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BACKGROUND

The advancement of modern medicine in the western world during the early 20th century has led to the decline of the practice of traditional medicine in many countries in the world, including Thailand, where modern medicine becomes the mainstream healthcare system, and Thai traditional medicine (TTM) becomes a branch of non-conventional or alternative medicine. Eventually, it was well recognized that modern medicine was probably not the answer to the good health of Thai people since a large amount of the country's healthcare expense was spent more on the treatment of diseases with high-priced sophisticated equipment and imported new drugs than on the prevention of diseases and health promotion. In addition, despite all the advancement of medical technologies and the pharmaceutical industry, they cannot successfully cure several chronic lifestyle-related diseases, which are major health problems of today's world, i.e. diabetes, hypertension, cardiovascular diseases, and various types of cancer.

In order for the country's healthcare system to become more self-reliance and cost-effective, Thai government then looked back at the country's heritage of wisdom of health care and acknowledged the role that TTM, herbal medicines and medicinal plants can play on the health of Thai people for the treatment of common minor diseases, disease prevention and health promotion. The revival of the TTM began around 1978 after the issue of the Alma-Ata Declaration. As WHO urged its member countries to include medicinal plants in their primary health care (PHC) program, Thailand's Ministry of Public Health responded to the WHO's call by including such policy to promote the use of medicinal plants in the PHC since the 4th Health Development Plan (1977-1981). The government policy on the promotion of the use medicinal plants and Thai traditional medicine in the country's health care system has continued until today as stated in the 5th to 9th or the present National Economic and Social Development Plans (2002-2006).

The "**Collaborating Center for the Development of Thai Traditional Medicine and Pharmacy**" was later established under the Office of the Permanent Secretary of Public Health in 1989 during the 6th Health Development Plan as a coordinating organization to develop TTM. This center was later upgraded to the division level in 1993 as the "**Institute of Thai Traditional Medicine**" (ITTM) under the Department of Medical Services in 1993. Through the years the institute has organized several activities to develop TTM in various aspects. Hence, in October 2002 as a result of the Bureaucratic Reform Act, the "**Department for Development of Thai Traditional and Alternative Medicine**" (DTAM) was established as a new department under the Ministry of Public Health (MOPH), comprising of the Institute of Thai Traditional Medicine, Division of Alternative Medicine, and the Office of the Secretary. This clearly showed the intention and commitment of the Thai government to promote Thai traditional medicine and herbal medicines as another means of healthcare for Thai people.

This paper will summarize the current situation of Thai traditional medicine in the health care system of Thailand regarding the policy, administration, practice, products, research, and education.

1. ADMINISTRATION & POLICY

Since the establishment of DTAM in October 2002, DTAM is now composed of 5 offices, i.e. the Institute of Thai Traditional Medicine, Division of Complementary and Alternative Medicine (CAM), Working Group on Indigenous Medicine (IM), the Southeast Asian Institute of Thai-Chinese Traditional Medicine. The roles of DTAM in the administration of TTM and various forms of CAM in the country are, e.g.

- ❑ revival of the body of knowledge of TTM,
- ❑ promotion of the integration of TTM and CAM into the health care system,
- ❑ research and development of TTM, CAM, folk medicine, traditional and herbal products,
- ❑ gathering and scrutinizing the body of knowledge of different disciplines of CAM to screen, select, and set up the standards of those that are appropriate for the healthcare of Thai people,
- ❑ dissemination and transfer of TTM & CAM knowledge and technology,
- ❑ protection and conservation of TTM wisdom and medicinal plants
- ❑ establishment of the standard of TTM & CAM products and practice, and education system, and
- ❑ promoting the production of quality Thai traditional medicines and other herbal products.

National policy on Thai traditional medicine

As previously mentioned, the revival of TTM into the health care system began during the 4th Health Development Plan (1977-1981) with the national health policy to promote the use of medicinal plants in the PHC. As a result, 57 medicinal plants were selected and recommended for the treatment and relief of 19 groups of commonly found minor symptoms and diseases. In 1994 the list was revised to 61 medicinal plants for 21 groups of symptoms and diseases based on more recent research evidence. In addition, the 5th – 9th Health Development Plans (1982-2006) have continuously promoted research and development of herbal medicines from medicinal plants. Based on complete cycled researches, herbal medicines from five medicinal plants were therefore selected into the National List of Essential Drugs (Herbal Medicine List) in 1999 in order to increase the use of herbal medicines in the public health service facilities.

In addition, the 7th - 9th Health Development Plans (1992-2006) have also promoted the development of the knowledge of TTM, IM, and later CAM through researches and the improvement of TTM/IM/CAM service standards for successful integration into the health service system and for health promotion through self-care. ITTM and later DTAM therefore implemented the plan by conducting researches on various topics of TTM/IM/CAM including R&D of new herbal products, developing training and educational system of TTM and the standards and model of TTM service system in the health service facilities. Another policy stated in the 9th Health Development Plan was the protection of the intellectual property of the traditional wisdom of health care by implementing and enforcing the Act on the Protection and Promotion of Thai Traditional Medicine Wisdom B.E. 2542 enacted in 1999.

According to section 2.3.3 of the policies of the new government, stated to the parliament on 23 March 2005, TTM has become a part of national health policy as the government will “*develop, transfer, and protect the wisdom of Thai traditional medicine, indigenous medicine, alternative medicine and medicinal plants*”. DTAM in

collaboration with other related organizations are therefore responsible to the implementation of this policy by

- ❑ Strengthening the body of knowledge of TTM/IM/CAM through research and development,
- ❑ Transferring the knowledge of TTM/IM/CAM that have been selected and well studied to the public and healthcare personnel through training, demonstration, exhibition, printed matters and various other channels of media,
- ❑ Developing herbal products and TTM/IM/CAM services to meet international standards

In addition, under section 2.3.1 of the government policy concerning the improvement of the quality of the “Universal Coverage” (UC) program of the national health security system, it is the responsibility of MOPH and DTAM to increase public access to TTM/IM/CAM at the public health service facilities by

- ❑ Increasing the number of all levels of health service facilities that provide TTM/IM/CAM services
- ❑ Adding more TTM/IM/CAM services into the UC program

Moreover, the government has also launched a national policy to strengthen the country’s service businesses, e.g. Thai spa and wellness business, to the global market. DTAM is therefore responsible for the development of the bodies of knowledge of TTM/IM/CAM, e.g. Thai traditional medicine, hot herbal compress, meditation, etc. that can appropriately be integrated into Thai spa and wellness service programs.

Furthermore, in response to the ‘Millenium Development Goals’ of the United Nations, in 2004 Thai government also launched ‘**Healthy Thailand**’ National Agenda (2004-2015). Under the UC program, the government will build ‘Healthy Thailand’ by making Thai people physically and mentally healthy with high IQ and EQ, and building health conscious societies and a self-sufficient economy. As the practices of various fields of TTM/IM/CAM are meant for health promotion, which is a major part of the strategic plans of this agenda, TTM/IM/CAM will therefore be a component of the implementation of this agenda as well.

With respect to the protection of TTM wisdom and valuable indigenous medicinal plants fom exploitation and bio-piracy, ITTM had played a pivotal role on drafting, launching and lobbying the parliament to pass ‘**the Protection and Promotion of Thai Traditional Medicine Wisdom Act B.E. 2542**’ in May 28, 2000. As a result, “*the Committee on the Protection and Promotion of Thai Traditional Medicine Wisdom*” were appointed and elected, and subcommittees were later formed to carry out the duties and responsibilities stated in this Act. Moreover, seed money of 10 million bahts has just been allocated from 2005 fiscal budget to the “**Thai Traditional Medicine Wisdom Fund**” as the circulating fund for carrying out the activities under the Act. As the regulation on the use of the fund has already been issued, various activities to protect and promote TTM and to protect some endangered and valuable medicinal plants can now be carried out.

2. PRACTICE

Thai traditional medicine is regarded as the traditional philosophies, bodies of knowledge, and modes of practice to care for the health of Thai people that are congruent with the Thai culture and way of life. The arts and the practice of TTM can be divided into 5 main areas, namely: -

- ❑ Medical practice involving the diagnosis and treatment of diseases or symptoms.
- ❑ Pharmacy practice involving the use of herbs, animals or minerals as traditional medicines and the art of compounding those ingredients into various dosage forms of TTM recipes.
- ❑ Traditional midwifery involving mother and child care,
- ❑ Thai traditional massage, and
- ❑ The application of Buddhism or rites and ritual for mental health care

Based on the educational and the registration systems, the practice of TTM can be divided into 2 categories, i.e. Thai traditional medicine and applied Thai traditional medicine. While a licensed applied TTM practitioner can practice all areas of TTM mentioned above, a TTM practitioner has to obtain a license to practice in each of the first three areas. A licensed TTM practitioner in Thai traditional medicine can also practice Thai traditional massage. Details of the educational system are described in section 3.

2.1 Registration and control of TTM practitioners

Under the Practice of the Art of Healing Act B.E. 2542 (1999), the professional committees, namely the TTM Committee and the Applied TTM Committee are responsible for the registration and issuing or revoking the license of TTM and applied TTM practitioners, respectively. The Division of Medical Registration, Department of Medical Service Support, MOPH serves as the secretariat office of the two committees. In addition, the committees are also responsible for the control of professional practice by setting up the standards of professional practice, reviewing and approving the teaching curricula of academic institutions, and considering professional misconduct of practitioners and appropriate measure of punishment. In order to become a licensed practitioner, a person may take a licensing examination given once a year by the committees in the field that he/she was trained for.

The followings are the types and the cumulative numbers of licensed practitioners in various fields of TTM practice as of 2003, namely: -

1. Thai traditional medicine practitioner in Thai traditional medicine - 14,912
2. Thai traditional medicine practitioner in Thai traditional pharmacy - 18,997
3. Thai traditional medicine practitioner in Thai traditional midwifery - 2,869
4. Applied Thai traditional medicine practitioner - 379

On 1 February 2001 the Ministry of Public Health issued a Notification stated that therapeutic Thai massage is considered as a branch of the practice of TTM. Therefore trained masseurs/masseuses must register and obtain license as “TTM practitioners in the field of Thai massage” before they can provide massage therapy. Nonetheless, the law allows the practice of Thai massage by the licensed practitioners in the fields of TTM or applied TTM without obtaining another license for Thai massage. The Ministerial Regulation and the forms required for licensing process are now ready for issuing the license to the first group of 78 TTM practitioners in the field of Thai massage soon.

Meanwhile Thai massage for health or relaxation, not meant for therapeutic purpose, is allowed and is not under the regulation of the above-mentioned notification. In this case, massage service providers are under the control of another Ministry of Public Health Notification issued on 21 April 2004. They must be over the age of 18 and passed massage-training courses offered by public or private certified institutions or have at least one year of experience on massage for health or relaxation service as well as passed the test of massage knowledge and experience offered by an established central committee.

2.2 *Permission of the practice for non-licensed personnel*

On April 8, 2002, the Minister of Public Health issued two Ministerial Orders regarding the non-licensed personnel that are allowed to practice TTM or applied TTM in the health service facilities. These personnel include persons who passed the training in the fields of TTM using the curriculum of, or approved by, the Ministry of Public Health. However, the practice of those who passed the TTM training courses must be under the supervision of a licensed practitioner. In the case of *public* healthcare facilities, the practice must be under the supervision of a licensed TTM or an applied TTM practitioner OR a licensed medical practitioner (an MD), while the practice in the *private* healthcare facilities must be under the supervision of a licensed TTM or applied TTM practitioner and according to the responsibility assigned by the hospital operator.

These personnel are allowed to

1. provide basic health care using herbal medicines listed in the National List of Essential Drugs, traditional household remedies, and herbal medicines from medicinal plants selected for primary health care,
2. give massage, herbal steam bath, and hot herbal compress services, give advice to the patients on “Ruesi Dud Ton” (Thai-styled stretch exercise), and meditation therapy. Promote physical and mental health, relieve and rehabilitate the following diseases and symptoms: -
 - 2.1 stressed-induced headache, body ache, pain at the neck, back, shoulder, joint, and waist that is not the result of serious broken bone or dislocation but is due to muscle and tendon fatigue or bruise
 - 2.2 massage for physical rehabilitation of paralyzed or hemiplegic patients or those with other forms of physical disability, and the elderly.

In addition, the Ministerial Regulations also allow ‘village health volunteers’, who received the certificate of training from the Ministry of Public Health and are still active in their duty, to give the above-mentioned service to the patients according to the recommendation in the training manuals.

2.3 *TTM services in the public health service facilities*

Initially, the numbers of health service facilities that provide TTM services were small and the only service was prescribing herbal medicine. During the 7th Health Development Plan (1992-1996), however, a full integration of TTM into the health service system began, i.e. treatment of patients with both single and combination herbal medicines, provision of Thai traditional massage, hot herbal compress, and herbal steam bath services, as well as production of herbal medicines in some hospitals.

Currently TTM services are provided in the health system through various channels, i.e.: -

1. *TTM clinics*
2. *Community or provincial/general hospitals* that set up their own TTM section to provide TTM services. Nowadays there are over 100 such hospitals in the country.
3. *TTM Health Promotion Centers*, which have been set up by ITTM in cooperation with community or provincial/general hospitals as models of TTM service centers in every province with a total of 150 centers (2 centers/ province) established so far.
4. *Drug stores* that sell registered Thai traditional medicines and traditional household remedies and general stores that can sell only traditional household remedies.

Community or provincial/general hospitals or health service centers in the Ministry of Public Health that provide TTM services can be divided into 4 levels based on the types of service, namely: -

Level 1 – Those that sell single herbal medicines and/or Thai traditional medicine preparations only.

Level 2 – Those that sell herbal medicines AND also provide TTM services, e.g. Thai traditional massage, hot herbal compress, and herbal steam bath.

Level 3 – Those that provide level 2 services AND also serve as training center on TTM, e.g. training courses on Thai traditional massage, Ruesi Dud Ton (traditional stretch exercise).

Level 4 – Those that provide level 3 services AND also produce herbal medicines.

According to ITTM survey, in 2003 the numbers of health service facilities that provide any level of TTM services were as follows: -

Regional / General Hospitals	80/96	(83.3%)
Community Hospitals	492/726	(67.8%)
Health centers	2169/9683	(22.4%)

Regarding the national health security system, the types of TTM service covered by the UC Program at this moment are: -

1. The treatment and diagnosis with
 - 1.1 Thai traditional medicine
 - 1.2 Applied Thai traditional medicine
2. The treatment and rehabilitation with
 - 2.1 Traditional herbal medicines or traditional recipes composing of medicinal plant materials
 - 2.2 Therapeutic massage for treatment and rehabilitation
 - 2.3 Herbal steam bath for therapeutic purpose
 - 2.4 Hot herbal compress for therapeutic purpose

3. TRAINING AND EDUCATION

3.1 Training and education systems of TTM practitioners

The systematic teaching of TTM can be divided into three major educational systems, namely: -

1. The system that produces “**Thai traditional medicine practitioners**”. It is not required that a student must be a high school graduate. Under this educational system, the curriculum can be divided into one-year curriculum in traditional pharmacy involving the study of medicinal plants, animal parts and minerals that are used as medicinal ingredients. After finishing traditional pharmacy course, two more years are needed for the study of traditional medicine therapy. The schools that provide this educational systems are, e.g.

- ❑ **The Society of Schools of Traditional Medicine**
- ❑ **Institute of Thai Traditional Medicine and Thai Traditional Medicine Development Foundation**
- ❑ **Sirindhorn Public Health Institute**, Pitsanuloke province in the north
- ❑ **Thai Traditional Medicine Unit, Faculty of Medicine, Khon Kaen University** in the northeast.

The curricula on Thai traditional pharmacy as well as midwifery and Thai massage will be extended into two years very soon.

The training in this system can be either institutional training or by apprenticeship with an authorized licensed practitioner.

2. The system that produces “**Applied Thai traditional medicine practitioners**”. In this education system, the students must be high school graduates and in the three-year curriculum, the students must learn some basic life science knowledge, e.g. anatomy, physiology, biochemistry, and botany as prerequisite courses, together with the study of Thai traditional pharmacy and medicine. Applied TTM practitioners are allowed to use some simple modern medical equipment, e.g. stethoscope, thermometer, sphygmomanometer, for physical examination of the patients in order to better diagnose the patients and rule out if they have serious illness that require immediate modern medical treatment. However, they can prescribe only traditional medicines. The schools that produces “**Applied Thai traditional medicine practitioners**” are, e.g.

- **Ayurved Vidhayalai (Jevaka Komarapaj) College**, the first school that offer this form of education. The founder of this school is Professor Dr. Ouay Ketusingh, a renowned medical doctor who appreciated the value of TTM to the health of Thai people and contributed significantly to the revival of TTM into the country’s health care system again. The school has just been moved under the administration of the Faculty of Medicine, Siriraj Hospital and the curriculum has been adjusted to a Bachelor Degree level with more clinical practice training.
- **Raja Mongkol Technology Institute, Pathumthani campus**. This institute has offered three-year curriculum in TTM since 1999.

3. The system that produced the **practitioners with Bachelor Degree in Thai traditional medicine**. An increased interest in TTM and alternative medicine of Thai people prompted many universities and academic institutions to offer Bachelor degree education in TTM.

- **Maharakarm University**, Faculty of Pharmacy in Maharakarm province in the northeast of Thailand
- **Rangsit University**, Faculty of Oriental Medicine, a private university that teaches many life science courses along with TTM, oriental medicine and Ayurvedic medicine, as well as the science of herbal drug development and quality control.
- **Sukhothai Thammathirat Open University**, the first open university that offers the Bachelor degree course in TTM starting from August 2003.
- **Mahidol University**, Faculty of Medicine at Siriraj Hospital
- **Thammasat University**, Faculty of Medicine
- **Ramkhamhaeng Open University** the second open university that offers the Bachelor degree course in TTM starting from June 2004

3.2 Thai traditional medicine curricula of the Ministry of Public Health

On 26th August 2002, a Ministerial Decree on TTM curricula of the MOPH, consisting of eleven curricula in various fields of TTM, was issued. A person who finished the training based on any of these curricula is allowed to practice according to what he/she was trained for in a public healthcare facility under the supervision of a licensed practitioner or a modern doctor. The TTM curricula of the MOPH are as follows: -

1. Thai traditional medicine curriculum – in Thai traditional medicine
2. Thai traditional medicine curriculum – in Thai traditional pharmacy
3. Curriculum for Thai traditional medicine trainers
4. Thai traditional massage curriculum (372 hours)

5. Thai traditional massage curriculum (800 hours)
6. Curriculum on foot massage for health
7. Curriculum on foot massage for health for persons with visual disability
8. Thai traditional massage curriculum for persons with visual disability (1,200 hours)
9. Thai traditional massage curriculum for doctors in rehabilitation medicine
10. Curriculum on Thai traditional medicine for geriatric care
11. Curriculum on Thai traditional massage for health (“Nuad Chaleisak” or folk massage)

As a result of this Decree, many schools that teach TTM and private schools that teach Thai traditional massage have now adopted these curricula for their teaching.

3.3 Training and education in Thai traditional massage

Thai traditional massage is a branch TTM using manual therapy to treat several symptoms and diseases and for relaxation. Thai massage is now becoming popular and well known worldwide as spas and resorts all over the world are now offering Thai massage in their service menu; hence, Thai masseurs and masseuses are presently in great demand by global spa industry. With the concern of consumer safety in mind, DTAM together with the Department of Labour have therefore set up standard for Thai traditional massage based on the curricula of the MOPH, namely: -

Level I - Thai traditional massage for health and relaxation (150-hour curriculum)

Level II - Thai traditional massage for relieving symptoms (372-hour curriculum)

Level III - Thai traditional massage for therapeutic purpose (800-hour curriculum)

The second and the third curricula are the study of “Thai therapeutic massage”. The persons who finish these courses will be able to treat about 10 and 35 symptoms and diseases, respectively.

The TTM Professional Committee has developed and announced a two-year curriculum for Thai massage recently. The minimal training during the two-year period is 800 hours.

3.4 A curriculum for assistant TTM practitioners

On 15 February 2005, the TTM Professional Committee has developed and announced a training curriculum for a new category of personnel in TTM, an assistant TTM practitioner. It is a 330-hour curriculum that includes 230 hours of lecture and 100 hours of practice. The training must be conducted in an institute that meets the requirements of the Committee. So far there are 6 approved institutes

3.5 Dissemination of TTM knowledge to the public

Over the years, the Institute of Thai Traditional Medicine has disseminated the knowledge of Thai traditional medicine in various forms, e.g. books, VCD's, videos, posters, pamphlets, websites, etc., and distributed directly to the public, via all levels of hospitals and health service centers all over the country, and through different forms of media, e.g. radio, TV, newspapers, the Internet. In addition, the institute also presents TTM wisdom to the public in the forms of exhibition in various occasions locally and abroad.

Last year DTAM held “**The First Congress on Thai Traditional Medicine, Thai Indigenous Medicine, and Alternative Medicine**” commonly known to the public as “**The First National Exposition of Medicinal Plants**” at the IMPACT Exhibition and Convention Center in Bangkok during 1-5 September 2004. The exposition comprised of seven main activities, i.e. technical meetings (panel discussion and paper presentations),

short-course training, exhibitions of local culture and wisdom, medicinal plant garden, one-stop service for the development of herbal products, showcase of traditional medicine from foreign countries, and the sale of herbal products. The exposition was very successful with about 300,000 attendants, 3,685 people attending the technical meetings and 3,030 receiving short-course training.

In addition, as a consequence of the exposition, the MOPH appointed the Committee to formulate national strategy for the development of Thai traditional, indigenous and alternative medicine, that will lead to the changes and development of these fields of medicine at the strategic and implementation levels and from national to local levels.

4. PRODUCTS

4.1 Registration, quality control, safety monitoring

The registration of Thai traditional medicinal products, the licensing of Thai traditional medicine manufacturers, and post-marketing surveillance are the responsibility of Thai Food and Drug Administration (FDA), Ministry of Public Health. Herbal medicines that are prepared from single or several herbal materials into different dosage forms have to be registered with the FDA prior to manufacturing and selling. Medicinal plant materials or crude drugs are exempt from registration in order to make it easy for the public to use herbs for health care. Prior to the production of any traditional medicine, the manufacturers must apply for manufacturing licence from the FDA and have their manufacturing facilities well prepared and well equipped for the inspection by the FDA. Licensed manufacturers can then file for the registration of their traditional medicines prior to the production. The information submitted by the manufacturers for the registration of traditional medicines will then be considered by the subcommittees appointed by the Drug Committee.

Department of Medical Sciences plays a supportive role on the pre-marketing quality analysis of traditional medicines prior to issuing registration numbers. The analysis of registered traditional medicines, randomly sampled from the market by the FDA, was also periodically performed as a means of post-marketing surveillance of the quality of the products. Currently, GMP standard for the manufacture of traditional medicines is still on a voluntary basis; however, FDA requires that traditional medicines submitted for registration must pass the tests for microbial, heavy metal and pesticide residues contamination.

In addition, FDA also established an office that is a network of the Uppsala Monitoring Centre responsible for post-marketing surveillance of the safety of healthcare products including herbal products through Adverse Drug Reaction (ADR) report. If serious adverse drug reaction associated with the use of an herbal medicine occurs, healthcare personnel involved should send ADR report to FDA. After scrutinizing the data and causal relationship can be established, FDA may stop the sale and manufacturing of such product pending further toxicity study.

4.2 Types of registered herbal medicines

The cumulative number of traditional medicines locally produced and imported for human and veterinary use registered during 1983-2004 was over 10,000 preparations, of these, 5,816 were registered during 1983-2000.

FDA classified herbal medicinal products into four categories, namely: -

1. Traditional drugs. These are Thai traditional medicines or traditional Chinese medicine of which the indication, therapeutic claims, dosage and administration are based on traditional knowledge that have been passed on from generation to

generation or from traditional textbooks recognized by the ministerial regulation. The dosage forms of traditional drugs are not different from traditional dosage forms.

2. Modified traditional drugs. These are traditional medicines of which the indication, therapeutic claims, dosage and administration are based on traditional knowledge as in the first group but the dosage forms have been modified into modern dosage forms, e.g. capsules or tablets, for the ease of use and an increased compliance.

3. Modern herbal medicines or Phytopharmaceuticals. These are herbal medicinal products that are composed of active plant materials in the form of semi-purified compounds derived from scientific research and are classified as modern medicines. The indication, therapeutic claims, dosage and administration of herbal drugs are based on traditional knowledge as in the first two groups. This group of drugs is usually made of standardized herbal extracts prepared into various modern dosage forms.

4. New drugs. These are new drugs from herbs developed through complete drug development process and are in the form of purified isolated active substances of which the chemical structures were identified as new chemical entities; hence, this group of drugs is classified as modern medicines.

According to this classification, Thai traditional medicines fall into the first three categories of herbal medicinal products.

4.3 Government policy on the promotion of Thai herbal products industry

Thai governments have recognized the importance of herbal products on the health of Thai people and the economy due to the increased demand of domestic and global market. The government therefore appointed the “*Committee for the Development of Herbal Products Industry*” headed by the Minister of Public Health on 10 April 2001. The Committee and its subcommittees then formulated the “**Strategic Plan for the Development of Herbal Products Industry**” for the years 2005-2009, which was approved as the national strategic plan by the Cabinet on 29 June 2004. The strategic plan is divided into 8 areas, i.e. R&D, production of quality raw materials, standards and quality control, improvement of the manufacturing standards, marketing, amending the laws, knowledge management, and collaborative mechanism. The plan identifies the government offices from different ministries and universities to be responsible for the implementation of the plan to achieve the goals of each area of development, while the Department of Medical Sciences, Ministry of Public Health serves as the coordinating center. Under the plan, eleven medicinal plants and one herbal preparation are chosen as the target of research and development into new herbal products. They are turmeric, mulberry, roselle, pepper, *Centella asiatica*, *Andrographis paniculata*, *Senna alata*, *Zingiber cassumunar*, *Garcinia atroviridis*, *Kaempferia parviflora*, *Pueraria cadollei* var. *mirifica*, and herbal compress.

4.4 The production of herbal medicines by pharmaceutical industry and hospitals

As the recommendation of medicinal plants for PHC has increased public awareness of the health benefit of Thai herbs, together with the ‘back to the nature’ global trend during the past ten years, the demand for Thai herbal medicines have significantly increased. Traditional medicine manufacturers, Government Pharmaceutical Organization, and some hospitals have therefore developed single herbal medicines into easy-to-use dosage forms, e.g. capsule, tablet, or tea bag, to satisfy consumer’s demand. The total number of Thai traditional medicine manufacturers increased by 39.8% from 616 in 1997 to 861 in 2003, of which 279 were in Bangkok 582 were located in other provinces. Table 1 shows the increased number of registered traditional medicines and the annual production value of traditional medicines during 1994-2001.

Table 1: Number of locally produced traditional medicines for humans registered and the production value of traditional medicines for humans during 1994-2001.

Year	Number of locally produced traditional medicines for humans registered annually	Production value of traditional medicine for humans (Million Bahts)
1994	141	414.862
1995	175	303.548
1996	248	318.205
1997	199	251.808
1998	492	484.998
1999	444	548.266
2000	422	675.337
2001	637	736.906

In 2001 the production value of traditional medicines for humans (736.906 million bahts) was only about 3.2% of that of *locally made* modern medicines (23,087.899 million bahts) and about 3.7% imported value of *imported* modern medicine for humans (19,967.635 million bahts). Meanwhile the imported value of traditional medicines for humans in the same year was 146.584 million bahts; therefore, the production and imported values of traditional medicines were only 2% of those of modern medicines. This is partly because most of the traditional medicine manufacturers in Thailand are small to medium scale and only a few are large-scale industry. Therefore, both the public and private sectors still have a lot of work to do to improve this industry and to encourage doctors to prescribe more herbal medicines in place of modern medicines, where appropriate.

Regarding the production of herbal medicine by hospitals, as of 2000 there were 168 community hospitals, 22 health centers and 7 regional/general hospitals that produced herbal medicines and other herbal products to serve the community and nearby hospitals in their region. More than 35 medicinal plants are currently made into the forms of capsules, herbal teas, and external preparations for the treatment of various symptoms and diseases by these hospitals. In some cases, raw materials for the production are grown and processed by people in the nearby communities via contract farming according to the specifications set by the hospitals. Hence, the production of herbal medicines not only generates income for the hospitals but also helps create job, income, and self-reliance on healthcare for the community.

5. RESEARCH

5.1 *Committee on R&D of herbal products*

According to the policies of the National Research Council of Thailand (NRCT) and the Ministry of Public Health, researches on the body of knowledge of TTM and R&D of new herbal drugs from medicinal plants are regarded as another important area of health research of the country. The present government clearly stated that collaborative research projects that pool experienced researchers and resources from various research institutes and are product-oriented and complete-cycled in nature will be given higher priority for funding over basic researches. Hence, last year many medium-term, collaborative research projects on the development of new herbal drugs from medicinal plants were submitted to NRCT for approval in order to receive research funding in the fiscal year 2005. NRCT appointed a subcommittee consisting of experienced academics and researchers to look over the scientific merit, feasibility, cost effectiveness and the

outcome of those submitted research projects. As a result, it is expected that more modern natural product-derived medicines will be available as an alternative of chemical-based medicines for Thai people and for export in the near future.

Regarding the conduct of clinical research to determine the efficacy and safety of traditional or alternative medicine therapies or therapeutic efficacy of traditional or herbal medicines in human, the Ministry of Public Health appointed on April 21, 2003 the “*Ethics Committee for Research in Human Subjects in the Field of Thai Traditional and Alternative Medicine*”. Researchers who wish to conduct clinical study on herbal medicines or traditional or alternative therapy in human must submit clinical trial protocol to receive the permission from this Ethics Committee, of which DTAM serves as the secretariat office, prior to conducting the study. The committee developed its own guideline and also follows WHO guidelines on evaluation of traditional medicine and GCP guidelines when considering the clinical trial protocols. GCP is the gold standard for conducting clinical trial on traditional medicine in humans in Thailand.

In addition, under the “**Committee for the Development of Herbal Products Industry**” appointed by the present government and chaired by the Minister of Public Health, there is a “Subcommittee on Research and Development of Medicinal Plants” that are involved in formulating the policy on the research and development of selected medicinal plants to support the needs of the herbal products industry.

5.2 Institutes conducting research on medicinal plants to develop new herbal products

Since 1977, Thai government has broadly stated in the country’s public health policy to promote research and development of medicinal plants in order to increase their use in the health care system and reduce the import of modern medicine to help the country’s economy. Therefore, several research and academic institutes in Thailand have been active in researches on medicinal plants to develop into the easy-to-use modern dosage forms and to establish the efficacy, safety and quality of the herbal products. Those research institutes are for example: -

- **Medicinal Plant Research Institute**, Department of Medical Sciences, Ministry of Public Health, which is capable of conducting complete-cycle research on medicinal plants,
- **Research and Development Institute**, Government Pharmaceutical Organization, the government enterprise under the Ministry of Public Health,
- **Institute of Thai Traditional Medicine** under DTAM, MOPH
- **Thailand Institute of Scientific and Technological Research (TISTR)**, a government enterprise under the Ministry of Science and Technology, and
- **Schools of Pharmacy of most state-run universities** and of some private universities.
- **National Center for Genetic Engineering and Biotechnology (BIOTEC)** under the Ministry of Science and Technology.

CONCLUSION

As the role of TTM in the Thai health care system was interrupted for about 60 years from the mid 1910s to the late 1970s, successful reintroduction and integration of TTM into the health service system again therefore requires the acceptance of the safety and efficacy of TTM by healthcare personnel. Hence, it is necessary to conduct good clinical researches to determine the safety and efficacy of TTM therapies or traditional or herbal medicines in patients. The Appointment of the “*Ethics Committee for Research*

in Human Subjects in the Field of Thai Traditional and Alternative Medicine” by the MOPH, Thailand should serve as a good example of a significant role that the Ministry of Health can play to build up strong evidence-based medicine for traditional medicine required for its successful integration into the mainstream health care system.

It is well known that the issues of the protection of traditional knowledge (TK) and genetic resources and the equitable sharing of the benefits derived from TK and genetic resources are currently being in hot debate between developed and developing countries in both CBD (Convention on Biodiversity) and WIPO (World Intellectual Property Organization) arenas. Thailand was at the forefront to make the first move to draft and issue a *sui generis* law to protect her TK and genetic resources called “**the Protection and Promotion of Thai Traditional Medicine Wisdom Act B.E. 2542**” in 2000. This Act should provide a good lesson for other SEAR countries to learn from in an attempt to protect our TK and valuable indigenous medicinal plants from bio-piracy.

Finally, similar to other countries in SEAR, Thailand has a national policy to integrate traditional medicine into the mainstream health care system. The integration process requires the strengthening of the body of knowledge of TTM, human resource development in the field of TTM, the development of quality herbal medicinal products, and the commitment and financial support from the government. All of these can be achieved by good administration, information system on TTM, research and development, certified educational system and training curricula, and good collaboration among concerned institutes and organizations in both national and international levels.