drugs Registration and Inclusion in the NLEM Project”, aiming to promote more use of such drugs in the health services system. Efforts have been made to collect the information on herbal drug research studies undertaken since 2006 by DTAM and other agencies within and outside the country for preparing the list of herbal drugs. That is a major measure for promoting and reviving the use of TTM wisdom and herbs

in the national health system, based on the Sufficiency Economy Philosophy. Originally, the MoPH issued the List of Herbal Medicinal Products B.E. 2542 (1999) with 8 herbal drugs and again in 2006 the List of Herbal Medicinal Products B.E. 2549 (2006, Supplement) was issued with a total 19 herbal drugs. The number was very small in the present situation, when a larger number of herbal drugs are actually used. Later on additional herbal drugs were reviewed and selected for inclusion in the List. To be included in the List, each of such drugs must have clear indications as well as technical evidence on efficacy and safety for human use, or have evidence showing that it has been used in at least 1,000 patients.

DTAM's Institute of Thai Traditional Medicine actually implemented the "Acceleration of Herbal Drugs Registration and Inclusion in the NLEM Project" in collaboration with experts from relevant agencies, such as the Department of Medical Sciences, the Food and Drug Administration, universities' faculties of pharmacy, state hospitals producing herbal drugs, and the Government Pharmaceutical Organization. The experts jointly prepared a preliminary list of selected herbal drugs and research information on drugs' indications and safety; and then submitted the list to the National Experts' Task Force on Selection of Herbal Drugs" under the Subcommittee on NLEM Development for further selection and inclusion in the NLEM.

As for the current List, the National Drug System Development Committee, through its National Experts' Task Force on Selection of Herbal Drugs" that began in April 2010 to prepare the List of Herbal Medicinal Products B.E. 2554 (2011), as part of the National List of Essential Medicines, had the List published in the Government Gazette, Vol. 128, special part 72c, dated 28 June 2011. The List contains 71 drug items, including (1) 50 herbal or traditional drugs and (2) 21 herb-derived drugs, with details on drugs' formulas, indications, dosages, drug administration methods, and contraindications; and it also has technical



evidence to support the rational use of herbal drugs for consumer protection purposes in using them for disease prevention and treatment.

In fiscal year 2013, DTAM has set a policy to add another 15 items of herbal drugs to the NLEM within three years (2013–2015) and signed a memorandum of understanding with the Department of Medical Sciences and the Food and Drug Administration (11 March 2013) for such collaborating efforts. In response to the policy, the Database for Herbal Drugs to Be Included in the NLEM Project was drawn up and submitted to the TTM Knowledge Fund for financial support, and the Committee on Preparing Database for Herbal Drugs to Be Included in the NLEM as well as two subcommittees was established. Their duties are to review and select herbal drugs, Thai traditional drugs and hospital formulary drugs that meet the established NLEM requirements, and submit them for such inclusion.

3) Development of herbal drug standards – actions undertaken are as follows:

- In 2004, the **WHO Guidelines on Good Agricultural and Collection Practices (GACP) for Medicinal Plants** was translated into the Thai language in an effort to promote the growing and harvesting of herbs from natural sources according to the GACP requirements in order to obtain good quality raw herbal materials. The Thai version has been printed and distributed to all public and private agencies involved in herbal drug manufacturing.

- In 2011, the Thai Traditional Medicine Research Institute (located in Yot Se, Bangkok) carried out quality control activities and prepared herbal standards as follows: (1) drug formula for treating knee pain (*rok-jabpong-haengkhao*); (2) drug formula *Khampi-Chawadahn* for lowering blood pressure; (3) drug formula *Jittrarom* for lowering blood pressure; (4) Thai drug formula for lowering blood sugar in patients with type 2 diabetes;

(5) drug formula for treating lung cancer (*fi-mareng-suang*); (6) Thai drug formula for treating the early stage of common cold; and (7) drug formula *Benja-ammari*'s herbal activity against cancer cells and free radicals.

✿ The preparation of **Monographs of Selected Thai Materia Medica**, or reference textbooks on Thai herbal drugs with herbal monographs, covering the sources, characteristics, chemical components, use or benefits in TTM and modern medicine, related research, contraindications/warnings, and suitable dosages of commonly used herbal drugs or herbal preparations in TTM services. Volumes 1 and 2 of the Monographs were published in 2008 and 2010, respectively, each containing 54 herbs for use as a reference for TTM and Thai pharmacy practitioners, business operators, state officials involved in herbal drug industry, and consumers. This will help raise the Thai drug quality to the international standards.

✿ Research on and preparation of “**Pharmacognostic specifications of Thai crude drugs**”, in collaboration with the Institute of Health Research at Chulalongkorn University. In fiscal year 2005, pharmacognostic specifications were completed for 10 herbs, namely *ya-kha*, *faek-hom*, *proh-hom*, *thongpanchang*, *jetpangkhi*, *rajadat*, *non-tai-yak*, *ma-had*, *fahng*, and *mok-luang*; and in fiscal years 2009 through 2011, another 50 herbs had their pharmacognostic specifications prepared (20 in 2009, 15 in 2010 and 15 in 2011). However, according to the ASEAN GMP standards, clear pharmacognostic specifications Thai crude drugs or herbs have to be prepared. To date, the Department of Medical Sciences has finished the clear pharmacognostic specifications of only 35 crude drugs; and another 15 will be prepared in 2013. Such information is required for the standardization of Thai drugs and herbal drugs according to the ASEAN GMP by the year 2015. This effort will also help in the development of herbal drug production standards in hospitals and industries of the country.



4) The development of TTM textbooks: Between 2002 and 2013, TTM textbooks on health promotion and for TTM teaching/learning in Thai and English are the following:

1. Manual for People's Self-healthcare with Thai Traditional Medicine (2003–2004)
2. Exercise with Body Stretching (*Ruesi Dadton*) (2003–2010)
3. Healthcare with Thai Traditional Medicine (2003–2010)
4. Product Champion: Thai Medicinal Plants for Export
5. Introduction to the Thai Traditional Medicine Museum and Training Centre (2003)
6. Revision of Thai Traditional Medicine Knowledge: *Kamphi Pathomjinda* (2004)
7. Report: Study on Status of Textbooks on Thai Traditional Medicine (2004)
8. Manual for Growing Economic Medicinal Plants (2005)
9. Thai Wisdom: Herbal Food (2003)
10. Postpartum Care with Thai Traditional Medicine (2005)
11. Abstracts of Technical Papers on Thai Traditional Medicine (2006)
12. Asceticism and Healing in Ancient India: Medicine in the Buddhist Monastery (Translation, 2006)
13. TLC: A Simple Method for Analysis of Thai Herb Quality (2007–2008)
14. Journal of Thai Traditional and Alternative Medicine, Volumes 5 through 8 (3 main issues/year and supplements)
15. Dictionary of Thai Traditional Medicine and Thai Pharmacy Terminology, Royal Institute of Thailand, First Edition (2007)
16. Dictionary of Thai Traditional Medicine and Thai Pharmacy Terminology, Royal Institute of Thailand, Second Edition (2009)

17. Report: Research on Pharmacognostic Specifications of Thai Crude Drugs (2007)
18. Monographs of Selected Thai Materia Medica, Volume 1 (2007)
19. Book and VCD: 200 Years of Prince Krom Luang Wongsu Dhiraj Snid: His Activities on Thai Traditional Medicine, 2008, prepared together with the Ministry of Culture
20. Handbook of Herb Garden in the Thai Traditional Medicine Museum and Training Centre Building (2008)
21. DVD on Traditional Medicine in ASEAN Countries (in Thai and English, 2009)
22. Book and DVD on Summary of ASEAN Meeting (in Thai and English, 2009)
23. Fifteenth Anniversary of the Institute of Thai Traditional Medicine (2010)
24. Traditional Medicine in ASEAN (in English, 2010)
25. List of Herbal Medicines for Hospitals and Health-care Units, 2010
26. List of Herbal Medicinal Products B.E. 2554 (2011)
27. Textbook on Thai Massage for Health (60-Hour Course, 2011)
28. Textbook on General Thai Massage for Health (150-Hour Course, 2011)
29. Textbook on Royal Thai Massage for Health (150-Hour Course, 2011)
30. Textbook for Thai Traditional Medical Assistants (372-Hour Course, 2011)
31. Tart Chao Ruean (2011)
32. List Herbal Medicinal Products B.E. 2554 (2011)
33. Thai Traditional Medicine Wisdom Near Yourself (2011)
35. Compilation of Thai Herbs' Properties (2012)



36. Traditional Medical Services and Educational Systems in ASEAN Countries (2012)

37. Compilation of Thai Herbs' Properties, Volume 1, Revised (2013)

Moreover, other relevant activities have also been undertaken as follows:

1. Compiling, revising and developing various textbooks for use as references in preparing TTM textbooks for instructional purposes at universities and other educational/training institutions in producing quality TTM personnel. That is regarded as an effort in restoring and preserving TTM as national wisdom for future generations and in networking with relevant universities in this field.

2. Preparing a TTM dictionary (in Thai) by the Royal Institute; the dictionary is of high standard for use as a reference for those who are studying for the TTM licensing examination. In 2013, the preparation of another dictionary of 2,000 words of Thai medicine, pharmacy, massage and midwifery is underway.

3. Preparing a summary of TTM theory as a revival of TTM knowledge and the basis for applying the principles together with modern medicine. DTAM has been trying to encourage the universities with modern medical educational programmes to incorporate TTM in their curricula.

4. Writing the history of TTM so that the young generation can learn about the wisdom of ancient Thais; and the knowledge will be used in publicizing TTM domestically and abroad, and in protecting the traditional Thai wisdom.

5. Establishing general criteria related to the methodology for TTM research and evaluation; and specifying the research directions, based on the good research and evaluation principles as well as therapeutic safety and

efficacy, while the research volunteers are appropriately protected according to the international practices.

6. Training, and enhancing the capacity of, researchers; and transferring the knowledge about research.

7. Disseminating TTM/AM research results in the Journal of Thai Traditional and Alternative Medicine and on the Internet via the DTAM website.

8. Holding meetings and forums for presenting TTM/AM research or technical papers, such as annual TTM conferences and herb expositions.

9. Joining other ASEAN countries in organizing three Conferences on Traditional Medicine in ASEAN Countries in Thailand, Vietnam and Indonesia, in 2009, 2010 and 2011, respectively. At the conferences, the “Bangkok Declaration”, “Hanoi Declaration”, and “Tawangmangu Declaration” on traditional medicine were adopted for enhancing cooperation and development efforts in this field. In addition, the Ad Hoc Task Force on Traditional Medicine was established to draw up a work plan, a roadmap and implementation modalities of cooperation activities, including knowledge sharing, integration of traditional medicine into regular health systems, teaching/learning, research and the use of primary health care approach. Moreover, the three Asian trade partners, i.e. China, Korea and Japan, officially proposed to provide assistance in traditional medicine for ASEAN member states. As a result, the development of traditional medicine in the region and member states has been one of the important activities in the ASEAN socio-cultural pillar. Through the sharing of knowledge of traditional medicine among ASEAN member states, Thailand has learned about the progress in this field in Indonesia, Myanmar and Malaysia - each having different strengths - with which Thailand should share its experiences. Mechanisms for cooperation with agencies in such countries should be set up for further developing TTM as well as traditional medicine in the ASEAN region.



10. Performing the duties stated in item 8 above related to the cooperation in TTM within the country and overseas – the Institute of Thai Traditional Medicine (ITTM) has carried out the following:

In fiscal years 2012 and 2013, DTAM/ITTM organized the Workshop for the Preparation of the Book on the Use of Herbal Medicine in Primary Health Care in ASEAN”, according to the work plan of the **ASEAN Task Force on Traditional Medicine (ATFTM) for 2011–2015**, to promote cooperation in five areas. One of such areas is “Promotion of the Use of Traditional Medicines (Herbal Drugs and Non-drug Therapy) in Primary Health Care”; and Thailand has been designated as the lead country.

The major activity in this collaborating effort is the preparation of the “Book on the Use of Herbal Medicine in Primary Health Care in ASEAN”.

In this connection, DTAM/ITTM hosted the First Workshop for the Preparation of the Book on “the Use of Herbal Medicines in Primary Health Care in ASEAN” on 11–13 March 2012. At the workshop, delegates from ASEAN member states jointly drew up the outline and content of the book and selected 72 herbs for use in treating common ailments and symptoms. After the workshop, each member state was asked to send more details (as per the agreed upon outline) about the selected herbs to Thailand for book dummy preparation. Such details also include herbs’ characteristics and dosages as well as simple description of diseases or symptoms for the readers.

During 2013–2014, the collection of such information is still underway for drafting a monograph for each of the selected medicinal plants. Upon monograph completion, Thailand will host the Second Workshop for the Preparation of the Book on “the Use of Herbal Medicines in Primary Health Care in ASEAN” on 18–23 August 2013 to review the herbal monographs and finalize the book dummy with pictures or illustrations. The final draft of the book will be sent to all delegates for review and

endorsement; and then the book will be published for distribution to all member states for use as the manuscript for translation into their respective languages. According to the resolution of the ATFTM held in Malaysia, the book will be launched at the next ASEAN Health Ministers Meeting (AHHM) to be held in Vietnam in 2014.

2) Research on indigenous medicine

DTAM's Bureau of Thai Indigenous Medicine plays a key role in this matter involving the design of programmes and projects to work together with other partners especially academics in educational institutions and personnel in the health system. The strategy for knowledge management related to indigenous medicine, which is cultural medicine, has to focus on the participatory research and development approach in promoting the capacity of local researchers and supporting more of the collection of knowledge and wisdom from individual indigenous healers and communities, in parallel with the collection from traditional textbooks in each locality, which are eco-culturally diverse.

Indigenous medicine is a non-formal medical system, whose healing procedures have to be learned and practised from experienced indigenous healers on an apprenticeship (preceptor/teacher-learner) basis. This is because indigenous healers' healing methods are unique, different and diverse, making it hard to convince Western medical practitioners to be confident in the efficacy of such healing.

Over the past 10 years, the pioneering research study on indigenous medicine was the "Revision of Moh Mueang's Knowledge for Developing *Lanna* (Northern) Indigenous Medical System (2002-2004)" by Yingyong Taoprasert and colleagues. The study involved the collection, revision and categorization of *Lanna* indigenous healing practices in a systematic manner. Its aim was to synthesize the *Lanna* indigenous healing knowledge



and central or common structure (principles). The process includes two phases; the first phase with four steps, i.e. literature review of textbooks of *Moh Mueang* (*Lanna* or northern indigenous healers), workshops for healers to review/revise the healing system and theoretical structure, in-depth study on individual healers' healing process and expertise, and workshops for healers and relevant personnel to systemize the complete system of indigenous medical theory.

The second phase involved the promotion and support for *Moh Mueang* to conduct studies and develop their knowledge, by jointly undertaking in-depth studies on various healing practices. Such efforts were carried out by skillful healers and supporting researchers. Upon research completion, they could prepare four volumes of common textbooks on *Lanna* indigenous medicine: Textbook of Medical Theory, Textbook of Pharmacy, Textbook of Physical Therapy, and Textbook of Ritual Healing and Psychotherapy. Such efforts were carried out by 60 *Moh Mueang* experts in upper northern Thailand; they all had to convene more than 50 meetings to prepare 25 common textbooks and conduct in-depth reviews of 10 subject matters. The research has had an impact on the TTM policy and widely led to technical and service system expansion.

Between 2007 and 2013, the technical operations of the Bureau of Thai Indigenous Medicine focus on the process of research and knowledge management, including research and development, routine-to-research (R2R), and community-based action research, in collaboration with networks of academics, indigenous healers in communities, provincial health networks, and NGOs, involving eight categories of wisdom as follows:

(1) Indigenous medicine wisdom for maternal and child health care in four regions of the country and the wisdom of pre-natal and post-natal care of *toe-bi-dae* (traditional birth attendants, or TBAs) in nine subdistricts of three southern border provinces.

(2) Wisdom for community health care using indigenous medicinal herbs and local food in 15 model communities and the development of database on local vegetables and herbs.

(3) Indigenous medical wisdom for treating broken bones – a research and development activity aiming to create a cooperation mechanism among indigenous healers and district health facilities in 12 provinces with 18 cases of indigenous healers.

(4) Indigenous medical wisdom for treating poisonous animal and snake bites – an R2R study involving knowledge management at two district hospitals.

(5) Indigenous medical wisdom in caring for patients with diabetes – an overall knowledge management effort involving 12 experienced health-care networks and aiming to develop “guidelines for the application of indigenous medical wisdom in caring for diabetic patients” and to prepare a cartoon handbook for the people on diabetes care.

(6) Indigenous medical wisdom in caring for cancer patients – a compilation of knowledge and follow-up of cancer care undertaken by indigenous healers, the first phase involving 31 healers in 23 provinces with 383 medicinal formulas.

(7) Indigenous medical wisdom in caring for patients with paresis and paralysis – a study dealing with overall management and compilation of indigenous healers’ knowledge as well as the assessment of healing efficacy.

(8) Development of a community health system using indigenous medical wisdom – the case of “Thai Indigenous Medicine Learning Centre”.

The technical documents on Thai indigenous medicine derived from the research and knowledge management undertakings mentioned above have been published for distribution. Of all 38 topics, (1) 22 topics are on compiled knowledge, local wisdom and biographies of indigenous healers,



(2) 4 topics on lessons learned from indigenous medicine development projects, (3) 3 topics on indigenous medicine situations and movements, and (4) 9 topics on other related aspects such as guidelines/directions for using indigenous medicine and directions/policies on Thai indigenous medicine development.

Besides, the Bureau of Thai Indigenous Medicine has undertaken situation analyses of knowledge management and research studies of relevant networks or partners by creating and managing the knowledge using the action research approach as follows:

The situation analysis of research studies and technical operations using indigenous health and medical wisdom between 1993 and 2003 revealed that there were 115 studies; and the Thai Health Institute also found that, between 2000 and 2009, most of such studies (53.4%) were on medicinal plants, followed by those on alternative medicine, indigenous medicine and Thai traditional medicine. Among the TTM studies, most of them focused on Thai massage, client satisfaction, and treatment efficacy; and most of them were master's theses. Regarding the categories of compiled indigenous medical and health knowledge, the people still use such knowledge for health care, but there has been no mechanism for actually using the knowledge gained from research in the health service system.

The report on status and directions of research on indigenous health wisdom involving the compilation of indigenous medical research papers showed that three studies were on indigenous medical textbooks, namely (1) the study on Thai drug formulas of Venerable Luang Pu Sook of Wat Pak Khlong Makham Tao in Chainat province by the Chainat Provincial Public Health Office, in collaboration with DTAM, by retrieving the knowledge from 10 lines of textbook inheritors and 3 lines of textbook keepers, and (2) southern indigenous medical wisdom from 125 ancient southern books (*nangsue-bood*) prepared by Watthana

Chindaphon and Imjai Ruanpet; and (3) the survey and collection of 32 textbooks of indigenous medicine in Phang-gna province.

A community-based action research on revival of indigenous massage wisdom of the Khao Chaison Indigenous Healers Club in Khao Chaison district, Phatthalung province: The study was undertaken in 2008 by Mr. Somboon Thipnui and colleagues with funding support from the Thailand Research Fund; and it received an award among others under the TRF-funded community-based action research programme. It is regarded as the concept and mythology of community-based action research undertaken by community members including indigenous healers, who could help local residents to know about their own capacity, setting their own research questions and developing research process with the help of research assistants (external researchers or technical officers serving as supporting researchers). The results have helped them to categorize the indigenous massage wisdom obtained from individual healers for use as a textbook or Khao Chaison Massage Manual in caring for postpartum women as well as patients with paresis, paralysis and other symptoms. This study is an example of the support for indigenous healers' group in knowledge creation and management.

The knowledge management effort undertaken by the Thai Holistic Health Foundation and other relevant partners in 91 subdistricts in 21 provinces, involving 1,223 indigenous healers, has compiled nine topics of indigenous medicine, namely (1) local northeastern foods; (2) house's auspicious characteristics (*sok-bahn*) and community architecture; (3) *heet-khong* northeastern traditions; (4) indigenous northeastern herbs; (5) energy line and tendon healers (*moh-sen, moh-en*); (6) care for postpartum women; (7) care for injured persons after accident (roasting or *kan-yang-fai*, broken bone remedy, blowing, oil therapy, and holy water therapy, or *nammon*); (8) poison healers (snake-bite healers or *moh-gnu, moh-sarapatpit*); and (9) ritual healers (*moh-phram, tao-jam, ma-muad, moh-yao, moh-tham*,



nangthiam, moh-moh, moh-siangthai). The final report of the study has been published for distribution to all network members and interested persons. The first phase of the study in nine northeastern provinces was financed by the Thailand Research Fund's Community-based Research Programme and the field activities were coordinated by the Rural Northeast Development Foundation (Mr. Yongyuth Trinurak), DTAM's Bureau of Thai Indigenous Medicine, and the network of provincial technical officers.

The community-based research focused on R&D activities related to real situations using the participatory action research approach, for example:

1) Indigenous medical wisdom and self-healthcare in communities: a case study in Samut Sakhon province in 2010. The study was conducted in two communities of the province on their models and knowledge of self-care behaviours; and it was found that both urban and rural communities had several branches of indigenous medical wisdom, such as medicinal herbs, massage, etc. Three models were found to be useful for self-healthcare, i.e. health promotion for individuals in normal situation, self-healthcare for individuals and family members for treating minor ailments with single herbs and common household remedies, and reliance on the services of indigenous healers in the community when the illness is beyond the individual self-care level.

2) A study on the ethics of indigenous healers in providing herbal remedies based on their perspectives in Udon Thani municipal areas in 2010. The study was carried out by interviewing three indigenous healers about their ethics, concept, and changing trends. It was found that indigenous healers used ethics in maintaining their practices that had been passed on from generation to generation as well as the Buddhist ethics. However, such practices are currently dominated by materialism, resulting in indigenous healers' ethics being shaken involving the exploitation in the practices when treating the patients.

3) Development of innovations for health promotion among diabetic patients based on the sufficiency economy philosophy in 2011. This R&D study involved a situation analysis of diabetes in Pa Mok district in Ang Thong province and the development of health promotion model for patients with diabetes according to the sufficiency economy philosophy and the participatory action research (PAR) principles. The study revealed that the prevalence of diabetes in the community was previously on the rise because of the patients' lack of treatment continuity and blood sugar control practice, community participation, and people's awareness of diabetes. In collaboration with the communities in five subdistricts, health promotion activities were undertaken for diabetes prevention and control, based on the sufficiency economy philosophy including moderation, exercise with yoga and body stretching (*ruesi dadton*), and herbal remedy (sunroot or *kaentawan*). Among the participating patients, there was a drop in their average blood sugar level; and the people at risk of diabetes could provide more social support with a better mental health condition.

The strengthening of tacit knowledge belonging to individual indigenous healers. According to DTAM's Office of the Central Registrar, all over the country, there are 53,015 indigenous healers (April 2013) with the tacit knowledge that is associated with several factors such as community, social and cultural context, natural resources, environmental ecology, and experiences. If such knowledge is not protected, promoted and supported, it will disappear. At present, there are two laws related to the knowledge protection: (1) the Practice of Healing Arts Act B.E. 2542 (1999) - Section 33(1) prescribing that a licence for healing arts practice can be issued to the indigenous medicine practitioner who possesses ethics, knowledge and capacity and has passed the test given by the Subcommittee on Indigenous Medicine and the TTM Committee; and (2) DTAM's Regulation on Certification of Indigenous Healers, No. 2, B.E. 2555 (2012), issued as per



Section 32 of the Organization of State Administration Act B.E. 2534 (1991), as amended, and MoPH's Regulation on DTAM's Reorganization – easing the rules related to the recognition of indigenous healers' status. Even though there are still some obstacles to this effect, their legal status has to be further clarified, based on the requirements of the TTM Professions Act B.E. 2556 (2013). Moreover, the knowledge system for indigenous medicine has to be organized as well.

According to the aforementioned situations of knowledge management and specific features of each branch of TTM, the goals and directions for development have to be geared towards the strengthening of the pluralistic medical systems to complement the modern medical system, using their strengths to minimize the weaknesses of one another. The strategic goals should include different specific goals of each medical system; whereas the goals of indigenous medicine should include the selection and revival of certain indigenous medical practices with potential to synthesize or develop lessons learned and operational models of indigenous medical services. Such efforts are to be carried out in parallel with the revival of local cultures and languages and the application in line with the changing socio-cultural conditions and contexts. The goal of knowledge creation in this regard is the development of policies and measures for proactive and defensive actions that are consistent with the situations and nature of each branch of sciences. The knowledge management strategy has to be clear with the mechanism of such an effort and the utilization of research results. So DTAM has to work together with its partners in creating strong knowledge, workforce and technical community.

3) Research on alternative medicine

The vision of the Bureau of Alternative Medicine is: “Being determined to develop alternative medicine for the self-reliance of mankind.” The Bureau's roles and duties are as follows:



(1) To conduct research studies and analyses for development of knowledge, and screen the knowledge of traditional Chinese medicine (TCM) and other alternative medical practices as well as other relevant products.

(2) To transfer knowledge and technology related to TCM and other appropriate alternative medical practices.

(3) To establish and develop quality standards, and make recommendations, for consumer protection in relation to TCM and other alternative medical practices.

(4) To develop model of, promote and support, the inclusion of TCM and other alternative medical practices in the health system.

(5) To support international collaboration on TCM and other alternative medical practices.

(6) To work together with, or support the operations of, other relevant agencies or as assigned.

At present, in terms of the development alternative medical science, traditional Chinese medicine can be separated from other alternative medical practices as follows:

1. The sciences or practices of alternative medicine, which are plentiful, are mostly used in health-care systems in both public and popular sectors. According to Measure No. 67 of the Statute on National Health System of 2009 (Set up a national independent committee with a strong technical backup to screen and select alternative medical procedures that are efficacious, economical, cost-effective, and safe for consumer protection purposes), the Bureau of Alternative Medicine has established a committee comprising experts to carry out such duties, but their work has not progressed continuously.

2. The science of traditional Chinese medicine with technical evidence endorsed by the World Health Organization (WHO). The TCM system in Thailand has progressed considerably; 16 standard textbooks and



service guidelines have been prepared and published, using the applied science working process – see more details in Chapter 8, One decade of TCM in Thailand.

The status of alternative medicine in Thailand

Concerning alternative medicine procedures that are popularly used for Thai people's health care, two surveys conducted on such services are as follows:

1. A survey on alternative medicine conducted by the Bureau of Health Policy and Planning (October 1997) in the general public at MoPH and private health facilities that provided alternative medical services. It was found that there were three levels of such services – level 1 for most popular services, followed by levels 2 and 3 for less popular services as shown below:

(1) Level 1 – Massage, exercise, juice therapy, meditation, relaxation, and yoga.

(2) Level 2 – Fasting, lifestyle change, natural food, breathing pattern, counseling, music therapy, and herbalism.

(3) Level 3 – Acupuncture, colon therapy, detoxification, nutritional therapy, nutrition supplement, macrobiotic, and guided imaginary.

2. A survey of alternative health services among Thai people in 2000, conducted by Somporn Triamchaisri and colleagues, showed that, out of 400 selected participants, 357 (89.3%) responded, including 241 males (68.3%) and 112 females (31.7%); 268 (80%) had a bachelor's degree or higher and 65 (20%) had a lower educational background. Their choices of health care were as follows:

- ✿ Visiting a modern medical doctor, 222 persons (62.1%)
- ✿ Using traditional and modern medical services, 85 persons (23.8%)

- ✿ Buying medicines for self-medication, 16 persons (5.1%)
- ✿ Using traditional and herbal medicines, 10 persons (3.2%)
- ✿ The rest, using other kinds of health-care services

Thus, it can be concluded that there are 25 sciences of traditional and alternative medicine that are popular among the Thai people. They are: herbalism, massage, meditation/yoga, head massage, traditional Chinese exercise (*tai chi*), *dhamma* super power (*phalang rangsi tham*), spin move meditation (*smathi-moon*), *Cheewajit* (body-mind holistic health practice), cosmic energy (*phalang jakrawan*, yore), acupuncture, music therapy, praying, herbal steam bath, aromatherapy, use of vitamins/minerals/non-toxic-diet, drinking-eating juice/fruit, colon detoxification, astrology/holy-water-sprinkling, art therapy, biofeedback relaxation, incantation (*katha/vedmon*), light-colour-sound meditation, spiritualism (*kan-khao-song*), electromagnetic (chair) therapy, and *dhammajak* therapy (*wicha dhammajak*).

Besides, various forms or procedures of alternative medicine have been used in combination with modern medicine in caring for chronically ill patients; most evidently practised are, for example, the use of healthy food, meditation, and stone therapy by the Cancer Friends Group.

Based on the details mentioned above, since 1997 alternative medical services have been expanded considerably and become extremely interesting among members of the public. Thus, one of the urgent actions of the Bureau of Alternative Medicine is to expedite the knowledge management process and studies on various forms of alternative medicine for dissemination to the public so that they can appropriately use such practices for self-care.

Regarding the support for research studies on alternative medicine, during the early stage, health personnel should be encouraged to conduct more studies and use alternative medical procedures, especially those that



have been proved efficacious overseas. Regarding the safety aspect, the health personnel who use such procedures have to really know about such procedures so that the procedures can be safely used; and some of such alternative medical procedures may have to be used by a modern physician. Clinical studies can be conducted if the research conditions are not so rigid that the studies cannot be carried out. Initially, a prospective experimental study may be carried out on individual cases for a certain illness or symptom; and then get a research paper published for knowledge dissemination. Later on, a comparative study can be undertaken on an experimental group and a control group to identify a significantly efficacious treatment procedure, depending on the availability of funds, if the procedure is to be use in the health service system.

The research studies on alternative medicine that should be supported are those related to the cost-effectiveness of certain alternative medical procedures that have been found to be efficacious and acceptable overseas. There is no need to spend more time and money to prove something that has been used for a long time, as long as or more time than that in the modern medical system, just because modern physicians have no knowledge of such a practice. So, a lot of government budget can be saved if the studies on efficacious alternative medical procedures are introduced to modern physicians for future use with their patients.

4) Knowledge management and research undertaken by higher education institutions and relevant networks

Such efforts are mostly undertaken by the faculties of pharmacy and medicine at some universities such as Mahidol, Chulalongkorn, Prince of Songkla, Mahasarakham, and Chiang Mai. Each of such institutions mostly conducts pharmacological studies; however, their fields of interest are diverse, for example:

Mahidol University, during 2008–2011, conducted 14 studies on knowledge management related to medicinal plants, indigenous medicine, and Thai traditional medicine, most of which involved the lab analyses of herbal extracts, toxicity and healing efficacy.

Chulalongkorn University, during 2008–2012, conducted 81 studies on medicinal plants, indigenous medicine, and Thai traditional medicine, most of which involved lab analyses of herbal extracts, medicinal properties of herbs, and development of herbal medicinal products, followed by herbal surveys at various sources, marketing studies of drug industry, and marketing feasibilities of traditional wisdom and Thai herbs.

Chiang Mai University, during 2008–2012, conducted 42 studies on medicinal plants, indigenous medicine, and Thai traditional medicine, most of which involved the use of herbs and the information on the application of knowledge of indigenous medicine, Thai traditional medicine and herbs, followed by those on pharmacology. Their outstanding research features were related to indigenous massage and TTM services at a number of organizations; some of them involved the development of the marketing system in connection with tourism or tourist attractions.

Maharakham University, during the same period, conducted 36 studies on medicinal plants, Thai traditional medicine, and indigenous medicine, most of which involved the herbal lab analyses of qualities and quantities of herbal active ingredients. Their outstanding research features were related to curriculum development, training, and knowledge dissemination to leaning centres and communities.

Prince of Songkla University, during the same period, conducted 63 studies on medicinal plants, Thai traditional medicine, and indigenous medicine, most of which similarly involved the herbal lab analyses of qualities and quantities of herbal active ingredients, and the development of herbal products. Their outstanding research features were related to herbal use in agriculture especially for pest control and economic animal farming.



The Abhaibhubejhr Centre for Research on Medicinal Herbs and Thai Traditional Medicine, established in 2010 at Chao Phraya Abhaibhubejhr Hospital, has been tasked with the clinical trials of herbal products and Thai massage in humans. The findings from the Centre's three studies are as follows:

1. The efficacy of capsicum roller in reducing chronic muscle and joint pains in 2 groups of 132 volunteers for 3 to 4 weeks: group 1 using a capsicum roller and group 2 using a placebo roller. It was found that capsicum rollers were more efficacious than placebo in reducing such pains.

2. Preliminary efficacy of *Makham Pom* Cough Syrup in relieving cough in 2 groups of 60 volunteers: group 1 receiving the *makham-pom* cough medication and group 2 receiving ambroxol cough mixture. It was found that *Makham Pom* Cough Syrup was as efficacious as ambroxol for cough relief in terms of coughing and through irritation frequencies, cough severity, daily life disturbances, and coughing while sleeping. *Makham Pom* Cough Syrup could significantly reduce cough severity; and client satisfaction with both drugs was indifferent.

3. Efficacy of Capsaicin Abhai Plast in comparison with methylsalicylate plaster in relieving chronic lower back pain in two groups of volunteers: group 1 (54 volunteers) receiving capsaicin and group 2 (51 volunteers) receiving methylsalicylate. Both groups were found to have significantly reduced visual analog scale values, as per the Roland Morris Disability Questionnaire, in weeks 1, 2, 3, and 4 ($p < 0.05$), and no significant differences were noted in the treatment efficacy of both kinds of plaster.

In addition, the results of another two pilot studies are as follows:

1. The quality control of wild bitter gourd (*mara-khi-nok*) capsule and its efficacy in blood sugar reduction among two groups of pre-diabetic patients (13 each) at risk of diabetes, based on the measurements of blood sugar levels after an 8-hour fast and again after meal. Group 1 received 2,000 grams (4 capsules) of wild bitter gourd and group 2 received placebo (corn starch) capsules. Two hours after treatment, group 1 participants had markedly lower levels of blood sugar; but each point of average blood sugar levels in group 1 was not significantly different from that in group 2 ($p>0.05$).

2. Efficacy of Compound *Khun* (*Cassia fistula*) Pod Pulp Laxative Mixture in 18 volunteers. The mixture was found to be efficacious in treating constipation and its next step of research can be carried out.

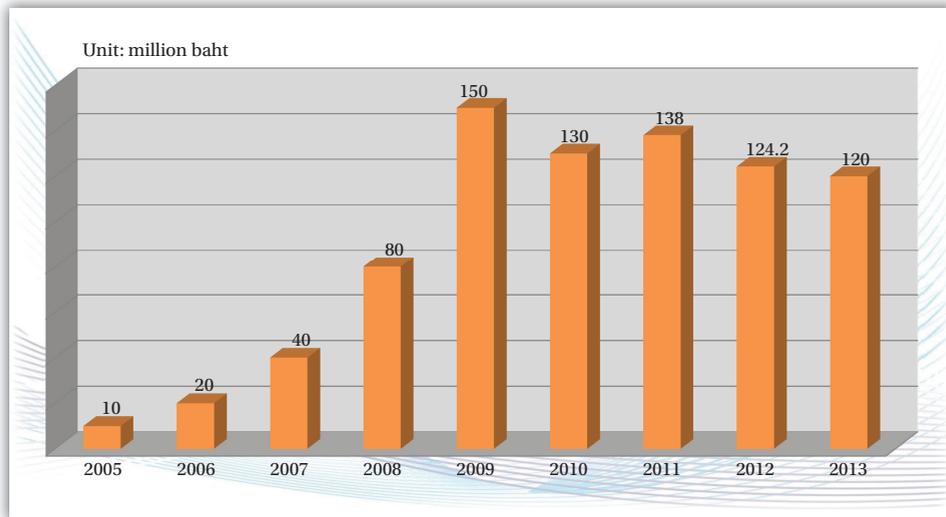
7.4 Thai Traditional Medical Knowledge Fund and TTM research and development

The objective of the TTM Knowledge Fund is to serve as a revolving fund for the operations related to TTM knowledge or wisdom prevention and promotion. The TTM Knowledge Fund was established in DTAM on 31 March 2005 according to Section 76 of the Protection and Promotion of TTM Wisdom Act B.E. 2542 (1999), and the Office of the TTM Knowledge Fund was set up to undertake such functions.

Over the past nine years, the annual government budget has been allocated to the TTM Knowledge Fund; for the first four years at 37.5 million baht annually on average. For 2009 through 2013, due to its evidently better achievements, the annual budget has been increased to 132.5 million baht.



Figure 7.2 Trends in annual budget allocation for the TTM Knowledge Fund, 2005–2013



The TTM Knowledge Fund has financially supported the activities related to knowledge management, research, promotion and protection of TTM wisdom in nine objectives follows:

- 1) Surveys, compilation, and research related to TTM knowledge or wisdom
- 2) Cultivation, production, processing or propagation of medicinal plants
- 3) Publicizing and public relations related to TTM wisdom protection and promotion
- 4) Development of TTM personnel and NGOs working on TTM
- 5) Conservation and utilization of medicinal plants in a sustainable manner
- 6) Management and operations on the action plan for the protection of medicinal plants

- 7) Support for private sector participation in the protection, promotion and development of medicinal plants
- 8) Management of the TTM Knowledge Fund
- 9) Other activities related to the protection and promotion of TTM wisdom

Between 2005 and 2013, the TTM Knowledge Fund provided financial support for 286 programmes/projects, of which 153 (46%) were for activities related to Objective 1, 35 (16%) for those concerning the development of TTM personnel and NGOs as per Objective 4, and 32 (16%) for those concerning herbal cultivation, production, processing or propagation – see Figures 7.3 and 7.4.

Figure 7.3 Number of programmes/projects for each of the nine objectives, 2005–2013

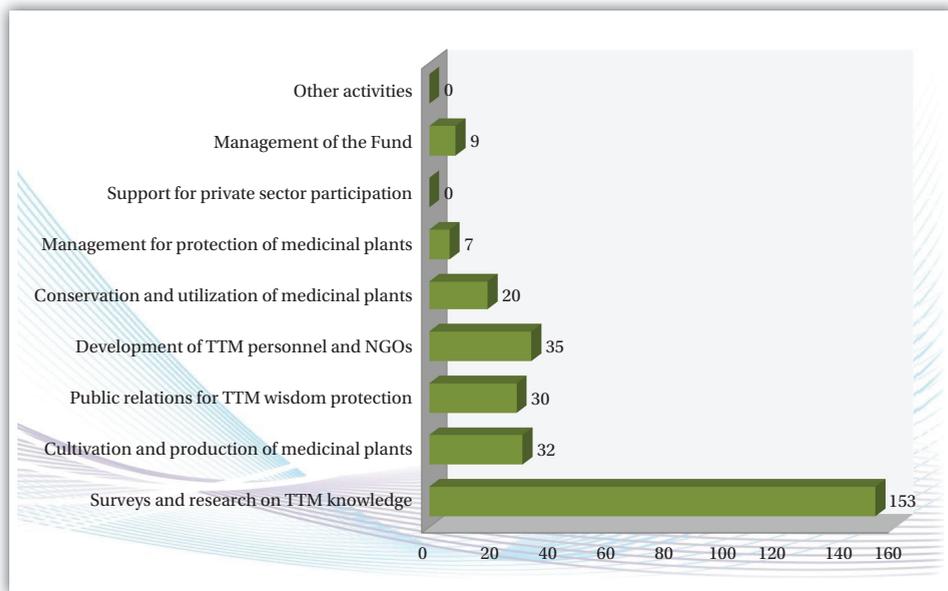
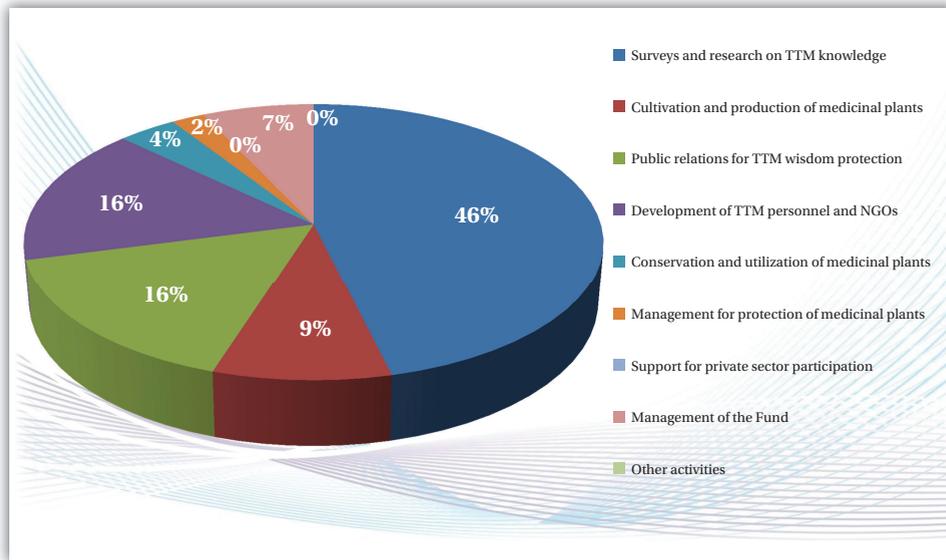


Figure 7.4 Proportion of budget for programmes/projects for each of the nine objectives, 2005–2013



An analysis of programmes/projects related to Objective 1 (surveys, compilation, and research and development related to TTM knowledge or wisdom) showed that most of the budget (166.8 million baht, or 51.9%) was spent on extended research studies on this matter (117 projects, see Table 7.5). Regarding the trends in research funding support, the largest amount of 45.4 million baht was allocated to 21 projects in 2009, while the highest number of projects was supported in 2012 (29 projects, 41.3 million baht – see Figure 7.4). As for the six areas of extended research on TTM wisdom, 95.9 million baht was allocated for 42 projects related to studies on herbal products, essentially herbal drugs, dietary supplements, and cosmetics, followed by 40.5 million baht (39 projects) for TTM/IM knowledge and ancient/national textbook compilation, analysis, and synthesis (see Figure 7.5).

Table 7.4 Surveys, compilation, and research related to TTM knowledge or wisdom

Area of support	No. of projects	Budget (million baht)
Operations of the Central Registrar's Office	25	31.46
Operations of the Provincial Registrars' Offices	11	122.80
Extended research on TTM knowledge	117	166.82
Total	153	321.08

Figure 7.5 Trends in support for extended research and development related to TTM knowledge

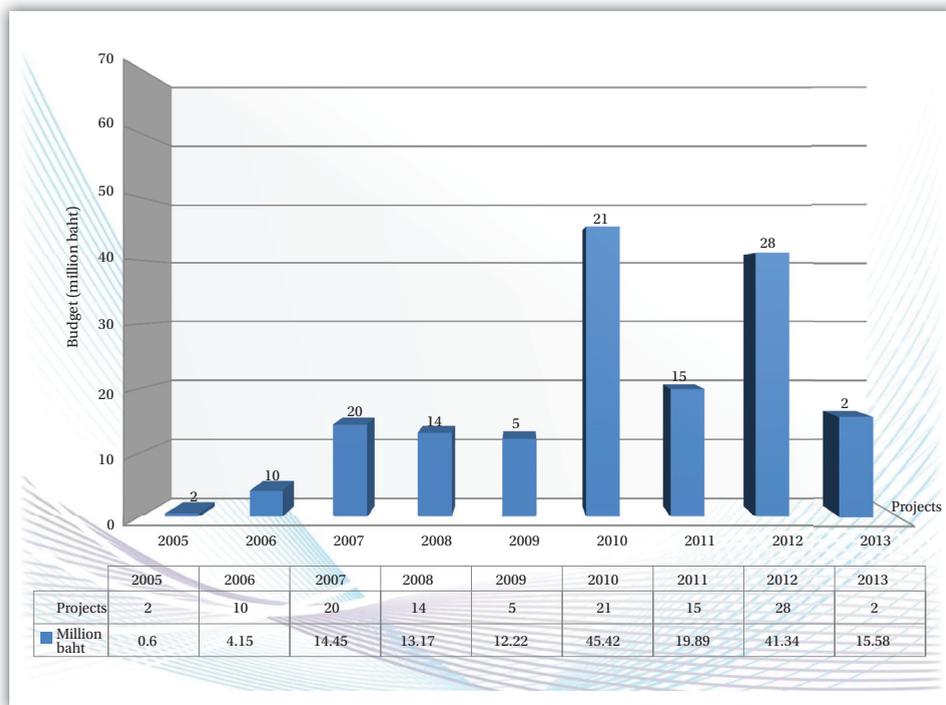
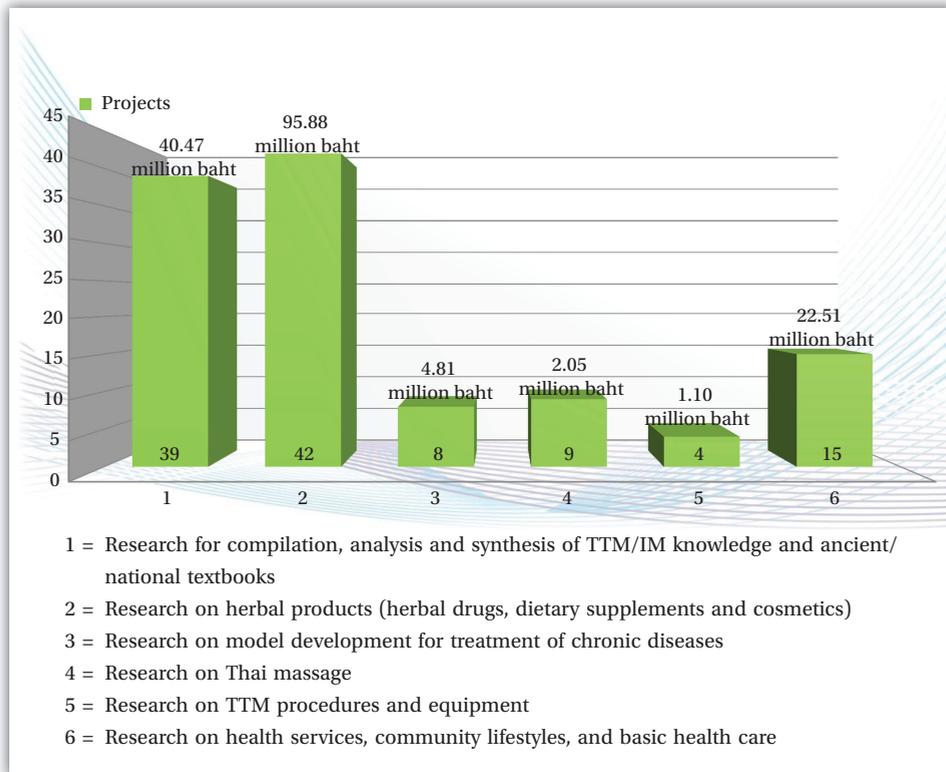


Figure 7.6 Support for six areas of extended research and development related to TTM knowledge



For research related to Objective 2 (cultivation, production, processing or propagation of medicinal plants), 32 projects were supported with a budget of 60.9 million baht, of which major projects are:

1. Development of herbal medicine and product manufacturing in state hospitals according to the GMP requirements (41.4 million baht).
2. Establishment of central markets of raw herb materials in strong model provinces (Surat Thani, Chiang Mai, Ubon Ratchathani and Maha Sarakham: 4.8 million baht).

For research related to Objective 3 (publicizing and public relations related to TTM wisdom protection and promotion), 30 projects were supported with a budget of 111 million baht, of which major projects are:

1. Provincial TTM exhibitions in fiscal years 2009 through 2012 (48.9 million baht).
2. Sixth through eighth national herb expositions (36.4 million baht).

For research related to Objective 4 (development of TTM personnel and NGOs working on TTM), 35 projects were supported with a budget of 112.1 million baht, of which major projects are:

1. Provision of TTM services at *tambon* (subdistrict) health promoting hospitals or THPHs (27.5 million baht).
2. Development of model TTM hospitals (25.1 million baht).
3. Development of provincial centres for training of TTM assistants (13.7 million baht).
4. Development of health/TTM data coding (11 million baht).

For research related to Objective 5 (conservation and utilization of medicinal plants in a sustainable manner), 20 projects were supported with a budget of 25 million baht, of which major projects are:

1. Operations of the Central Registrar's Office (Bureau for Protection of TTM Knowledge), 11 projects on herb protection (19.2 million baht).
2. Area-based research, 9 projects (5.8 million baht).

For research related to Objective 6 (management and operations on the action plan for the protection of medicinal plants), 7 projects were supported with a budget of 14.6 million baht. As endorsed by the Cabinet, action plans for herb projection in 25 herb conservation zones have been supported as follows:

Fiscal years 2008–2010: 1 area

Fiscal years 2010–2012: 4 areas



Fiscal year 2012-2012: 15 areas

Fiscal years 2013-2015: 5 areas

However, there has been no support for any activity related Objective 7 (support for private sector participation in the protection, promotion and development of medicinal plants) because a ministerial regulation on this matter is in the process of being issued; and nor has there been any support for programmes/projects related to Objective 9 (other activities related to the protection and promotion of TTM wisdom).

One Decade of Traditional Chinese Medicine in Thailand

8.1 History

Traditional Chinese medicine (TCM) is a science of medicine that has been developed from healing experiences or the struggle for survival from illnesses of ancient Chinese and accumulated for thousands of years. In Thailand, the TCM service system has also played a role in Thai people's health care together with modern and Thai traditional medical systems. Originally, TCM was introduced into Thailand when Chinese people migrated into the country during the Sukhothai period as per the following references:

1. The similarity of *Lanna* (northern) traditional medicine and *Tai* traditional medicine, which is indigenous medicine of *Tai* ethnic groups in Xishuangbanna, or Sibsongbanna, an autonomous prefecture in Yunnan Province of the People's Republic of China.

2. King Narai's Textbook of Medicine (*Khampi Osot Phra Narai*), which is the compilation of traditional drug formulas of King Narai the Great's palace prepared over 400 years ago; and TCM formulas are contained in the textbook.

3. Thian Fah Foundation Hospital, located on Yaowarat Road in Bangkok, providing TCM services since 1903 (for 110 years).

4. Tai An Tueng Drugstore, located on Wanit 1 Road in Bangkok, selling traditional Chinese drugs since 1906 (for 107 years).

5. The Chinese Doctors Association of Thailand, established in 1925 and now 88 years old.

6. A document showing that a traditional Chinese medical doctor received a licence to practice the traditional healing arts in the branch of medicine (second class) on 18 August 1930.

Thai society, like other societies across the world, is unable to solve its people's health problems only with the modern medical system in all aspects. So it has to seek many other methods especially Thai traditional medicine (TTM) and suitable alternative medicine practices, such as traditional Chinese medicine that has been in existence in Thai society for a long time.

On 1 July 1995, the Department of Medical Services, Ministry of Public Health (MoPH), established the Thai-Chinese Medicine Cooperation Centre internally as a division-level agency to develop TCM with suitable quality and standards. That was to provide the Thai people with alternative medical services along with modern medical care and TTM. The Centre, with its first director Dr. Chawalit Suntikitrunguang, also served as the coordinating body between the Thai and Chinese ministries of health and had a number of achievements as follows:

1. On 29 May 1997, a memorandum of understanding on Thai-Chinese medicine cooperation between the ministries of health of Thailand and China was signed in Beijing by Thai health minister Mr. Montree Pongpanich and Chinese health minister Mr. Choen Minjang.

2. From 27 April to 24 July 1998, MoPH's Department of Medical Services organized a three-month training course on "Acupuncture and Moxibustion or *rom-ya*" for the first group of modern medical doctors.

The course was conducted by Assoc. Prof. Cheng Zi Cheng, an acupuncture expert from Longhua Hospital, Shanghai University of Traditional Chinese Medicine, who is regarded as the first Chinese medical professor who provided the foundation of acupuncture for modern physicians in Thailand.

3. On 3 July 2000, the second memorandum of understanding on technical cooperation between the Thai and Chinese ministries of health was signed in Bangkok by Thai health minister Mr. Korn Dabbaransi and Chinese health minister Mr. Jang Woenkang.

4. On 16 July 2000, Mr. Korn Dabbaransi, then minister of public health of Thailand, with the advice of the Committee on Practice of Healing Arts, issued MoPH's Notification No. 1 of B.E. 2543 (2000) on "Permission to persons to practise the healing arts with traditional Chinese medicine according to Section 31 of the Practice of Healing Arts Act B.E. 2542 (1999)". At that time, there were 11 TCM doctors who passed the TCM licensing examination and 238 persons who passed the TCM screening test after having learned TCM from their ancestors and would attend the 144-hour TCM training course.

5. On 9 January 2001, a temporary healing arts practice licence conferring ceremony was held for the first group of 11 TCM doctors who had completed TCM education from the China and passed the TCM licensing examination in Thailand.

6. In September 2001, the TCM licensing examination began for the persons who had learned TCM from their ancestors and attended the 144-hour TCM training course, in collaboration with the International TCM Examination Centre of the People's Republic of China. By the end of 2001, another 103, totalling 114 TCM doctors, passed the examination and received a temporary TCM practice licence.

7. On 17 March 2002, a second TCM association was established as: "Chinese Medical Association".



In 2001, the Thai government presented the policy statement to the Parliament on 26 February 2001, in which item 10.1 was about the promotion and development of knowledge about TTM/AM and herbs (medicinal plants) for use in the state health system with quality and safety. Such a policy was in line with 1 of the 18 core missions of the MoPH in making Thais healthy, physically and mentally, through self-care. Later, on 5 March 2002, the Cabinet passed the resolution on public sector reform resulting in the restructuring of TTM agencies and transferring the Institute of Thai Traditional Medicine, the Thai-Chinese Medicine Cooperation Centre, and the Alternative Medicine Coordination Centre to be under the newly established Department for Development of Thai Traditional and Alternative Medicine (DTAM), Ministry of Public Health, on 9 October 2002, which has the powers and duties as follows:

1. To undertake actions required by the TTM wisdom protection and promotion law and other related laws.
2. To conduct research and development (R&D) activities related to knowledge and technology of TTM, Thai indigenous medicine and other alternative medical practices.
3. To lay down standards, develop quality, and make recommendations related to consumer protection in TTM, Thai indigenous medicine and other alternative medical practices.
4. To transfer knowledge and technology of TTM, Thai indigenous medicine and other alternative medical practices.
5. To promote and support the provision of services of TTM, Thai indigenous medicine and other alternative medical practices in the health-care system.
6. To develop systems and mechanisms for law enforcement based on the existing laws under its responsibility for the benefit of the public sector and the people.

7. To compile, conserve, and protect TTM, Thai indigenous medicine and medicinal plants.

8. To perform other duties required by law as DTAM's duties, or as assigned by the ministry or the Cabinet.

The DTAM was initially comprised of (1) the Office of the Secretary, (2) the Division of Alternative Medicine, and (3) the Institute of Thai Traditional Medicine. Thus, the Thai-Chinese Medicine Coordination Centre was designated as "Thai-Chinese Medicine Coordination Group" under the Division of Alternative Medicine.

In 2002, Thailand's National Health Security Act was promulgated; Section 3 of the Act prescribes that "health service" means medical and public health services directly provided to individual persons according to the needs for their health and livelihood, and such services include Thai traditional and alternative medicine pursuant to the law on the practice of healing arts.

After the DTAM was established, there have been major events occurring as follows:

1. During 2002–2003, Dr. Chawalit Suntikitrungruang of DTAM could push for the creation of a TCM educational programme at the bachelor's degree level at a Thai university, in collaboration with a group of TCM doctors of the Poh Tech Tung Foundation and Huachiew Chalermprakiet University, at which the first Faculty of Traditional Chinese Medicine in Thailand was established in 2004.

2. On 26 July 2004, MoPH's DTAM upgraded the Thai-Chinese Medicine Coordination Centre to a divisional level called "Southeast Asian Institute of Thai-Chinese Medicine"; and the Institute was officially inaugurated by the then Thai minister of public health and the Chinese ambassador to Thailand on 27 November 2005. That event was regarded as one of the celebrations of the 30th anniversary of Thailand-China relations.



3. During 2004–2005, Dr. Vichai Chokevivat, then director-general of DTAM and Dr. Chawalit Suntikitrungruang, then director of DTAM's Southeast Asian Institute of Thai-Chinese Medicine pushed for the setting up of a second bachelor's degree programme in TCM, in collaboration with a group of TCM doctors and Chandrakasem Rajabhaj University. As a result, the College of Alternative Medicine was established at the university in 2006.

4. In 2009, a TCM licensing examination was given to the last group of TCM practitioners who had learned the practices from their ancestors; 109 practitioners passed the test. And in the same year, a royal decree of B.E. 2552 (2009) was enacted to recognize TCM as a branch of healing arts according to the Practice of Healing Arts Act B.E. 2542 (1999), and came into force on 23 July 2009.

5. In 2010, a TCM licensing examination was given to 298 TCM practitioners who had completed their training from the China and those who had learned the practices from their ancestors as well as 35 TCM practitioners who had completed their education from Huachiew Chalermprakiet University. All of them (333 TCM practitioners) passed the test and became licensed practitioners.

6. In March 2011, an association was established called “Licensed Traditional Chinese Medicine Practitioners Association”.

7. In September 2011, there were 400 licensed TCM practitioners or doctors, 88 of them had completed TCM education from universities in Thailand and overseas and 312 had learned the practices from their ancestors. Besides, 1,004 modern medical doctors had completed the “Three-month Acupuncture and Moxibustion Training Course”.

8. On 29 April 2012, a meeting of TCM practitioners from various sectors was held and the meeting passed a resolution to appoint a joint committee on merging the three TCM associations, i.e. the Chinese Doctors Association of Thailand, the Chinese Medical Association of Thailand and

the Licensed TCM Practitioners Association, to become only one association: “Traditional Chinese Medical Doctors Association of Thailand”.

9. From 20 August to 20 September 2012, the election of 10 members of the TCM Profession Commission was held for the first time; and together with 11 appointed members, they formed the 21-member TCM Profession Commission.

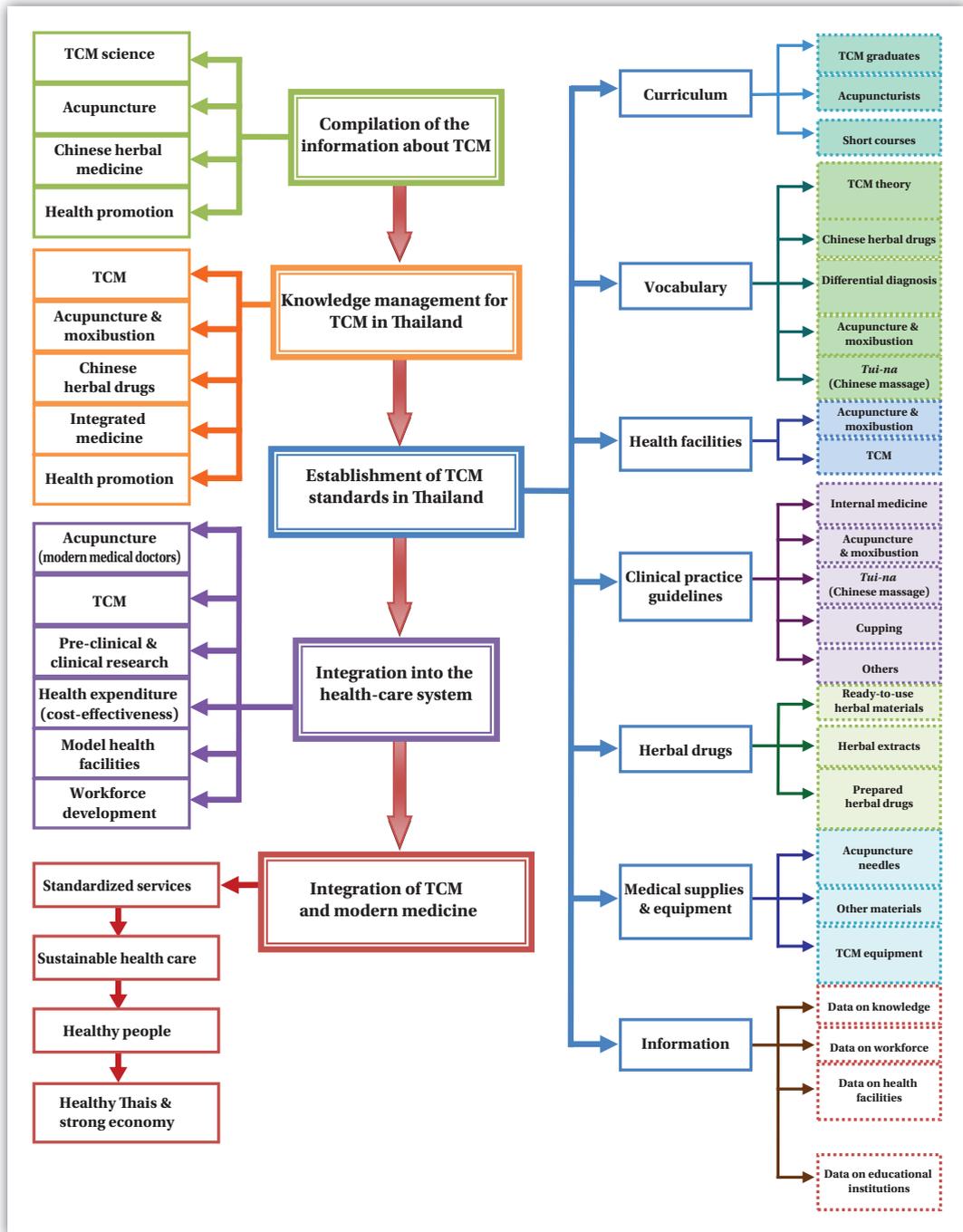
10. In September 2012, there were 496 licensed TCM practitioners including 184 who had completed their TCM education from universities in country and overseas and 312 who had learned TCM from their ancestors. In addition, there were 1,400 modern medical doctors who had completed the “Three-month Acupuncture and Moxibustion Training Course”.

Between 1995 and 2012, the TCM service system in Thailand has progressed continuously based on diverse TCM principles with different backgrounds, experiences, ages, educational achievements, and visions. The formation of various associations over the past 10 years has created new options for TCM services with several activities for their members and society in various forms. The three associations have different strengths; so their formation of the “Traditional Chinese Medical Doctors Association of Thailand” will be the integration of ideas, labour and funding for further TCM development in Thailand.

The Southeast Asian Institute of Thai-Chinese Medicine of DTAM has been improving TCM standards in Thailand in five steps as follows: (1) compilation of the information about TCM, (1) knowledge management for TCM in Thailand, (3) establishment of TCM standards in Thailand, (4) integration of TCM into the health-care system, and (5) integration of TCM and modern medicine – see details in Figure 8.1.



Figure 8.1 Development TCM standards in Thailand



8.2 Knowledge management and R&D for traditional Chinese medicine

MoPH's Department of Thai Traditional and Alternative Medicine has established the Southeast Asian Institute of Thai-Chinese Medicine with the duties to improve the quality and standards of TCM as appropriate so that it will be a health-care alternative for the Thai people, together with TTM and modern medicine. The Institute also serves as the coordinating centre of Thai-Chinese relations between the ministries of health of both countries as follows:

1. To conduct R&D activities related to TCM knowledge and technology.
2. To establish and develop the quality and standards of TCM and make recommendations for consumer protection purposes.
3. To transfer the knowledge and technology related to TCM.
4. To undertake cooperating actions on the production and development of TCM personnel, research and services.
5. To undertake cooperating actions between the Thai and Chinese ministries of health and the State Administration of Traditional Chinese Medicine of the People's Republic of China.
6. To support the appropriate integration of TCM into the Thai health-care system.
7. To carry out joint actions with, or support the operations of, other agencies related to TCM.
8. To perform other duties as assigned.

1) Compilation of information and knowledge management

Traditional Chinese medicine includes therapeutic procedures originated in China and has been popular in many countries all over the



world including Thailand. The science of TCM chiefly consists of Chinese herbal medication, acupuncture, and *Tui-na* massage for therapeutic purposes. Its theoretical principles for diagnosis and treatment are different from those of modern medicine as it regards humans as being closely connected to nature. That means whenever the season, time, and place change, they will affect the human body, causing illnesses. In addition to curative care, TCM also emphasizes strong mental and physical health, avoidance of climatic variation, and health promotion by exercising in various forms such as *tai chi* (*taijiquan* or *tai-kek* in Thai), respiration power practice (*chi-gong*, or *qigong*), fan dance exercise, and sword dance exercise.

As TCM is obtained from abroad, the information about its practices has to be compiled and TCM knowledge management activities have to be undertaken; such practices include TCM science, acupuncture and moxibustion, Chinese herbal drugs, integrated medicine and health promotion. The information will be used for establishing TCM practice standards. There are two groups of TCM practitioners in Thailand: those who have learned TCM from their ancestors and those who have studied TCM from universities at home and abroad. Both groups of TCM practitioners have different strengths; those in the first group have gained extensive experiences in treating specific illnesses, but lack the theoretical background, while those in second group have strong theoretical background, but lack the treatment experiences.

DTAM's Southeast Asian Institute of Thai-Chinese Medicine has compiled the information about TCM as well as TCM knowledge management that helps make TCM stronger for the benefit of Thai society. The Institute's achievements during 2008–2012 are as follows:

1) Science of TCM: The compiled information on TCM included TCM history, TCM theory, TCM examination and diagnosis, analysis of

the symptoms of diseases, pulse-taking/palpation, TCM development in Thailand, codes of diseases and procedures in TCM, and terminology in clinical TCM practices. The information was analyzed and classified into various groups by the working groups comprised of Thai and Chinese experts in several professions, including modern medical doctors, TCM practitioners, modern pharmacists, traditional pharmacists, and other relevant technical officers, which held a series of brainstorming meetings to reach certain conclusions. Finally, the working groups could get four textbooks prepared and published, namely (1) Basic Traditional Chinese Medicine, (2) Development of Traditional Chinese Medicine in Thailand, (3) Pulse-taking/Palpation, and (4) Dictionary of Traditional Chinese Medicine (Chinese-Thai-English).

2) Science of acupuncture and moxibustion: The compiled information included respiration and energy line theory and acupoints (acupuncture points), flow of respiration power lines, acupoints on respiration lines, acupoints outside respiration lines, moxibustion and cupping, management and prevention of acupuncture-related accidents, acupuncture techniques, acupuncture at the head and earlobes, acupuncture for treating common ailments in Thailand, and acupuncture for treating pains and stroke. The information was analyzed/compiled by the working group comprising modern medical doctors and TCM practitioners and then published for distribution as five textbooks: (1) Acupuncture: Interesting Stories about It; (2) Acupuncture and Moxibustion Volume 1 (Science of Acupuncture); (3) Acupuncture and Moxibustion Volume 2 (Acupuncture for 11 Common Illnesses); (4) Acupuncture and Moxibustion Volume 3 (Acupuncture for Pain); and (5) Acupuncture and Moxibustion Volume 4 (Acupuncture for Stroke).



3) Science of Chinese herbal drugs. The compiled information included the use of Chinese herbs, development of Chinese drug formulas, preparation of ready-to-use herbs, changes in Chinese drug formulations, 100 Chinese drug formulas commonly used in Thailand, scientific information about drug ingredients and drug formulas, and Chinese herbs commonly used in Thailand with scientific evidence. The information was then analyzed and classified into various groups by the working group comprised of experts in several professions, including modern medical doctors, TCM practitioners, modern pharmacists, traditional pharmacists, and other relevant technical officers, which held a series of brainstorming meetings to reach certain conclusions. Finally, the working group could get seven textbooks prepared and published, namely (1) Handbook for the Use of Thai-Chinese Medicinal Plants; (2) Commonly Used Chinese Prescriptions in Thailand Volumes 1, 2 and 3; (3) Commonly Used Chinese Prescriptions in Thailand: Complete Edition; (4) *Lingzhi* Mushroom: From Research to Actual Utilization; and (5) Science of Chinese Herbal Medicines.

4) Science of health promotion. The compiled information included *chi-gong* or *qigong* exercise and TCM-based health care; and based on such information, two textbooks were prepared and published, namely (1) Health Care with Traditional Chinese Medicine and (2) *Lingzhi* Mushroom and Health Care.

2) Research and development

DTAM's Southeast Asian Institute of Thai-Chinese Medicine has been undertaking research on the production and processing of Chinese herbs for import substitution, including those related to *lingzhi* mushroom and *lingzhi* spores in Thailand as well as the effectiveness of acupuncture for treating the numbness of lower extremities (foot numbness) in type 2 diabetic patients. The achievements during 2003–2012 are as follows:

1) Research on Chinese herb production and processing for import substitution.

A survey on Chinese herb imports in 2001 revealed that the Chinese herbs that were imported in large quantities and could be grown in the country were *koat-soh*, *koat-chula-lampa (qing-hao)*, *koat-khe-ma*, *koat-chiang*, *koat-hua-bua*, Chinese cinnamon, and *panja-khan*. Thus, the then Thai-Chinese Medicine Coordinating Centre of the Thai Department of Medical Services submitted a proposal to the 5th Thai-Chinese Public Health Coordinating Committee, held at the Thai MoPH, on 17 December 2002, that China should give the seeds of such herbs to Thailand to grow on an experimental basis. The joint meeting of both delegations – for Thailand led by public health minister Pol.Gen. Pracha Promnok and for China led by Chinese health minister Prof. Zue Jing – agreed to the Thai proposition.

To really grow medicinal plants or herbs for import substitution, both the qualities and prices of such herbs must be competitive. So, the DTAM served as the core agency in carrying out two integrated research projects in fiscal years 2003–2005: the “Survey of Chinese Herb-Growing Areas for Reducing Herbal Imports Project” and the “Production and Processing of Chinese Herbs for Import Substitution Project”. The project working groups comprised technical officers from the DTAM, the Department of Medical Sciences, the Government Pharmaceutical Organization, the Department of Agriculture, the Department of Agricultural Extension, the Department of Land Development, and the Forestry Industry Organization. The surveys were conducted in 35 forest garden areas in 19 provinces of Mae Hong Son, Chiang Rai, Chiang Mai, Phichit, Lampang, Sukhothai, Uttaradit, Phrae, Nan, Phitsanulok, Phetchabun, Loei, Udon Thani, Nong Khai, Khon Kaen, Kalasin, Kanchanaburi, Chaiyaphum, and Rayong. The forest gardens of the Forestry Industry Organization in the following provinces were found to be suitable for growing the following target herbs:



- (1) *Panja-khan* – Chiang Mai, Chiang Rai
 - (2) *Koat-chula-lampa (qing-hao)* – Chiang Rai, Phrae, Phitsanulok, Uttaradit, Rayong, Kanchanaburi
 - (3) *Koat-soh* – Chiang rai, Phrae
 - (4) *Koat-khe-ma* and *koat-hua-bua* – Chiang Rai, Phrae, Phitsanulok, Lampang
 - (5) *Cha-em-thet* – Udon Thani, Chaiyaphum, Khon Kaen, Kalasin
 - (6) Chinese cinnamon – Chiang rai, Loei, Nong Khai, Udon Thani
- As for *koat-chiang*, no suitable land areas were found for it as a suitable area had to be at the altitude of 2,000 to 2,900 metres above the mean sea level.

Later on, the working group convened a meeting to prioritize the herbs to be studied based on the compiled information and the readiness of the herbs to be studied. The first herb selected for study was miracle grass or *panja-khan* (*Gynostemma pentaphyllum*), followed by *koat-chula-lampa (qing-hao)*. The seeds of *panja-khan* were obtained from China (Sibsongbanna, Yunnan); and the study was carried out in comparison with the local Thai variety to select the fast growing one with high yield, good quality and cost-effectiveness. The preliminary findings showed that the Chinese variety was fast growing and its yield was 33.3% higher than the Thai variety. It was of good quality and could be harvested after having grown for 76–78 days.

After such operations, the working group prepared a manual “**Guidelines for Producing *Panja-khan* as Raw Material in Thailand**” for farmers and producers so that they can correctly grow and produce *panja-khan* raw material on a commercial scale. Besides, the working group also cooperated with the private sector in commercially growing and producing the herb according to the good agricultural practice principles. That was the beginning of bringing the business operators closer to the growers/producers with no middlemen, leading to settling a deal for contract farming or any

other mechanisms as appropriate. In summary, the project was successful as expected.

Concerning the production of *koat-chula-lampa* (*qing-hao*), the seeds were obtained from the Kunming Institute of Botany, and its experimental growing was undertaken at the Phichit Horticulture Research Centre, the Chiang Mai Agricultural Promotion and Development (Horticulture) Centre, and forest gardens of the Forest Industry Organization. After its operations, the working group prepared a manual “The Production of *Koat-chula-lampa* as Raw Material Using the Good Agricultural Practice” for farmers and producers to use in correctly growing and producing the herb.

In summary, the “Production and Processing of Chinese Herbs for Import Substitution Project” is regarded as a good example of an integrated and full-cycle herbal development effort, using the full potential of all working group members. All concerned have learned of several dimensions of Thai-Chinese medicinal herbs and a large number of local researchers have been trained.

2) Research on *lingzhi* mushroom and spores in Thailand.

Lingzhi mushroom [*Ganoderma lucidum* (Fr.) Karst.], commonly known in Thai as *hed linjue*, *hed muen pee*, or *hed jawak ngoo*, generally grows on such trees as *khun*, *kampoo*, *hang-nok-yoong-farang*, *yang-na*, and rubber. The mushroom has highly valuable medicinal properties that boost the immune system in cancer patients, relieve pains, prevent neurological degeneration, reduce blood cholesterol, and counter inflammation. Its active constituents include polysaccharides and triterpenes, which are abundant in *lingzhi* spores; and the active constituents from shelled spores are many times more efficacious than those from the whole spores. Studies in China, Japan and the USA have shown that *lingzhi* extracts and spores can effectively prolong the lives and improve the quality of life of terminally ill cancer patients. In



Thailand, it has been found that a number of cancer patients use *lingzhi* products and spores as a therapeutic option; such products have to be imported at a very high cost.

During fiscal years 2008–2011, MoPH's Department for Development of Thai Traditional and Alternative Medicine implemented the “**Research Programme on Lingzhi Mushroom and Lingzhi Spores in Thailand**” as an integrated effort of totally 12 agencies: (1) Department for Development of Thai Traditional and Alternative Medicine; (2) Muang Ngai Special Agricultural Project under the Patronage of Her Majesty Queen Sirikit, Chiang Dao district, Chiang Mai province; (3) Faculty of Pharmacy, Mahidol University; (4) Faculty of Medicine Siriraj Hospital, Mahidol University; (5) Faculty of Pharmacy, Chiang Mai University; (6) Faculty of Medicine, Chiang Mai University; (7) Faculty of Economics, Maejo University; (8) Institute of Product Quality and Standardization, Maejo University; (9) Technical Bureau, Department of Medical Sciences; (10) Food and Drug Administration; (11) Government Pharmaceutical Organization; and (12) Chiang Mai Provincial Public Health Office, Office of the Permanent Secretary, Ministry of Public Health.

The “**Research Programme on *Lingzhi* Mushroom and *Lingzhi* Spores in Thailand**” had four projects: (1) production of *lingzhi* mushroom and *lingzhi* spores according to the good agricultural practice; (2) pre-clinical research on *lingzhi* mushroom and *lingzhi* spores; (3) clinical research on *lingzhi* mushroom and *lingzhi* spores; and (4) utilization of results from research on *lingzhi* mushroom and *lingzhi* spores. The objectives of the programme were to (1) select the *lingzhi* variety that yields large amounts of active constituents, high productivity and cost-effective commercial values; (2) develop the process for producing *lingzhi* mushroom and *lingzhi* spores according to the good agricultural practice to get good quality raw products for import substitution; (3) conduct pre-clinical and clinical trials on *lingzhi* mushroom and *lingzhi* spores; and (4) utilize the results of *lingzhi*

mushroom and *lingzhi* spores research on a wide scale. The achievements of the programme are briefly as follows:

(1) The cultivation or production of *lingzhi* mushroom and *lingzhi* spores according to the good agricultural practice (GAP)

✿ The selected *lingzhi* variety or cultivar is MG-2 as it contains the largest amount of active components and provides the highest productivity; it is also commercially cost-effective to grow and harvest on day 110 after planting. The best cultivation method is A-Frame and the best method for collecting *lingzhi* spores is by using a painting brush or an ordinary brush.

✿ The cost of mushroom production: 56,790.66 baht per mushroom growing house, or 1,183.14 baht per square metre, or 11.16 baht per mushroom growing bags, which would be 902.99 baht per kilogram of fresh mushroom fruiting bodies and spores, or 2,632.24 baht per kilogram of dried mushroom.

✿ The study of DNA fingerprints of MG-2 and MG-9 species or cultivars of *lingzhi* mushroom revealed that the characteristics of the DNA fingerprints of all nine cultivars under this project could be divided into two groups: group 1 including Chinese cultivars and group 2 probably including local Thai cultivars with unique characteristics. Compared with those at the Gene Bank in Germany to identify the exact species/cultivars, the *lingzhi* mushrooms under the programme were classified into two species, i.e. violet species (*G. japonicum*) with one cultivar, MG-3, and red species (*G. lucidum*) with two cultivars, MG-2 and MG-8.

✿ The study on substrate formulas for *lingzhi* cultivation on various kinds of wood logs showed that the most suitable formula was the mushroom spawn in para-rubber sawdust (compacted lump of para-rubber sawdust together with broken rice, fine rice brand, Epsom salt, lime, pumice, and gypsum), while the suitable wood logs for such purposes were those from longan and neem trees.



(2) Pre-clinical research on *lingzhi* mushroom and *lingzhi* spores – the conclusions are the following:

- The study on chemical qualities and medicinal properties of cultivars MG-1, MG-2 and MG-5 of *lingzhi* mushroom and *lingzhi* spores showed that their active compounds were polysaccharides and triterpenes – triterpenes being abundant in spores, while shelled spores had multi-fold larger amounts of active compounds and better immune-boosting properties, compared with whole spores; and the spores to be taken orally had to be shelled first.

- The stability study of active constituents in *lingzhi* mushroom and *lingzhi* spores to determine their shelf life and storage method revealed that *lingzhi* spore products were stable for more than one year.

- The study on immune-boosting and anti-cancer activities of *lingzhi* mushroom and *lingzhi* spores revealed that the mushroom fruiting body extract and spores had immune-boosting properties and were non-toxic to mononuclear cells in normal humans. Their anti-cancer activity study in vitro showed that *lingzhi* water and ethanol extracts could not cause any apoptosis (death) for K562 cancer cells in the blood, but they could do so for SKBR3 solid tumor cells.

- The study on sub-chronic toxicity of *lingzhi* mushroom and *lingzhi* spore extracts in lab animals revealed that the extracts were safe and no toxicity was detected.

- The study on the quantities of ganoderic acids A and F in *lingzhi* products on sale in Thailand showed that the quantities varied; some of such products had lower amounts of such active constituents, compared with the established limit of quantification (LOQ) as per the HPLC analysis method.

- The pharmacokinetic study of ganoderic acids A and F after taking *lingzhi* products orally among 12 healthy Thai male volunteers showed that the acids were absorbed rapidly from the

gastrointestinal system while on an empty stomach. The t_{\max} value (time to reach peak plasma concentration) was approximately 30 minutes and $t_{1/2}$ value (drug elimination half-life) was also approximately 30 minutes. Food was found to have a delayed drug absorption effect but not on the absorption of ganoderic acid A. Thus, *lingzhi* should not be taken during or after meal.

✿ The production of *lingzhi* drug for clinical trial was done in the capsule and granule forms from the extracts derived from the fruiting bodies and spores of the mushroom in accordance with the GMP requirements.

(3) The clinical study on the efficacy of *lingzhi* mushroom and spores on patients with cancer and immunodeficiency is now underway; its results are expected in fiscal year 2013.

(4) The development for the utilization of results from the studies on *lingzhi* mushroom and spores is summarized as follows:

✿ The research findings of completed studies have been published in the Journal of Thai Traditional and Alternative Medicine and posted on DTAM's website. Some of them were presented at DTAM's 6th, 7th and 8th annual national conferences on TTM/IM/AM, which had exhibition booths and small seminars for various target groups. Training courses and field visits were also organized on *lingzhi* mushroom and spore production according to the GAP guidelines at the mushroom cultivation sites for certain target groups.

✿ The Muang Ngai Special Agricultural Project, under the Patronage of Her Majesty Queen Sirikit, has worked on the propagation of the MG-2 cultivar of *lingzhi* and published the manual for *lingzhi* mushroom and spore production according to the GAP guidelines for distribution to farmers in various localities. That is to give an occupational opportunity to local farmers and to serve as a learning centre in this matter for the country.



✿ In conclusion, it is regarded that the “**Research Programme on *Lingzhi* Mushroom and *Lingzhi* Spores in Thailand**” has been successfully undertaken as expected, and the following have been obtained: (1) the *lingzhi* cultivars with a high content of active constituents, high yields and potential for cost-effectiveness commercial investment; (2) a manual for *lingzhi* mushroom and spore production according to the GAP guidelines; (3) the DNA footprints of various *lingzhi* species produced under the programme for intellectual property protection purposes; (4) the standard methods for the quality control of *lingzhi* mushroom and spore raw materials; (5) the methods for producing herbal drugs made of *lingzhi* mushroom and spores according to the GMP guidelines; and (6) the clinical data on the efficacy and safety of herbal drugs made of *lingzhi* mushroom and spores. The medicinal values of *lingzhi* herbal drug derived from this programme are useful in various aspects as follows: (1) creating an opportunity and occupation for farmers; (2) providing correct knowledge for the people about *lingzhi* mushroom and spores - they can use quality products as an option for health care; (3) relevant academics can carry out extended research on *lingzhi* mushroom and spores which are produced in country in a cost-effective manner for self-reliance and import substitution purposes; and (4) the patients who use *lingzhi* products will have better quality of life.

3) Study of the efficacy of acupuncture in treating foot numbness in patients with type 2 diabetes

Diabetes is a chronic disease prevalent all over the world and one of the illnesses that debilitates the patient's quality of life the most. A WHO report on diabetes situation shows that the disease is critical and, since 2003/2005, the number of people with diabetes worldwide has risen by 71% to 344 million. Diabetes is regarded as the most dangerous disease, even more dangerous than AIDS, as the number of

deaths from diabetes is as high as 3.2 million, compared with 3 million due to AIDS.

Acupuncture is a TCM procedure with a unique feature for effectively healing pains. Generally, patients with various kinds of pain, such as headache, menstrual cramps, back pain, waist pain, or shoulder pain can be effectively cured with acupuncture, which helps balance the body systems; so such symptoms can be relieved or cured. Studies have shown that acupuncture can be used for treating dermatosis papulosa nigra (DPN), increasing the nerve conduction velocity (NVC), reducing blood viscosity, relieving peripheral neuropathy, and increasing plasma insulin, c-peptide and opioid peptide levels. Among the patients with severe DPN, acupuncture can effectively relieve the pain and help the patients to be free of such symptoms for six months after acupuncture.

DTAM's Southeast Asian Institute of Thai-Chinese Medicine, as the agency responsible for research and development on traditional Chinese medicine in Thailand, implemented a study on "Efficacy of acupuncture in treating numbness of lower extremities" in fiscal year 2011, in collaboration with Sao Hai Chelermprakiat Hospital, Saraburi province, and Hubei University of Traditional Chinese Medicine of China's Hubei province. Approved by the Ethical Review Committee on TTM/AM Research in Humans, the project's findings in brief are as follows:

The study on efficacy of acupuncture for treating foot numbness in type 2 diabetic patients was conducted in 50 volunteers diagnosed with diabetes and having toe numbness, without any other chronic illnesses, at Sao Hai Chalermprakiet Hospital. The volunteers/participants, aged 50 years or over, were divided into 2 groups, 25 each, using the simple randomization method, alternating between the control group receiving only anti-diabetic medication and the experimental group receiving anti-diabetic medication together with acupuncture, one person at a time. The control group received the regular medication once a week for 12 weeks, while



the experimental group received the regular medication once a week for 12 weeks and acupuncture 3 times a week, totalling 36 times. Both groups had their blood tests twice, the first time at the start of the study and the second time at end of the experiment; and their numbness symptom was followed up once a month during the 12-week period, totalling 3 times for the control group, while the experimental group received similar follow-ups for 3 plus 2 months, totalling 5 times.

After all the participants had been recruited, one each withdrew from each of the two study groups; so only 24 participants for each group continued until the end of their respective period. During the study, the medications given included amitriptyline 10 mg/day and vitamin B12; as for the acupuncture, 7 acupuncture points (acupoints) were designated by a Chinese expert: Quchi (LI 11), Weiwaxianshu (EX-B3), Shenshu (BL 23), Guanyuan (CV 4), Zusanli (ST 36), Hegu (LI 4), and Sanyinjiao (SP 6).

At the end of the treatment and two months of follow-ups, acupuncture plus medication was found to reduce foot numbness more markedly than medication alone [relative risk (RR) = 0.223, 95% confidence limit (95% CL) = 0.062–0.794]. The monthly assessment of foot numbness of both groups of volunteers, using four assessment forms, showed the following:

(1) The assessment using the neuropathy disability score (NDS) questionnaire for assessing knee-jerk reaction, touch sensation, and cold sensation showed that 91.52% of the medication-acupuncture group had a better NDS, while only 8.32% of the medication group had such improvement.

(2) The assessment using the neuropathy system score (NSS) questionnaire for assessing the numbness of the legs and feet, hypnic jerks while falling asleep, and numbness-relieving postures showed that 79.17% of the medication-acupuncture group had a better NSS, while 45.83% of the medication group had better symptoms.

(3) The assessment using the Michigan diabetes neuropathy score (MDNS) questionnaire for assessing foot sensation, muscular strength and reflexes showed that the medication group had no MDNS improvement, while 95.83% of the medication-acupuncture group had such an improvement.

(4) The assessment using the Score Scale of Clinic Symptom for DPN (SS-DPN) questionnaire for assessing various other symptoms, such as thirst, quick-temper, frequent-hunger, resting, excretion, urination amount/frequency, and palm/sole sensation showed that 91.66% of the medication-acupuncture group had a better MDNS, while 37.49% of the medication group had such an improvement.

As for the quality of life, both groups of patients showed no differences in their satisfaction with life quality.

Therefore, the research on acupuncture for treating foot numbness in type 2 diabetics is regarded as a pilot study and it should be extended to several other health facilities with larger sample sizes. This is to confirm the acupuncture efficacy, which can cut medication expenses, reduce adverse drug reactions, and be an effective health-care option for rural and low-income patients.

8.3 Traditional Chinese medicine standards

As an important alternative medical branch in the Thai public health system, TCM has been supported by the MoPH as evidenced by the fact that the TCM Profession Commission has been established to oversee the standards of TCM practitioners and organize TCM licensing examinations. So, the licensed TCM practitioners will enjoy all the rights and privileges similar to those in other medical professions.

Taking charge of health-care delivery and safety for the people, the MoPH has set up various agencies responsible for providing alternative medical services including TCM. In this regard, the DTAM is directly



responsible for such a matter, while other departments oversee the quality control assurance of alternative medical services.

Concerning the management, the MoPH has laid down a clear policy to develop various alternative medical services for use in the national public health system as shown in the National Strategic Plan for Thai Wisdom and Thai Healthy Lifestyle Development (2007–2011). Under the Plan, TCM is one of the branches of alternative medicine, and the MoPH has designated various agencies to be responsible for the following:

1. Department of Health Service Support: Drawing up ministerial regulations and rules for quality assurance, i.e. (1) requiring that the service providers be licensed TCM practitioners; (2) setting the standards for health facilities providing TCM services; (3) monitoring the services provided by TCM practitioners; and (4) receiving complaints from service clients.

2. Food and Drug Administration: Controlling the registration of herbal drug formulas and issuing regulations related to medical supplies and equipment.

3. Department of Medical Sciences: Cooperating in the verification of herbs and the testing of herb qualities in various drug formulas.

4. Department for Development of Traditional and Alternative Medicine: Performing duties related to (1) the development of professional, service, facility, and personnel standards; (2) the development of databases on TCM, health information, and reporting systems; (3) the development of TCM networks; and (4) international cooperation.

The DTAM has collaborated with its partners in various TCM standard development efforts such as TCM curricula, a TCM dictionary, health facilities, clinical practice guidelines, herbal drugs and medicinal plants, medical supplies and equipment, standardized textbooks, and TCM information. During 2002–2012, the achievements are as follows:



1) Curriculum standards

1. The three-month course on acupuncture for modern medical doctors. The MoPH signed a memorandum of understanding with Shanghai and Nanjing Universities of Traditional Chinese Medicine to set up the training course, based on the Shanghai UTCM's curriculum, which had been approved by WHO. The training course was initially run by Prof. Cheng Zi Cheng, a TCM expert from Shanghai UTCM, who played a vital role in disseminating acupuncture knowledge to Thai modern medical doctors; and such services have been available to all Thais across the country.

The three-month (360-hour) training course includes theoretical and practical sessions as follows:

1) Basic traditional Chinese medicine: theories of *yin-yang*, *wu-xing*, *ujang-liwfu*, and *qi-blood-jinye*; etiology; diagnosis; eight principles for differential diagnosis; and disease classification by internal organ system – 63 hours.

2) Respiration system and acupuncture points, 51 hours: principles of acupuncture and moxibustion (*rom-ya*), 6 hours; and therapeutic acupuncture, 62 hours – totaling 119 hours.

3) Clinical practices: physical examination in TCM, 18 hours, and acupuncture practice, 81 hours – totaling 99 hours.

4) *Tui-na* (TCM massage), 27 hours.

5) General knowledge and field study, 33 hours.

6) Examinations: Theoretical and practices, 19 hours.

2. Bachelor of Traditional Chinese Medicine programme.

On 9 July 2009, a royal decree was enacted, designating TCM as a branch of healing arts according to the Practice of Healing Arts Act B.E. 2542 (1999). The royal decree was published in the Government Gazette, Vol. 126, Part 46a, dated 22 July 2009, effective 22 October 2009. Later in 2010, the MoPH issued an announcement permitting the practice of TCM, according



to Section 31 of the Practice of Healing Arts Act and Section 3 of the National Health Security Act of 2002, which prescribed that “public health services” also include Thai traditional and alternative medicine.

Announcement No. 2/2554 (2011) of the TCM Profession Commission on “Standard Criteria for Recognizing Educational Institutions Offering a Bachelor of Traditional Chinese Medicine Programme or a Certificate Equivalent to a Bachelor’s Degree in Traditional Chinese Medicine B.E. 2554 (2011)”; dated 15 March 2011 and published in the Government Gazette, Vol. 128, Part 78d, 14 July 2011. Its brief description is shown below:

Any university or higher educational institution wishing to offer a curriculum or programme in TCM must be ready to organize such a programme and possess all resources for such a purpose regarding: (1) characteristics of the university or higher educational institution requesting a permit to offer a bachelor’s degree programme in TCM; (2) personnel, especially teaching personnel; (3) student admission; (4) curriculum; (5) readiness to offer the programme; (6) systems for student supervision and teaching/mentoring; (7) physical facilities for teaching/learning activities; (8) student dormitory, welfare, and sports and recreation facilities; (9) library and information technology; (10) management; (11) budget or funding sources; and (12) instructional quality and institutional assessments.

Regarding the curriculum, the university or higher educational institution requesting a permit to offer a bachelor of traditional Chinese medicine programme must prepare a TCM programme or curriculum as follows:

2.1 The educational philosophy and objectives of the programme – They must be in line with the competency criteria of a licensed TCM practitioner, the National Education Act of 1999, and the philosophy of the university or educational institution.

2.2 The curriculum structure – The subject groups and number of credit hours for each of the subject groups must be in accordance with the standard criteria for the bachelor’s degree programme of 2005.

2.3 The programme composition – The study period is 5 years, not exceeding 10 years, and not including the language preparation; and the number of credit hours must be at least 161, including the following:

1) General studies: at least 30 credit hours, covering 4 subject groups: social sciences, humanities, languages, and sciences and mathematics.

2) Basic (medical science) subjects: 45 credit hours of basic medical sciences required for the students to be prepared to catch up with advances or research and development in TCM.

3) Specific (TCM) subjects: 60 credit hours of (1) TCM foundation, at least 20 credit hours, (2) TCM classical texts, at least 5 credit hours, (3) Classical TCM, at least 35 credit hours, and (4) Electives.

4) Medical practices: at least 20 credit hours.

5) Free electives: at least 6 credit hours.

2.4 Instruction and evaluation. The university or educational institution has to organize teaching/learning and evaluation activities according to the objectives of the educational programme, based on the student-centred principles and using suitable and diverse formats and methods, to foster positive attitudes and characteristics essential for TCM professional practice.

2.5 Course syllabus. For each of the courses or subjects in the curriculum, the university or educational institution has to prepare a course syllabus, which comprises the course objectives, course description, learning activities and evaluation criteria.

2.6 Regulations on learning activities, evaluation and judgement. The regulations have to be consistent with the criteria and guidelines established by the Office of the Higher Education Commission.



2.7 Academic advisors. An advisor or mentor has to be a licensed TCM practitioner with at least 10 years of TCM practice and able to accept TCM students for experiential training – no more than 4 students for each teacher or mentor (a teacher-student ratio of 1:4).

2.8 Practice period. At least 1,000 hours.

2.9 Textbooks and technical documents. See the Announcement of the Ministry of Education on Library Standards for Higher Education Institutions B.E. 2544 (2001).

3. TCM Assistants Training Curriculum for Thai National Co-developers. As many Thai national co-developers previously used TCM procedures in treating patients in rural communities, the 360-hour training course is organized by the Bureau of Sanatorium and Healing Arts, Department of Health Service Support, for such people so that they can legally provide basic TCM services, according to Section 30(5) of the Practice of Healing Arts Act. The course content includes the following:

1) Theories of traditional Chinese medicine, including *yin-yang*, *wu-xing*, *ujang-liwfu*, and *qi-blood-jinye* – 30 hours.

2) Examination and diagnosis, including four examination methods and eight differential diagnostic methods, including the examination/diagnosis of respiration (*qi*), blood, liquid (*jinye*), and organs – 30 hours.

3) Chinese herbs, including basic knowledge of Chinese herbs, Chinese herbs for healing illnesses and symptoms specified in item 6 – 60 hours.

4) Acupuncture, comprising basic theory of acupuncture, needle stimulation, moxibustion, acupoints for preliminary healing, respiration system, needle-stimulation techniques, and precautions (side effects and accidents in acupuncture, correction and prevention) – 60 hours.

5) *Tui-na* (Chinese massage), including basic *tui-na* theory, *tui-na* techniques, *tui-na* therapy principles, and precautions in *tui-na* services – 30 hours.

6) Symptoms and illnesses (treatment with prepared traditional Chinese medicines) – 72 hours covering (1) aches and pains, including stress-related headache, general pain, neck pain, back pain, shoulder pain, and waist pain that are not caused by bone fracture or severe dislocation, but are linked to muscle/ligament sprain, strain, and contusion, and menstrual pain; (2) gastrointestinal disorders, such as flatulence, diarrhoea, constipation, and indigestion; (3) respiratory tract diseases such as common cold, coughing, and sore throat; (4) neurological symptoms such as paresis and chronic paralysis.

4. Other training courses: There are three training levels, i.e. Level 1 for the general public, focusing on health promotion in everyday life and disease prevention; Level 2 for technical personnel focusing on the transfer of knowledge related to consumer protection and extended research; Level 3 for professional practitioners focusing on the enhancement of clinical skills and experiences for efficient delivery of services by experts from the People's Republic of China.

2) Vocabulary standards

DTAM's Southeast Asian Institute of Thai-Chinese Medicine, in collaboration with Chengdu University of Traditional Chinese Medicine, prepared a Dictionary of Traditional Chinese Medicine during fiscal years 2011–2013, covering 4 parts with a total of 3,000 words commonly used in clinical TCM related to TCM theory, herbal Chinese medicines, TCM examination and diagnosis, acupuncture and moxibustion. The dictionary will be submitted to the TCM Profession Commission for endorsement to be used as a national reference.



3) Standards of health facilities

The Bureau of Sanatorium and Healing Arts has prepared the draft standards of TCM sanatoriums or facilities, in accordance with the Sanatorium Act B.E. 2541 (1998), which requires that a TCM facility have diagnostic equipment according to the standards for TCM practice, Chinese medicines, adequate essential supplies and equipment, and basic drug formulation equipment. In case of the facility providing massage and acupuncture services, the number of beds must not exceed 10 per 1 service provider; and the facility must provide the services openly and safely. The draft standards will be submitted to the TCM Profession Commission for review and approval.

4) Clinical practice guidelines

DTAM's Southeast Asian Institute of Thai-Chinese Medicine, in collaboration with the network of acupuncturists, has prepared guidelines for treating 96 common ailments with acupuncture as follows:

4.1 Acupuncture for treating aches and pains: (1) headache, (2) diabetic neuropathy, (3) facial nerve pain or trigeminal neuralgia, (4) herpetic/postherpetic neuralgia, (5) toothache, (6) myofascial pain syndrome, (7) angina pectoris, (8) neck pain, (9) cervical spondylosis, (10) frozen shoulder, (11) tennis elbow, (12) carpal tunnel syndrome, (13) sciatica, (14) back pain due to osteopenia and osteoporosis, (15) back pain due to degenerative disc, (16) knee osteoarthritis, (17) hip pain, (18) peripheral neuropathy of the thighs, (19) rheumatoid arthritis, (20) gout, (21) epigastric pain, (22) flatulence, (23) urinary retention, (24) peptic ulcer, (25) gastroesophageal reflux disease, (26) cholecystitis, (27) gallstone and cholecystitis, (28) round worm in the biliary tract, (29) acute intestinal obstruction, (30) acute appendicitis, (31) kidney

stone, (32) painful and abnormal urination, (33) severe abdominal pain, (34) menstrual pain, and (35) sport injury.

4.2 Cardiovascular diseases: (1) palpitation, (2) hypertension, (3) hypotension, and (4) coronary heart disease.

4.3 Respiratory tract diseases: (1) coughing, (2) asthma, (3) common cold, and (4) acute and chronic bronchitis.

4.4 Ear, nose and throat diseases: (1) dizziness and vertigo, (2) rhinosinusitis (sinusitis), (3) allergic rhinitis, and (4) acute and chronic laryngopharyngitis, (5) tinnitus (ringing in the ears) and deafness, and (5) jaw joint disorders (temporomandibular joint dysfunction).

4.5 Nervous system disorders: (1) cerebrovascular disease, (2) facial paralysis or Bell's palsy, (3) headache, (4) facial nerve pain or trigeminal neuralgia, (5) nerve pain on body-sides (intercostal neuralgia), (6) sciatica, (7) insomnia, and (8) Parkinson's disease.

4.6 Musculoskeletal and movement disorders: (1) cervical spondylopathy, (2) neck sprain, (3) stiff neck, and (4) shoulder joint inflammation (periarthritis of shoulder), (5) tennis elbow (lateral epicondylitis), (6) acute lumbar sprain, and (7) sluggish blood circulation (*khat-khlong*, bi-syndrome, or hyperviscosity syndrome).

4.7 Endocrine system diseases: (1) obesity, (2) diabetes, (3) hyperthyroidism, and (4) hypothyroidism.

4.8 Gastrointestinal diseases: (1) biliary stone and biliary tract infection, (2) constipation, (3) diarrhoea, and (4) epigastric pain.

4.9 Reproductive and urinary system disorders: (1) bed-wetting (enuresis), (2) urinary retention, (3) urinary tract stones, (4) prostatitis, (5) seminal emission, and (6) impotence.

4.10 Obstetric and gynaecological conditions: (1) menstrual pain (dysmenorrhoea), (2) amenorrhoea, (3) irregular menstruation, (4) dysfunction uterine bleeding, (5) perimenopausal syndrome, (6) female infertility, (7) morning sickness, (8) fetal malpresentation, and (9) lactation insufficiency.



4.11 Infectious diseases: (1) viral hepatitis, (2) influenza, and (3) mumps.

4.12 Other diseases and health problems: (1) urticaria, (2) hiccup, (3) high fever, (4) alcoholism, (5) drug addiction, and (6) tobacco addiction.

5) Standards of Chinese medicines and medicinal plants

Traditional Chinese medicine is one of the medical treatment practices for humans that originated in the People's Republic of China a long time ago. At present, TCM practices have spread to as many as 160 countries across the globe. More than 130 countries worldwide, including Thailand, have established TCM-related agencies, and approximately one-third of the world population accepts TCM services. Despite its popularity all over the world, there have been no common TCM standards, resulting in difficulties in controlling its safety, quality and standards due to differences in legal requirements. Thus, in 2009, China established the international TCM standards in five aspects, namely (1) standards for herbs; (2) standards for herbal medicines; (3) standards for needles in acupuncture; (4) standards for equipment and other TCM devices; (5) standards for TCM practices such as TCM terminology and definitions, TCM diagnosis, TCM therapies, and herbal medicine coding systems. In such efforts, an International Organization for Standardization Technical Committee on Traditional Chinese Medicine (ISO/TC249) has been established with a membership of 33 countries. Delegates from 23 countries actually participate in its operations/meetings, including Australia, Austria, Canada, China, Finland, Germany, Ghana, India, Israel, Italy, Japan, Republic of Korea, the Netherlands, Norway, Singapore, South Africa, Spain, Switzerland, Thailand, Tunisia, the USA, and Vietnam, while there are observers from 10 other countries, including Barbados, France, Hong Kong, Ireland, Lithuania, New Zealand, Poland, Republic of Seychelles, Sweden, and the United Kingdom, as well as related organizations,

such as the World Health Organization (WHO), the World Federation of Acupuncture-Moxibustion Societies (WFAS), the World Federation of Chinese Medicine Societies (WFCMS), and the ISO/TC214.

Regarding the herb standards, the ISO/TC resolved to have the delegate from the People's Republic of China as the chairperson of the working group, while the delegate from Germany as the chairperson and the delegate from Japan as co-chairperson of the working group on herbal medicines. To be clear on the working principles, both working groups jointly specified the linkages between the specific and general standards for the qualities and safety of herbs and crude drugs, in comparison with the general standards for the qualities and safety of herbal drugs in a modern form. The working frameworks are: (1) for herb standards, the control measures for plant variety selection, good agricultural practices, processing according to traditional wisdom, and quality assurance for raw materials and crude drugs; and (2) for herbal drug standards, the control measures for raw material quality, industrial processing and production, and drug quality control, by examining its identify, active ingredients, microbial contamination, toxic substance contamination, and arsenic/heavy metal contamination. As for Thailand, as a participating partner, the Thai Industrial Standards Institute, Ministry of Industry, oversees the standard requirements, while the DTAM specifies the technical standards and serves as the core agency in working collaboratively with other relevant agencies within and outside the MoPH on establishing standards for herbs and herbal drugs, and expressing opinions at meetings of ISO/TC249.

At present, the 2010 edition of the Pharmacopoeia of the People's Republic of China contains the standards for 616 herbs, 47 herbal extracts, and 376 prepared herbal drugs. The standards focus on herbal quality examination, medicinal properties/indications, dosage, and method of administration. However, the Chinese methods of examination of some herbs cannot be performed in Thailand probably due to several factors, such



as lab temperatures, relative humidity, and separation speed. Therefore, to set up the standards of Chinese herbs in Thailand for consumer protection and herbal drug industry development purposes, DTAM's Southeast Asian Institute of Thai-Chinese Medicine, in collaboration with China's Chengdu University of Traditional Chinese Medicine, has launched a project to set the quality standards of 31 Chinese herbs commonly used in Thailand (2011–2013). The standards will be prepared in three languages – Thai, Chinese and English.

Regarding the identification of the target herbs, the actions are being taken at certain pharmacognosy and chemistry laboratories in Thailand, examining three samples of each of the herbs collected from Thai markets (importers, drugstores, and health facilities), and comparing with standard herbs from China. Besides, the standard document for each herb has also included the information on its Thai name, brief description of the herb, herbal origins in China, goods standards, non-genuine herb, preparation of ready-to-use herb, characteristics of ready-to-use herb, active chemical ingredients, determination of the amounts of active ingredients, pharmacological properties supporting the use as per traditional wisdom, toxicity testing, clinical application, references, and illustrations.

The 31 target herbs are (1) chuanxiong (*koat-huabua*), (2) chuanlianzi (*phonlian*), (3) chuanniwsi, (4) chuan-u (taproot of *hora-dueai-kai*), (5) zhizi (*lukphud*), (6) tansoen, (7) mai-tong, (8) kanjiang (dried ginger), (9) tu-jang, (10) huangchin, (11) xianmao (*wahnprao*), (12) honghua (safflower, or *dokkamfoi*), (13) xi-chao (*khao-yennuea-thao*), (14) shijunzi (*lepmuenang* fruit), (15) jia-koeng, (16) pai-sao, (17) pan-xia (*hora-khaopod*), (18) sia-ku-chao, (19) su-tuan, (20) Jue-mu, (21) chenpi (tangerine skin), (22) ta-sing-yia, (23) tianma, (24) pu-ku-jue, (25) fo-sow (*sommue*), (26) hoe-sow-u, (27) fuzi (deactivated root of *hora-dueai-kai*), (28) chuan-soe-kan, (29) qinghao (*koat-chula-lampa*), (30) joe-sia (underground stem of *ya-kongkoi*), and (31) shichangpu (*wahnnam*).

The identification of all 31 target herbs has been completed, and a series of herb standards are being prepared. The standards of two herbs – chuansuyong (*koat-huabua*) and jue-jue (*lukphud*) – have been finished and published for distribution. In 2013, the standards of another 13 herbs will be published and those for the other 16 herbs will be published in 2014. This series of publications will be useful for the quality control of Chinese herbs for the purposes of consumer protection and Chinese herb registration. The information will also be useful for the general public and herb business operators.

6) Standards of medical supplies and equipment

The ISO/TC 249 has included the standards of other TCM supplies and equipment in its operational frameworks for two relevant working groups: one on standards of acupuncture needles, chaired by the delegate from China and the other on standards of other TCM equipment and devices, chaired by the delegate from the Republic of Korea. The delegate from DTAM, Thailand's TCM technical standard setting agency, has been working collaboratively with other relevant agencies within and outside the MoPH in reviewing the standards of acupuncture needles and other TCM equipment/devices for submitting to the ISO/TC249. Besides, the DTAM has also prepared (1) the quality specifications of filiform needles (sterile, disposable acupuncture needles) for distribution to various target groups in the country for comments on future improvements and (2) the draft standards of herb boiling pots.



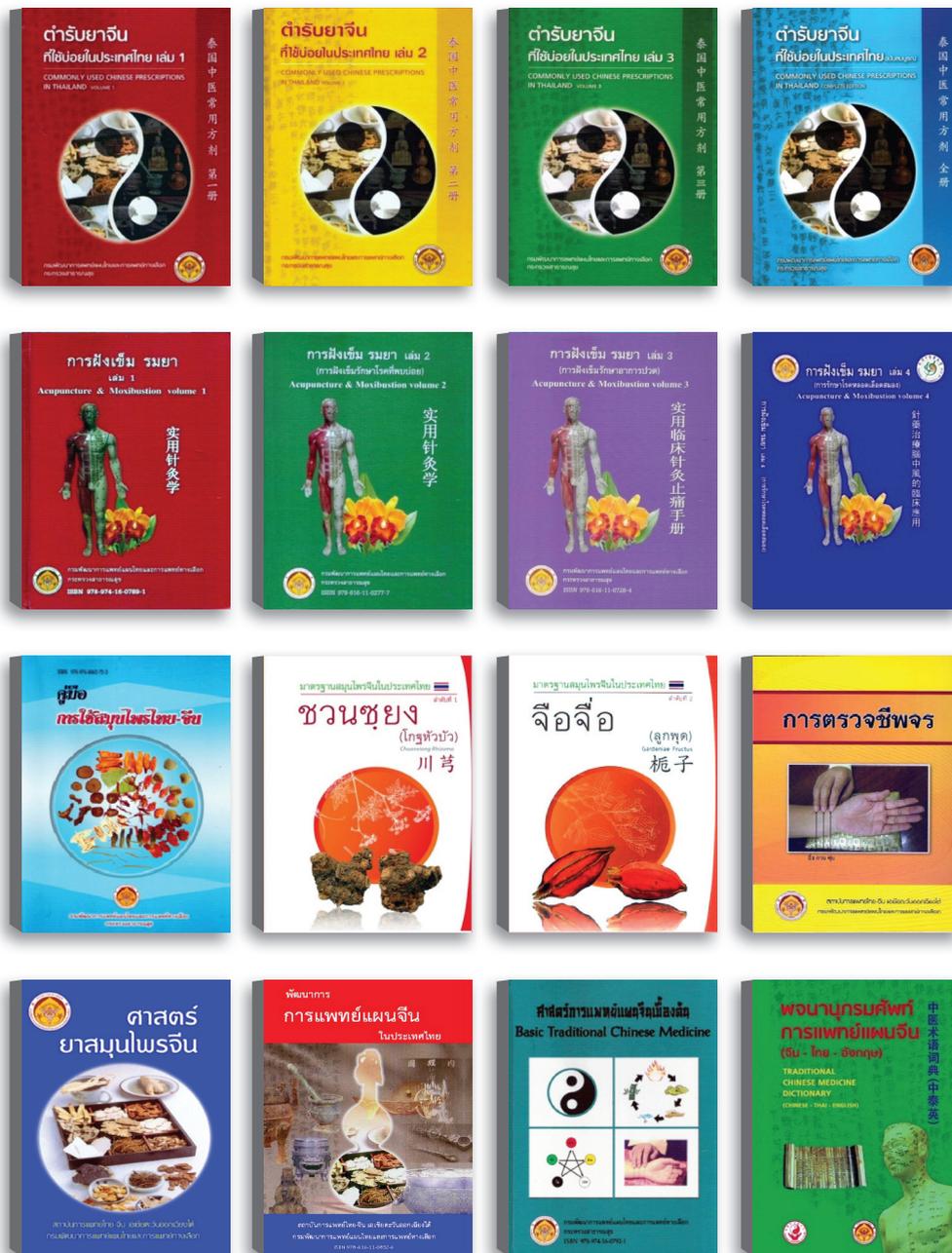
7) Standards of textbooks

Between 2008 and 2012, DTAM's Southeast Asian Institute of Thai-Chinese Medicine carried out a number of knowledge management activities to strengthen the TCM system for the benefit of Thai society,

including the preparation and publication of 16 TCM textbooks (2 sets of textbooks and 9 single textbooks), all of which have been approved by the TCM Profession Commission as per the Commission's announcements dated 15 March 2011 and 14 August 2011. All of the 16 textbooks are endorsed for use by those who will be taking the TCM licensing examination; they are: (1) Basic Traditional Chinese Medicine; (2) Handbook for the Use of Thai-Chinese Medicinal Plants; (3) Acupuncture and Moxibustion Volumes 1, 2, 3 and 4; (4) Commonly Used Chinese Prescriptions in Thailand Volumes 1, 2 and 3; (5) Commonly Used Chinese Prescriptions in Thailand: Complete Edition; (6) Development of Traditional Chinese Medicine in Thailand; (7) Standard of Chinese Materia Medica, No. 1, *Chuanxiong rhizoma (koat-huabua)*; (8) Standard of Chinese Materia Medica, No. 2, *Gardeneai fructus (zhizi, lukphud)*; (9) Pulse-taking/Palpation; (10) Science of Chinese Herbal Medicines; and (11) Traditional Chinese Medicine Dictionary: Chinese-Thai-English (see Figure 8.2).

In addition to the textbooks prepared by DTAM, the TCM Profession Commission has also endorsed other textbooks, namely (1) Central Standardized Textbook on Traditional Chinese Medicine of the People's Republic of China, Sets 5, 6, and 7, recognized by the Ministry of Education or the State Administration of Traditional Chinese Medicine of the People's Republic of China; (2) Encyclopedia of Thai-Chinese Herbs Commonly Used in Thailand, written by Chinese Medical Practitioner Witaya Boonworapat; (3) Practice of Healing Arts Act B.E. 2542 (1999) and ministerial regulations/notifications issued pursuant to the Practice of Healing Arts Act; (4) Sanatorium Act B.E. 2541 (2008) and ministerial regulations/notifications issued pursuant to the Sanatorium Act; and (5) Drug Act B.E. 2510 (1967), Amendment Nos. 2, 3, 4, and 5, and ministerial regulations/notifications issued pursuant to the Drug Act.

Figure 8.2 Textbooks on traditional Chinese medicine prepared by the Department for Development of Thai Traditional and Alternative Medicine



8 Chapter

8) Information on traditional Chinese medicine

The DTAM has established a TCM database covering the information on TCM knowledge, TCM workforce, health/TCM facilities, and TCM educational institutions, with details and reliable references. The database is periodically updated and its brief description is as follows:

1. Information on TCM knowledge for three groups of users:

1) General public: knowledge about health promotion such as health care with TCM, season-related health care, patient's preparation before and after acupuncture, and herbal food.

2) Technical personnel: knowledge about the science of Chinese herbal medicines such as the processing of herbs, standard herbs, usage of Chinese herbs, contraindications, herbal drug boiling, Chinese drug formulation, forms of prepared drugs, Chinese drug formulas, and scientific information on Chinese herbs.

3) Professional practitioners: knowledge about TCM such as TCM theory, TCM examination and diagnosis, analysis of disease syndromes, science of palpitation, codes of diseases and procedures in TCM, clinical TCM vocabulary, acupuncture for common illnesses, and clinical care experiences.

2. Information on TCM workforce: There are two groups including TCM practitioners and acupuncturists (modern medical doctors) – see more details in the section on service system.

3. Information on health/TCM facilities: Currently, there is only one TCM hospital in Thailand, i.e. Tien Fah Foundation Hospital (110 years old); and there is one TCM clinic that provides full-cycle services, i.e. Hua Chiew (TCM) Hospital. As for MoPH's health facilities that provide

acupuncture services, please see more details in the section on service system.

4. Information on educational institutions. The domestic and overseas TCM educational institutions recognized by Thailand's TCM Profession Commission are as follows:

1) Educational institutions in Thailand: Currently, there are three recognized institutions offering a Bachelor of Traditional Chinese Medicine programme (September 2012): (1) Huachiew Chalermprakiet University, (2) Rajabhai Chandrakasem University, and (3) Nakhonratchasima College.

2) Educational institutions overseas: There are 31 recognized institutions offering a traditional Chinese medicine programme as follows:

- (1) Beijing University of Chinese Medicine
- (2) Shanghai University of TCM
- (3) Nanjing University of Chinese Medicine
- (4) Guangzhou University of Chinese Medicine
- (5) Chengdu University of TCM
- (6) Heilongjiang University of Chinese Medicine
- (7) Shandong University of TCM
- (8) Tianjin University of TCM
- (9) Liaoning University of TCM
- (10) Changchun University of Chinese Medicine
- (11) Zhejiang Chinese Medical University
- (12) Hunan University of Chinese Medicine
- (13) Fujian University of TCM
- (14) Hubei University of Chinese Medicine
- (15) Shanxi University of TCM
- (16) Anhui University of TCM



- (17) Jiangxi University of TCM
- (18) Henan University of TCM
- (19) Guangxi TCM University
- (20) Guiyang College of TCM
- (21) Yunnan University of TCM
- (22) Shaanxi University of Chinese Medicine
- (23) Gansu College of TCM
- (24) TCM School, Capital Medical University
- (25) TCM School, Hebei Medical University
- (26) TCM School, Xinjiang Medical University
- (27) TCM School, Chongqing Medical University
- (28) TCM School, Ningxia Medical University
- (29) TCM School, Southern Medical University
- (30) TCM School, Jinan University
- (31) TCM School, Xiamen Medical University

8.4 TCM services system

DTAM's Southeast Asian Institute of Thai-Chinese Medicine has collected the data and established the database on TCM services so that the national overview of such services can briefly stated as follows:

1) TCM workforce

1.1 Workforce production

As the demand for TCM services has been rising, more TCM personnel are required. Thus, many public and private educational institutions have started offering a bachelor's programme in TCM as well as a short course (three-month) in acupuncture for modern medical doctors and a specialized acupuncture course.

During 2004–2012, three educational institutions began offering a bachelor’s degree programme in TCM, recognized by the TCM Profession Commission: (1) Huachiew Chalermprakiet University, (2) Rajabhaj Chandrakasem University, and (3) Nakhonratchasima College. To date, a total of 252 TCM graduates have been produced, and 223 of them (78.5%) have passed the licensing examination and become licensed TCM practitioners, while 679 students are studying (see Table 8.1).

Table 8.1 Information about educational institutions producing TCM graduates, 2004–2012

Institute	Year beginning	No. of graduates	Graduates licensed	Students studying
1. Huachiew Chalermprakiet University	2004	164	161	344
2. Rajabhaj Chandrakasem University	2006	87	62	242
3. Nakhonratchasima College	2008	32	-	72
Total		252	223	679

Source: Survey of TCM educational institutions, April 2013.

In fiscal year 2012, the DTAM, in collaboration with the Department of Health Service Support, began organizing a TCM assistant training course for Thai National Co-developers and those who had completed the 120-hour TCM training course from the Bureau of Sanatorium and Healing Arts. A total of 340 trainees are still in training that will end in late fiscal year 2013.

According to the statistics from the Bureau of Sanatorium and Healing Arts, from 2009 to 2012, the cumulative number of licensed TCM practitioners increased steadily from 312 in 2009 to 347, 400 and 496 in 2010, 2011 and 2012 (an increase of 11.22%, 28.21% and 58.97%), respectively (see Table 8.2).

Table 8.2 Number of licensed/registered TCM practitioners, 2009–2012

Type of practitioners	No. of licensed TCM practitioners			
	2009	2010	2011	2012
TCM practitioners having learned from ancestors	312	-	-	-
TCM practitioners having graduated from domestic and overseas educational institutions	-	35	53	96
Total, cumulative	312	347	400	496
Increase from 2009 (%)	-	11.22	28.21	58.97

Source: Bureau of Sanatorium and Healing Arts, Department of Health Service Support, July 2012.

In addition to producing TCM practitioners and TCM assistants, there have been acupuncturists who are Western physicians and have completed the three-month acupuncture training programme organized by three agencies (Southeast Asian Institute of Thai-Chinese Medicine and Praboromrajchanok Institute, MoPH, and the Royal Thai Army Medical Department, Ministry of Defence), using the standard acupuncture curriculum prepared by the MoPH with the assistance from Shanghai University of Traditional Chinese Medicine, People's Republic of China. Regarding the experts (resource persons), according to the agreement with China's TCM universities, the experts from Shanghai UTCM helped with the training courses held by the Southeast Asian Institute of TCM, while those from Shanghai and Chengdu UTCM helped with the courses held by Praboromrajchanok Institute, and those from Tianjin UTCM helped with the courses held by the Army Medical Department. To date, 1,328 medical doctors have completed the three-month acupuncture training course (see Table 8.3 and Figure 8.3).

Table 8.3 Number of physicians/acupuncturists who have completed the three-month acupuncture training course, 1998-2012

Year	Group No.	Number of trained physicians/acupuncturists			Total
		SEA-ITCM	PBRI	RTAMD	
1998	1	25			25
1999	2	28			68
1999	3	40			
2000	4	32			79
2000	5	47			
2001	6	36			77
2001	7	41			
2002	8	48			100
2002	9	52			
2003	10	37			37
2004	11	32			80
2004	12	48			
2005	13		34		67
2005	14		33		
2006	15		32		125
2006	16		55		
2006	T1		-	38	
2007	17		40	-	105
2007	18		31	-	
2007	T2			34	
2008	19		37	-	105
2008	20		30	-	
2008	T3		-	38	
2009	21		41	-	130
2009	22		38	-	
2009	T4		-	51	

Table 8.3 (continued)

Year	Group No.	Number of trained physicians/acupuncturists			
		SEA-ITCM	PBRI	RTAMD	Total
2010	23		25	-	
2010	24		41	-	108
2010	T5		-	42	
2011	25		39	-	
2011	26		53	-	132
2011	T6		-	40	
2012	27		41	-	
2012	T7		-	49	90
Total		466	570	292	1,328

Source: Southeast Asian Institute of Thai-Chinese Medicine, DTAM, September 2012.

Note: SEA-ITCM = Southeast Asian Institute of Thai-Chinese Medicine

PBRI = Praboromrajchanok Institute, MoPH

RTAMD = Royal Thai Army Medical Department

1.2 Workforce distribution

The workforce distribution surveys on licensed TCM practitioners (2012) and TCM assistants (2012/13), conducted by the Southeast Asian Institute of Thai-Chinese Medicine, showed that the number of licensed TCM practitioners was highest at 104 in the Central Region, followed by 30 in the Northeast, 26 in the South, and 22 in the North. As for TCM assistants, 101 of them were in the North, 72 in the Northeast, 65 in the South, and 35 in the Central Region.

As for the number by regional Public Health Service Network, it was found that Network 6 (Chanthaburi, Chachoengsao, Trat, Prachin Buri, Rayong, Samut Prakan, and Sa Kaeo) had the highest number of licensed TCM practitioners at 51, while the lowest was noted at 3 for Network 3

(Kamphaeng Phet, Chainat, Nakhon Sawan, Phichit, and Uthai Thani); and for TCM assistants, the highest number was 66 in Network 2 (Tak, Phitsanulok, Phetchabun, Sukhothai, and Uttaradit) and lowest at only 1 in Network 3.

By province, the number of licensed TCM practitioners was highest at 314 in Bangkok and 22 in Samut Prakan, while there was none in 29 provinces: Nan, Phayao, Phrae, Sukhothai, Uttaradit, Kamphaeng Phet, Chainat, Phichit, Uthai Thani, Nakhon Nayok, Ang Thong, Kanchanaburi, Samut Songkhram, Trat, Sa Kaeo, Maha Sarakham, Roi Et, Bueng Kan, Nong Bua Lam Phu, Surin, Mukdahan, Amnat Charoen, Krabi, Chumphon, Nakhon Si Thammarat, Phang-nga, Ranong, Pattani, and Phatthalung. As for TCM assistants, the highest number of 67 was also noted for Bangkok, followed by 26 for Phetchabun, while there was none in 30 provinces: Chiang Mai, Phrae, Lampang, Sukhothai, Uttaradit, Chainat, Nakhon Sawan, Phichit, Uthai Thani, Nakhon Nayok, Lop Buri, Saraburi, Sing Buri, Ang Thong, Kanchanaburi, Samut Sakhon, Samut Songkhram, Chachoengsao, Trat, Prachin Buri, Rayong, Maha Sarakham, Chaiyaphum, Yasothon, Krabi, Phang-nga, Phuket, Ranong, Pattani, and Yala (see Table 8.4).



Figure 8.3 Number of physicians/acupuncturists who have completed the three-month acupuncture training course, 1998–2012

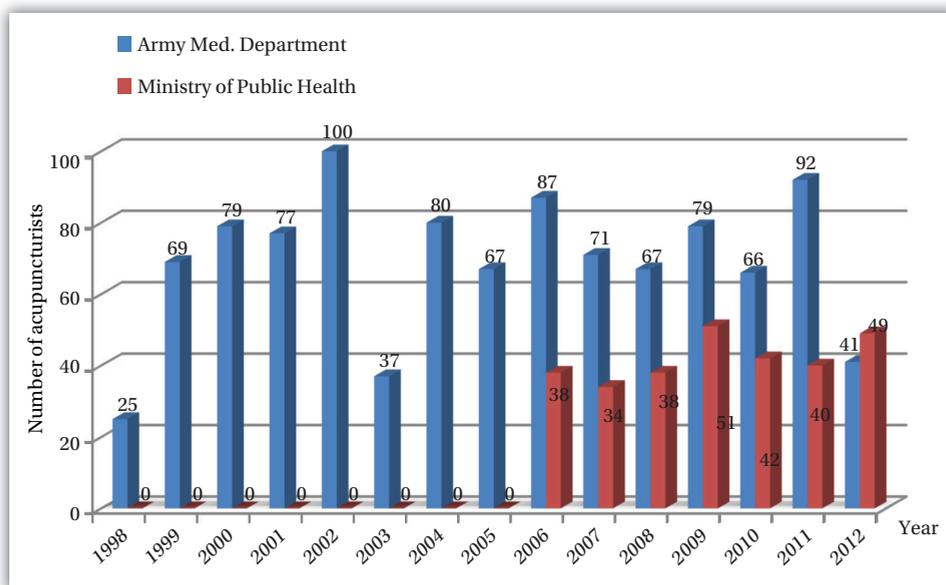


Table 8.4 Number of licensed TCM practitioners (2012) and TCM assistants (2012/13) by region, health service network, and province

Service Network	Province	Number of TCM practitioners	
		Licensed practitioners	TCM assistants
The North		22	101
1	Chiang Rai	3	7
	Chiang Mai	8	-
	Nan	-	15
	Phayao	-	8
	Phrae	-	-
	Mae Hong Son	1	2
	Lampang	1	-
	Lamphun	1	2
Total, Network 1		14	34

Table 8.4 (continued)

Service Network	Province	Number of TCM practitioners	
		Licensed practitioners	TCM assistants
2	Tak	1	19
	Phitsanulok	1	21
	Phetchabun	2	26
	Sukhothai	-	-
	Uttaradit	-	-
Total, Network 2		5	66
3	Kamphaeng Phet	-	1
	Chainat	-	-
	Nakhon Sawan	3	-
	Phichit	-	-
	Uthai Thani	-	-
Total, Network 3		3	1
Central Region		104	35
4	Nakhon Nayok	-	-
	Nonthaburi	18	7
	Pathum Thani	4	7
	Ayutthaya	3	1
	Lop Buri	1	-
	Sara Buri	1	-
	Sing Buri	2	-
	Ang Thong	-	-
	Total, Network 4		29
5	Kanchanaburi	-	-
	Nakhon Pathom	10	2
	Prachuap Khiri Khan	1	4
	Phetchaburi	1	1
	Ratchaburi	2	1
	Suphan Buri	5	1
	Samut Songkhram	-	-

Table 8.4 (continued)

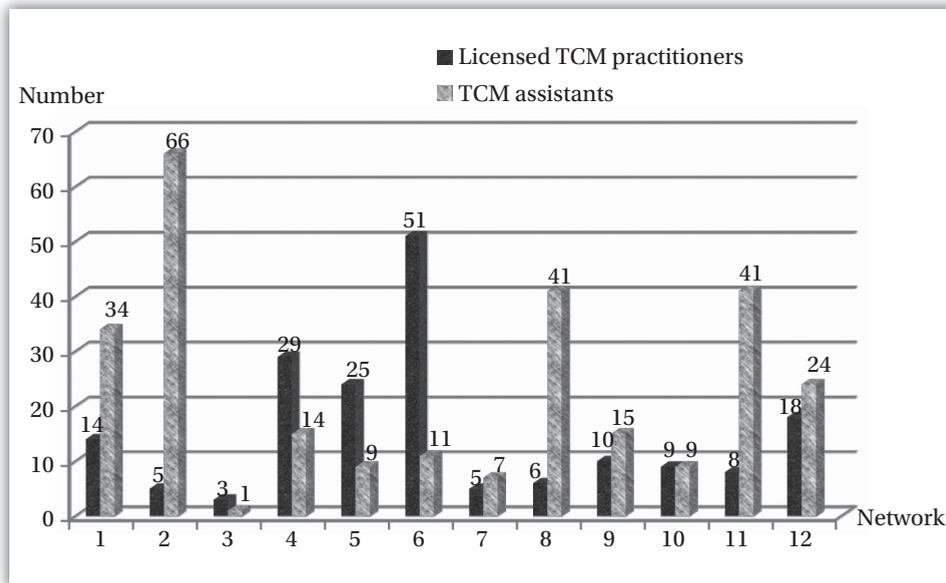
Service Network	Province	Number of TCM practitioners	
		Licensed practitioners	TCM assistants
	Samut Sakhon	5	-
	Total, Network 5	24	9
6	Chanthaburi	4	1
	Chachoengsao	4	-
	Chonburi	18	3
	Trat	-	-
	Prachin Buri	1	-
	Rayong	2	-
	Samut Prakan	22	6
	Sa Kaeo	-	1
	Total, Network 6	51	11
	The Northeast	30	72
7	Kalasin	2	3
	Khon Kaen	3	3
	Maha Sarakham	-	-
	Roi Et	-	1
	Total, Network 7	5	7
8	Nakhon Phanom	1	3
	Bueng Kan	-	1
	Loei	1	4
	Sakhon Nakhon	-	15
	Nong Khai	2	3
	Nong Bua Lam Phu	-	4
	Udon Thani	2	11
	Total, Network 8	6	41
9	Chaiyaphum	3	-
	Nakhon Ratchasima	6	7
	Buri Ram	1	6
	Surin	-	1

Table 8.4 (continued)

Service Network	Province	Number of TCM practitioners	
		Licensed practitioners	TCM assistants
Total, Network 9		10	14
10	Mukdahan	-	1
	Yasothon	4	-
	Si Sa Ket	1	1
	Amnat Charoen	-	3
	Ubon Ratchathani	4	5
Total, Network 10		9	10
The South		26	65
11	Krabi	-	-
	Chumphon	-	1
	Nakhon Si Thammarat	-	20
	Phang-nga	-	-
	Phuket	4	-
	Ranong	-	-
	Surat Thani	4	20
Total, Network 11		8	41
12	Trang	3	4
	Narathiwat	3	1
	Pattani	-	-
	Phatthalung	-	11
	Yala	2	-
	Songkhla	8	4
	Satun	2	4
Total, Network 12		18	24
Bangkok		314	67
Whole country		496	340

Source: Southeast Asian Institute of Thai-Chinese Medicine, DTAM, September 2012 for licensed TCM practitioners and June 2013 for TCM assistants.

Figure 8.4 Number of licensed TCM practitioners (2012) and TCM assistants (2012/13) by regional health service network



A survey on physicians/acupuncturists at MoPH's health facilities in 2012 showed that the number of acupuncturists was highest at 112 for the Central Region and lowest at 39 for the South.

By regional Public Health Service Network, the number of acupuncturists was highest at 55 for Network 5 (Kanchanaburi, Phetchaburi, Ratchaburi, Suphan Buri, Samut Songkhram, and Samut Sakhon) and lowest at 10 for Network 8 (Nakhon Phanom, Bueng Kan, Loei, Sakhon Nakhon, Nong Khai, Nong Bua Lam Phu, and Udon Thani).

By province, the highest number was noted at 21 for Nakhon Pathom, followed by 16 for Chiang Mai, but none in 8 provinces: Nan, Phetchabun, Sing Buri, Trat, Bueng Kan, Loei, Nong Bua Lam Phu and Satun (see Table 8.5).

Table 8.5 Number of physician/acupuncturists at MoPH's health facilities by facility level, region, regional health service network, and province, 2012

Service Network	Province	No. of physician/acupuncturists			Total
		Regional hospitals	General hospitals	Community hospitals	
	The North	9	26	25	60
1	Chiang Rai	3	-	2	5
	Chiang Mai	-	6	10	16
	Nan	-	-	-	-
	Phayao	-	2	2	4
	Phrae	-	1	1	2
	Mae Hong Son	-	1	1	2
	Lampang	1	-	1	2
	Lamphun	-	1	1	2
	Total, Network 1	4	11	18	33
2	Tak	-	3	-	3
	Phitsanulok	2	4	-	6
	Phetchabun	-	-	-	-
	Sukhothai	-	3	-	3
	Uttaradit	2	-	-	2
	Total, Network 2	4	10	-	14
3	Kamphaeng Phet	-	3	-	3
	Chainat	-	1	4	5
	Nakhon Sawan	1	-	-	1
	Phichit	-	-	2	2
	Uthai Thani	-	1	1	2
	Total, Network 3	1	5	7	13
	Central Region	38	29	45	112
4	Nakhon Nayok	-	2	1	3
	Nonthaburi	-	2	4	6
	Pathum Thani	-	2	1	3
	Ayutthaya	1	2	2	5
	Lop Buri	-	1	2	3

Table 8.5 (continued)

Service Network	Province	No. of physician/acupuncturists			Total
		Regional hospitals	General hospitals	Community hospitals	
	Saraburi	1	2	2	5
	Sing Buri	-	-	-	-
	Ang Thong	-	-	2	2
	Total, Network 4	2	11	14	27
5	Kanchanaburi	-	2	8	10
	Nakhon Pathom	17	-	4	21
	Prachuap Khiri Khan	-	3	-	3
	Phetchaburi	-	1	3	4
	Ratchaburi	1	3	-	4
	Suphan Buri	6	1	3	10
	Samut Songkhram	-	1	1	2
	Samut Sakhon	-	1	-	1
	Total, Network 5	24	12	19	55
6	Chanthaburi	4	-	-	4
	Chachoengsao	-	4	8	12
	Chon Buri	1	-	-	1
	Trat	-	-	-	-
	Prachin Buri	4	-	-	4
	Rayong	3	-	-	3
	Samut Prakan	-	2	3	5
	Sa Kaeo	-	-	1	1
	Total, Network 6	12	6	12	30
	The Northeast	16	18	26	60
7	Kalasin	-	3	-	3
	Khon Kaen	1	-	1	2
	Maha Sarakham	-	4	2	6
	Roi Et	-	1	1	2
	Total, Network 7	1	8	4	13

Table 8.5 (continued)

Service Network	Province	No. of physician/acupuncturists			Total
		Regional hospitals	General hospitals	Community hospitals	
8	Nakhon Phanom	-	1	-	1
	Bueng Kan	-	-	-	-
	Loei	-	-	-	-
	Sakhon Nakhon	-	1	-	1
	Nong Khai	-	1	2	3
	Nong Bua Lam Phu	-	-	-	-
	Udon Thani	4	-	1	5
	Total, Network 8	4	3	3	10
9	Chaiyaphum	-	1	-	1
	Nakhon Ratchasima	4	-	7	11
	Buri Ram	2	-	3	5
	Surin	1	-	7	8
	Total, Network 9	7	1	17	25
10	Mukdahan	-	1	-	1
	Yasothon	-	1	-	1
	Si Sa Ket	-	3	1	4
	Amnat Charoen	-	1	-	1
	Ubon Ratchathani	4	-	1	5
	Total, Network 10	4	6	2	12
The South		7	14	18	39
11	Krabi	-	1	1	2
	Chumphon	-	1	1	2
	Nakhon Si Thammarat	1	-	5	6
	Phang-nga	-	1	-	1
	Phuket	-	2	-	2
	Ranong	-	-	2	2
	Surat Thani	1	1	-	2
	Total, Network 11	2	6	9	17

Table 8.5 (continued)

Service Network	Province	No. of physician/acupuncturists			Total
		Regional hospitals	General hospitals	Community hospitals	
12	Trang	2	-	3	5
	Narathiwat	-	2	1	3
	Pattani	-	2	-	2
	Phatthalung	-	1	2	3
	Yala	1	1	-	2
	Songkhla	2	2	3	7
	Satun	-	-	-	-
Total, Network 12		5	8	9	22
Whole country		70	87	114	271

Source: Southeast Asian Institute of Thai-Chinese Medicine, DTAM, September 2012.

2) Health/TCM facilities

A survey of MoPH's health/TCM facilities in 2012, conducted by the Southeast Asian Institute of Thai-Chinese Medicine, showed that there had been no TCM/medication services, except for acupuncture services provided by physician/acupuncturists. By level of health facilities, all 25 regional hospitals (100%), 56 general hospitals (81.16%), and 85 community hospitals (11.47%) had been providing acupuncture services.

By region, the number of health/TCM facilities providing acupuncture services was highest at 63 in the Central Region and lowest at 25 in the South. By regional health service network, the number was highest at 27 for Network 5 (Kanchanaburi, Nakhon Pathom, Prachuap Khiri Khan, Phetchaburi, Ratchaburi, Suphan Buri, Samut Songkhram, and Samut Sakhon) and lowest at 6 for Network 8 (Nakhon Phanom, Bueng Kan, Loei, Sakhon Nakhon, Nong Khai, Nong Bua Lam Phu, and Udon Thani).

By province, the number of health/TCM facilities providing acupuncture services was highest at 9 in Chiang Mai. However, there were no such services in 8 provinces: Nan, Phetchabun, Sing Buri, Trat, Bueng Kan, Loei, Nong Bua Lam Phu, and Satun (see Table 8.6).

Table 8.6 Number of MoPH's health facilities providing acupuncture services by facility level, region, regional health service network, and province, 2012

Service Network	Province	Number of MoPH's health facilities			Total
		Regional hospitals	General hospitals	Community hospitals	
	The North	5	14	19	38
1	Chiang Rai	1	-	1	2
	Chiang Mai	-	1	8	9
	Nan	-	-	-	-
	Phayao	-	2	1	3
	Phrae	-	1	1	2
	Mae Hong Son	-	1	1	2
	Lampang	1	-	1	2
	Lamphun	-	1	1	2
	Total, Network 1	2	6	14	22
2	Tak	-	2	-	2
	Phitsanulok	1	1	-	2
	Phetchabun	-	-	-	-
	Sukhothai	-	2	-	2
	Uttaradit	1	-	-	1
	Total, Network 2	2	5	-	7
3	Kamphaeng Phet	-	1	-	1
	Chainat	-	1	3	4
	Nakhon Sawan	1	-	-	1
	Phichit	-	-	1	1
	Uthai Thani	-	1	1	2
	Total, Network 3	1	3	5	9

Table 8.6 (continued)

Service Network	Province	Number of MoPH's health facilities			Total
		Regional hospitals	General hospitals	Community hospitals	
The Central Region		9	21	33	63
4	Nakhon Nayok	-	2	1	3
	Nonthaburi	-	1	3	4
	Pathum Thani	-	1	1	2
	Ayutthaya	1	2	2	5
	Lop Buri	-	1	2	3
	Saraburi	1	1	2	4
	Sing Buri	-	-	-	-
	Ang Thong	-	-	2	2
Total, Network 4		2	8	13	23
5	Kanchanaburi	-	2	4	6
	Nakhon Pathom	1	-	3	4
	Prachuap Khiri Khan	-	2	-	2
	Phetchaburi	-	1	2	3
	Ratchaburi	1	3	-	4
	Suphan Buri	1	1	3	5
	Samut Songkhram	-	1	1	2
	Samut Sakhon	-	1	-	1
Total, Network 5		3	11	13	27
6	Chanthaburi	1	-	-	1
	Chachoengsao	-	1	4	5
	Chon Buri	1	-	-	1
	Trat	-	-	-	-
	Prachin Buri	1	-	-	1
	Rayong	1	-	-	1
	Samut Prakan	-	1	2	3
	Sa Kaeo	-	-	1	1
Total, Network 6		4	2	7	13

Table 8.6 (continued)

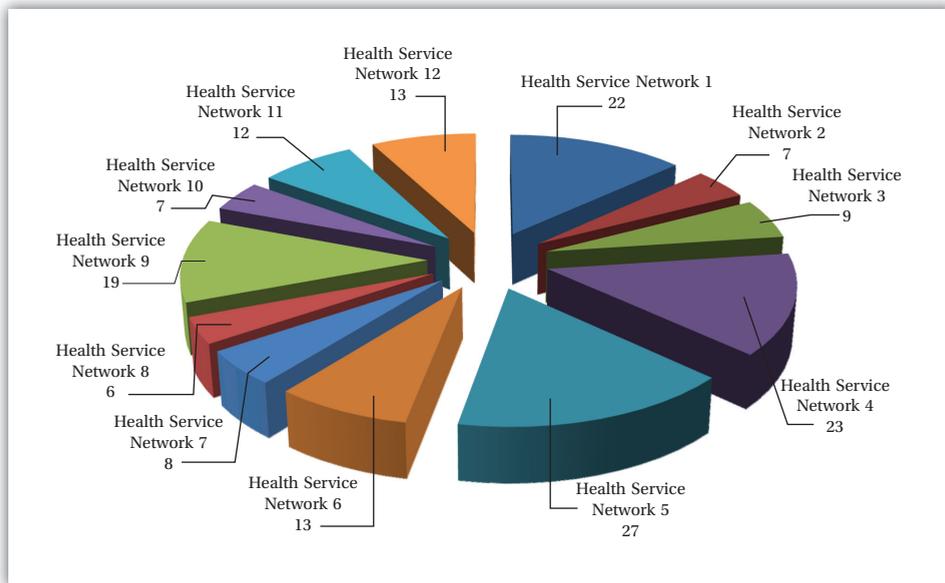
Service Network	Province	Number of MoPH's health facilities			Total
		Regional hospitals	General hospitals	Community hospitals	
	The Northeast	6	11	23	40
7	Kalasin	-	1	-	1
	Khon Kaen	1	-	1	2
	Maha Sarakham	-	1	2	3
	Roi Et	-	1	1	2
	Total, Network 7	1	3	4	8
8	Nakhon Phanom	-	1	-	1
	Bueng Kan	-	-	-	-
	Loei	-	-	-	-
	Sakhon Nakhon	-	1	-	1
	Nong Khai	-	1	1	2
	Nong Bua Lam Phu	-	-	-	-
	Udon Thani	1	-	1	2
	Total, Network 8	1	3	2	6
9	Chaiyaphum	-	1	1	2
	Nakhon Ratchasima	1	-	7	8
	Buri Ram	1	-	2	3
	Surin	1	-	5	6
	Total, Network 9	3	1	15	19
10	Mukdahan	-	1	-	1
	Yasothon	-	1	-	1
	Si Sa Ket	-	1	1	2
	Amnat Charoen	-	1	-	1
	Ubon Ratchathani	1	-	1	2
	Total, Network 10	1	4	2	7

Table 8.6 (continued)

Service Network	Province	Number of MoPH's health facilities			Total
		Regional hospitals	General hospitals	Community hospitals	
	The South	5	10	10	25
11	Krabi	-	1	1	2
	Chumphon	-	1	1	2
	Nakhon Si Thammarat	1	-	2	3
	Phang-nga	-	1	-	1
	Phuket	-	1	-	1
	Ranong	-	-	1	1
	Surat Thani	1	1	-	2
	Total, Network 11	2	5	5	12
12	Trang	1	-	2	3
	Narathiwat	-	1	1	2
	Pattani	-	1	-	1
	Phatthalung	-	1	1	2
	Yala	1	1	-	2
	Songkhla	1	1	1	3
	Satun	-	-	-	-
	Total, Network 12	3	5	5	13
	Whole country	25	56	85	166

Source: Southeast Asian Institute of Thai-Chinese Medicine, DTAM, September 2012.

Figure 8.5 Number of MoPH's health facilities providing acupuncture services by regional health service network, 2012



3) Budget for TCM services in the health system

For state health facilities, the government annually allocates the entire amount of budget to each facility, and then it is up to the administrator of that particular facility to further allocate the amount for supplies/equipment or additional personnel to provide essential services.

In the provision of health services, TCM service expenses are normally borne by the service recipients, except for acupuncture service fees at state health facilities which are covered by:

- 1) The health insurance system at state health facilities - 100 baht/session is paid from the government budget, and the rest is paid by the patient. The revenue collected is used for hiring additional staff such as nurses or other personnel.
- 2) The Social Security Scheme for insured persons (workers) in private businesses with no out-of-pocket payments.

8.5 Conclusion and future of TCM in Thailand

Over the past decade, DTAM's Southeast Asian Institute of Thai-Chinese Medicine has promoted and developed TCM knowledge and standard systems for effective use in the state health system in line with the core functions of the MoPH, leading towards people's healthy livelihood, physically and mentally, and based on the self-reliance strategy.

The Institute has also developed the standards for TCM profession, services, facilities, personnel capacities, and information, which are beneficial for the TCM system and consumer protection. Over the past decade, the Institute has made the following achievements:

1. Curriculum standards: As the core agency, the Institute has developed and supported the development of various TCM curricula such as the three-month acupuncture training for physicians, the bachelor's degree in TCM programme, the TCM assistant training course, the specialized or advanced acupuncture training course, and other training courses.

2. Clinical practice guidelines: The Institute, in collaboration with its network members, has developed acupuncture guidelines for treating 96 common illnesses or conditions in Thailand.

3. Standards of herbal drugs and herbs: As a member on the International Organization of Standardization Technical Committee 249 (ISO/TC249), the Institute has served as core agency, working together with its partners within and outside the MoPH, in reviewing the standards of herbs and herbal medicines, making recommendations to the ISO/TC249, working with domestic and international partners in preparing the standards of Chinese herbs commonly used in Thailand, and conducting research studies on the production/growing and processing of Chinese herbs with economic values or import reduction potential, including *lingzhi* mushroom and *lingzhi* spores, in Thailand.

4. Standards of supplies and equipment: As the core agency, the Institute has been working collaboratively with other relevant agencies within and outside the MoPH in reviewing the standards of supplies and equipment used in TCM services and submitting recommendations to the ISO/TC249. Besides, it has prepared (1) the quality specifications of filiform acupuncture needles for distribution to various target groups in the country for comments and future improvements, and (2) the draft standards of herb boiling pots.

5. Textbook standards: The Institute has carried out a number of knowledge management activities to strengthen the TCM system for the benefit of Thai society, including the preparation and publication of 16 TCM textbooks, all of which have been recognized by the TCM Profession Commission for use as TCM references of the country.

6. Standards of TCM information: The Institute has established the TCM database covering the information on TCM knowledge, TCM workforce, health/TCM facilities, and TCM educational institutions. The database is regularly updated and the information services are now available for the general public as well as interested persons.

Over the last decade, DTAM's Southeast Asian Institute of Thai-Chinese Medicine has fully achieved its planned missions. In the future, any unfinished activities will be further carried out or developed, while the currently good programmes will be pursued so that they are even better, and new activities will be initiated. Such activities are, For example, establishing a Clinical TCM Training Centre to enhance and strengthen the TCM practitioners' clinical experiences, improving the TCM database, strengthening the bachelor's degree programme in TCM for self-reliance, and setting up a TCM post-graduate programme (master's and doctorate levels). Moreover, efforts will be made to promote basic and applied research, enhance the unity and strength of TCM networks to protect the benefits of their members and the people, and promote their collaboration with other



professions. Importantly, TCM practitioners' morality and ethics will have to be created and maintained as per the advice of His Royal Highness Prince Mahidol of Songkla given to Thai physicians, which is also applicable to TCM practitioners:

“Let considerations of personal gain take second place to the overall benefit of mankind; prestige and prosperity are the natural rewards of dedication to work with professional integrity.”

One Decade of the Department for Development of Thai Traditional and Alternative Medicine

The Department for Development of Thai Traditional and Alternative Medicine (DTAM), Ministry of Public Health, was established on 3 October 2002 according to the Organization of State Administration Act B.E. 2545 (2002) and the MoPH's Ministerial Regulation on DTAM's Reorganization B.E. 2545 (2002), Amendment B.E. 2552 (2009), which specifies its missions as follows:

The DTAM's missions involve the technical development of Thai traditional medicine (TTM) and alternative medicine (AM) by protecting, conserving and promoting TTM wisdom, promoting and developing the knowledge system, and setting up TTM/AM standards so that they are equivalent to those in the modern medical system, and can be used with quality and safety as a health-care option for the people.

The DTAM has the following powers and duties:

(1) to undertake actions prescribed in the Protection and Promotion of Thai Traditional Medicine Wisdom Act B.E. 2542 (1999) and other relevant laws;

(2) to conduct research and development (R&D) of knowledge and technology related to Thai traditional medicine (TTM), indigenous medicine (IM), and alternative medicine (AM);

(3) to set and develop quality/standards and make recommendations for consumer protection in relation to TTM/IM/AM;

(4) to transfer knowledge and technology related to TTM/IM/AM;

(5) to develop models for promoting and supporting the integration of TTM/IM/AM services into the health service system;

(6) to develop systems and mechanisms for enforcing laws under its responsibilities for the benefit of the government and the people;

(7) to compile, conserve, monitor, protect and promote TTM/IM/AM wisdom in Thailand and abroad;

(8) to coordinate the collaboration in TTM/IM/AM and traditional Chinese medicine (TCM) in Thailand and abroad;

(9) to perform other duties specified as DTAM's duties, or as assigned by the Minister or the Cabinet.

To review the achievements of the TTM/IM/AM programme development as well as DTAM's strategy and operations over the last decade since its inception, this chapter is prepared for use in further developing and improving future TTM/IM/AM actions.

9.1 TTM development before DTAM's establishment

As TTM services have been in existence in Thai society since the old days even though, during a certain later stage, TTM practices were replaced by the modern medical system, such practices have not really disappeared from Thai society. This is because TTM services are still needed for medical treatment and health care by a number of Thais; and the practices have been passed on by traditional healers. Later on, the TTM educational system

has been set up at the higher education level in an effort to conserve and undertake research and development activities for the benefit of society and the nation with more competent practitioners to provide the following services:

1. Thai medical services including diagnosis based on the TTM principles stated in various TTM textbooks.
2. Thai pharmaceutical services, i.e. the prescription of Thai herbal drugs.
3. Thai midwifery services including pre-natal and until post-natal care using TTM practices such as herbal steam bath and postpartum lying-in by a fire (*yoo-fai*).
4. Thai therapeutic massage services including massage therapy, giving advice on exercise, body stretching (*ruesi dadton*), herbal compression, or hot/cold compression, and massage for health promotion.

Later on, the Institute of Thai Traditional Medicine (ITTM) was established initially as an informal division in the Department of Medical Services of the Ministry of Public Health (MoPH) in 1993. Since the 7th National Development Plan period (1992–1996), the TTM policy and programme have become clearer and its operations more evident; during the 8th National Development Plan period (1997–2001), TTM wisdom began to be compiled, conserved, and revived with more research and development activities, realizing three major elements of the wisdom as follows:

1. Workforce including traditional medical practitioners and indigenous healers; the Institute had to expedite refresher training for such healers so that they would be knowledgeable of developing traditional wisdom, applying such knowledge in accordance with the present situation, and being more qualified to transmit the knowledge to younger generations.

2. Textbooks including ancient notebooks (*samud khoi*), palm-leaf notebooks (*bai-lahn*), textbooks (*khamphi*), and other notebooks.



Such textbooks had to be urgently surveyed and compiled for ease of study or research using modern technology in getting them recorded or stored on the computer. The ITTM has collected a large number of TTM textbooks, as national, general and personal textbooks, for use by the general public or interested persons, some in easy language, according to the Protection and Promotion of Thai Traditional Medicine Wisdom Act B.E. 2542 (1999).

3. Forests being important resources that Thais are to conserve and reforestation is also needed as Thailand's forest areas have been diminishing due to deforestation resulting in the extinction of many herbs or medicinal plants. Thus, the ITTM had to push for the legislation of law to address all three aspects of wisdom promotion and protection – that is the Protection and Promotion of Thai Traditional Medicine Wisdom Act B.E. 2542 (1999).

Based on ITTM's vision, the TTM development missions were drawn up to cover three aspects as follows:

1. Promoting and supporting actions for self-reliance in health by using the primary health care approach, aiming to help the people to help themselves at the individual, family and national levels.

2. Supporting health promotion with TTM, not focusing on treatment, but on using herbs for relieving simple ailments and symptoms, and encouraging the people to understand and be confident in using Thai herbs, Thai food and Thai massage for health care.

3. Conducting research and development activities in a full-cycle manner by collaborating with all relevant public and private sector agencies in compiling, conserving, reviving, and studying local wisdom and resources, and then disseminating the results to the general public.

Before DTAM's establishment, the ITTM set the policy on work development, based on the old principles and three major trends:

1. People's needs and public participation in health development, aiming to involve all relevant sectors in the thinking and implementation processes.

2. Health system reform emphasizing equity and more options for the people to equally access good quality and technically acceptable health services with empathy, honesty, efficiency, and cost-effectiveness.

3. Changes in health problems and management procedures taking into account the magnitude and severity of the problems, preventive/curative feasibility, and economic impacts.

9.2 Vision and mission of the ITTM before DTAM's establishment

Vision

Compile, conserve, revive, and conduct research and development activities related to Thai traditional medicine wisdom for self-reliance in health of the Thai people and the nation.

Missions

1. Promote self-reliance of the people and capacity building of TTM and health personnel.

2. Disseminate and publicize the TTM knowledge and the information on alternative medicine on a wide scale for consumer protection purposes to the target groups at all levels.



3. Develop TTM and Thai herbal drugs in a full-cycle manner and integrate TTM services into the health-care system at all levels.
4. Conduct research and development activities on TTM for application in Thai society.
5. Protect and promote TTM wisdom.

9.3 Operations of the ITTM before DTAM's establishment

1. Legal affairs – the ITTM was able to prepare a legislation related to the TTM wisdom promotion and protection; the law was later passed by the Parliament and published in the Government Gazette.

2. Promotion and support for self-reliance in health – publishing/distributing public education materials related to health promotion and disease prevention, for example, “People’s Handbook for Self-Healthcare in the Family”.

3. Research and development – compiling TTH knowledge and got it organized to make it easy for documentary research as R&D is key to TTM development so that TTM services would be acceptable to the general public and of acceptable standards.

4. Integration of TTM services into the state health-care system – establishing efficient TTM clinics at community hospitals in a thorough manner, supporting them to produce herbal drugs, and establishing TTM/health promotion centres in the public and private sectors.

5. Development of training programmes in TTM for various target groups – promoting and supporting teaching/learning programmes in TTM and short-term TTM training for relevant personnel such as doctors, nurses, and subdistrict health workers.

6. Proactive public relations campaigns – focusing on educating the general public to understand and realize the importance of TTM and medicinal herbs for use in everyday life.

7. Promotion of the establishment of a TTM Profession Commission – working in collaboration with licensed TTM and indigenous practitioners, relevant technical officers and NGO/network members.

According to the vision and missions for TTM development during the 8th and 9th National Development Plan periods, the government policy still focused on the promotion of holistic research and development, people's self-reliance, evaluation, compilation of research results, action research at state health facilities, problem identification/solution, and operational mechanism improvement, aiming for further TTM programme development.

Concerning the development of alternative medicine, DTAM's Division of Alternative Medicine was established on 3 October 2002 as per the Organization of State Administration Act B.E. 2545 (2002), the Reorganization of Ministries, Sub-ministries, and Departments Act B.E. 2545 (2002), and MoPH's Ministerial Regulation on DTAM's Reorganization, transferring the Institute of Thai Traditional Medicine (of MoPH's Office of the Permanent Secretary) and the Coordinating Centre of Thai-Chinese Medicine and the Coordinating Centre of Alternative Medicine (of the Medical Services Department) to be under the newly established Department for Development of Thai Traditional and Alternative Medicine (DTAM), which is tasked with the technical development of Thai traditional and alternative medicine.

Later on, the DTAM was restructured – the Thai-Chinese Medicine Coordinating Group was separated from the Division of Alternative Medicine and upgraded as the Southeast Asian Institute of Thai-Chinese Medicine in 2004, as per DTAM's Order No. 158/2547, dated 26 July 2004. And in



2008, according to DTAM's order, the Division of Alternative Medicine was informally upgraded as the Bureau of Alternative Medicine.

In December 2009, the Bureau of Alternative Medicine was officially established under the DTAM as per the Cabinet's resolution.

Before DTAM's establishment, the Coordinating Centre of Alternative Medicine widely publicized alternative medical practices among medical and health personnel and got such services integrated into the health service system. A survey of alternative medical service availability conducted by MoPH's Bureau of Policy and Strategy showed that 48 regional/general hospitals (52.2%), 59 community hospitals (8.2%), and 22 private hospitals (7.9%) provided such services. Of all the 129 hospitals with alternative medical services, 85 (65.9%) provided acupuncture treatments, while other services included, for example, balance therapy, *chi-gong* or *qigong*, music therapy for autistic children, meditation training, hydrotherapy, and healthy food programme.

Regarding public education about TTM, a survey on this matter shows that 25 TTM practices that are generally known and popular among Thais are herbalism, massage, meditation/yoga, head massage, traditional Chinese exercise (*tai chi*), *dhamma* super power (*phalang rangsi tham*), spin move meditation (*smathi-moon*), *Cheewajit* (body-mind holistic health practice), cosmic energy (*phalang jakrawan*, *yore*), acupuncture, music therapy, praying, herbal steam bath, aromatherapy, use of vitamins/minerals/non-toxic-diet, drinking-eating juice/fruit, colon detoxification, astrology/holy-water-sprinkling, art therapy, biofeedback relaxation, incantation (*katha/vedmon*), light-colour-sound meditation, spiritualism (*kan-khao-song*), electromagnetic (chair) therapy, and *dhammajak* therapy (*wicha dhammajak*). Besides, various forms or procedures of alternative medicine have been used in combination with modern medicine in caring for chronically ill patients; most evidently practised are, for example, the use

of healthy food, meditation, and stone therapy by the Cancer Friends Group.

In summary, it was generally noted that before DTAM's establishment, the rate of alternative medicine expansion had been continually very high and the services had also gained a lot of interest from the general public. Thus, the then Division of Alternative Medicine had to take actions on the management and study of alternative medical knowledge so that the correct information could be disseminated to the people.

9.4 Highlights of the decade of DTAM

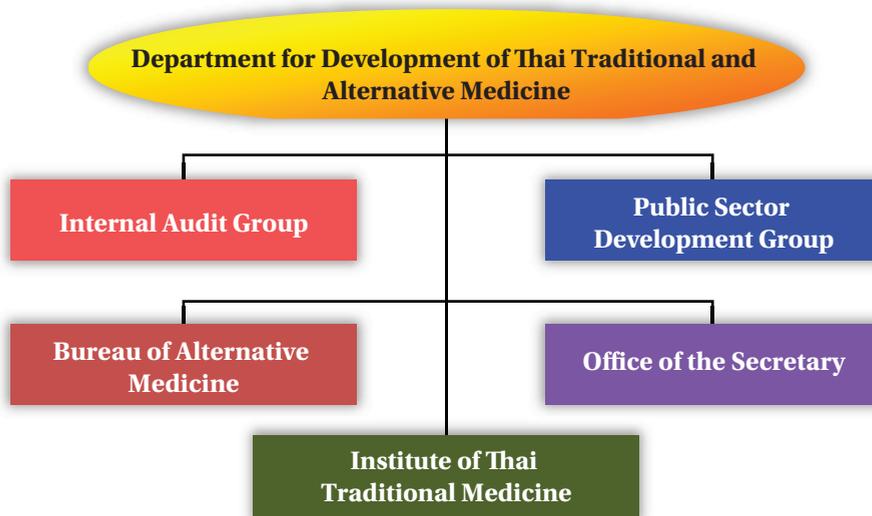
1) Management achievements

After DTAM's establishment, its efforts for developing management structure and mechanisms have been undertaken continually including the restructuring of the agency and the revision of rules, regulations, guidelines, and operating procedures. Major achievements are the following:

(1) Restructuring the Department as per MoPH's Ministerial Regulation on DTAM's Reorganization of B.E. 2552 (2009) as follows:



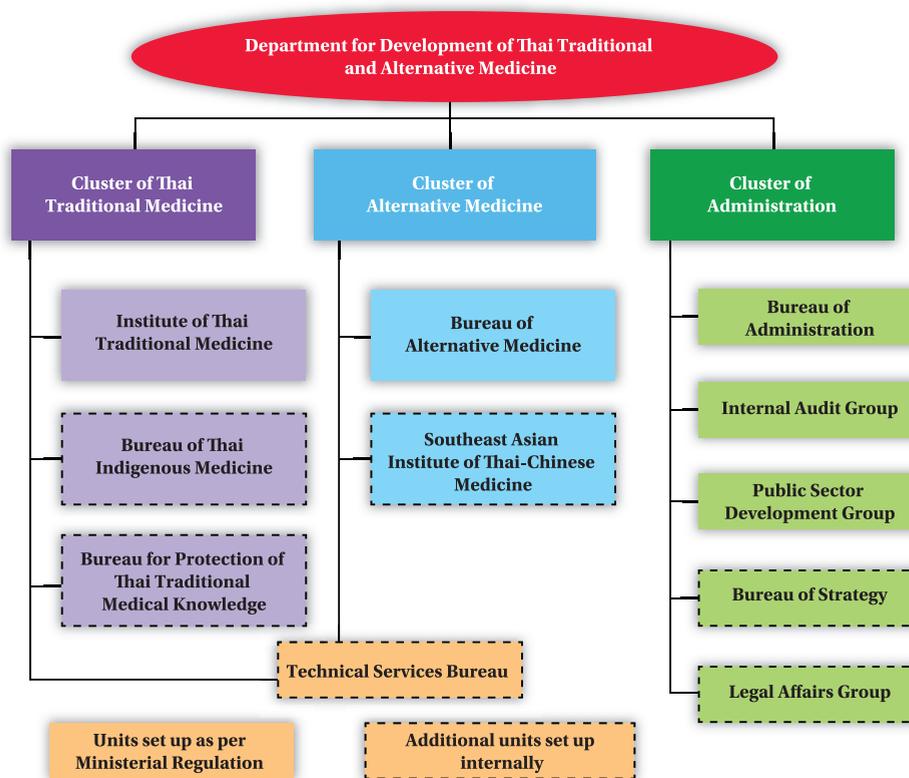
Figure 9.1 Organization chart of the Department for Development of Thai Traditional and Alternative Medicine (as per Ministerial Regulation)



Besides, the DTAM has implemented other management improvement activities such as personnel capacity building and information technology development to enhance its management's efficiency with organizational values and culture that are favourable for personnel's unity on a continual and sustainable basis and in preparation for the integration into the ASEAN Economic Community.

However, to efficiently move forward the management and operations, the DTAM has reorganized its structure and established several internal units as shown in the chart below.

Figure 9.2 Organization chart of the Department for Development of Thai Traditional and Alternative Medicine (internally organized)



Other major activities undertaken include personnel capacity building, staff behavioural changes, participatory actions, development of management information technology, risk management, internal control, and public sector development aiming towards being a quality agency with continual management development efforts.

(2) Revising laws, regulations and law-enforcement mechanisms for TTM wisdom protection purposes. Such actions were carried out in cooperation with network members as appropriate in enhancing or developing the capacity of law-enforcement officers as well as technology

for the protection of TTM wisdom and herbs in an efficient, thorough, and equitable manner in the country and abroad. In addition, two subordinate laws (regulations) were enacted by virtue of the Protection and Promotion of Thai Traditional Medicine Wisdom Act B.E. 2542 (1999).

2) Service development achievements

The DTAM has developed service models for integrating TTM services into MoPH's health service system as briefly described below:

1) Provision of TTM Services at *Tambon* (Subdistrict) Health Promoting Hospitals (THPHs) Project

Under this Project, the DTAM has set a policy to integrate TTM services at THPHs so that they can provide such services for the people and establish a linkage with the communities and relevant networks. That is actually in line with the missions of THPHs, which involve the provision of health promotion, disease prevention, curative care and rehabilitation services, and the reduction of health risk factors at the individual, family, and community levels. The Project has been implemented since 2010 with the aim of deploying licensed TTM practitioners, one each at two THPHs per province and all 80 Queen Sirikit Health Centres across the country.



To date, 213 TTM practitioners have been recruited and posted at THPHs, including 135 at general THPHs and 78 at Queen Sirikit Health Centres. In this connection, actions have been undertaken to make temporary living allowances available to such practitioners so that their total remuneration will be 15,000 baht/month according to the Cabinet's resolution. Now all such THPHs have been providing TTM services including health promotion, disease prevention, treatment and rehabilitation for the people and outreach services for patients with paresis/paralysis and chronic illnesses, elderly persons, and postpartum women in the communities, whereas the TTM information system has been set up and linked to the network node hospital. However, such TTM practitioners are actually hired as temporary employees, resulting in job insecurity and resignations of many of them – a high turnover – as well as discontinuity of TTM services and a waste of government budget. Thus, civil service positions should be established for such personnel at all such health facilities. If such positions are not available, the regular employment system of MoPH's Office of the Permanent Secretary should be pursued for TTM practitioners.

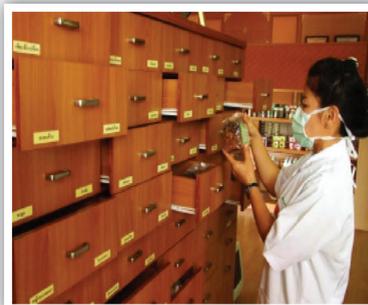
2) Development of TTM Hospitals Project (Phase 2): As TTM service units can provide only outpatient services with Thai traditional drugs, most of which are single herbal drugs despite the abundance of herbal drug formulas/recipes. Therefore, to make TTM services available in a concrete manner, for example, with a TTM outpatient department, physical examination and diagnostic services as well as prescriptions by a modern doctor, and an inpatient ward for hospitalized patients receiving traditional remedies, a TTM department (commonly called TTM hospital) has been set up at nine provincial or district hospitals, namely Prapokkiao Hospital, U-Thong Hospital, Wangnamyen Hospital, Watthana Nakhon Hospital, Den Chai Crown Prince Hospital, Thoeng Hospital, Khun Han Hospital, Tha Rong Chang Hospital, and Chaophraya Abhaibhubejhr Hospital.



Such TTM hospitals now provide TTM/OPD services including TTM-based diagnoses, prescriptions, therapies and rehabilitation with Thai medicines, Thai massage, herbal steam bath, herbal compression, and herbal mask. Also provided are health promotion and disease prevention services such as body stretching (*ruesi dadton*), TTM training courses, TTM remedies for inpatients with psoriasis, cirrhosis, blood disorders in women, systemic lupus erythematosus (SLE), paresis/paralysis, diabetes, asthma, and postpartum care, proactive or home/community services involving follow-up care for paresis/paralysis patients, prenatal/postnatal care, herbal drug use promotion in communities and schools, public education for vulnerable groups at risk of chronic illnesses in communities, health promotion for prisoners, and surveys of TTM wisdom and local herbs, etc.

3) Achievements related to herbal product and Thai medicine development

With the need for the development of knowledge and technology for producing and developing herbal extracts that are of high standard, modern and competitive in the world market, it is necessary for the DTAM to give advice and assistance to the operators of Thai drug and herbal product industries in acquiring high-quality raw materials, producing/processing herbal products in accordance with international standards, serving as an information centre of a central market of raw herbal products of the country, and serving as a study site on the production of herbal products of the country. Thus, efforts have to be made to undertake extended research on Thai wisdom using modern technology, especially when dealing with herbal extracts and herbs that have been used for a long time, support small-scale traditional drug industries to adopt the principles of Good Manufacturing Practice (GMP) and Pharmaceutical Inspection Co-operation Scheme (PIC/S), and develop further towards the Good Laboratory Practice



(GLP) linking to the Good Agricultural Practice (GAP) and Good Clinical Practice (GCP).

In collaboration with relevant public and private agencies, the development of the Thai Drug and Herb Development Centre as a National Institute of Thai Medicines should be undertaken to continue preserving the Thai wisdom and become a leader of traditional medicine development in ASEAN. This will also be a response to the National Strategic Plan for Thai Wisdom and Healthy Lifestyle Development (2007-2011), especially Strategy 4, dealing with the development of Thai and herbal drugs to be of high quality/standards at the community, health facility and drug industry levels. In addition, more studies should be carried out to identify or develop herbal drug formulas for inclusion in the National List of Essential Medicines.

In this effort, major actions undertaken are the restructuring and renovation of the second floor of the Thai and Herbal Drug Development Centre building and the procurement of six items of drug-producing equipment: a raw herb washing machine, a water immersion sterilizer (retort), an industrial grinder, a high pressure filter herb oven, a carbon dioxide extractor, and a temperature-controlled centrifuge.

Besides, there were three studies undertaken on white *kwao khruea* extract, mangosteen and mulberry leaves, whose results were published and distributed at the 9th National Herb Expo. The full reports on white *kwao khruea* extract and mangosteen studies have been printed.

Anyhow, in developing a research process or technique, it is necessary to consult relevant experts about the research planning so that the undertaking would be efficient, free of errors, and successful as planned and within the expected timeframe.

4) Personnel development achievements

The major standardized curricula on Thai traditional and alternative medicine are as follows:

- 1) Curriculum on curative care with TTM for health centre personnel
- 2) Curriculum on TTM assistant training (372 hours)
- 3) Curriculum on TTM profession - Thai massage branch (1,300 hours)
- 4) Curriculum on Thai spa for health (500 hours)
- 5) Curriculum on Thai massage for health for the blind (225 hours)
- 6) Curriculum on postpartum care with TTM

To date, a total of 3,198 individuals have been trained in one of the aforementioned curricula by DTAM and another 35,875 by other relevant agencies using the standard curricula.

Besides, training workshops on TTM have also been organized for health administrators, modern medical doctors, and nurses. Other training workshops organized are: seminar on the use of herbal drugs in the National List of Essential Medicines; training workshop on curative care with TTM for health centre personnel; training workshop on English communication skills for masseurs in preparation for ASEAN integration; development of Thai massage skills for the blind; and development of TTM practitioners in the health system. In this connection, support has been provided for the meeting of members of the network of TTM workforce production institutions and the development of TTM assistants training centres outside Bangkok.

5) Technical affairs and research achievements

The outstanding research, knowledge management, and technical activities on TTM are the following:

1) TTM research projects:

- (1) Effectiveness of Thai massage for treating trigger finger
- (2) Effectiveness of hot salt pot compression for postpartum care
- (3) Effectiveness of Thai massage compared with diclofenac in relieving shoulder pain
- (4) Effectiveness and safety of *ya-pra-sa-phlai* herbal formula for treating obstetric and gynaecological symptoms
- (5) Effectiveness of herbal steam bath for relieving chronic body pain

2) Preparation of TTM textbooks, namely:

- (1) Textbook of Thai Massage for Health (Royal Massage)
- (2) Textbook of Thai Massage for Health (General Massage)
- (3) Textbook of Foot Massage for Health



- (4) Textbook for TTM Assistants
- (5) Handbook of Thai Spa for Health (*Thai Sappaya*)

6) Indigenous medicine achievements

The important technical documents on indigenous medicine prepared are the following:

- (1) Knowledge of Indigenous Medicine: Lessons Learned and Experiences from One Decade of Knowledge Management
- (2) Recognition of the Rights of Indigenous Healers: The Non-negligible Process

The recognition of the rights of indigenous healers is a policy and strategic movement undertaken by issuing DTAM's Regulation on Certification of Indigenous Healers (No. 2), B.E. 2555 (2012), according to the policy on integrating TTM/IM wisdom into the health service system at all levels. That is the use of the good parts of indigenous wisdom in strengthening the existing health-care system for the people with standardized and safety services.

In 2012, many indigenous medical procedures/practices were selected, based on their efficacy and safety, for inclusion in the health service system in parallel with the modern medical services in 23 hospitals in 16 provinces. Such procedures/practices can be used for treating eight diseases or conditions, namely (1) snake poisoning, (2) bone fracture, (3) paresis/paralysis, (4) aches and pains, (5) frozen shoulder, (6) chronic diseases such as diabetes, (7) psoriasis, and (8) cirrhosis. Moreover, the services related to postpartum and newborn care are getting more and more popular. In that year, there were 50,591 indigenous healers across the country. Efforts are now being made to issue a license to those who pass the standardized knowledge and safety test, or licensing examination, which is a professional promotion measure.

7) Alternative medicine programme achievements

Over the past decade, the DTAM has made a number of major achievements in alternative medicine as follows:

1) Programme on development of alternative medicine research and knowledge database. The research studies that have been completed are: Effectiveness of acupressure in relieving knee osteoarthritis among elderly persons; Screening and treatment of chronic kidney disease with acupuncture and herbal Chinese medicines; Intravenous administration of high-dose ascorbic acid and use of home-made macrobiotic food for treating mast-cell tumor in dogs; Curriculum on dhamma-based alternative medicine for self-reliance according to sufficiency-economy principles; Curriculum on health promotion and detoxification; workshop on development of a master plan for alternative medicine research; and Promotion and support of research on alternative medicine.

2) Programme on development and transfer of knowledge. The major achievements are: Development and transfer of knowledge about integrated care for the elderly with cerebrovascular disease; Training curriculum on therapeutic acupressure and foot reflexology; Workshop on body-balancing massage; Training in homeopathic medicine (certificate course); Technical conference on homeopathy: a therapeutic alternative; Technical seminar on “Learning organon through case taking and anamnesis”; Seminar on “a homeopathic approach to cancer”; and Technical conference on “Chronic diseases: their peculiar nature and their homeopathic cure”.

3) Programme on development of service quality and standards. The major achievements are: Establishment of standards for homeopathic drug descriptions or labels; and Development of alternative medical practice standards: Chelation therapy.

4) Programme on development of collaborating and support mechanisms among network members: The major achievements are:



Technical seminar for knowledge sharing among alternative medicine network members; the 2nd International Association for Music & Medicine (IAMM 2012), in collaboration with Chulalongkorn University; Mental health development using Buddhist meditation; Network coordination in holding the 5th Asian-Pacific international conference on complementary nursing; Technical seminar on experiences in alternative medical services in Thailand: service providers' experiences; Technical conference on "Beyond frontier: complementary nursing in diabetic care"; Production of communication media of village health volunteers in home and community health care for the elderly; Training in meditation therapy; Development of knowledge about integrated health care for the elderly for public sector agencies and the people; and Technical conference on the use of *Eupatorium perfoliatum* for dengue hemorrhagic fever control.

5) Programme on promoting networks for legal development and law enforcement monitoring system. The major achievements are: Development of guidelines for registration of homeopathic drugs and development of a master plan for consumer protection in alternative medicine.

6) Programme on Thai-Style Healthy Cities, based on five major strategies: (1) conduct research on, and undertake knowledge management relate to, TTM/IM wisdom, Thai drugs and Thai herbal drugs in a systematic manner with high standards (extension of BMN wisdom); (2) promote and develop the system of health/TTM/IM facilities with adequate quantities and qualities (development of BHS system); (3) support, promote and develop health personnel and networks related to TTM/IM, Thai drugs and Thai herbs for integration into the health system in a thorough and continual manner (capacity building and PHC network empowerment); (4) promote and develop TTM/IM services including Thai herbal products to be up to the generally acceptable quality and standards (promotion of herbal image);

and (5) safeguard, conserve, prevent and develop Thai local wisdom and herbs to be valuable resources in a sustainable manner (conservation and protection of Thai wisdom).

8) Achievements of knowledge or wisdom protection

The highlights of the work related to the protection of TTM/IM wisdom and herbs or medicinal plants over the past decade are as follows:

1) Database of TTM wisdom

The Protection and Promotion of Thai Traditional Medicine Wisdom Act B.E. 2542 (1999) prescribes that the DTAM has the duties to compile the information about TTM wisdom, Thai drug formulas, and TTM textbooks from all over the country for the purposes of preparing the registers of such data or information. The TTM wisdom is divided into three categories, i.e. (1) national Thai drug formulas or national TTM textbooks, (2) general Thai drug formulas or general TTM textbooks, and (3) personal Thai drug formulas or personal TTM textbooks. All such formulas and textbooks can have their rights registered as TTM wisdom and be eligible for protection and promotion as stipulated in the law. In the registration process, it is essential that the following databases be established:

- (1) Database of TTM personnel
- (2) Database of TTM wisdom as per Section 15 of the Act
- (3) Database of national and general TTM wisdom
- (4) Database of herbs or medicinal plants
- (5) Database of registration of the rights to personal TTM wisdom

The registration of personal TTM wisdom is regarded as a public service provided by the DTAM, which serves as the Central Register in compiling and registering Thai drug formulas and TTM textbooks existing



in various localities for legal protection. As such information is a secret of each individual owner, the information storage system has to be efficiently and securely established to prevent any data leakage.

2) Conservation and protection of Thai drug formulas and TTM textbooks

The DTAM has surveyed and compiled TTM wisdom and set up the TTM wisdom register for the purposes of conserving and protecting Thai drug formulas and TTM textbooks. The register contains 107,277 items of Thai drug formulas and 6,568 items of TTM textbooks with details on the sources, names of owners, and content of each item of wisdom.

Besides, support has been provided for the compilation, modification and transcription of ancient/regional TTM textbooks, including 2,500 pages of palm-leaf books and 201 Thai drug formulas. The transcription of the regional textbooks (regional identity) was a collaborative effort undertaken by the Chiang Mai Provincial Public Health Office (PPHO) for the North, the Maha Sarakham PPHO for the Northeast, the Ayutthaya PPHO for the Central Region, and the Krabi PPHO for the South.

3) Conservation and protection of herbs and their origins

According to Section 44 of the Protection and Promotion of Thai Traditional Medicine Wisdom Act B.E. 2542 (1999), the Health Minister, with the advice of the Committee on TTM Wisdom Protection and Promotion, has the power to issue a notification in the Government Gazette designating a controlled herb (with details on the type, characteristics, and name of the herb), which is valuable for research, or of economic value, or an endangered species. For such a controlled herb, the grower and possessor can use, maintain, keep and transfer it according to the criteria, method and conditions prescribed by law. Support will also be provided for in-depth studies to assess the value of such a herb for herb protection purposes. In

this connection, studies have been undertaken on 25 herbs, namely eagle wood (*kritsana*), small Indian civet or *chamodched* (*Viverricula indica*), *kamphaengjedchan* (*Salacia* spp.), flame lily (*dongdueng*), cocculus (*khamin-khruea*), *plao-luead* (*Croton robustus*), smilax or *khao-yen-nuea* (*Smilax* spp.), smilax or *khao-yen-tai*, *ra-yom-noi* (*Rauwolfia serpentine*), *ra-yom-yai* (*Rauwolfia verticillata*), *pitsanaht* (*Artemisia indica*), *non-tai-yahk* (*Stemona tuberosa*), *thaowanpriang*, *kamlangwoa-thaloeng*, *jetamunploengdaeng*, *nera-pusi*, *hor-saphai-khwai*, *kamlang-suea-khron*, *jan-khao*, *jan-daeng*, *sabu-luead*, *sa-moh* (all kinds), *pha-ya-rakdam*, and *sae-ma-thalai*.

Moreover, under the TTM wisdom protection law, Herb Protection Management Plans have been drawn up for herb protection according to Section 57, herb origin/conservation zones have been designated and announced as per Section 61, and private participation has been encouraged for herb protection, promotion and development as per Section 64 of the Act. To date, 25 herb conservation zones with action plans have been announced and designated in 24 provinces.

9) Achievements of public relations activities

(1) The 1st through 10th National Herb Expos and Annual Conferences on TTM/IM/AM (2004–2013)

The MoPH has approved the National Herb Expo Programme with the aim of setting up a forum for knowledge creation, national/local policy and strategy advocacy, capacity building for individuals, groups and networks (Individual Node Network, or INN), and driving forward the promotion of Thai wisdom/culture and Thai healthy lifestyles.

The patterns of the National Herb Expos have been continuously developed and the knowledge gained has resulted in TTM/IM/AM development in various aspects such as the National Strategic Plan for Thai Wisdom and Thai Healthy Lifestyle Development (2007–2011), the



Second National Strategic Plan for Thai Wisdom and Thai Healthy Lifestyle Development (2012–2016), the provision on local health wisdom in the Statute on National Health System of 2009, the policy recommendations submitted to the 2nd National Health Assembly, and technical capacity development as evidenced by the presentations of about 85 papers each year and the participation of 18 organizing agencies and more than 100 networks/partners, more than 250,000 Expo viewers, more than 2,500 conference participants, and approximately 3,000 attendees at the self and family health care training sessions. Each year, the Expo holds five major activities as follows:

- 1) National annual conference on Thai traditional, indigenous and alternative medicine
- 2) Short training courses
- 3) Joining forces for health promotion and innovation
- 4) Exhibitions of local health culture/wisdom and herb gardens
- 5) Sales of good quality herbal products of acceptable standards

Major achievements

The 2012 annual conference on TTM/IM/AM covered 13 seminar topics, namely: (1) Thai massage, Thai heritage towards world heritage (the theme of the technical seminar and Herb Expo); (2) Issue-based health assembly on Thai massage strategy (Thai massage, Thai heritage towards world heritage); (3) Thai massage, beauty and diversity; (4) Foreigners' perspectives on Thai massage; (5) Ten primary energy lines (*sen prathan sib*) in Thai massage; (6) Thai traditional practitioners and lessons learned from Ayurvedic medicine; (7) Students' powers in TTM development; (8) Production of TTM practitioners in universities; (9) 5th traditional medicine conference in the Greater Mekong Subregion; (10) Research on Thai massage towards international standards; (11) Recording of local wisdom by local residents: self-reliance will be realistic; (12) Delphi, a new

dimension for community data collection; and (13) Integrated use of Thai massage for treating patients with paresis-paralysis. The conference had about 2,800 participants.

At the annual conference, submitted for the technical contest were 98 TTM/IM/AM papers, of which 34 were related to scientific studies, 34 on social sciences, 22 on innovations/inventions, and 8 on system development.

The short-term training activities included 44 courses (57 rounds) for a total of 3,300 participants.

The joining forces for health and innovation activities were participated by 10 DTAM agencies and 5 provinces/networks with 34 exhibition activities, which attracted a lot of attention from the general public. The expo viewers also gained much knowledge from DTAM's central stage for use in health care for themselves and family members. At the event, DTAM could establish partnerships with many other herbal expo entities.

Various procedures of Thai traditional and alternative medical services were also publicized at the event.

The arena for local culture and wisdom had exhibitions organized by 23 networks of more than 300 indigenous healers from the four regions of the country, the four-region network of alternative agriculture and local foods (18 networks of more than 300 people), and the Siri Ruckhachati Nature Park (of the Faculty of Pharmacy, Mahidol University). The activities organized included boiled herbal drug formulas, *yam-khang*, *tok-sen*, blowing therapy (*moh pao*), outstanding national Thai traditional doctors' recognition for 2012, local massage demonstrations (from four regions), self-massage device demonstration, ritual therapy (*moh pithi-kam*) demonstration, a local government organization (LGO) simulation, wisdom market (*kahd mua*), talks on traditional health care [e.g. a talk on northern or *Lanna* maternal/child health care and *Lanna* postpartum care (*mae-kam-duean*) from



Lampang and talks on boiled herbal drug formulas from the four regions], other demonstrations, shows, and video presentations.

Other exhibitions or demonstrations included mushrooms, rare herbs, herb gardens, 14 original boiled herbal drug formulas, crop rotation (rice and vegetables), integrated farming, multi-tiered paddy fields by the northern agricultural network; rice genetics and near-paddy forests by the northeastern network; integrated rice farming and raised-bed cultivation by the central region network; and upland rice, vegetation/rubber plantation, oil palm plantation, mangrove forest, threats from tourism (mega-development projects), genuine seeds, and local yams (*mun-phuenban*) by the southern network. The activities shown at the exhibition arena included urban vegetable gardening, wisdom-value learning, local yams, cultural shows, food security, and plant genetics network.

Regarding the sales of herbal products and health services of good quality and acceptable standards to the people and expo viewers for public relations purposes, there were 254 business operators/shops participating in the event.

As for the 10th National Herb Expo and Annual TTM Conference (2013) on Thai Herbs, Thai Health and Thai Economy, the technical presentations covered 17 topics such as Thai herbs, Thai health and Thai economy, herbs for self-reliance of ASEAN, roles of the TTM Profession Commission, bio-piracy protection and monitoring with traditional knowledge digital information (TKDI), Thai herbs in household remedies, mechanisms for research on Thai drug formulas, GMP for herbal drug industry (not so difficult as anticipated), Thailand champion herbal products for the world market, current situation of TTM/AM workforce, herbal drugs - can they really replace modern medicines?, and technical papers contest. The technical event was attended by 3,960 people and there were 86 technical papers joining in the contest in 3 categories: general research (scientific and social science), 12 papers; routine-to-research, 23 papers;

and research forums, 50 papers. The short-term training activities included 35 courses (60 rounds) for a total of 3,500 attendees.

Recommendations for further development and improvements

The theme for each annual event is to be set and used in determining the mechanisms, processes and areas for driving the national strategy. The formulation of the theme is to be done in cooperation with relevant partners and sufficient time should be allowed for determining key issues for the conference, which will serve as long-term directions. The technical papers contest should have a longer timeframe for selecting good quality papers. Efforts should be made to coordinate with the event organizer and partners in resolving problems in a timely manner. The annual technical conference needs to be linked to the knowledge management strategy as well as a clear research strategic route map with a working scenario and systematic preparation. The activities to be held at the cultural arena have to be clear, concise and efficient. Investments and attention have to be given to the thinking process so that the Herb Expo and TTM Annual Conference will really be the forums for the movement, exchange, improvement and preservation of knowledge and wisdom of the culture-based health system. It will also be a public forum with various broad-based co-hosts. This is to be accomplished by the DTAM serving as the facilitator in collaborating with strategic partners as co-hosts, rather than as invited co-hosts, jointly providing resources, handling the technical content, and organizing the event.

(2) Joining Forces for TTM/IM/AM in Five Regions Project

The DTAM has implemented the Project since 2009 with the aim of enhancing the capacity of its network members and creating collaborating mechanisms at the regional and local levels in conserving, safeguarding, promoting and developing the use of TTM/IM/AM wisdom and herbs. The



Project also aims to set up forums for knowledge transfer and publicize this matter to all TTM, medical and health personnel as well as the general public so that they can use TTM/IM/AM services and herbal drugs for health care on a wider scale.

To date, the major achievements under the Project include the organizing of forums for the presentations of outstanding indigenous medical practices in 20 provinces, such as bone-fracture healing, snake poisoning therapy, and herbal therapies of 35 indigenous healers, the exhibition of 43 items of TTM/IM formulas or textbooks (on *yiabcha*, *yam-khang*, *yiab-lek-daeng*, *pao-ya*, glass cupping, *papsa*/palm-leaf textbooks, and *ya-ka-sai* of Phraya Ronnachaichanyut); 21 items of local vegetables/foods (*Sangyod* rice, *dala* flower and rice salad (*khao-yam dok dala*), leaves salad (*yam baimai*), foods for body's basic elements (*ahhan prajam tart*), and germinated brown rice (*khao-hahng*) drink; 39 items of fresh and dried herbs such as *krung kha-mao*, *khrueta ma-noi*, *mahkjong*, *fakkhao*, *cha-muang*, and *cha-khram*; 6 local cultural rituals such as tribal ritual, *chi-la-kru-moh*, *kwaeng-khao*, *toe-bi-dae*, *ram-phi-fah*, *bai-si*, *su-khwan*, and egg prophesy (*du-duang tangkhai*); and 26 items of innovation such as magic rubber ball, herbal burger, and turmeric gauze.

Efforts have been made to encourage health personnel and the general public to realize and pay attention to the use of TTM/IM/AM services as well as herbal drugs for health care and economic promotion in the localities. In this connection, TTM networks have been established to continually create regional and local cooperating mechanisms.

9.5 The passing decade and the new decade of great forward movement

Over the past decade, the DTAM has gradually made considerable progress and the basic infrastructure has been developed to a certain extent for implementing its extensive mandate. However, the DTAM still has a lot of important missions to carry on, especially the functioning as the core agency of the nation in pushing forward the TTM/AM development strategy. That is a major challenge during the current situation of economic, social and environmental changes that seriously affect human health.





Traditional Medicine Service and Education Systems in ASEAN

The role of traditional medicine and complementary/alternative medicine (TM/CAM) has been on the rise in the health service systems in ASEAN countries. Thus, relevant personnel should learn about the TM/CAM situations in all 10 ASEAN member states, including weaknesses, strengths and needs in relation to service delivery, education and herbal drug development, in order to be prepared to enter the ASEAN Community in the year 2015.

Therefore, efforts have been made to compile the TM/CAM data and information from technical documents, situation reports, and country reports (from consultative meetings, study tours or other events) for use in formulating policies and guidelines for developing the TM/CAM service and education systems so that Thailand would be playing a leading role in this field in the future.

10.1 The ASEAN Community

The Association of Southeast Asian Nations (ASEAN) was established on 8 August 1967 upon signing the ASEAN Declaration (Bangkok Declaration) by the Foreign Ministers of the five founding countries: Indonesia, Malaysia, the Philippines, Singapore and Thailand. Later on, joining as additional ASEAN member states are Brunei Darussalam, Vietnam, Laos, Myanmar and Cambodia, respectively.

The entire ASEAN region covers an area of 4,435,670 square kilometres and a population of 598.5 million. As of 2011, ASEAN's combined gross domestic product (GDP) was 2,066 billion U.S. dollars (USD) and GDP per capita was 3,106 USD.

The aims and purposes of ASEAN are the following:

1. To accelerate regional economic growth, social progress and cultural development;
2. To promote stability, peace and security in the region;
3. To promote active collaboration in the economic, social, cultural, technical, scientific and administrative fields;
4. To provide assistance to each other in the form of training and research facilities;
5. To collaborate in the fields of agriculture, industry, trade, transportation, communications and living standards improvements;
6. To promote Southeast Asian studies;
7. To maintain cooperation with existing regional and international organizations.

ASEAN aims to become an ASEAN Community in the year 2015 with the slogan "One Vision, One Identity, One Community", comprising three pillars: political-security, economic, and socio-cultural. In 2008, the ASEAN Charter was adopted as the legal and organizational framework for drawing up the Blueprints of establishing the ASEAN Community, which includes:

(1) the ASEAN Political-Security Community (APSC), aiming to ensure that countries in the region live at peace with one another, rely exclusively on peaceful processes in the settlement of intra-regional differences, regard their security as fundamentally linked to one another, and adopt a framework for dealing with conventional and new security threats, for people's safety and stability; (2) the ASEAN Economic Community (AEC), aiming to become a single market and production base for the ASEAN people with free movement of goods, services, investment, skilled labour, and freer flow of capital; and (3) the ASEAN Socio-Cultural Community (ASCC), aiming to create a people-oriented community, build a caring and sharing society where the well-being and all other aspects of people's quality of life are enhanced, and promote the sustainable use of natural resources as well as ASEAN identity.

Working groups related to TM/CAM in ASEAN

The working groups that deal with the promotion of TM/CAM service system and the development and recognition of TM/CAM medicinal products are under the ASCC and the AEC as follows:

Working groups under the ASCC: Under ASCC's Senior Officials Meeting on Health Development (SOMHD), there are two working groups:

1. ASEAN Task Force on TM/CAM (ATFTM): The ASCC Blueprint promotes the integration of efficacious and safe TM/CAM procedures into the public health service system; it also supports the public education about TM/CAM for the people to make a knowledge-based decision on the selection of TM/CAM products or services. So, the ATFTM was established in 2010, on which a representative from DTAM was selected as the focal point from Thailand.

The major activities and lead countries of the ATFTM are: (1) strengthening the cooperation and integration of TM/CAM into the public health service systems of the member states (Vietnam); (2) sharing the knowledge about TM/CAM (Malaysia); (3) promoting the use of TM/CAM in primary health care (Thailand); (4) promoting personnel development for TM/CAM (Myanmar); and (5) strengthening TM/CAM research to create empirical evidence (Indonesia).

2. ASEAN Working Group on Pharmaceuticals Development (AWGPD): The AWGPD's aim is to enhance the collaboration on pharmaceutical products as well as drug agency and personnel development. Its achievement is the preparation of herbal monographs, which have been published as **Standard of ASEAN Herbal Medicines (SAHM) Volume I** (36 monographs, 1993) and **SAHM Volume II** (24 monographs, 2004), whereas the preparation of Volume III's manuscript is underway.

Working groups under the AEC

1. Product Working Group on Traditional Medicines and Health Supplement (PWG TMHS): This PWG TMSH was established in 2004 under the ASEAN Consultative Committee for Standards and Quality (ACCSQ) to draw up regulations and procedures for recognizing and registering traditional medicinal products and dietary supplements in ASEAN, or ASEAN Harmonization. Representing Thailand on the working group are officials from the Food and Drug Administration and the Department of Medical Sciences.

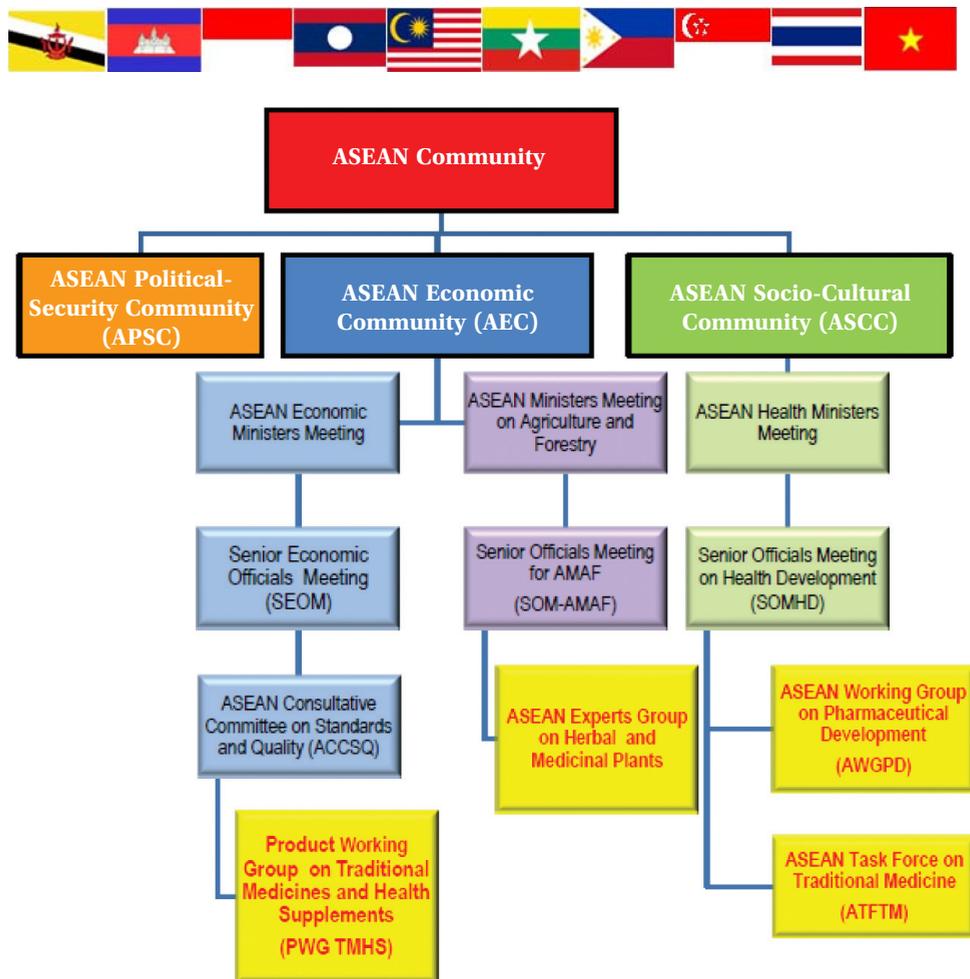
Major conclusions and/or future actions in this connection are: (1) Definitions and terminologies of traditional medicinal products and dietary supplements; (2) Post-marketing alert system (PMAS); (3) Market authorization including product placement requirements and licensing; (4) Safety and quality requirements; (5) Labeling requirements; (6) Claims

requirements including lists of prohibited claims and permissible claims; and (7) Post-marketing surveillance.

2. ASEAN Experts Group on Herbal and Medicinal Plants.

This Group is under the Senior Officials Meeting for ASEAN Ministers of Agriculture and Forestry (SOM-AMAF), on which Thailand is represented by officials from the Ministry of Agriculture and Cooperatives. The Group's outstanding achievement is the preparation and publication of a book: **ASEAN Herbal and Medicinal Plants 2010**, which can be downloaded from the ASEAN Secretariat's website.

Figure 10.1 Diagram of ASEAN working groups related to traditional medicine



10.2 Situation of traditional medicine in ASEAN member states



State of Brunei Darussalam

Responsible agency: Traditional/Complementary & Alternative Medicine (T/CAM) Unit, Department of Medical Services, Ministry of Health (responsible for TM/CAM service system and service standards) and Pharmaceutical Services (responsible for TM/CAM products).

Delivery of traditional medical services

TM/CAM services in Brunei cover seven branches: traditional Malay medicine, traditional Chinese medicine, traditional Indonesian medicine, Thai traditional medicine, traditional Indian medicine, Ayurvedic medicine, homeopathy, and Unani medicine. To date, there has been no integration of TM/CAM services into the national health service system; and no traditional drugs are included in the national essential drug list. As such services are not financially supported by the government, most of them are business-oriented such as massage, spa and beautification.

Education and training in traditional medicine

There is no educational institution offering a traditional medicine programme in Brunei; most of the TM/CAM practitioners have received training from other countries such as China, Malaysia, Singapore, Indonesia, Thailand, India, and Taiwan. Such practitioners or indigenous healers are able to provide traditional medical services as far as the services are not against any law or regulation of the country.



Kingdom of Cambodia

Responsible agency: National Research Center of Traditional Medicine (NCTM) and Department of Drug and Food (DDF) – responsible for the registration of TM practitioners and TM products and the control of TM manufacturing industries.

Delivery of traditional medical services

Historically, traditional Khmer medicine (TKM) has been practised for medical care since the Angkor Wat period (9th through 15th centuries), but a lot of their TKM textbooks were destroyed during the Khmer Rouge regime.

To date, TKM services have not been integrated into the national health service system. No state or private hospitals are providing TKM services and no traditional drugs are included in the national essential drug list. However, there are a lot of private clinics providing TKM services even though they are not formally recognized by the Ministry of Health in Cambodia.

Education and training in traditional medicine

In Cambodia, TKM has been passed on to younger generations from their family members or elder persons in the communities, and some are self-taught. At present, there is no school or university offering a TKM programme; however, there have been short training courses on TKM for indigenous healers, medical personnel and pharmacy students to further develop the TKM body of knowledge.



Republic of Indonesia

Responsible agency: Traditional, Alternative and Complementary Health Care, Directorate General of Nutritious Care and Maternal and Child Health, Ministry of Health, and Medicinal Plant and Traditional Medicine Research and Development Centre, National Institute of Health Research and Development.

Delivery of traditional medical services

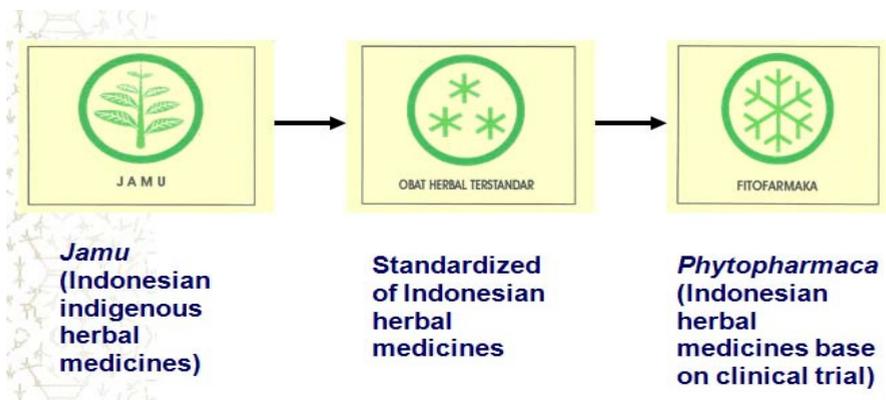
The Indonesian health law prescribes that traditional medical service is 1 of the 17 health services of the country, including health promotion and disease prevention at primary health care centres, and treatment and rehabilitation at hospitals. Indonesia has a policy on traditional Indonesian medicine (Jamu) so-called “KOTRANAS” and President Susilo Bambang Yudhoyono has declared “Jamu” as the “Indonesian brand” of herbal medicines, which are used by 60% of Indonesians for health promotion, disease prevention, and medical treatment. However, the health insurance scheme covers only the expenses for acupuncture, not Jamu medicines.

In the Indonesian health-care system, there are no Jamu graduates working at state health facilities. So, herbal prescriptions are to be made by modern physicians in hospitals. As the law related to medical and dental professions requires that they perform medical or dental practices as per the standard procedures they have studied. Therefore, the Medicinal Plant and Traditional Medicine Research and Development Centre, National Institute of Health Research and Development, Ministry of Health, has established a 50-hour training curriculum on Jamu and clinical research so-called “Jamu Scientification” for interested physician-volunteers so that the same individual can be a prescriber-cum-researcher. This is to develop Jamu to be a more evidence-based medical system.

Regarding the use of Jamu medicines in the communities, the herbal drug promotion is undertaken for self-reliance among those interested in herbal remedies. Other relevant activities undertaken included the preparation and distribution of a list of commonly used medicinal herbs, the provincial register of indigenous healers, and the training on hygiene and safety for indigenous healers and community herbal drug sellers.

Indonesian herbal medicines are classified into three categories: (1) Jamu, Indonesian indigenous herbal products that have been used for more than three generations in the forms of liquid herbal mixture, produced and sold in the community with no drug-formula registration requirements; (2) Standardized Indonesian herbal medicines, herbal extracts/products that have passed pre-clinical trials; and (3) Phytopharmaca, standardized herbal extracts that have passed clinical trials. Most of such traditional herbal medicines fall into Category 2 (standardized), while there are only six items in Category 3 (phytopharmaca) which have been clinically tested by modern physicians trained in Jamu scientification.

Figure 10.2 Three categories of Indonesian herbal medicines



The National Institute of Health Research and Development plays an important role in herbal drug development activities including cultivation (in collaboration with local farmers' cooperatives), processing, drug production (with quality assurance and analysis of all relevant steps: raw material and medicinal products) for use in hospitals and other health facilities participating in *Jamu* scientification research, and development of centralized research protocols for multi-centre research in collaboration with hospitals.

Education and training in traditional medicine

In Indonesia, the TM/CAM educational programme is offered only at the associate degree level (none at the bachelor's degree level), whereas the master's degree level focuses on herbal research at medical or pharmacy schools.

The educational institutions offering the TM/CAM programme under the supervision of the Ministry of Health and the Ministry of Education are: the School of Acupuncture of the Faculty of Medicine, University of Indonesia, which offers a master's programme in acupuncture; the Department of Pharmacy, Faculty of Mathematics and Sciences (MIPA), University of Indonesia, which offers a master's programme in herbal medicine; the Academy of Acupuncture, offering a three-year programme on acupuncture for high school graduates; the School of Traditional Medicine Technical Production Programme, Gajah Mada University, offering an associate degree programme in traditional medicine production; Airlangga University, offering a three-year associate degree programme in traditional medicine so-called BATTRA; and Health Polytechnic, offering an associate degree programme in *Jamu* or Indonesian traditional medicine under the supervision of the National Institute of Human Resources, Ministry of Health.

Regarding the teaching/learning in traditional medicine for modern medical doctors, a 50-hour programme in acupuncture is offered at medical schools as an elective course in one semester for medical students or other medical personnel as mentioned earlier. Other short courses in traditional medicine are also available for members of the public.



Lao People's Democratic Republic

Responsible agency: Institute of Traditional Medicine (ITM) and Traditional Medicine Division, Food and Drug Department, Ministry of Health.

Delivery of traditional medical services

In Lao PDR, Lao traditional medicine or Lao indigenous drugs (*ya phuen mueang* Lao) and herbal drugs have been in use for medical treatment in the national health-care system with the government support for the development of traditional medicine in both public and private sectors.

At present, Lao PDR does not have any traditional medicine hospital, but it has got traditional medical departments in state hospitals, providing integrated modern/traditional medical services for outpatients.

Education and training in traditional medicine

Currently, there is a specific educational programme in traditional medicine in Lao PDR, but some universities have included traditional medicine as one of the courses in the bachelor's degree programme in the Faculty of Pharmacy, such as that in the University of Health Sciences in Vientiane.

Subject to funding availability, the Lao government will organize a traditional medicine training course for indigenous healers, such as the training in traditional medicine for communities in Xaignabouri and Champasak provinces in 1994. At present, there are a lot of indigenous healers, but just a few are registered practitioners.



Malaysia

Responsible agency: Traditional & Complementary Medicine (T&CM) Division, Ministry of Health Malaysia.

Delivery of traditional medical services

According to Malaysia's national health policy, T&CM is part of the national health system and the government will support the development of such services to have a proof of effectiveness and safety of T&CM services and products.

T&CM services in Malaysia are classified into four major groups: (1) Traditional Malay medicine (herbal medicine, Malay massage, Malay cupping (*Bekam*), and indigenous massage), traditional Chinese medicine (acupuncture and moxibustion, glass cupping, *tui-na* massage, and qigong), and traditional Indian medicine (Ayurveda, Siddha, Unani, and yoga); (2) Homeopathy; (3) Islamic medical practice (Ruqyah); and (4) other complementary medical practices.

T&CM services in state hospitals were first rendered in 2007 at Kepala Batas Hospital in Penang, and since then the services have been expanded and available in a total of 10 hospitals with integrated T&CM and modern medical services including: (1) Malay massage for treating post-stroke symptoms and chronic pain; (2) acupuncture for treating

post-stroke symptoms and chronic pain; (3) complementary therapy with Chinese herbal medicines for cancer patients to reduce the side effects due to modern medical treatment and to improve patient's quality of life; (4) Malay postnatal treatment, including massage, hot compression, body paste, and body wrapping; and (5) Shirodhara (oil dropping) massage based on the Ayurvedic principles for treating/relieving insomnia, headache, stress, mental confusion, mental fatigue, and ear/eye illnesses, and increasing lymphatic flow for stimulating detoxification.

At present, to receive T&CM services, the patient has to be examined first by a modern medical doctor. If the patient should be treated with T&CM and has no contraindications for such services, he/she will be transferred to an integrated hospital of Malaysia free of charge. The T&CM service fees including medications and medical expenses are covered by the government as the Traditional & Complementary Medicine Division is responsible for selecting, hiring and paying T&CM practitioners from the central budget.

Education and training in traditional medicine

In Malaysia, there are several educational institutions offering diploma and bachelor's degree programmes in T&CM as follows:

1. Diploma level – six programmes: Malay massage, naturopathy, acupressure, acupuncture, aromatherapy, and Islamic therapy.
2. Bachelor's degree level – seven programmes: naturopathy, homeopathy, chiropractic, acupuncture, traditional Chinese medicine, traditional Malay medicine, and Ayurvedic medicine.

The colleges and universities certified to offer T&CM programmes in Malaysia are the following: (1) bachelor's degree in traditional Chinese medicine, such as INTI International University; (2) diploma in traditional Chinese medicine, such as Management and Science University; (3) basic curriculum in traditional Chinese medicine, such as Southern University College; (4) bachelor's degree in homeopathic medical science, such as

Cyberjaya University College of Medical Sciences; (5) bachelor of science in chiropractic, such as International Medical University; (6) diploma in naturopathy, such as College of Complementary Medicine; and (7) diploma in Malay massage, such as Community College.



Republic of the Union of Myanmar

Responsible agency: Department of Traditional Medicine, Ministry of Health.

Delivery of traditional medical services

In Myanmar, the national health system has three types of traditional medical practices: Myanmar traditional medicine, traditional Chinese medicine, and Ayurvedic medicine.

There are various levels of traditional medicine facilities: (1) 3 100-bed traditional medicine hospitals in Yangon, Mandalay, and Naypyitaw (under construction); (2) 2 50-bed traditional medicine hospitals in Sagaing Region and Kachin State; (3) 11 16-bed traditional medicine hospitals; (4) 43 district traditional medicine hospitals; and (5) 194 community traditional medicine clinics. In Myanmar's national drug list, there are 52 items of traditional drugs.

The traditional medical services are provided free of charge at government health facilities. At the 100-bed traditional medicine hospital in Mandalay, the services include massage and physical therapy, internal medicine, wound/abscess therapy, obstetric and gynaecological care, acupuncture and moxibustion, and Panchakarma therapy based on the Ayurvedic medicine principles.

In addition to providing traditional medical services in hospitals, traditional medical personnel are also responsible for primary health care (almost all PHC activities), school health, mobile clinics in communities (on a regular basis and special occasions), and traditional medical/health care on important national events (such as National Council meetings in Naypyitaw), and annual festivals at certain important temples.

Moreover, the Department of Traditional Medicine, with the support from the Nippon Foundation, also distributed 7,750 traditional medicine emergency kits, containing 7 items of traditional remedies together with instructions for common symptoms or ailments, to various villages across the country as well as Buddhist temples along the borders; and an additional 20,000 kits were expected to be distributed in 2012.

Education and training in traditional medicine

At present, the **University of Traditional Medicine** in Mandalay is the only traditional medicine educational institution in Myanmar, under the supervision of the Department of Traditional Medicine. Established in 2001, the University produces 100–150 traditional medicine graduates annually, and totally 921 had graduated as of 2010, of which 191 had been recruited to work for the government.

The Bachelor of Myanmar Traditional Medicine (BMTM) programme is a five-year curriculum – the fifth year being devoted to clinical practice as an intern at a traditional medicine hospital. The programme accepts high school graduates with a science background, and the admission of students is based on their matriculation marks with no entrance examination.

Each BMTM graduate is required to take a licensing examination to be licensed to practise Myanmar traditional medicine, traditional Chinese Medicine (acupuncture and moxibustion), and Ayurvedic Panchakarma therapy.

The Bridge course: Prior to the establishment of the University of Traditional Medicine, the Institute of Traditional Medicine (established in 1976) offered a three-year diploma programme in traditional medicine which ended in 2008. After that, to upgrade the educational level of those who have finished the diploma level, a two-year Bridge course has been set up for them to study for a BMTM degree. In academic year 2011–12, there were 51 students in such a course.



Republic of the Philippines

Responsible agency: Philippines Institute of Traditional and Alternative Health Care (PITAHC).

Delivery of traditional medical services

In addition to modern medical services, all forms of TM/CAM are popular in the Philippines, including herbal remedies and herbal foods for basic health care, massage, homeopathy and naturopathy, spiritual/divine healing, and energy healing. At present, there are three private and four public hospitals that also provide TM/CAM services; and there are five private acupuncture clinics.

In the Philippines, the standards for acupuncture, *tui-na* massage, chiropractic, and therapeutic massage have been officially recognized, while the certification process is still underway for homeopathy and naturopathy. Moreover, the Philippine traditional medicine so-called “Hilot” is also practised together with the use of 10 important herbal drugs.

Education and training in traditional medicine

As there is no school or university that offers a TM/CAM programme in the Philippines, the Philippine Institute of Traditional and Alternative Health Care (PITAHC), under the Department of Medical Services, Ministry of Health, has organized a workshop to develop a national curriculum to integrate TM/CAM into the existing medical, dental, nursing, physiotherapy, nutrition, and midwifery curricula. Besides, the Philippine government has offered financial support to those who want to study traditional Chinese medicine (TCM), especially acupuncture, in China, and some TCM professors have been invited to teach Philippine students.

The PITAHC has also organized TM/CAM-related training courses, such as *tui-na* massage, herbal drug preparation, safety/efficacy of therapeutic massage, and herbal drugs in primary health care for the general public, and acupuncture for medical and non-medical personnel in the public and private sectors.



Republic of Singapore

Responsible agency: Traditional & Complementary Medicine Branch, Ministry of Health, and the Health Sciences Authority.

Delivery of traditional medical services

Singapore has acquired traditional medicine from the three races of its population including traditional Chinese medicine, Malay traditional medicine, and traditional Indian (Ayurvedic) medicine. The most popular practice is TCM, while Malay medicine is popular in Malay communities with herbal therapists (Dukun) and traditional midwives (Bidan), whereas Indian medicine is practised in Indian communities or among Indian migrant workers.

Since 2007, modern physicians or dentists who have been licensed to practise TCM can also provide acupuncture services in their professional care. Besides, hospitals and clinics are allowed to hire a TCM physician to provide acupuncture services in their settings. At present, TCM services are available at private clinics and those with funding from non-profit organizations, whereas acupuncture only is available at certain hospitals such as Singapore General Hospital, Tan Tock Seng Hospital, and National University Hospital; and TCM services are available at TCM facilities, namely Singapore Chung Hwa Medical Institution, Singapore Thong Chai Medical Institution, and Public Free Clinics (run by the Public Free Clinic Society, a non-profit, charitable organization).

Education and training in traditional medicine

In Singapore, most of their TCM educational institutions collaborate with TCM universities in China in offering bachelor's and master's degree programmes. For example, some well-known TCM schools in Singapore such as the Singapore College of TCM offer a Bachelor of Traditional Chinese Medicine (B.TCM.) programme in collaboration with the Guangzhou University of Chinese Medicine. Since 2006, the College has opened its Diploma in Acupuncture programme in English for modern physicians and dentists; the Institute of Chinese Medical Studies began a B.TCM. programme in collaboration with the Beijing University of Chinese Medicine; and the TCM College has also offered a Chinese Medicinal Materials (CMM) Dispensers Course. In 2005, Nanyang Technological University's School of Biological Sciences began offering a double bachelor's degree programme in biomedical science and TCM, in collaboration with the Beijing University of Chinese Medicine.

At present, a person who wishes to become a TCM physician in Singapore has to pass the Singapore TCM Physicians Registration Examination and possess a valid practice licence. As for acupuncture services,



the registration of acupuncturists is limited only to modern physicians and dentists who have finished the acupuncture training course and passed the Singapore Acupuncture Registration Examination, while TCM physicians without such qualifications can provide therapeutic acupuncture services if they are registered TCM physicians. As of 2010, there were 2,540 registered TCM physicians in Singapore.



Kingdom of Thailand

Responsible agency: Department for Development of Traditional and Alternative Medicine (DTAM), Ministry of Public Health (MoPH).

Delivery of traditional medical services

“Thai traditional medicine (TTM)” is a medical system dealing with holistic health care that covers Thai medicine, Thai pharmacy, Thai midwifery and Thai massage. Today, TTM services have been included in the health benefit package of the three health insurance schemes of the country. Under the Universal Health Coverage Scheme (UCS), the National Health Security Office (NHSO) introduced the TTM System Development Fund (TTM Fund) in 2007 to promote TTM services by allocating a per capita budget of 7.20 baht for 48 million UCS beneficiaries for (1) examination, diagnosis and treatment with TTM and applied TTM and (2) treatment and rehabilitation with herbal drugs or Thai traditional drugs, therapeutic massage, herbal steam bath, herbal compression, and hot salt pot compress (*kahn tab-moh-kluea*).

The people can access TTM services either by visiting a modern medical doctor or meeting a TTM doctor or practitioner at the TTM unit or department of state hospitals at all levels, including *tambon* (subdistrict)

health promoting hospitals (THPHs). Currently (2012), there are totally 10,695 state health facilities providing TTM services, of which 95 are regional or general (provincial) hospitals, 733 community (district) hospitals, and 9,864 THPHs. It has been noted that among all Thais with health insurance coverage, 10% of the health-care recipients use TTM services.

As the number of diagnoses and therapies with TTM procedures and herbal drugs was very small, in 2012 the National Drug Committee decided to add more herbal drugs to the List of Herbal Medical Products as part of the National List of Essential Medicines of 2012. In the new List, there are 2 categories of 71 items of herbal drugs (an increase from 19 items), comprising (1) Thai medicines or Thai traditional medicines, 50 items, and (2) herb-derived medicines, 21 items. For each medicine or drug, there is a description of drug formula, indications, dosage and administration, contraindications, and warnings.

The MoPH has launched a policy to integrate TTM services into the national health service system, which is predominantly Western medicine-oriented, to raise the capability and prominence of TTM. In 2011, the MoPH established nine TTM hospitals (departments or units) at nine existing hospitals in various provinces, namely Prapokklao Hospital in Chanthaburi, U-Thong Hospital in Suphan Buri, Wang Nam Yen and Watthana Nakhon Hospitals in Sa Kaeo, Khun Han Hospital in Si Sa Ket, Den Chai Crown Prince Hospital in Phrae, Tha Rong Chang Hospital in Surat Thani, Thoeng Hospital in Chiang Rai, and Chaophraya Abhaibhubejhr Hospital in Prachin Buri. Besides, there are another four TTM hospitals at Ministry of Education's universities, i.e. Chiang Rai Rajabhat University, Rajamangala University of Technology Isan (Sakon Nakhon Campus), Prince of Songkla University, and Suan Sunandha Rajabhat University (Samut Songkhram). Moreover, the DTAM has also established the Thai Traditional and Integrative Medicine Hospital in Bangkok to serve as a centre of comprehensive health services for patients with chronic illnesses in coordination with other indigenous, alternative and modern medical service systems.

In addition, to enhance confidence and protect TTM service consumers, the MoPH has established the criteria and guidelines for developing TTM services, supporting the posting of licensed TTM practitioners and TTM assistants at TTM facilities at all levels, promoting the use of herbal drugs according to NLEM's List of Herbal Medicinal Products, designating the codes of diseases and procedures in TTM (ICD-10-TM), and establishing the clinical practice guidelines for Thai traditional medicine (CPG-TM), the codes of Thai medicines, TTM services standards at health/ TTM facilities, the median or reference prices of Thai traditional drugs as well as the criteria for medical fee reimbursements in the DRG system.

Education and training in traditional medicine

Thailand's Thai Traditional Medicine Professions Act B.E. 2556 (2013) was just published in the Government Gazette on 1 February 2013. In the near future, there will be a TTM Council whose duties are to control, monitor, oversee, and specify the standards of services of licensed TTM and applied TTM practitioners, control the conduct and ethics of the practitioners according to the TTM professional ethics, and certify the degrees, certificates or diplomas in TTM profession issued by various institutions. See more details in Chapter 3 (Thai Traditional and Indigenous Medicine Services Systems).

The TTM education and training is classified into two systems according to Section 12(2) of the TTM Professions Act as follows:

1. Education and training in universities: The programmes are at the bachelor's degree level or higher in TTM or applied TTM.

At present (2013), the universities that offer a bachelor's degree programme in TTM and applied TTM are:

1) Thai traditional medicine programme, 11 universities: Prince of Songkla, Rangsit, Ubon Ratchathani, Chiang Rai Rajabhat, Rajamangala Technology Isan (Sakon Nakhon), Bansomdejchaopraya Rajabhat, Yala

Rajabhat, Surin Rajabhat, Muban Chombueng Rajabhat, and Phetchaburi Rajabhat.

2) Applied Thai traditional medicine programme, 8 universities: Mae Fah Luang, Burapha, Naresuan, Rajamangala Technology Thanyaburi (Pathum Thani), Mahasarakham, Mahidol, Thammasat, and Suan Sunandha Rajabhat.

Besides, some universities also offer master's and doctoral degree programmes in TTM or applied TTM, such as Thammasat University (master's), Rangsit University (master's), Suan Sunandha Rajabhat University (master's), and Chulalongkorn University (master's and doctorate).

2. The apprenticeship system

In the past, according to the Practice of Healing Arts Act B.E. 2542 (1999) as well as other relevant notifications and regulations of the relevant TTM Profession Commission:

✿ A person who wished to study TTM must apply as a student (learner, apprentice or trainee) with a competent licensed TTM practitioner with at least five years of experience in the branch for which the student was applying, and must be certified by the TTM Profession Commission as a teacher or preceptor who had passed the training in TTM apprenticeship or preceptorship.

✿ The student had to complete the training or knowledge transfer programme from the teacher or preceptor certified by the TTM Profession Commission, according to the following TTM branches and time periods:

(1) Thai medicine: at least three years by the teacher in TTM/Thai medicine

(2) Thai pharmacy: at least two years by the teacher in TTM/Thai pharmacy

(3) Thai midwifery: at least one year by the teacher in TTM/Thai midwifery

(4) Thai massage: at least two years by the teacher in TTM/
Thai massage

Besides, a person who wishes to be a registered/licensed TTM/ Massage practitioner must have completed the two-year (800-hour) Thai massage training programme from an institution recognized by the TTM Profession Commission. As for a person who wishes to be a TTM assistant, he/she must have completed the 300-hour TTM assistant training programme from an institution recognized by the TTM Profession Commission (see more details in Table 3.6, List of certified institutions or medical centres). A TTM assistant can provide TTM services in a health facility under the supervision of a licensed modern medical doctor, a licensed applied TTM practitioner, or a licensed TTM (Thai medicine or Thai massage) practitioner

However, Thailand is one the four countries in the world (China, Japan, Korea, and Thailand) that have opened an opportunity for blind or visually impaired persons to become licensed TTM/massage practitioners. In Thailand, the blind have actually played a role in providing Thai massage services for relieving aches and pains since 1983.

During 2009–2012, five organizations working for the blind, namely (1) the Foundation for the Blind in Thailand – Rehabilitation Centre for the Blind, Pak Kret, and the Vocational Training Centre for the Blind, Sam Phran; (2) the Thailand Association of the Blind – Centre for Vocational Learning and Demonstration for the Blind; (3) the Thailand Caulfield Foundation for the Blind under the Royal Patronage of HRH Princess Maha Chakri Sirindhorn; (4) the Association for Promotion of Thai Massage for the Blind; and (5) the Foundation for Employment Promotion of the Blind, in collaboration with the Health and Development Foundation, the Foundation for Children with Disabilities, and Thai massage partners implemented a Thai massage training project for blind persons to become licensed TTM/ Massage practitioners. Upon project completion, 90 trained blind persons

were eligible to take the TTM/Massage licensing examination, of whom 34 passed the test and became licensed TTM/Massage practitioners.

Thai indigenous medicine

In local communities, Thai indigenous medicine is a medical and health-care system that uses the knowledge that has been passed on from previous generations in several dimensions. The key persons in such a system are indigenous healers who have been helping local residents with health care as well as health promotion. Thai indigenous medical practices are diverse depending on the localities and ethnic residences; the practices have been transmitted over a long period of time until they become locality-specific medical practices, such as *Lanna* (northern) medicine, *Isan* (northeastern) medicine, Muslims' indigenous medicine, and other ethnic indigenous medical practices, such as hot iron massage (*kan yiab lek daeng*) and abdominal massage for pregnant women by *toe-bi-dae* (Muslim traditional birth attendant). According to DTAM's Central Registration Bureau (March 2013), there are 53,035 registered indigenous healers, and after the assessment of knowledge for licensing them as TTM healing art practitioners conducted between 2005 and 2012, 161 of them have become licensed TTM practitioners (June 2013).

Traditional Chinese medicine in Thailand

Traditional Chinese medicine (TCM) is an alternative medical practice in the Thai health service system. Currently, the TCM Profession Commission is responsible for overseeing the standards of TCM practitioners and organizing a TCM licensing examinations. Between 2009 and 2012, there were cumulatively 1,555 licensed TCM practitioners (July 2013).

Regarding TCM service fees, normally the service recipients have to pay for such services by themselves, except for acupuncture services at a state health facility – the fee of 100 baht per visit is covered by the government, but the extra charges if any have to be paid by the service recipient.

As for TCM education and training, currently three educational institutions have been certified by the Thai TCM Profession Commission to offer a five-year bachelor's degree programme in TCM; they are: Huachiew Chalermprakiet University, Chandrakasem Rajabhat University, and Nakhonratchasima College.



Socialist Republic of Vietnam

Responsible agency: Department Traditional Pharmaco-medicine, Ministry of Health.

Delivery of traditional medical services

In Vietnam, the traditional medicine that has had more than 4,000 years of history is Vietnamese traditional medicine (VTM), comprising the medical theories based on the ancient Asian philosophy and numerous traditional drug formulas from all 54 ethnic groups residing the country.

Currently, Vietnam is recognized by WHO as one of the leading countries that have integrated traditional and modern medical systems, similar to those in China and Korea. The National Hospital of Traditional Medicine in Vietnam has been designated as the WHO Collaborating Centre of Traditional Medicine; and the Vietnamese traditional medical services have been integrated into the national health-care system. Such traditional medical services are classified as (1) procedure-based therapy such as acupuncture, chiropractic, qigong, and osteopathy; (2) body-work therapy such as massage and acupressure; and (3) herbal remedy using Chinese and Vietnamese medicinal plants. The national list of essential medicines of Vietnam includes 94 items of traditional drug formulas made up of more than 300 herbal products.

Today, Vietnamese traditional medicine hospitals have been using modern technology in performing diagnostic services, while the treatment provided is based on the traditional medicine or integrated medicine. In case the patient is severely ill or in need of surgery, the traditional hospital also has a modern physician who is capable of providing both traditional and modern medical services for such a case.

Vietnamese traditional medicine services are available in traditional medicine hospitals and traditional medicine departments of general hospitals. Government hospitals providing traditional medicine services are classified into 4 levels: (1) **central level**, including 5 traditional medicine hospitals and traditional medicine departments in general hospitals; (2) **provincial level**, including 53 traditional medicine hospitals (in 53 out of 63 provinces) and traditional medicine departments in 90% of general hospitals; (3) **district level**, including traditional medicine departments in 94% of district hospitals; and (4) **commune level**, including traditional medicine units at 79% of commune health stations. In addition, there are another 9 private traditional medicine hospitals and approximately 10,000 clinics.

Education and training in traditional medicine

There are eight institutions offering bachelor's and advanced (postgraduate) degree programmes; some of them are traditional medicine universities such as the Vietnam University of Traditional Medicine, and some others are faculties or departments of traditional medicine in medical science universities such as the Faculty of Traditional Medicine at Hanoi Medical University. Some other programmes are taught in colleges and high schools for producing nurses and traditional pharmacists. In addition to offering academic programmes, the two universities also conduct research on traditional medicine theories, drug formulas, treatment procedures, clinical trials, and traditional medicine research in the national health system.

The educational programmes in traditional medicine in Vietnam are briefly as follows:

1. Postgraduate training programmes: Doctoral programme in traditional medicine, master's degree programme in traditional medicine, and programmes for senior clinical doctors of traditional medicine (level I & II specialized doctors with two-year and three-year internships, respectively), and doctors of oriental/traditional medicine (one-year traditional medicine specialty for modern medical doctors).

2. University and college graduate training programmes. The programmes include: (1) Six-year traditional medicine curriculum including four years of study of basic modern medicine courses together with modern medical students and two years of study of traditional medicine; (2) Four-year traditional medicine programme for those who will be medical doctors to be working in rural areas; (3) Traditional medicine international exchange programme, undertaken by the Vietnam University of Traditional Medicine in collaboration Tianjin University of China, covering the first three-year study in Vietnam and the last three-year study in China; under this programme, the total cost of study will be lower than that with the entire six years in China; (4) Traditional Medicine Nursing College, a three-year programme in nursing study involving modern and traditional medical disciplines.

3. High school or upper-secondary school level. This is a two-year programme designed for producing traditional medicine assistants, traditional nurses, and traditional pharmacists.

In the modern medicine curriculum, there are also courses related to traditional medicine, whereas medical schools or colleges have a traditional medicine department that runs three-year programmes for training nurses, support staff, and traditional medicine assistants to work on traditional medicine services. In addition, short courses are also organized for other health personnel so as to create a good understanding between modern and traditional service providers; and they all can recognize each other,

learn about each discipline's strengths and weaknesses, and select the best treatment option for the patients.

Regarding the non-formal education, private sector agencies, especially the Association of Traditional Medicine, the Association of Traditional Pharmacy, the Association of Acupuncture, and the Association of Medicinal Materials, play a role in traditional medicine at all levels, including the teaching of traditional medicine practitioners and indigenous healers at the certificate level, using the curricula endorsed by the Ministries of Education and Health.

Bibliography

In Thai language

- Academic Resource Centre, Mahasarakham University. (2013). **Database of the Library, Mahasarakham University.** (online) [18 Feb 13]; from <http://library.msu.ac.th/web>.
- Aggarin Viriyo. (undated). **Legal measures for protection of traditional knowledge.** Bangkok: Office of the Council of State of Thailand.
- Agreement on Trade-Related Aspects of Intellectual Property Rights. Berne Convention for the Protection of Literary and Artistic Works.** Bureau for Protection of Thai Traditional Medicine Knowledge. (2011). **Summary of operations corresponding to the strategic issues.** (online) [7 May 13]; from <http://ptmk.dtam.moph.go.th>.
- Bureau of Indigenous Medicine, Department for Development of Thai Traditional and Alternative Medicine, Ministry of Public Health. **Summary of data on licensed indigenous medicine practitioners in 2009 under the Practice of Healing Arts Act.** (online) [1 July 13]; from <http://indi.dtam.moph.go.th>.
- Bureau of Strategy, Department for Development of Thai Traditional and Alternative Medicine. (2012). **Documents for the 7/2012 meeting of the Department for Development of Thai Traditional and Alternative Medicine,** 19 September 2012; Bonanza Resort Hotel, Khao Yai, Nakhon Ratchasima.
- Central office for Healthcare Information, Health Systems Research Institute. (2003–2012). **Databases of the Health Service System and the reimbursement of the Civil Servant Medical Benefit Scheme of the Comptroller General's Department.** Nonthaburi: Central office for Healthcare Information, Health Systems Research Institute.
- Chaiyot Hemaratchata. (2005). **Characteristics of intellectual property laws.** Bangkok: Nititham Printing Office.
- Chanida Chitbundid. (2004). **The royally initiated projects: The making of royal hegemony.** Master's thesis, sociology and anthropology programme. Bangkok: Thammasat University.

- Chanida Mattavangkun, Thatree Rungroj, and Anothai Thawanseriwatana. (2010). **Indigenous medicine wisdom and self-reliance in community health care: A case study in Samut Sakhon province.** Bangkok: National Research Council of Thailand.
- Chantarathat Sithikamchorn. (2000). **Explanation of the Protection and Promotion of Thai Traditional Medicine Wisdom Act B.E. 2542 (1999).** Bangkok: October Printing Co., Ltd.
- Chao Phraya Abhaibhubejhr Hospital Foundation. (2009). **Document for the talks on traditional drug formulas, marking the 100th anniversary of the Chao Phraya Abhaibhubejhr Building and the 84th birthday anniversary of Her Royal Highness Princess Bejaratana Rajasuda.** 18 December 2009. Meeting Room, Chao Phraya Abhaibhubejhr Building, Prachin Buri province.
- Chawanee Thongroach et al. (2013). **Medicinal plants according to the royal initiatives.** (Online). [2 June 13]; from <http://www2.swu.ac.th>.
- Chiang Mai University. (2013). **Database of the Library, Chiang Mai University.** (online) [18 Feb 13]; from <http://library.cmu.ac.th/cmul>.
- Chulalongkorn University. (2013). **Database of the Library, Chulalongkorn University.** (online) [18 Feb 13]; from <http://library.car.chula.ac.th>.
- Convention on Biological Diversity.**
- Copyright Act B.E. 2537 (1994).** Published in Government Gazette, Vol. 111, Part 59A, dated 21 December 1994.
- Daranee Onchomchant, editor. (2011). **One decade of research on Thai wisdom and Thai healthy lifestyle: An analysis of research studies on Thai traditional, indigenous and alternative medicine, and medicinal plants, 2000–2009.** Nonthaburi: Piman Printing Limited.
- Daranee Onchomchant, editor. (2011). **Research questions related to Thai wisdom and Thai healthy lifestyle: Recommendations for system research.** Nonthaburi: Piman Printing Limited.
- Department for Development of Thai Traditional and Alternative Medicine, Ministry of Public Health. (2009). **Journal of Thai Traditional and Alternative Medicine.** Vol. 7, No. 7, May–August (Supplement).

- Department for Development of Thai Traditional and Alternative Medicine. (2008). **Standards of Thai traditional medicine services at state health facilities, 2008**. Nonthaburi: Department for Development of Thai Traditional and Alternative Medicine.
- Department for Development of Thai Traditional and Alternative Medicine. (2004–2012). **Summary reports on the 1st through 9th National Herb Expos**. Nonthaburi: Department for Development of Thai Traditional and Alternative Medicine, Ministry of Public Health.
- Department for Development of Thai Traditional and Alternative Medicine. (2007). **Protection and Promotion of Thai Traditional Medicine Wisdom Act B.E. 2542 (1999)**. Bangkok: Superior Printing House.
- Department for Development of Thai Traditional and Alternative Medicine. (2009). **Protection and Promotion of Thai Traditional Medicine Wisdom Act B.E. 2542 (1999) and other relevant laws**. Bangkok: Printing Press, Agricultural Cooperatives Federation of Thailand.
- Department for Development of Thai Traditional and Alternative Medicine. (2009). **Annual report 2011, Bureau of Alternative Medicine**. Nonthaburi: Bureau of Alternative Medicine.
- Department for Development of Thai Traditional and Alternative Medicine. (2012). **Annual report 2012**. Bangkok: Art Qualified Limited.
- Department for Development of Thai Traditional and Alternative Medicine. (2012). **Documents for the 5th Conference on Indigenous Medicine in the Mekong Basin**. 5–7 September 2012: Phoenix Rooms 5–6, IMPACT Exhibition and Convention Center, Muang Thong Thani.
- Department for Development of Thai Traditional and Alternative Medicine. **Documents for issue-based health assembly on Thai massage strategic plan – Thai heritage towards world heritage, 2013–2016**. Nonthaburi: Department for Development of Thai Traditional and Alternative Medicine.

- Department of Agricultural Extension. (2001). **Institute for Technology and Local Wisdom Development for Agricultural Extension.** Bangkok: Ministry of Agriculture and Cooperatives.
- Department of Curriculum and Instruction Development. (1998). **Manual for teaching “Constitution of the Kingdom of Thailand”, primary and secondary education levels.** Second edition. Bangkok: Printing Office, Teachers Council of Thailand.
- Department of Curriculum and Instruction Development. (1999A). **Guidelines for teaching and learning activities using local wisdom.** Bangkok: Educational Research Division, Department of Curriculum and Instruction Development.
- Department of Curriculum and Instruction Development. (1999B). **Local wisdom, curriculum development and instructional activities.** Bangkok: Printing Office, Teachers Council of Thailand.
- Department of Export Promotion. (2012). **Thai massage in Australia.** Bangkok: Department of Export Promotion, Ministry of Commerce.
- Department of Health Service Support. (2011). **Thailand’s preparedness towards the ASEAN Economic Community (AEC) – Health service support.** Department of Health Service Support Journal, Vol. 8, No. 1, October 2011 – February 2012, No. 29.
- Department of Health Service Support. (2012). **Summary report: Situation analysis of the implementation of Thailand’s health business policies and plans.** Nonthaburi: Department of Health Service Support, Ministry of Public Health.
- Department of National Parks, Wildlife and Plant Conservation. (2006). **General knowledge about wild plants.** Bangkok: Central Administration Office, Department of National Parks, Wildlife and Plant Conservation.
- Department of National Parks, Wildlife and Plant Conservation. (undated). **Regulations of the Royal Forest Department on Technical Studies or Research in Forest Areas B.E. 2542 (1999).** (Photocopy).
- Department of Trade Negotiations, Ministry of Commerce. (2011). **Service business: Spa and Thai massage.** Bangkok: Ministry of Commerce.

- Document on information and programme on Thai-Bahrain and Thai-Qatar cooperation, No. Sor Thor 0506.02/582, dated 24 July 2012.
- Document on invitation to a monthly meeting on implementation of the plan prepared by the Subcommittee of the National Intellectual Property Rights Centre of Enforcement (NICE), Department of Intellectual Property, No. Phor Nor 0707/Wor 2780, dated 3 July 2013.
- Document on progress of the operations related to Thai-European Union free trade negotiations, Department of Trade Negotiations. No. Phor Nor 0610/49, dated 27 May 2013.
- Document on progress of the WIPO IGC meeting, Ministry of Foreign Affairs, No. Kor Tor 0703/Wor 1543, dated 21 November 2011.
- Document on summary of the protection of Thai traditional medicine wisdom according to the Protection of Thai Traditional Medicine Wisdom Act B.E. 2542 (1999), No. Sor Thor 0506.02/379, dated 8 April 2013.
- Document on summary of the public hearings on (draft) Plant Varieties Protection Act B.E. ..., No. Sor Thor 0506.02/185, dated 18 February 2012.
- Document on summary of the technical seminar on “Intellectual Property Protection in ASEAN”, No. Sor Thor 0506.02/402, dated 21 April 2013.
- Document requesting approval for entry as a member state of the Convention for the Safeguarding of Intangible Cultural Heritage, No. Sor Thor 0506.02/492, dated 23 May 2013.
- Documents, rules and regulations on requests for permission and preparation of benefit-sharing agreements of persons with access to indigenous or wild plant varieties for commercial purposes, according to section 52 of the Plant Varieties Protection Act B.E. 2542 (1999), Department of Agriculture, No. Kor Sor 0904/Wor 2954, dated 2 May 2013.
- Dokrak Marod and Uthit Kudintra. (2009). **Forest ecology**: Aksorn Siam Printing. (532 pages).

Draft **provisions for the protection of traditional knowledge.**

Executive summary. - 10. Department for Development of Thai Traditional and Alternative Medicine. (undated). (online) [2 May 13]; from <http://bps.ops.moph.go.th/plan4year2/plan4year55-58.pdf>.

Faculty of Pharmacy, Mahidol University. (1992). **Siri Ruckhachati Herb Garden: Celebration of the 5th Cycle (60th) Birthday Anniversary of Her Majesty Queen Sirikit.** Bangkok: Faculty of Pharmacy, Mahidol University.

Faculty of Pharmacy, Mahidol University. (2013). **Research papers and awards.** (online) [18 Feb 13]; from <http://www.pharmacy.mahidol.ac.th/thai>.

Fine Arts Department. (1999). **Cultural system and quality/standards.** Bangkok: Prachchon Printing Office.

Geographical Indications Protection Act B.E. 2546 (2003).

Health and Development Foundation. (2009). **Handbook for teachers of Thai massage.** Fourth edition. Bangkok: Health and Development Foundation.

Health and Development Foundation. (2010). **Handbook for teachers of Thai masseurs, Vol. 1.** Second edition. Nonthaburi: Manas Film.

Kamolpun Punpuing. (2003). **Thinking basis for management of knowledge and local wisdom: Local wisdom and knowledge management.** Bangkok: Amarin Printing and Publishing (Pcl.). pp. 47-50.

Kamonthip Kongprasertamorn. (2005). **Local wisdom: Community innovation in sustainable natural resources management: The case of Bang Khun Sai subdistrict, Ban Laem district, Phetchaburi province - Wisdom and community empowerment.** Bangkok: Princess Maha Chakri Sirindhorn Anthropology Centre (Public Organization). pp. 143-207.

Kamrap Phanthong. (2003). **Network for local wisdom management: Concept and direction of local wisdom and knowledge management.** Bangkok: Amarin Printing and Publishing (Pcl.). pp. 87-103.

- Kanjana Kaewthep. (undated). **An analysis of local communication wisdom.**
A handout for a lecture at the Faculty of Agricultural Business, Maejo University. (Photocopy).
- Kannika Pansongserm. (1998). **Utilization of local wisdom in teaching nine steps of product invention for 6th graders.** M.A. independent study report. Chiang Mai: Chiang Mai University.
- Kanokwan Rugkhachat. (1998). **Trends in local curriculum development for non-formal vocational education, based on local wisdom, in the 21st century.** Bangkok: Chulalongkorn University.
- Karunan Rattanasanwong. (2000). **Folklore: Local wisdom for health care - A case study in Kranuan district, Khon Kaen province.** Sri Pathum Journal 2(2): 87-103.
- Khamnuan Nuansanong. (2000). **Local wisdom in natural resources management: A case study of villagers' bee catching in Tamot subdistrict, Tamot district, Phatthalung province.** Thaksin University Journal, 3(2):44-45.
- Khamphai Pasonno (Wonglakorn). (2007). **A study of ethics of indigenous healers using herbal therapy in the perspectives of indigenous healers in the Udon Thani municipal area.** Master of Buddhism thesis. Bangkok: Mahachulalongkornrajavidyalaya University.
- Khao Hin Sorn Royal Development Study Centre. (online) [5 June 13]; from <http://www.khaohinsonbg.org>.
- Khunying Long Athakravisunthon Learning Resources Center, Prince of Songkla University. (2013). **Database of the Library, Prince of Songkla University.** (online) [18 Feb 13]; from <http://www.clib.psu.ac.th>.
- Kingkaew Atthakorn. (1976). **Folklore.** Bangkok: Printing Office, Teachers Council of Thailand.
- Kittipot Sirisute. (1995). **Using local wisdom for developing local curriculum according to the primary education curriculum of 1978 (revised 1990) in participating schools under Suphan Buri Provincial Primary Education Office.** M.Ed. thesis. Bangkok: Chulalongkorn University.

- Krisana Wongsasan. (1999). **Thai lifestyle: Educational media development for promoting student's self-study project (Northeastern Group of Rajabhat Institutes)**. Bangkok: Third Wave Education.
- Kularb Mullikamas. (1963). **Folklore**. Bangkok: Ramkhamhaeng University Printing Press.
- Kunwittra Bhangnanda. (1988). **Viewpoints on local wisdom**. Bangkok: National Education Journal, 22 (6): 3-9.
- Kururak Piromrak. (1995). **Local wisdom and local curriculum development, Educational Supervision Unit, Chachoengsao Provincial Primary Educational Office**. Bangkok: Chulalongkorn University.
- Kuson Isdul. (2004). **Local wisdom**. Journal of Educational Encyclopaedia, 31: 58-62.
- Luecha Vanarat, Amnaj Decha, Teerayut Intasen, et al. (2010). **Manual for producing *lingzhi* mushroom and *lingzhi* spores according to good agricultural practice**. First edition. Bangkok: WVO Office of Printing Mill, The War Veterans Organization of Thailand.
- Mahidol University. (1996). **Convention of Biological Diversity and Thailand's preparedness**. Nakhon Pathom: Printing Press, ASEAN Institute of Health Development.
- MarketWise Co. Ltd. (2010). **Summary: Marketing Capacity Building for Health Tourists Project and Survey of Behaviours and Satisfaction of Foreign Tourists with Health and Beauty Care Project**. e-TAT Journal - Tourism Authority of Thailand, fourth quarter, 2010.
- Nalinphat Saktiyasunthorn. (2012). **Progress of the Thai Herb Quality Project, 2012**. (Online) [7 July 13]; from <http://www.dmsc.moph.go.th/webroot/plant/mpri/pdf%5Cnalinpat.pdf>.
- Nanthana Inthanon. (2003). **International agreement on intellectual property rights and impact on local wisdom**. Intellectual Property and International Trade Journal (Sixth anniversary special issue: 2003).

- National Drug System Development Committee. (2011). **National drug policy, 2011, and National strategy for drug system development.** Bangkok: Printing Press, Agricultural Cooperatives Federation of Thailand.
- National Economic and Social Advisory Council. **Talks and discussions on policy recommendations for using herbal drugs in the health-care system.** (undated). (online) [9 July 13]; from <http://www.newswit.com/gen/2013-04-23/7a53a31f0d2c9b28b15c8e2ae8dbec29>.
- National Health Act B.E. 2550 (2007).** Published in Government Gazette, Vol. 124, Part 16A, dated 19 March 2007.
- National Health Commission Office of Thailand. (2009). **Statue on National Health System B.E. 2552 (2009).** Nonthaburi: National Health Commission Office of Thailand.
- National Health Security Act B.E. 2545 (2002).**
- National Health Security Office. (2007–2013). **Report on Thai traditional medicine services under the universal health coverage scheme, 2007–2013.** Bangkok: National Health Security Office.
- National Health Security Office. (2011). **Documents for the meeting on participatory monitoring and evaluation of rehabilitation centres for patients with paresis and paralysis operated by Buddhist temples and other relevant agencies.** 27 May 2011; at ASEAN Health Systems Research and Development Office, ASEAN Institute for Health Development, Mahidol University. Nakhon Pathom: Mahidol University.
- National Primary Education Commission. (1998A). **Guidelines for promotion of local wisdom in education.** Bangkok: Pimdee Printing Press.
- National Primary Education Commission. (1998B). **Teachers of Thai wisdom, Vol. 1, central and eastern regions.** Bangkok: Printing Office, Teachers Council of Thailand.
- National Primary Education Commission. (2004). **Teachers of wisdom (Thai): Social power source.** Sue Phalang (Power The Thought) Journal, 12(4): 1–17.

- Nattiya Kapol et al. (2004). **Opinions of health personnel on herbal drugs and policy on herbal drug use promotion in health facilities.** First edition. Nonthaburi: The Graphico Systems Co. Ltd.
- Nilnetr Virasombat et al. (2011). **Utilization of herbal drugs in the current health-care system A case study of the health service network, Sung Noen district, Nakhon Ratchasima province.** Journal of Thai Traditional and Alternative Medicine. Bangkok: 2011;9(1):47-55.
- Noppamas Soonthornchareonnon et al. (2006). **Creation and management of knowledge related to Thai wisdom and Thai healthy lifestyle.** Presented at the Annual Conference on Thai Traditional, Indigenous and Alternative Medicine, 2006. First edition. Bangkok: Usa Printing.
- Office of Industrial Economics. (undated). **National Industrial Development Mater Plan, 2012-2031.** (online) [17 July 13]; from <http://www.kmitl.ac.th/plandiv/plan%20web2/planning/Industrial%20Develop.pdf>.
- Office of the Education Council. (2007). **Perspectives on evaluative research on the quality of Thais: good, smart and happy.** Bangkok: VTC Communication Printing Press.
- Office of the Executive Committee of the International Medical Hub, Department of Health Service Support. (2011). **Summary: (draft) Strategic Plan for Development of Thailand as an International Medical Hub (2010-2014).** (Online) [17 July 13]; from http://www.themedicalhub.net/documents/medical_hub_strategic_plans_2554_2557_draft_2011_jan_31.pdf.
- Office of the National Economic and Social Development Board. (2011). **The 11th National Economic and Social Development Plan (2012-2016).** Bangkok: Office of the Prime Minister.
- Office of the National Economic and Social Development Board. (2009). **Full report: Formulation of Strategy for Development of Thailand's Service Sector Project.** Bangkok: Office of the National Economic and Social Development Board.

- Office of the Natural Resources and Environment Policy and Planning. (undated). **The Convention on Biological Diversity.** (A document for a meeting of the Working Group on Preparation of Recommendations for Thai-USA Free Trade Agreement, 20 February 2007).
- Office of the Permanent Secretary for Public Health. (2011). **Thailand Healthy Lifestyle Strategic Plan, 2011–2020.** Nonthaburi: Ministry of Public Health.
- Orawan Sapphloi. (2011). **Wat Pho inscriptions: Memory of the world heritage.** Bangkok: Amarin Printing and Publishing (Pcl).
- Panida Nonting, Suwicha Charoenporn, Nonglek Kunwaradisai, Sawaeng Watcharathanakij and Anuvadh Vadhnapijyakul (2012). **Situation and problems of herbal drug use in state hospitals.** *Isan Journal of Pharmaceutical Sciences*; 9(1).
- Panumas Kudngaongarm. (2008). **Protection of traditional knowledge and resources of indigenous peoples in Thailand.** *Sukhothai Thammathirat Law Journal* (No. 1, Vol. 20, June).
- Patent Act B.E. 2522 (1979) and Patent Act (Amendment No. 3) B.E. 2542 (1999).**
- Pimsupa Chandanasotthi et al. (2011). **Innovation for health promotion among patients with diabetes in communities according to the sufficiency economy philosophy.** Bangkok: National Research Council of Thailand.
- Policy statement of the Council of Ministers, delivered by Prime Minister Yingluck Shinawatra to the National Assembly, 23 August 2011.**
- Practice of Healing Arts Act B.E. 2542 (1999).** Published in Government Gazette, Vol. 116, Part 39, dated 18 May 1999.
- Presentation of data from 21 standardized files from the health promotion and disease prevention database. (undated). **20 herbal drugs available at health facilities in fiscal year 2011.** (online) [7 July 2013]; from http://203.157.10.11/report/std18report/rep_P002_thailand.php?year=2554.

Protection and Promotion of Thai Traditional Medicine Wisdom Act

B.E. 2542 (1999). Published in Government Gazette, Vol. 116, Part 120A, dated 29 November 1999.

Research Team on Revival of Indigenous Massage Wisdom in Khao Chaison District, Phatthalung Province Project. (2008). **Manual for Khao Chaison indigenous massage therapy, Phatthalung province.** Bangkok: Office of the Thailand Research Fund.

Royal Forest Department. (undated). **Operation manual for examining and reporting on requests for permission to work and benefit in forest areas.** (Photocopy).

Royal Forest Department. **Long-term research on forest ecology.** (online) [7 July 2010]; from: <http://www.thaiforests.org>.

Royal Thai Embassy, Berlin. (2007). **Opportunity for working as Thai massage practitioners in Germany.**

Santisuk Sobhanasiri. (2010). **History of the development of Thai traditional medicine, indigenous medicine and alternative medicine in Thailand.** In Vichai Chokevivat, Suwit Wibulpolprasert, and Prapoj Petrakard, editors. Thai traditional and alternative health profile, 2009–2010. Second printing. Bangkok: Samcharoen Panich (Bangkok). pp. 1–59.

Saowanee Kulsomboon (2012). **Status and movement of Thai indigenous medicine development, Thailand.** Bangkok: Printing Press, Agricultural Cooperatives Federation of Thailand.

Saowanee Kulsomboon and Rujinat Atasit. (2007). **Status and directions of research on local health wisdom.** Bangkok: WVO Office of Printing Mill, The War Veterans Organization of Thailand.

Saowanee Kulsomboon, et al. (2012). **A study and development of legal status recognition of indigenous healers.** Bangkok: Printing Press, Agricultural Cooperatives Federation of Thailand.

Siri Ruckhachati Nature Park. (online) [5 June 13]; from <http://www.pharmacy.mahidol.ac.th>.

Social Security Office. (2007–2011). **Annual report, Social Security Office.** Nonthaburi: Social Security Office.

- Southeast Asian Institute of Thai-Chinese Medicine, Department for Development of Thai Traditional and Alternative Medicine. (2011). **Annual report, fiscal year 2011**. Nonthaburi: Southeast Asian Institute of Thai-Chinese Medicine, Department for Development of Thai Traditional and Alternative Medicine, Ministry of Public Health.
- Southeast Asian Institute of Thai-Chinese Medicine, Medicine, Department for Development of Thai Traditional and Alternative Medicine. (2012). **Annual report, fiscal year 2012**. Nonthaburi: Southeast Asian Institute of Thai-Chinese Medicine, Department for Development of Thai Traditional and Alternative Medicine, Ministry of Public Health.
- Southeast Asian Institute of Thai-Chinese Medicine, Medicine, Department for Development of Thai Traditional and Alternative Medicine. (2012). **Honorary recognition awards to supporters and benefactors of the traditional Chinese medicine system in Thailand, fiscal year 2012**. Bangkok: Phumthong Shop.
- Strategic Information Centre, Department for Development of Thai Traditional and Alternative Medicine. (undated). (online) [17 July 13]; from <http://boa.dtam.moph.go.th/detail.jsp?messageid=47#>
- Subcommittee on Development of National List of Essential Medicines. (2012). **Handbook for use of medicines in the National List of Essential Medicines, 2012**. First edition. Bangkok: Printing Press, Agricultural Cooperatives Federation of Thailand.
- Subcommittee on Formulation of National Strategic Plan for Thai Wisdom and Thai Healthy Lifestyle Development, 2012–2016. (2012). **The Second National Strategic Plan for Thai Wisdom and Thai Healthy Lifestyle Development, 2012–2016**. Bangkok: Usa Printing. (101 pages).
- Subcommittee on Organizing the 9th National Herb Expo. (2012). **Programme of the 9th national annual technical conference on Thai traditional, indigenous and alternative medicine**. 5–7 September 2012; Phoenix Rooms 5–6, IMPACT Exhibition and Convention Center, Muang Thong Thani.

- Suwat Tanakornnuwat, Wang Hua, Fu Ping, et al. (2012). **The effectiveness of acupuncture in diabetic peripheral neuropathy**. Journal of Thai Traditional and Alternative Medicine, Vol 10(3); 177-185.
- Suwit Wibulpolprasert, et al., editors. (2004). **Thai wisdom and Thai healthy lifestyle**. Bangkok: Usa Printing.
- Tanit Changthavorn et al. (2007). **Conceptual framework for the protection of Thai local wisdom**. Bangkok: National Center for Genetic Engineering and Biotechnology, National Science and Technology Development Agency.
- Tasaneer Hasanai, Bundit Promkiamon and Somchai Jirapinitwong. (2010). **Acupuncture and moxibustion, Vol. 2 (Acupuncture for treating common illnesses)**. First edition. Bangkok: Printing Press, Agricultural Cooperatives Federation of Thailand.
- Thai Trade Centre, London. (2007). **Thai spa business in the United Kingdom and Ireland**. Bangkok: Ministry of Foreign Affairs.
- Thai Trade Centres, Frankfurt and Berlin. (2012). **Thai spa market in Germany**. Bangkok: Ministry of Foreign Affairs.
- Thai Traditional Medicine Professions B.E. 2556 (2013)**. Published in Government Gazette, Vol. 130, Part 10A, dated 1 April 2013.
- Thinakorn Noree. (2008). **Workforce planning - Demand for Thai traditional medicine personnel in state health facilities in the next decade (2008-2017)**. In Suwit Wibulpolprasert, Prapoj Petrakard, Rutchanee Chantraket et al. Editors. Bangkok: Workforce development for Thai wisdom and Thai healthy lifestyle. Bangkok: WVO Office of Printing Mill, The War Veterans Organization of Thailand.
- Tourism Authority of Thailand. (2010). **Final report: A survey of behaviours and satisfaction with spa and wellness of foreign tourists**. Bangkok: Tourism Authority of Thailand.
- Trade Secrets Act B.E. 2545 (2002)**.
- Trademarks Act (no. 2) B.E. 2543 (2000)**. Published in Government Gazette, Vol. 117, Part 29A, dated 1 April 2000.

- Traditional Chinese Medical Doctors Association of Thailand. (2010). **Traditional Chinese medical doctors in Thailand, 2010**. Bangkok: Bonus Prepress Co. Ltd.
- Traditional Chinese Medical Doctors Association of Thailand. (2013). **Traditional Chinese medical doctors in Thailand, 2013**. Bangkok: Homepress Plus Co. Ltd.
- Traditional Chinese Medicine Profession Commission. (2010). **Notification recognizing 31 overseas education institutions offering traditional Chinese medicine programmes**. Bangkok: Bureau of Sanatorium and Healing Arts, Department of Health Service Support.
- Traditional Chinese Medicine Profession Commission. (2010). **Textbooks for use in educational programmes in traditional Chinese medicine for persons applying to become registered/licensed traditional Chinese medicine practitioners, 2011**. Bangkok: Bureau of Sanatorium and Healing Arts, Department of Health Service Support.
- Traditional Chinese Medicine Profession Commission. (2011). **Criteria and standards for recognizing education institutions offering a bachelor's degree or certificate equivalent to bachelor's degree programme in traditional Chinese medicine**. Bangkok: Bureau of Sanatorium and Healing Arts, Department of Health Service Support.
- Usa Klinhom. (2009). **Clarification of traditional medicines in palm-leaf manuscript, northeastern Thailand: *Mak mai* fever**. Bangkok: Usa Printing.
- Usa Klinhom. (2013). **Northeastern wisdom: Manual for knowledge collection and utilization**. Bangkok: Usa Printing.
- Vichai Chokevivat, Suwit Wibulpolprasert, Prapoj Petrakard, Rutchanee Chantraket and Vichai Chankittiwat. (2010). **Thai traditional and alternative health profile, 2009–2010**. Nonthaburi: Technical Services Bureau, Department for Development of Thai Traditional and Alternative Medicine, Ministry of Public Health. (456 pages).

- Wikipedia, the free encyclopedia. (online) [2 Aug 13]: from <http://th.wikipedia.org>.
- Wilawan Juengprasert, Yenchit Techadamrongsin, Noppamas Soonthornchareonnon, et al. (2011). **Standard of Chinese herbs in Thailand: chuanxiong (*koat-huabua*)**. First edition. Bangkok: Printing Press, Agricultural Cooperatives Federation of Thailand.
- Yenchit Techadamrongsin, Uthai Sotanaphun, Noppamas Soonthornchareonnon, et al. (2012). **Standard of Chinese herbs in Thailand: zhizi (*lukphud*)**. First edition. Bangkok: Printing Press, Agricultural Cooperatives Federation of Thailand.
- Yenchit Techadamrongsin. (2003). **Full report: Survey of land areas for cultivation of Chinese herbs for import reduction**. Nonthaburi: Division of Alternative Medicine, Department for Development of Thai Traditional and Alternative Medicine, Ministry of Public Health.
- Yenchit Techadamrongsin. (2005). **Guidelines for producing miracle grass or *panja-khan* (*Gynostemma pentaphyllum*) as raw material in Thailand**. First edition. Bangkok: Phumthong Shop.
- Yenchit Techadamrongsin. (2007). **Integrated development of herbs**. First edition. Bangkok: WVO Office of Printing Mill, The War Veterans Organization of Thailand.
- Yenchit Techadamrongsin. (2011). **Development of traditional Chinese medicine in Thailand**. First edition. Bangkok: Printing Press, Agricultural Cooperatives Federation of Thailand.
- Yenchit Techadamrongsin. (2011). **Science of Chinese herbal drugs**. First edition. Bangkok: Printing Press, Agricultural Cooperatives Federation of Thailand.
- Yongsak Tantipidok and Samlee Jaidee, editors. (2009). **Textbook of Thai massage, Vol. 1**. Fourth edition. Bangkok: Health and Development Foundation.

In English Language

- Bratspies RM. (2007). The New Discovery Doctrine: Some Thoughts on Property Rights and Traditional Knowledge, *American Indian Law Review* (Vol. 31, No. 2).
- Brazil Law No. 9.279, of May 14, 1996 to Regulates Rights and Obligations Relating to Industrial Property.
- Brazil Law No. 9.610 of February 19, 1998, on Copyright and Neighboring Rights.
- CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora.
- Gibson J. (2007). Knowledge and other values - Intellectual property and the limitations for traditional knowledge in G. Westkamp (ed.), *Emerging Issues in Intellectual Property*, Cheltenham: Edwards Elgar.
- Intergovernmental Committee on Intellectual Property and Genetic Resources. (2005). Traditional Knowledge and Folklore: Eight Session (WIPO/GRTKF/IC/8) June 6, 2005 to June 10, 2005, Geneva, Switzerland (dated on July 30, 2005).
- Intergovernmental Committee on Intellectual Property and Genetic Resources. (2010). Traditional Knowledge and Folklore: Sixteenth Session (WIPO/GRTKF/IC/16/5 Prov.), May 3 to 7, 2010, Geneva, Switzerland (dated on January 22, 2010).
- Kudngaongarm P. (2007). Human Rights Standards for the Protection of Intellectual Property: Traditional Knowledge and Indigenous Resources (Part I), *Sukhothai Thammathirat Law Journal* (No. 1, Vol. 19, June).
- OseiTutu JJ. (2010). An International Instrument to Protect Traditional Knowledge: Is Perpetual Protection a Good Idea?, *The Intellectual Property Law Review* (Vol. 50, No. 4).
- Philippines Intellectual Property Code (06/06/1997, No. 8293).
- Philippines Republic Act No. 8423 (Traditional and Alternative Medicine Act 1997).

Bibliography

In Thai language

- Academic Resource Centre, Mahasarakham University. (2013). **Database of the Library, Mahasarakham University.** (online) [18 Feb 13]; from <http://library.msu.ac.th/web>.
- Aggarin Viriyo. (undated). **Legal measures for protection of traditional knowledge.** Bangkok: Office of the Council of State of Thailand.
- Agreement on Trade-Related Aspects of Intellectual Property Rights. Berne Convention for the Protection of Literary and Artistic Works.** Bureau for Protection of Thai Traditional Medicine Knowledge. (2011). **Summary of operations corresponding to the strategic issues.** (online) [7 May 13]; from <http://ptmk.dtam.moph.go.th>.
- Bureau of Indigenous Medicine, Department for Development of Thai Traditional and Alternative Medicine, Ministry of Public Health. **Summary of data on licensed indigenous medicine practitioners in 2009 under the Practice of Healing Arts Act.** (online) [1 July 13]; from <http://indi.dtam.moph.go.th>.
- Bureau of Strategy, Department for Development of Thai Traditional and Alternative Medicine. (2012). **Documents for the 7/2012 meeting of the Department for Development of Thai Traditional and Alternative Medicine,** 19 September 2012; Bonanza Resort Hotel, Khao Yai, Nakhon Ratchasima.
- Central office for Healthcare Information, Health Systems Research Institute. (2003–2012). **Databases of the Health Service System and the reimbursement of the Civil Servant Medical Benefit Scheme of the Comptroller General's Department.** Nonthaburi: Central office for Healthcare Information, Health Systems Research Institute.
- Chaiyot Hemaratchata. (2005). **Characteristics of intellectual property laws.** Bangkok: Nititham Printing Office.
- Chanida Chitbundid. (2004). **The royally initiated projects: The making of royal hegemony.** Master's thesis, sociology and anthropology programme. Bangkok: Thammasat University.

- Chanida Mattavangkun, Thatree Rungroj, and Anothai Thawanseriwatana. (2010). **Indigenous medicine wisdom and self-reliance in community health care: A case study in Samut Sakhon province.** Bangkok: National Research Council of Thailand.
- Chantarathat Sithikamchorn. (2000). **Explanation of the Protection and Promotion of Thai Traditional Medicine Wisdom Act B.E. 2542 (1999).** Bangkok: October Printing Co., Ltd.
- Chao Phraya Abhaibhubejhr Hospital Foundation. (2009). **Document for the talks on traditional drug formulas, marking the 100th anniversary of the Chao Phraya Abhaibhubejhr Building and the 84th birthday anniversary of Her Royal Highness Princess Bejaratana Rajasuda.** 18 December 2009. Meeting Room, Chao Phraya Abhaibhubejhr Building, Prachin Buri province.
- Chawanee Thongroach et al. (2013). **Medicinal plants according to the royal initiatives.** (Online). [2 June 13]; from <http://www2.swu.ac.th>.
- Chiang Mai University. (2013). **Database of the Library, Chiang Mai University.** (online) [18 Feb 13]; from <http://library.cmu.ac.th/cmul>.
- Chulalongkorn University. (2013). **Database of the Library, Chulalongkorn University.** (online) [18 Feb 13]; from <http://library.car.chula.ac.th>.
- Convention on Biological Diversity.**
- Copyright Act B.E. 2537 (1994).** Published in Government Gazette, Vol. 111, Part 59A, dated 21 December 1994.
- Darane Onchomchant, editor. (2011). **One decade of research on Thai wisdom and Thai healthy lifestyle: An analysis of research studies on Thai traditional, indigenous and alternative medicine, and medicinal plants, 2000–2009.** Nonthaburi: Piman Printing Limited.
- Darane Onchomchant, editor. (2011). **Research questions related to Thai wisdom and Thai healthy lifestyle: Recommendations for system research.** Nonthaburi: Piman Printing Limited.
- Department for Development of Thai Traditional and Alternative Medicine, Ministry of Public Health. (2009). **Journal of Thai Traditional and Alternative Medicine.** Vol. 7, No. 7, May–August (Supplement).

- Department for Development of Thai Traditional and Alternative Medicine. (2008). **Standards of Thai traditional medicine services at state health facilities, 2008**. Nonthaburi: Department for Development of Thai Traditional and Alternative Medicine.
- Department for Development of Thai Traditional and Alternative Medicine. (2004–2012). **Summary reports on the 1st through 9th National Herb Expos**. Nonthaburi: Department for Development of Thai Traditional and Alternative Medicine, Ministry of Public Health.
- Department for Development of Thai Traditional and Alternative Medicine. (2007). **Protection and Promotion of Thai Traditional Medicine Wisdom Act B.E. 2542 (1999)**. Bangkok: Superior Printing House.
- Department for Development of Thai Traditional and Alternative Medicine. (2009). **Protection and Promotion of Thai Traditional Medicine Wisdom Act B.E. 2542 (1999) and other relevant laws**. Bangkok: Printing Press, Agricultural Cooperatives Federation of Thailand.
- Department for Development of Thai Traditional and Alternative Medicine. (2009). **Annual report 2011, Bureau of Alternative Medicine**. Nonthaburi: Bureau of Alternative Medicine.
- Department for Development of Thai Traditional and Alternative Medicine. (2012). **Annual report 2012**. Bangkok: Art Qualified Limited.
- Department for Development of Thai Traditional and Alternative Medicine. (2012). **Documents for the 5th Conference on Indigenous Medicine in the Mekong Basin**. 5–7 September 2012: Phoenix Rooms 5–6, IMPACT Exhibition and Convention Center, Muang Thong Thani.
- Department for Development of Thai Traditional and Alternative Medicine. **Documents for issue-based health assembly on Thai massage strategic plan – Thai heritage towards world heritage, 2013–2016**. Nonthaburi: Department for Development of Thai Traditional and Alternative Medicine.

- Department of Agricultural Extension. (2001). **Institute for Technology and Local Wisdom Development for Agricultural Extension.** Bangkok: Ministry of Agriculture and Cooperatives.
- Department of Curriculum and Instruction Development. (1998). **Manual for teaching “Constitution of the Kingdom of Thailand”, primary and secondary education levels.** Second edition. Bangkok: Printing Office, Teachers Council of Thailand.
- Department of Curriculum and Instruction Development. (1999A). **Guidelines for teaching and learning activities using local wisdom.** Bangkok: Educational Research Division, Department of Curriculum and Instruction Development.
- Department of Curriculum and Instruction Development. (1999B). **Local wisdom, curriculum development and instructional activities.** Bangkok: Printing Office, Teachers Council of Thailand.
- Department of Export Promotion. (2012). **Thai massage in Australia.** Bangkok: Department of Export Promotion, Ministry of Commerce.
- Department of Health Service Support. (2011). **Thailand’s preparedness towards the ASEAN Economic Community (AEC) – Health service support.** Department of Health Service Support Journal, Vol. 8, No. 1, October 2011 – February 2012, No. 29.
- Department of Health Service Support. (2012). **Summary report: Situation analysis of the implementation of Thailand’s health business policies and plans.** Nonthaburi: Department of Health Service Support, Ministry of Public Health.
- Department of National Parks, Wildlife and Plant Conservation. (2006). **General knowledge about wild plants.** Bangkok: Central Administration Office, Department of National Parks, Wildlife and Plant Conservation.
- Department of National Parks, Wildlife and Plant Conservation. (undated). **Regulations of the Royal Forest Department on Technical Studies or Research in Forest Areas B.E. 2542 (1999).** (Photocopy).
- Department of Trade Negotiations, Ministry of Commerce. (2011). **Service business: Spa and Thai massage.** Bangkok: Ministry of Commerce.

- Document on information and programme on Thai-Bahrain and Thai-Qatar cooperation, No. Sor Thor 0506.02/582, dated 24 July 2012.
- Document on invitation to a monthly meeting on implementation of the plan prepared by the Subcommittee of the National Intellectual Property Rights Centre of Enforcement (NICE), Department of Intellectual Property, No. Phor Nor 0707/Wor 2780, dated 3 July 2013.
- Document on progress of the operations related to Thai-European Union free trade negotiations, Department of Trade Negotiations. No. Phor Nor 0610/49, dated 27 May 2013.
- Document on progress of the WIPO IGC meeting, Ministry of Foreign Affairs, No. Kor Tor 0703/Wor 1543, dated 21 November 2011.
- Document on summary of the protection of Thai traditional medicine wisdom according to the Protection of Thai Traditional Medicine Wisdom Act B.E. 2542 (1999), No. Sor Thor 0506.02/379, dated 8 April 2013.
- Document on summary of the public hearings on (draft) Plant Varieties Protection Act B.E. ..., No. Sor Thor 0506.02/185, dated 18 February 2012.
- Document on summary of the technical seminar on “Intellectual Property Protection in ASEAN”, No. Sor Thor 0506.02/402, dated 21 April 2013.
- Document requesting approval for entry as a member state of the Convention for the Safeguarding of Intangible Cultural Heritage, No. Sor Thor 0506.02/492, dated 23 May 2013.
- Documents, rules and regulations on requests for permission and preparation of benefit-sharing agreements of persons with access to indigenous or wild plant varieties for commercial purposes, according to section 52 of the Plant Varieties Protection Act B.E. 2542 (1999), Department of Agriculture, No. Kor Sor 0904/Wor 2954, dated 2 May 2013.
- Dokrak Marod and Uthit Kudintra. (2009). **Forest ecology**: Aksorn Siam Printing. (532 pages).

Draft **provisions for the protection of traditional knowledge.**

Executive summary. - 10. Department for Development of Thai Traditional and Alternative Medicine. (undated). (online) [2 May 13]; from <http://bps.ops.moph.go.th/plan4year2/plan4year55-58.pdf>.

Faculty of Pharmacy, Mahidol University. (1992). **Siri Ruckhachati Herb Garden: Celebration of the 5th Cycle (60th) Birthday Anniversary of Her Majesty Queen Sirikit.** Bangkok: Faculty of Pharmacy, Mahidol University.

Faculty of Pharmacy, Mahidol University. (2013). **Research papers and awards.** (online) [18 Feb 13]; from <http://www.pharmacy.mahidol.ac.th/thai>.

Fine Arts Department. (1999). **Cultural system and quality/standards.** Bangkok: Prachchon Printing Office.

Geographical Indications Protection Act B.E. 2546 (2003).

Health and Development Foundation. (2009). **Handbook for teachers of Thai massage.** Fourth edition. Bangkok: Health and Development Foundation.

Health and Development Foundation. (2010). **Handbook for teachers of Thai masseurs, Vol. 1.** Second edition. Nonthaburi: Manas Film.

Kamolpun Punpuing. (2003). **Thinking basis for management of knowledge and local wisdom: Local wisdom and knowledge management.** Bangkok: Amarin Printing and Publishing (Pcl.). pp. 47-50.

Kamonthip Kongprasertamorn. (2005). **Local wisdom: Community innovation in sustainable natural resources management: The case of Bang Khun Sai subdistrict, Ban Laem district, Phetchaburi province - Wisdom and community empowerment.** Bangkok: Princess Maha Chakri Sirindhorn Anthropology Centre (Public Organization). pp. 143-207.

Kamrap Phanthong. (2003). **Network for local wisdom management: Concept and direction of local wisdom and knowledge management.** Bangkok: Amarin Printing and Publishing (Pcl.). pp. 87-103.

- Kanjana Kaewthep. (undated). **An analysis of local communication wisdom.**
A handout for a lecture at the Faculty of Agricultural Business, Maejo University. (Photocopy).
- Kannika Pansongserm. (1998). **Utilization of local wisdom in teaching nine steps of product invention for 6th graders.** M.A. independent study report. Chiang Mai: Chiang Mai University.
- Kanokwan Rugkhachat. (1998). **Trends in local curriculum development for non-formal vocational education, based on local wisdom, in the 21st century.** Bangkok: Chulalongkorn University.
- Karunan Rattanasanwong. (2000). **Folklore: Local wisdom for health care - A case study in Kranuan district, Khon Kaen province.** Sri Pathum Journal 2(2): 87-103.
- Khamnuan Nuansanong. (2000). **Local wisdom in natural resources management: A case study of villagers' bee catching in Tamot subdistrict, Tamot district, Phatthalung province.** Thaksin University Journal, 3(2):44-45.
- Khamphai Pasonno (Wonglakorn). (2007). **A study of ethics of indigenous healers using herbal therapy in the perspectives of indigenous healers in the Udon Thani municipal area.** Master of Buddhism thesis. Bangkok: Mahachulalongkornrajavidyalaya University.
- Khao Hin Sorn Royal Development Study Centre. (online) [5 June 13]; from <http://www.khaohinsonbg.org>.
- Khunying Long Athakravisunthon Learning Resources Center, Prince of Songkla University. (2013). **Database of the Library, Prince of Songkla University.** (online) [18 Feb 13]; from <http://www.clib.psu.ac.th>.
- Kingkaew Atthakorn. (1976). **Folklore.** Bangkok: Printing Office, Teachers Council of Thailand.
- Kittipot Sirisute. (1995). **Using local wisdom for developing local curriculum according to the primary education curriculum of 1978 (revised 1990) in participating schools under Suphan Buri Provincial Primary Education Office.** M.Ed. thesis. Bangkok: Chulalongkorn University.

- Krisana Wongsasan. (1999). **Thai lifestyle: Educational media development for promoting student's self-study project (Northeastern Group of Rajabhat Institutes)**. Bangkok: Third Wave Education.
- Kularb Mullikamas. (1963). **Folklore**. Bangkok: Ramkhamhaeng University Printing Press.
- Kunwittra Bhangnanda. (1988). **Viewpoints on local wisdom**. Bangkok: National Education Journal, 22 (6): 3-9.
- Kururak Piromrak. (1995). **Local wisdom and local curriculum development, Educational Supervision Unit, Chachoengsao Provincial Primary Educational Office**. Bangkok: Chulalongkorn University.
- Kuson Isdul. (2004). **Local wisdom**. Journal of Educational Encyclopaedia, 31: 58-62.
- Luecha Vanarat, Amnaj Decha, Teerayut Intasen, et al. (2010). **Manual for producing *lingzhi* mushroom and *lingzhi* spores according to good agricultural practice**. First edition. Bangkok: WVO Office of Printing Mill, The War Veterans Organization of Thailand.
- Mahidol University. (1996). **Convention of Biological Diversity and Thailand's preparedness**. Nakhon Pathom: Printing Press, ASEAN Institute of Health Development.
- MarketWise Co. Ltd. (2010). **Summary: Marketing Capacity Building for Health Tourists Project and Survey of Behaviours and Satisfaction of Foreign Tourists with Health and Beauty Care Project**. e-TAT Journal - Tourism Authority of Thailand, fourth quarter, 2010.
- Nalinphat Saktiyasunthorn. (2012). **Progress of the Thai Herb Quality Project, 2012**. (Online) [7 July 13]; from <http://www.dmsc.moph.go.th/webroot/plant/mpri/pdf%5Cnalinpat.pdf>.
- Nanthana Inthanon. (2003). **International agreement on intellectual property rights and impact on local wisdom**. Intellectual Property and International Trade Journal (Sixth anniversary special issue: 2003).

- National Drug System Development Committee. (2011). **National drug policy, 2011, and National strategy for drug system development.** Bangkok: Printing Press, Agricultural Cooperatives Federation of Thailand.
- National Economic and Social Advisory Council. **Talks and discussions on policy recommendations for using herbal drugs in the health-care system.** (undated). (online) [9 July 13]; from <http://www.newswit.com/gen/2013-04-23/7a53a31f0d2c9b28b15c8e2ae8dbec29>.
- National Health Act B.E. 2550 (2007).** Published in Government Gazette, Vol. 124, Part 16A, dated 19 March 2007.
- National Health Commission Office of Thailand. (2009). **Statue on National Health System B.E. 2552 (2009).** Nonthaburi: National Health Commission Office of Thailand.
- National Health Security Act B.E. 2545 (2002).**
- National Health Security Office. (2007–2013). **Report on Thai traditional medicine services under the universal health coverage scheme, 2007–2013.** Bangkok: National Health Security Office.
- National Health Security Office. (2011). **Documents for the meeting on participatory monitoring and evaluation of rehabilitation centres for patients with paresis and paralysis operated by Buddhist temples and other relevant agencies.** 27 May 2011; at ASEAN Health Systems Research and Development Office, ASEAN Institute for Health Development, Mahidol University. Nakhon Pathom: Mahidol University.
- National Primary Education Commission. (1998A). **Guidelines for promotion of local wisdom in education.** Bangkok: Pimdee Printing Press.
- National Primary Education Commission. (1998B). **Teachers of Thai wisdom, Vol. 1, central and eastern regions.** Bangkok: Printing Office, Teachers Council of Thailand.
- National Primary Education Commission. (2004). **Teachers of wisdom (Thai): Social power source.** Sue Phalang (Power The Thought) Journal, 12(4): 1–17.

- Nattiya Kapol et al. (2004). **Opinions of health personnel on herbal drugs and policy on herbal drug use promotion in health facilities.** First edition. Nonthaburi: The Graphico Systems Co. Ltd.
- Nilnetr Virasombat et al. (2011). **Utilization of herbal drugs in the current health-care system A case study of the health service network, Sung Noen district, Nakhon Ratchasima province.** Journal of Thai Traditional and Alternative Medicine. Bangkok: 2011;9(1):47-55.
- Noppamas Soonthornchareonnon et al. (2006). **Creation and management of knowledge related to Thai wisdom and Thai healthy lifestyle.** Presented at the Annual Conference on Thai Traditional, Indigenous and Alternative Medicine, 2006. First edition. Bangkok: Usa Printing.
- Office of Industrial Economics. (undated). **National Industrial Development Mater Plan, 2012-2031.** (online) [17 July 13]; from <http://www.kmitl.ac.th/plandiv/plan%20web2/planning/Industrial%20Develop.pdf>.
- Office of the Education Council. (2007). **Perspectives on evaluative research on the quality of Thais: good, smart and happy.** Bangkok: VTC Communication Printing Press.
- Office of the Executive Committee of the International Medical Hub, Department of Health Service Support. (2011). **Summary: (draft) Strategic Plan for Development of Thailand as an International Medical Hub (2010-2014).** (Online) [17 July 13]; from http://www.themedicalhub.net/documents/medical_hub_strategic_plans_2554_2557_draft_2011_jan_31.pdf.
- Office of the National Economic and Social Development Board. (2011). **The 11th National Economic and Social Development Plan (2012-2016).** Bangkok: Office of the Prime Minister.
- Office of the National Economic and Social Development Board. (2009). **Full report: Formulation of Strategy for Development of Thailand's Service Sector Project.** Bangkok: Office of the National Economic and Social Development Board.

- Office of the Natural Resources and Environment Policy and Planning. (undated). **The Convention on Biological Diversity.** (A document for a meeting of the Working Group on Preparation of Recommendations for Thai-USA Free Trade Agreement, 20 February 2007).
- Office of the Permanent Secretary for Public Health. (2011). **Thailand Healthy Lifestyle Strategic Plan, 2011–2020.** Nonthaburi: Ministry of Public Health.
- Orawan Sapphloi. (2011). **Wat Pho inscriptions: Memory of the world heritage.** Bangkok: Amarin Printing and Publishing (Pcl).
- Panida Nonting, Suwicha Charoenporn, Nonglek Kunwaradisai, Sawaeng Watcharathanakij and Anuvadh Vadhnapijyakul (2012). **Situation and problems of herbal drug use in state hospitals.** *Isan Journal of Pharmaceutical Sciences*; 9(1).
- Panumas Kudngaongarm. (2008). **Protection of traditional knowledge and resources of indigenous peoples in Thailand.** *Sukhothai Thammathirat Law Journal* (No. 1, Vol. 20, June).
- Patent Act B.E. 2522 (1979) and Patent Act (Amendment No. 3) B.E. 2542 (1999).**
- Pimsupa Chandanasotthi et al. (2011). **Innovation for health promotion among patients with diabetes in communities according to the sufficiency economy philosophy.** Bangkok: National Research Council of Thailand.
- Policy statement of the Council of Ministers, delivered by Prime Minister Yingluck Shinawatra to the National Assembly, 23 August 2011.**
- Practice of Healing Arts Act B.E. 2542 (1999).** Published in Government Gazette, Vol. 116, Part 39, dated 18 May 1999.
- Presentation of data from 21 standardized files from the health promotion and disease prevention database. (undated). **20 herbal drugs available at health facilities in fiscal year 2011.** (online) [7 July 2013]; from http://203.157.10.11/report/std18report/rep_P002_thailand.php?year=2554.

Protection and Promotion of Thai Traditional Medicine Wisdom Act

B.E. 2542 (1999). Published in Government Gazette, Vol. 116, Part 120A, dated 29 November 1999.

Research Team on Revival of Indigenous Massage Wisdom in Khao Chaison District, Phatthalung Province Project. (2008). **Manual for Khao Chaison indigenous massage therapy, Phatthalung province.** Bangkok: Office of the Thailand Research Fund.

Royal Forest Department. (undated). **Operation manual for examining and reporting on requests for permission to work and benefit in forest areas.** (Photocopy).

Royal Forest Department. **Long-term research on forest ecology.** (online) [7 July 2010]; from: <http://www.thaiforests.org>.

Royal Thai Embassy, Berlin. (2007). **Opportunity for working as Thai massage practitioners in Germany.**

Santisuk Sobhanasiri. (2010). **History of the development of Thai traditional medicine, indigenous medicine and alternative medicine in Thailand.** In Vichai Chokevivat, Suwit Wibulpolprasert, and Prapoj Petrakard, editors. Thai traditional and alternative health profile, 2009–2010. Second printing. Bangkok: Samcharoen Panich (Bangkok). pp. 1–59.

Saowanee Kulsomboon (2012). **Status and movement of Thai indigenous medicine development, Thailand.** Bangkok: Printing Press, Agricultural Cooperatives Federation of Thailand.

Saowanee Kulsomboon and Rujinat Atasit. (2007). **Status and directions of research on local health wisdom.** Bangkok: WVO Office of Printing Mill, The War Veterans Organization of Thailand.

Saowanee Kulsomboon, et al. (2012). **A study and development of legal status recognition of indigenous healers.** Bangkok: Printing Press, Agricultural Cooperatives Federation of Thailand.

Siri Ruckhachati Nature Park. (online) [5 June 13]; from <http://www.pharmacy.mahidol.ac.th>.

Social Security Office. (2007–2011). **Annual report, Social Security Office.** Nonthaburi: Social Security Office.

- Southeast Asian Institute of Thai-Chinese Medicine, Department for Development of Thai Traditional and Alternative Medicine. (2011). **Annual report, fiscal year 2011**. Nonthaburi: Southeast Asian Institute of Thai-Chinese Medicine, Department for Development of Thai Traditional and Alternative Medicine, Ministry of Public Health.
- Southeast Asian Institute of Thai-Chinese Medicine, Medicine, Department for Development of Thai Traditional and Alternative Medicine. (2012). **Annual report, fiscal year 2012**. Nonthaburi: Southeast Asian Institute of Thai-Chinese Medicine, Department for Development of Thai Traditional and Alternative Medicine, Ministry of Public Health.
- Southeast Asian Institute of Thai-Chinese Medicine, Medicine, Department for Development of Thai Traditional and Alternative Medicine. (2012). **Honorary recognition awards to supporters and benefactors of the traditional Chinese medicine system in Thailand, fiscal year 2012**. Bangkok: Phumthong Shop.
- Strategic Information Centre, Department for Development of Thai Traditional and Alternative Medicine. (undated). (online) [17 July 13]; from <http://boa.dtam.moph.go.th/detail.jsp?messageid=47#>
- Subcommittee on Development of National List of Essential Medicines. (2012). **Handbook for use of medicines in the National List of Essential Medicines, 2012**. First edition. Bangkok: Printing Press, Agricultural Cooperatives Federation of Thailand.
- Subcommittee on Formulation of National Strategic Plan for Thai Wisdom and Thai Healthy Lifestyle Development, 2012–2016. (2012). **The Second National Strategic Plan for Thai Wisdom and Thai Healthy Lifestyle Development, 2012–2016**. Bangkok: Usa Printing. (101 pages).
- Subcommittee on Organizing the 9th National Herb Expo. (2012). **Programme of the 9th national annual technical conference on Thai traditional, indigenous and alternative medicine**. 5–7 September 2012; Phoenix Rooms 5–6, IMPACT Exhibition and Convention Center, Muang Thong Thani.

- Suwat Tanakornnuwat, Wang Hua, Fu Ping, et al. (2012). **The effectiveness of acupuncture in diabetic peripheral neuropathy**. Journal of Thai Traditional and Alternative Medicine, Vol 10(3); 177-185.
- Suwit Wibulpolprasert, et al., editors. (2004). **Thai wisdom and Thai healthy lifestyle**. Bangkok: Usa Printing.
- Tanit Changthavorn et al. (2007). **Conceptual framework for the protection of Thai local wisdom**. Bangkok: National Center for Genetic Engineering and Biotechnology, National Science and Technology Development Agency.
- Tasaneer Hasanai, Bundit Promkiamon and Somchai Jirapinitwong. (2010). **Acupuncture and moxibustion, Vol. 2 (Acupuncture for treating common illnesses)**. First edition. Bangkok: Printing Press, Agricultural Cooperatives Federation of Thailand.
- Thai Trade Centre, London. (2007). **Thai spa business in the United Kingdom and Ireland**. Bangkok: Ministry of Foreign Affairs.
- Thai Trade Centres, Frankfurt and Berlin. (2012). **Thai spa market in Germany**. Bangkok: Ministry of Foreign Affairs.
- Thai Traditional Medicine Professions B.E. 2556 (2013)**. Published in Government Gazette, Vol. 130, Part 10A, dated 1 April 2013.
- Thinakorn Noree. (2008). **Workforce planning – Demand for Thai traditional medicine personnel in state health facilities in the next decade (2008–2017)**. In Suwit Wibulpolprasert, Prapoj Petrakard, Rutchanee Chantraket et al. Editors. Bangkok: Workforce development for Thai wisdom and Thai healthy lifestyle. Bangkok: WVO Office of Printing Mill, The War Veterans Organization of Thailand.
- Tourism Authority of Thailand. (2010). **Final report: A survey of behaviours and satisfaction with spa and wellness of foreign tourists**. Bangkok: Tourism Authority of Thailand.
- Trade Secrets Act B.E. 2545 (2002)**.
- Trademarks Act (no. 2) B.E. 2543 (2000)**. Published in Government Gazette, Vol. 117, Part 29A, dated 1 April 2000.

- Traditional Chinese Medical Doctors Association of Thailand. (2010). **Traditional Chinese medical doctors in Thailand, 2010**. Bangkok: Bonus Prepress Co. Ltd.
- Traditional Chinese Medical Doctors Association of Thailand. (2013). **Traditional Chinese medical doctors in Thailand, 2013**. Bangkok: Homepress Plus Co. Ltd.
- Traditional Chinese Medicine Profession Commission. (2010). **Notification recognizing 31 overseas education institutions offering traditional Chinese medicine programmes**. Bangkok: Bureau of Sanatorium and Healing Arts, Department of Health Service Support.
- Traditional Chinese Medicine Profession Commission. (2010). **Textbooks for use in educational programmes in traditional Chinese medicine for persons applying to become registered/licensed traditional Chinese medicine practitioners, 2011**. Bangkok: Bureau of Sanatorium and Healing Arts, Department of Health Service Support.
- Traditional Chinese Medicine Profession Commission. (2011). **Criteria and standards for recognizing education institutions offering a bachelor's degree or certificate equivalent to bachelor's degree programme in traditional Chinese medicine**. Bangkok: Bureau of Sanatorium and Healing Arts, Department of Health Service Support.
- Usa Klinhom. (2009). **Clarification of traditional medicines in palm-leaf manuscript, northeastern Thailand: *Mak mai* fever**. Bangkok: Usa Printing.
- Usa Klinhom. (2013). **Northeastern wisdom: Manual for knowledge collection and utilization**. Bangkok: Usa Printing.
- Vichai Chokevivat, Suwit Wibulpolprasert, Prapoj Petrakard, Rutchanee Chantraket and Vichai Chankittiwat. (2010). **Thai traditional and alternative health profile, 2009–2010**. Nonthaburi: Technical Services Bureau, Department for Development of Thai Traditional and Alternative Medicine, Ministry of Public Health. (456 pages).

- Wikipedia, the free encyclopedia. (online) [2 Aug 13]: from <http://th.wikipedia.org>.
- Wilawan Juengprasert, Yenchit Techadamrongsin, Noppamas Soonthornchareonnon, et al. (2011). **Standard of Chinese herbs in Thailand: chuanxiong (*koat-huabua*)**. First edition. Bangkok: Printing Press, Agricultural Cooperatives Federation of Thailand.
- Yenchit Techadamrongsin, Uthai Sotanaphun, Noppamas Soonthornchareonnon, et al. (2012). **Standard of Chinese herbs in Thailand: zhizi (*lukphud*)**. First edition. Bangkok: Printing Press, Agricultural Cooperatives Federation of Thailand.
- Yenchit Techadamrongsin. (2003). **Full report: Survey of land areas for cultivation of Chinese herbs for import reduction**. Nonthaburi: Division of Alternative Medicine, Department for Development of Thai Traditional and Alternative Medicine, Ministry of Public Health.
- Yenchit Techadamrongsin. (2005). **Guidelines for producing miracle grass or *panja-khan* (*Gynostemma pentaphyllum*) as raw material in Thailand**. First edition. Bangkok: Phumthong Shop.
- Yenchit Techadamrongsin. (2007). **Integrated development of herbs**. First edition. Bangkok: WVO Office of Printing Mill, The War Veterans Organization of Thailand.
- Yenchit Techadamrongsin. (2011). **Development of traditional Chinese medicine in Thailand**. First edition. Bangkok: Printing Press, Agricultural Cooperatives Federation of Thailand.
- Yenchit Techadamrongsin. (2011). **Science of Chinese herbal drugs**. First edition. Bangkok: Printing Press, Agricultural Cooperatives Federation of Thailand.
- Yongsak Tantipidok and Samlee Jaidee, editors. (2009). **Textbook of Thai massage, Vol. 1**. Fourth edition. Bangkok: Health and Development Foundation.

In English Language

- Bratspies RM. (2007). The New Discovery Doctrine: Some Thoughts on Property Rights and Traditional Knowledge, *American Indian Law Review* (Vol. 31, No. 2).
- Brazil Law No. 9.279, of May 14, 1996 to Regulates Rights and Obligations Relating to Industrial Property.
- Brazil Law No. 9.610 of February 19, 1998, on Copyright and Neighboring Rights.
- CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora.
- Gibson J. (2007). Knowledge and other values - Intellectual property and the limitations for traditional knowledge in G. Westkamp (ed.), *Emerging Issues in Intellectual Property*, Cheltenham: Edwards Elgar.
- Intergovernmental Committee on Intellectual Property and Genetic Resources. (2005). Traditional Knowledge and Folklore: Eight Session (WIPO/GRTKF/IC/8) June 6, 2005 to June 10, 2005, Geneva, Switzerland (dated on July 30, 2005).
- Intergovernmental Committee on Intellectual Property and Genetic Resources. (2010). Traditional Knowledge and Folklore: Sixteenth Session (WIPO/GRTKF/IC/16/5 Prov.), May 3 to 7, 2010, Geneva, Switzerland (dated on January 22, 2010).
- Kudngaongarm P. (2007). Human Rights Standards for the Protection of Intellectual Property: Traditional Knowledge and Indigenous Resources (Part I), *Sukhothai Thammathirat Law Journal* (No. 1, Vol. 19, June).
- OseiTutu JJ. (2010). An International Instrument to Protect Traditional Knowledge: Is Perpetual Protection a Good Idea?, *The Intellectual Property Law Review* (Vol. 50, No. 4).
- Philippines Intellectual Property Code (06/06/1997, No. 8293).
- Philippines Republic Act No. 8423 (Traditional and Alternative Medicine Act 1997).

Philippines Republic Act No. 8471 (Indigenous Peoples Rights Act of 1997).
Sand S. (2003). Sui Generis Laws for the Protection of Indigenous Expressions
of Culture and Traditional Knowledge, 22(2) University of
Queensland Law Journal.

TRIPS: Trade Related Aspects of Intellectual Property Rights

World Intellectual Property Organization. (2003). Intergovernmental
Committee on Intellectual Property and Genetic Resources,
Traditional Knowledge and Folklore. (Online) [26 May 2013];
Available from: [http:// 118.151.209.71/tkdl/status/10.pdf](http://118.151.209.71/tkdl/status/10.pdf).



**Order of the Department for Development of Thai Traditional
and Alternative Medicine**

No. 286/2556 (2013)

**Subject: Appointing Committee on Preparing Thai Traditional
and Alternative Health Profile, 2011-2013**

As the Bureau of Strategy has drawn up the Thai Traditional and Alternative Health Profile (2011-2013) Preparation Project aiming to prepare the conceptual framework, content and manuscript of the report “Thai Traditional and Alternative Health Profile, 2011-2013”.

To achieve the aforementioned purpose, the Committee on Preparing “Thai Traditional and Alternative Health Profile” is appointed with the composition as well as powers and duties as follows:

1. Composition

- | | | |
|-----|-------------------------------------------------------------------------------------------------------------------------------|------------------|
| 1.1 | Mr. Somchai Nichpanit, Director-General,
Department for Development of Thai
Traditional and Alternative Medicine (DTAM) | Chairperson |
| 1.2 | Mr. Papassorn Chemboonsri, Deputy Director-
General, DTAM | Vice Chairperson |
| 1.3 | Mr. Nattawut Prasertsiripong, Deputy Director-
General, DTAM | Vice Chairperson |
| 1.4 | Mr. Khwanchai Visithanon, Director, Bureau
of Strategy, DTAM | Vice Chairperson |

- | | | |
|------|---------------------------------------------------------------------------------------------------|--------|
| 1.5 | Ms. Jiraporn Limpananont, Faculty of Pharmaceutical Sciences, Chulalongkorn University | Member |
| 1.6 | Mr. Prapoj Petrakard, Federation of Thai Traditional Medicine Associations of Thailand | Member |
| 1.7 | Mr. Santisuk Sobhanasiri, Thai Holistic Health Foundation | Member |
| 1.8 | Ms. Supaporn Pitiporn, Chao Phraya Abhaibhubejhr Hospital | Member |
| 1.9 | Mr. Komatra Chuengsatiansup, National Health Archives and Museum | Member |
| 1.10 | Director, Drug Control Division, Food and Drug Administration | Member |
| 1.11 | Director, Bureau of Sanatorium and Healing Arts, Department of Health Service Support | Member |
| 1.12 | Director, Medicinal Plant Research Institute, Department of Medical Sciences | Member |
| 1.13 | Manager, Thai Traditional Medicine System Development Fund, National Health Security Office | Member |
| 1.14 | Ms. Panbaudee Ekachampaka, Bureau of Policy and Strategy, Office of the Permanent Secretary, MoPH | Member |
| 1.15 | Chief, Office of Thai Traditional Medical Knowledge Fund, DTAM | |
| 1.16 | Mr. Pramote Satiernrut, Director, Institute of Thai Traditional Medicine, DTAM | Member |
| 1.17 | Mrs. Yenjit Techadamrongsin, Director, Southeast Asian Institute of Thai-Chinese Medicine, DTAM | Member |
| 1.18 | Ms. Anchalee Juthaputti, Deputy Director, Institute of Thai Traditional Medicine, DTAM | Member |

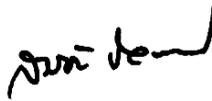
1.19	Mr. Tewan Thaneerat, Director, Bureau of Alternative Medicine, DTAM	Member
1.20	Mrs. Saowanee Kulsomboon, Director, Bureau of Thai Indigenous Medicine, DTAM	Member
1.21	Director, Bureau for Protection of Thai Traditional Medical Knowledge, DTAM	Member
1.22	Ms. Rutchanee Chantraket, DTAM	Member & Secretary
1.23	Mr. Somsak Kreechai, DTAM	Member & Assistant Secretary

2. Powers and duties

- 1) To prepare the outline and content of the report on “Thai Traditional and Alternative Health Profile, 2011-2013”.
- 2) To coordinate with relevant experts in compiling, analyzing, and synthesizing the content for preparing the manuscript of the report.
- 3) To publish the report.
- 4) To disseminate the report.
- 5) To appoint subcommittees and working groups to carry out relevant activities as deemed necessary.

This order is effective on this day onwards.

Given on 20 August 2013



(Mr. Somchai Nichpanit)

Director-General, Department for Development of
Thai Traditional and Alternative Medicine

